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WOMEN IN THE CONSTRUCTION LABOR FORCE
Women's Participation in the Construction Sector in India

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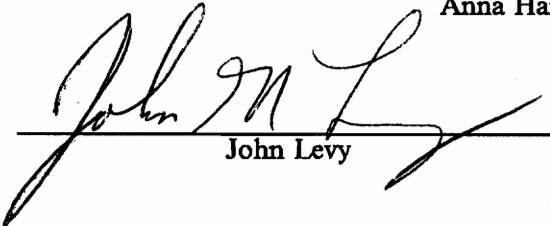
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(ABSTRACT)

Women are to be seen on most urban construction sites in India. While there is variation between countries as to how many women are employed as workers in construction, they are consistently confined to unskilled and low-paying jobs. We found little empirical work dealing with the factors that bring about and perpetuate the division of labor by gender on construction sites in India and elsewhere. This paper therefore attempts to identify the factors which make possible the participation of women in construction activity in India and which serve to perpetuate the division of labor that keeps women working at unskilled jobs. It argues that the structure of the construction industry in India and especially the practice of subcontracting provide incentives that make it attractive for employers to maintain women as a labor reserve to be used at certain periods of construction and to do tasks that men may refuse to do.

This paper proposes that the subcontracting unit plays a central role in the level of skills of women workers. Subcontractors have little interest in increasing worker productivity. Since most members of the subcontracting unit including the subcontractor come from the same village and social setting, traditional norms defining the roles of men and women tend to be reinforced in the urban setting.

The study is based on an extensive literature review and a field study involving interviews with twenty-three women workers on two construction sites in and near Bombay, India. The analysis

of the data thus collected corroborates much of the information that was obtained through the literature review.

- Most of the women are unskilled workers
- Most of the women are associational migrants who came from rural areas and continue to maintain strong links with their native village.
- The influence of the subcontracting unit is seen in the presence of several families from the same village on the construction sites and in the reports of several women saying that they had been recruited by an agent.
- Experience does not give any occupational mobility to the women workers.

There have been few efforts to train women in construction skills. In the case of India, migrant households are likely to continue to be hired on urban construction sites. If mechanization increases, it is the women in the unskilled work force who are most likely to be displaced. To prevent this, it is important to equip the women with skills. Efforts to increase the women's level of skills should be initiated at the level of the subcontracting unit. Policies should therefore be directed towards providing incentives for subcontractors to create a skilled female work force.

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1. INTRODUCTION

In India, women are employed on most construction sites. It is common to see women carrying headloads of brick and earth, often carrying young children in one arm. It is traditionally considered to be inappropriate for women to work outside the house as wage earners in India. This is reflected in the total labor force participation of women in India as compared to that in other developing countries. "... (women) accounted for 17.35 percent of the total work force ... These figures contrast with higher rates of work force participation for women in other countries of Asia: Over 40 percent of the work force is female in Japan, Thailand and the Philippines,"¹ Hence, the occurrence of female labor in the construction sector in India may seem to be rather unusual.

A closer examination of the structure of the construction labor force shows a well defined, albeit unwritten code defining the division of labor between men and women. Even though it is common to see women laborers in India doing unskilled tasks such as carrying headloads, sweeping and cleaning, and breaking stones, it is rare to see a woman mason or carpenter. It is perfectly acceptable to the Indian woman to be an assistant to a male bricklayer, a job that women in other countries would consider to be unsuitable.² In many developed and developing countries, the pro-

¹ Lebra and Paulson, 1984, p. 20, 21.

² Boserup, 1975, p.102.

portion of women working on construction sites is almost negligible. Some of the literature on the construction sector in India deals with the participation of women in the labor force and with the difficulties they face because of the hard physical labor they perform. This paper sets out to add another dimension to our knowledge of the role of women in the construction process in India.

The labor force on a construction site includes more unskilled labor than skilled labor. The unskilled labor force consists of both men and women. However, virtually all the skilled workers are males. Women are almost exclusively unskilled workers. This paper attempts to identify factors that explain the willingness of women to work as unskilled laborers on construction sites, and their acceptance of the limited avenues for job mobility available to them.

The number of women workers in the construction sector varies from country to country. Only 0.008 per cent of the construction labor force in Bahrain in 1989 consisted of women, while the comparable figure for China was 21.31.³ Arizpe's study of women's participation in informal sector activities in Mexico city shows that women are totally excluded from the construction labor force.⁴ In spite of variation between countries, it is clear that the majority of the construction labor force is predominantly male.

Table 1 depicts the trends of female participation in the construction work force over the last decade. The countries have been selected with a view to representing a wide range of countries for the purpose of comparison. Both high and low income countries have been included. It is interesting to see the variation in female participation in neighbouring countries such as India, Pakistan and Sri Lanka which have comparable levels of GNP. 1985 figures for these countries are 5.10, 0.53 and 7.8 respectively for these countries, as shown in Table 1. Cultural differences may account for this variation. There is likely to be some underestimation in the figures since an evaluation of census data for India for the decade 1971-1981 shows that female intensity in the construction work

³ ILO, 1989-90.

⁴ Arizpe, 1977, p. 32

force was around 10 percent during this decade.⁵ This difference may be partly attributed to different categorization of labor. For instance, employment in the construction sector may include workers in all subsectors of the industry. Another source of variation is the possibility that women are likely to be employed in greater numbers at certain stages of construction such as concreting, which involves the pouring of concrete in forms. It is important to complete this entire operation within a limited amount of time in order to prevent the concrete from setting before the entire area is covered.

The role of women in the construction process needs to be understood in the context of the structure of the labor force, the patterns of migration and the socio-economic and cultural background of the migrant workers. The construction labor force in India consists predominantly of migrant households. Another influencing factor is the employer's requirements for skilled and unskilled labor and employment preferences based on this requirement. This chapter sets out the problem addressed in this paper regarding the nature of women's work in construction in India and other developing countries and briefly describes the methodology and data sources used for the study.

1.1 The Problem

Our study deals with women's contribution in the construction process. There have been few studies, if any dealing with questions such as: Who are these women? Where do they come from? and What keeps them working as unskilled laborers in construction? We attempt to examine these questions in our study.

This study also addresses the issue of women's skills in the construction sector. We propose that it is the structure of the construction industry and particularly, the practice of subcontracting that

⁵ Mitra, Mudhopadhyay, 1989 p. 523

makes possible the employment of women and perpetuates their role as marginal workers in the construction industry. Several studies have indicated that there may be certain disincentives to employers associated with the hiring of women. We argue that in the case of India, it is attractive for employers to employ a female labor force that serves as a reserve that can be used at particular phases in construction to perform jobs that male laborers may refuse to do. Regulations regarding the hiring of women may seem to put additional financial burdens on employers. In the construction industry in India, they do not serve as disincentives to hiring women, since many of these regulations are not adequately enforced.

This study addresses the issues discussed above by looking at the organization of the construction industry, the economic and social aspects of women's work in construction and the role of subcontracting on the organization of work on a construction site.

1.2 Structure of the construction Labor Force in India

Labor is an important component of the construction process. It is one of the most important resource inputs in construction (19 to 27 per cent of the total value of output), second only to materials which may constitute 37 to 55 per cent of the total value of the output.⁶ The particular mix of resource inputs in a construction project depends on the relative costs of labour and capital inputs (materials and equipment). Other influencing factors include the type of project and scale of construction. Traditionally, construction has been a relatively labor intensive activity, even in developed countries. In spite of the recent trend towards capital intensive production, it has been suggested that in many developing countries, labor intensive means of production are more suitable for the construction industry as compared to capital intensive production. This is because the cost

⁶ Moavendazeh, 1987, p.90

of labor tends to be lower than the cost of equipment, which often needs to be imported in developing countries.⁷

A study conducted by the United Nations Centre for Human Settlements reports that available data reinforces the observation that indigenous construction industries in developing countries tend to rely more heavily on labor intensive methods of construction.⁸ Labor intensive production has a higher capacity to absorb unskilled labor which is very abundant in developing countries.

The urban construction labor force in India consists mainly of rural-urban migrants, who migrate to the city as nuclear families. Most of the adults in the household work on the construction site. Construction labor could thus be described as family labor. Most of the migrant workers are casual laborers, but are assured of a modicum of employment security by the mukaddam or recruiting agent. He is generally able to maintain a steady flow of employment opportunities through contacts with several contractors on different construction sites. Women constitute a sizeable part of this migrant labor force. They are generally part of an entire family including children and elders engaged as laborers on a construction site.⁹ Thus, they are primarily associational migrants whose motivation to work as construction laborers comes from adverse economic conditions. Their work on site consists of "...lifting earth loads, cutting soil, carrying water, bricks, mortar, cement, stones, sand, crushing bricks, mixing cement (sometimes) and other menial jobs."¹⁰

The characteristics of most casual women workers in the construction sector seem to fit in with some of the popular notions about informal sector workers. Employment is relatively easy to obtain, the methods of production are labor intensive and the production process utilizes family labor. Thus, although the construction industry may be a part of the 'formal' sector, it includes elements of the informal sector as well. The close link between the formal and the informal sector is reflected

⁷ Moavendazeh, 1987, p.90

⁸ UNCHS, 1984, p.205

⁹ Manohar, Shobha, Rao, 1981, p.97

¹⁰ Manohar, Shobha, Rao, 1981, p.97

in practices such as subcontracting and hiring casual labor. This "...flexibility in hiring and firing"¹¹ is particularly attractive for the construction industry because construction activity is subject to seasonal fluctuations. Many of these structural characteristics of the construction industry in India are common to those in other developing and developed countries.

Entry to the informal sector is seen by many recent migrants to the city as a foothold into the urban labor market and is viewed as a transitory phase before entry can be gained to the formal labor market. In addition, Todaro argues that one of the recognized advantages of the informal sector is the possibility of creating human capital by the provision of access to training and apprenticeships at lower costs than comparable opportunities in the formal sector.¹² In the case of migrant construction workers, many male workers do get access to skilled tasks such as masonry and carpentry. However, these skills do not always ensure steady employment and regular wages characteristic of formal sector employment. In the case of women construction workers, even the acquisition of skills is difficult. Thus, in spite of the fact that the female intensity in the construction workforce has marginally increased in India, very few women graduate to semi-skilled or skilled jobs.¹³ It is surprising that the construction industry has not exploited the labor resource of women for skilled tasks in spite of the professed need for additional skilled labor.¹⁴

1.3 Outline of the Study

The problem set out in this paper is discussed by using the theoretical framework provided in the theories of development especially in the context of developing countries. We have drawn extensively from the available literature and labor statistics. A large part of the data for this study is

¹¹ Portes and Benton, 1984, p.598

¹² Todaro, 1989, pp 237-262

¹³ Mitra, Mukhopadhyay, 1989, p.528

¹⁴ UNCHS, 1984, p.204

drawn from a field study conducted in December 1990. The study involved conducting interviews with twenty-three women construction workers on two construction sites in and near Bombay. Another major data resource is the report of a survey conducted for the Mobile Creches on several sites in Bombay in 1987. Although the aim of the study was to "...identify new thrusts for the Mobile Creches", which conducts educational and health programs for the children of construction workers, much of the data is relevant to this study.

Chapter 2 will contain a theoretical analysis of the role of women in construction. This analysis has been substantiated by evidence from several developing countries. This comparative approach is especially important because it is rare to find that the division of labor based on sex is related to the natural differences between the sexes.¹⁵ We will examine each aspect of this analysis in greater detail for the specific case of the construction industry in India.

Chapter 3 will contain an analysis of the field study conducted in Bombay along with the findings of the Mobile Creche study. We will discuss three major aspects: The design of the field study, a presentation and analysis of the findings and the relationship between the findings of the field study and the theoretical analysis.

Chapter 4 will summarize the findings of the study and conclude with a discussion of the implications for action and policy based on these findings.

¹⁵ Boserup, 1975, p.102

Table 1. Employment Trends in the Construction Sector

COUNTRY	1980		1985		1988	
	Male	Female	Male	Female	Male	Female
India	94.40	5.60	94.90	5.10	94.80 (1986)	5.20 (1986)
Pakistan	na	na	99.50	0.53	98.50	1.50
Sri Lanka	90.25	9.75	92.20	7.80	93.08 (1986)	6.92 (1986)
Niger	97.74	2.26	95.91	4.09	98.10	1.90
Jamaica	97.20	2.80	98.51	1.49	98.23 (1987)	1.77 (1987)
China	na	na	79.43	20.57	79.41	20.59
Singapore	90.89	9.11	91.63	8.37	93.40	6.60
USA	91.99	8.01	91.17	8.83	90.74	9.26

Source: ILO, 1989-90

2. WOMEN'S WORK IN CONSTRUCTION

2.1 Introduction

The extent and type of women's work on construction sites is likely to be influenced by the economic level of the country, the organization of the construction sector, the cultural norms governing the role of women in production activities and the type of construction projects. Where women do work in construction, they are relegated to unskilled tasks in the construction process. This chapter examines the participation of women in construction activity in selected countries and seeks to identify the factors responsible for the existing organization of the work force on construction sites. The selection of countries is based on the availability of data. The analysis draws from the available literature and statistical data. Another source of information is the report of a study conducted by the Mobile Creches, a voluntary organization in India that conducts educational and health programs for the children of migrant construction workers. Since our study deals with women's work in the construction sector in India, we present a more detailed analysis of the factors relating to the specific case of India. The analysis is supported by examples from several developing countries found in the existing literature.

Evidence from some developing countries and from India in particular suggests that the role of the subcontractor or gang leader in the construction force is central to the division of labor on construction sites. The structure of the construction industry and the nature of production provide the background for the evaluation of factors influencing the organization of work on construction sites. They are discussed in the first section of this chapter. Each section in this chapter provides both an overview of the situation in developing countries in general and a more detailed discussion of the situation in the construction industry in India. The chapter describes the socio-economic characteristics of the construction labor force in India, the role played by women in the construction industry and the organization of the work force on construction sites. Section 2.6 analyses the influence of the subcontracting unit on women's participation in construction activity. The final section is a summary of the findings of this analysis.

2.2 Several Characteristics of the Construction Industry

The Nature of Production

The production process in the construction sector in most countries varies from that in other industries in ways which influence both the production process and the organization of the construction labor force. The production process in construction is carried out on individual sites, not in a centralized plant. Thus, there is very little scope for mass production and storage of goods for future consumption as in other industries. Production in the construction industry is therefore more sensitive to current demand. Demand depends upon prevailing economic conditions and tends to vary seasonally. In fact, the uncertainty of demand is partly responsible for the unique organization of the work force in the construction industry.

Production in the construction sector is carried out at all but the smallest sites by several individual firms and workers whose collaboration lasts only till the end of a particular project.¹⁶ However, informal collaborations do exist in practice, since many subcontractors depend on their informal network of contractors to maintain continuity of employment for themselves and their workforce.

The demand for repairs and maintenance of the existing built stock provides a source of employment when new construction activity is slow. In many developing countries, however, this source of demand has not been exploited. There is very little investment in the maintenance of the existing building stock.¹⁷

The technologies of building construction are very flexible. Various combinations of capital and labor can be employed to achieve the same product.¹⁸ In most developing countries, industries use labor-intensive methods of construction more than equipment-intensive methods. Mechanization of construction operations may not be viable if the equipment is not used to its full capacity. Since the demand for construction is more unstable in developing countries, mechanization may not yield substantial savings. Labor productivity tends to be higher in developed countries because the capital inputs are higher and because a larger part of the work force is skilled. Labor productivity may be measured as the output per man-hour¹⁹ The amount of labor required for producing an additional unit of output decreases as labor productivity increases. The total productivity of the process depends not only on labor productivity, but also on capital productivity. Thus in many developing countries, the lack of capital may be reflected in lower labor productivity, but labor intensive construction under these conditions has a higher capital productivity and is therefore preferred by most contractors.

Organization of the Construction Industry in Developing Countries

¹⁶ Moavenzadeh, 1987, p.75

¹⁷ Moavenzadeh, 1987, p.89

¹⁸ Moavenzadeh, 1987, p.91

¹⁹ Cassimatis, 1969, p.79

The construction industry in most developed and developing countries consists mainly of small firms employing less than twenty-five persons per firm. In fact, small firms, including one-man firms and family concerns are reported to account for over 90 per cent of all construction firms in practically all countries.²⁰ In developing countries informal sector participation is more widespread in construction as seen in studies conducted in Kenya and the Ivory Coast.²¹ In many developing countries, even the formal sector is less regulated.²² The presence of small firms is a rational response to the fluctuating demand for construction and the subsequent difficulties in maintaining a large, permanent work force.

The practice of subcontracting in the construction industry has been prevalent in both developed and developing countries. This practice may also be considered to be the industry's way of adapting to the uncertain demand for construction. Subcontracting has been reported in several countries such as Japan (Ganesan, 1983), India (Mobile Creches, 1987 and field work, 1990) and Jamaica (McLeod, 1898). Subcontracting in developed countries has tended to include a higher percentage of work groups performing specialized tasks headed by special trades contractors in addition to general subcontracting.²³ On the other hand, a large number of small contractors in developing countries serve solely as labor suppliers to the main contractor.²⁴

The majority of workers on construction sites in developing countries are unskilled or semi-skilled.²⁵ Most of the women employed are unskilled workers. Wage rates are lower for unskilled labor. Moreover, the lack of unionization in developing countries serves to keep wage rates lower. In contrast to the case of developing countries, the work force in developed countries includes a higher percentage of skilled workers. Wage rates are consequently higher. In addition, the

²⁰ Ganesan, 1983, p.187

²¹ UNCHS, Habitat, p.200.

²² Moavenzadeh, 1987, p.78

²³ Cassimatis, 1969, p.45

²⁴ Portes and Benton, 1984, p.599

²⁵ UNCHS, Habitat, p.204

degree of unionization is higher in developed countries. In the USA, 80 percent of the construction workers are reported to be members of labor unions.²⁶ Higher wage rates serve as compensation for workers during periods of unemployment since the nature of employment in construction tends to be of a temporary nature. Even in developing countries, wages in construction are higher as compared to other unskilled jobs such as domestic work, although they may be lower than wages in other industries.

Skills in the construction industry are mainly acquired through apprenticeships and on-the-job training in many developing countries. There are very few formal programs offering training in construction skills.

Most of the characteristics of the construction industry discussed above are relevant to the case of India. The structure of the construction industry in India can be better explained in terms of the roles of the major actors in the sector. Since we are dealing with the organization of labor on construction sites, we will limit our discussion to those actors who are concerned with work on construction sites. We examine the nature of the relationship between these actors, the length of association as well as the construction technology typically used on urban construction sites in India.

Contractors, subcontractors and builders can be considered to be the main categories of employers in the construction industry in India. Contractors usually head small or large construction firms. They submit tenders and compete for construction contracts. However, the distinction between small and large firms is not reflected in the number of employees as in other industries. Both small and large firms tend to employ a very small permanent staff. The difference may be reflected in the size and number of contracts. Contractors depend upon subcontractors for their labor requirements.

As in the case of other developing countries, subcontracting is common in India. Subcontractors in India are mainly labor suppliers and serve as middlemen in the construction industry. They are

²⁶ Cassimatis, 1969, p.18

liasons between the contractor and the work force on construction sites and serve as supervisors for their band of workers. Subcontractors may also directly work for clients who require labor and who may prefer to supply the material and designs themselves.

Builders are mainly associated with the housing market and can be described as speculative contractors, who build houses for sale. Their activities more closely resemble those of other industries. Many builders in urban areas may be one time contractors who diversified activities to include speculative housing. Builders who are established in the industry may employ a larger staff including architects, engineers as well as contractors and subcontractors. Figure 1 illustrates the possible relationships between these important actors in the construction sector. Most of the associations illustrated in Figure 1(A) are limited to one project, whereas, those illustrated in Figure 1(B) are likely to be more permanent in nature.

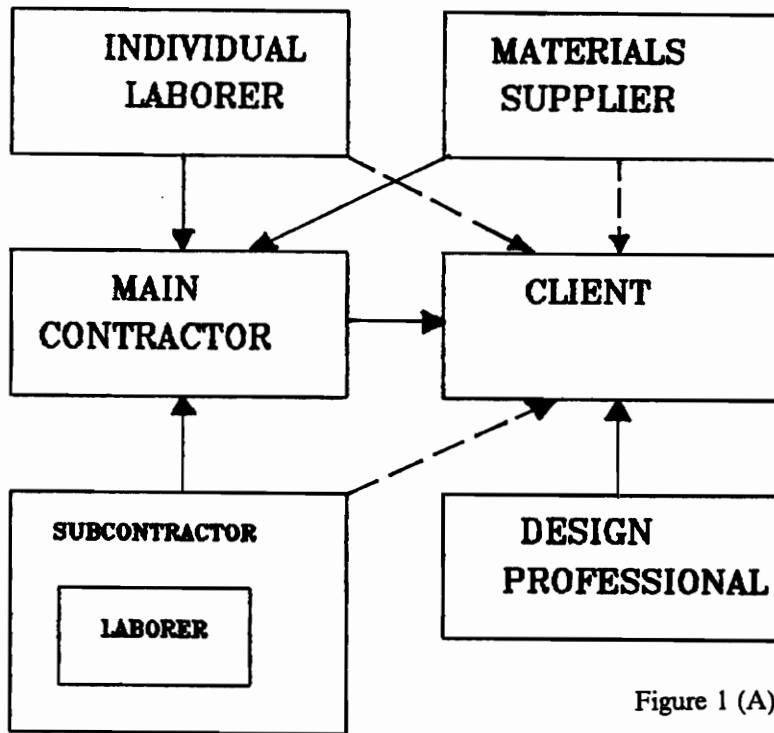


Figure 1 (A)

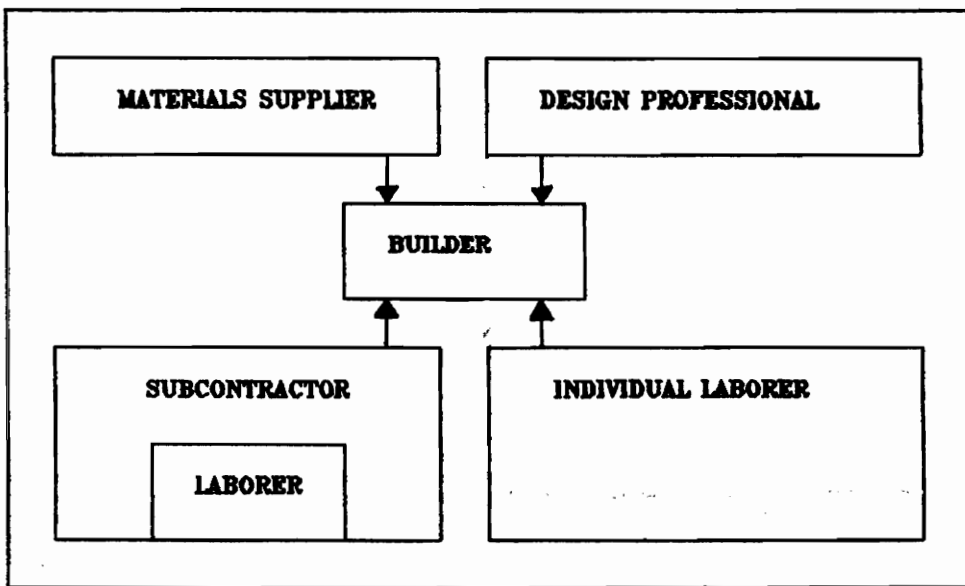


Figure 1 (B)

Figure 1: Types of Collaborations in the Construction Sector in India

Laborers are generally employed through their subcontractor. Very few laborers are employed directly by the contractor. In fact, many of the laborers may not have any contact with the main contractor and may not even be aware of who pays them their wages.²⁷

Construction work on site requires a different mix of skilled and unskilled workers for each stage of construction. Contractors generally depend on subcontractors for the provision of labor. Laborers are employed on a daily basis, thus making it possible for contractors to employ just as many workers as are required for site work on a particular day. Unskilled work is available at all stages of construction, but is in greater demand when masonry work commences. Unskilled work consists mainly of carrying loads of bricks, concrete blocks or mortar to the master masons. Head carrying is the most widely used mode of transportation even for three to four storey high buildings. During excavation, unskilled labor is used to carry earth loads.

The demand for other skilled labor coincides with the stage of masonry construction or concreting. Skilled work such as tiling, fitting and welding is carried out simultaneously with masonry or concreting in different parts of the building. During these operations, unskilled laborers serve as helpers to the skilled workers.

Jobs on construction sites include tasks related directly and indirectly to actual construction activity. The study conducted by the Mobile Creches lists these occupation in five major occupation categories. These are depicted in Appendix 1. It is interesting to see that the occupations of Mukkaddam and Thekedar²⁸ are included in the unskilled category. These are the various terms used to represent the recruiting agent. His role as site manager requires some managerial skills, even if these are not acquired through formal training. The acknowledgement of these skills may be reflected in the higher wages of recruiting agents as compared to those of the mud and brick carriers Table 2 depicts the composition of the work force. The figures are based on the data in Appendix 1.

²⁷ Mobile Creches, 1987.

²⁸ Terms used to describe the subcontractor in India

The composition of the work force also changes according the type of construction project. The data presented in Table 2.1 is based on the composition of the work force on residential and commercial sites. It can be expected that industrial sites would employ a higher percentage of skilled labor for steel construction.

2.3 Characteristics of the Construction Labor Force in India

Having discussed some major characteristics of the structure of the work force on construction sites, we now turn our focus to the socio-economic characteristics of the laborers. Since many of the construction laborers in India are rural-urban migrants, the discussion deals mainly with the nature of migration and its relationship to the participation of women in construction activity.

Migration Patterns and the Participation of Women

A large part of the urban construction work force in India is drawn from the pool of migrants to the city.²⁹ Studies conducted in several parts of India show that migration patterns are different in different regions in India and are related to the participation of women in the construction sector.³⁰ The construction labor force may be described as one which does not settle down in the city. The nature of migration can be either temporary (referring to the shifting of work sites), or seasonal. Seasonal migration has been reported in a study of construction workers in Jullunder and East Champaran.³¹ The construction labor force in Bombay was reported to have a high concentration of recent migrants.³²

²⁹ ILO, 1983, p.12

³⁰ Gill, I., 1984; Mobile Creches, 1987; Bapat and Crook, 1988

³¹ Gill, I., 1984

³² Joshi and Joshi, 1976, p.140

These studies suggest that there are three categories of migrant workers in the construction labor force in India. The first consists of migrant households living and working on the site. These tend to have a higher proportion of women workers. Workers in the second category may be called commuting laborers. This category consists of laborers commuting from nearby areas to the construction site. They may also be recent migrants to the city, but are more likely to be casual laborers who seek jobs in several types of unskilled tasks on a daily or short term basis. The third type consists of seasonal migrants who alternate during the year between construction and agricultural activity. Although laborers in the first category may also be part time agricultural workers, their participation in agricultural activity is generally restricted to times when it is difficult to get employment in construction. The third type of labor force consists predominantly of male workers, possibly a result of the temporary nature of work. We will now discuss each of these categories in greater detail.

Joshi and Joshi discuss the graduation hypothesis in their analysis of surplus labor in the city of Bombay in India to explain the concentration of recent migrants in the construction work force.³³ Workers are expected to graduate from primary sector occupations, construction and services to organized jobs over a period of time. The evidence for this type of mobility is based on the 1961 Census of India. The graduation hypothesis is similar to Todaro's discussion in which informal sector occupations such as casual labor in construction serve as footholds from which new migrants gain access to formal sector jobs.³⁴ However, in the case of Bombay, there is little evidence for this kind of mobility. A survey conducted in 1963³⁵ reports that over 80 per cent of migrants remained in the same industry and occupation that they had started out in when they migrated to Bombay. Greater mobility was reported among occupations such as unskilled labor, shop assistance and small scale retailing, but the number of cases was small and hence the evidence for occupational mobility was found to be inconclusive. The shifting nature of employment from one construction

³³ Joshi and Joshi; 1976, p.134

³⁴ Todaro, 1989, p.270

³⁵ Lakdawala, D.T., et al quoted in Joshi and Joshi, 1976, p.134

site to another is therefore a more likely explanation for the large proportion of recent migrants in the construction work force.

The presence of women in the urban work force in India seems to be related to the migration of the male members of the household. According to the 1961 census analysis,³⁶ male migrants bring their wives from the village after they have been able to consolidate their economic position in the city. This study also reports that the labor participation rates of female labor tend to be low. However, in the case of migrant construction workers living on construction sites, the labor force participation rates of women may be much higher, since employment is available for both men and women.

A study conducted by the Mobile Creches in Bombay³⁷ found that only 1.05 per cent of the females in migrant households were reported to be unemployed. This is comparable to the figure of 1.08 per cent of unemployed males in these households. The ratio of males to females in the households included in this study was only slightly biased in favor of males. (55% to 45%)³⁸ Thus, the structure of the construction work force in urban areas seems to be different from that of the migrant work force in other urban occupations. Most women on construction sites can be described as associational migrants. However, a description of construction workers in West Bengal in east India³⁹ suggests that deserted or single women may be included even among this category of migrant construction workers. These women cannot be considered as associational migrants since they are themselves heads of households who have migrated to the city on their own.

The second type of migrant labor on construction sites can be described as a commuting labor force. A study conducted on six hundred households in seven shanty settlements in Pune, a city in the state of Maharashtra in India reports that in 1976, "...the households that were most likely to

³⁶ Lakdawala, D.T. et al quoted in Joshi and Joshi, 1976, p.146

³⁷ Mobile Creches, 1987, p.20

³⁸ Mobile Creches, 1987, p.3

³⁹ Ghosh, 1984, p. 209

send their women out to work over the next four years were on the whole the poorest households."⁴⁰ These shanty settlements consisted of 'distress migrants' who migrated to the city following the draughts of 1972-73. Some of the women in these settlements were employed as casual laborers on construction sites. However, there is no detailed information regarding the nature of employment in construction or the occupations of the male members of these households. Thus, additional research will be needed in order to draw any inference about the graduation hypothesis and about the comparative participation of men and women in the construction work force, in the context of this labor force.

The third type of organization of the migrant work force is described in a study of migrants in Jullunder in Punjab.⁴¹ This is an illustration of seasonal work in construction and agriculture performed by the same set of laborers. "...The migrant labor pool is common for agriculture and construction: both sectors use manpower from the surplus labor force in rural Bihar."⁴² The study traces the geographical and time characteristics of this migration. Perceived wage differentials in Punjab and Bihar and the relative prosperity of Punjab draws a large unskilled labor force from the Champaran district of Bihar to Jullunder in Punjab. This labor force works for short periods during the year as agricultural and construction laborers. It has been reported that in this category of construction workers, male workers outnumber women by a large margin.

Most male migrants (except seasonal migrants) living on a construction site are married and may have one or two children.⁴³ Migrating households are generally nuclear families whose female members are participants in the construction labor force. In the Mobile Creches study, only 38 per cent of the women in such households were reported to be housewives, not engaged in any income earning activity. A majority of women above the age of sixteen are married (96%). Even though

⁴⁰ Bapat and Crook, 1988, p.1594

⁴¹ Gill, I; 1984

⁴² Gill, I., 1984, p.961.

⁴³ Mobile Creches, 1987, p.4

most of the men are also married, the percentage of married males is much lower (77.8%).⁴⁴ The Warangal study seems to indicate that for households living on site, most of the women are likely to be associational migrants. There were two sets of workers in the study: canal workers consisted of migrant households from other districts who lived on or close to the site. Road and building workers, on the other hand were drawn from the local population. Nearly all the female canal workers were married, whereas around 75 per cent of the women in the road and building works were unmarried. Thus, local labor can be said to include a greater number of unmarried women as reported in the case of women from Andhra Pradesh whose parents depended on their earnings and could not afford the dowry required to marry them off.⁴⁵

The lower castes and tribal populations seem to be overrepresented in the pool of construction workers. "...harijans and tribals are the largest groups represented, although they comprise only 15 per cent and 5 per cent of the Indian population respectively."⁴⁶ The age distribution of women construction workers is concentrated in favor of younger women ranging from 26 to 30 years of age. In most cases, the work life of these women ends at about forty years of age.⁴⁷

2.4 Women's Work in the Construction Industry

Women on Construction Sites in Developing Countries

The construction industry offers a vast range of occupations including professional and technical jobs, administrative and managerial jobs, clerical, sales and service jobs, as well as production related jobs. Site labor may be included in the category of production related jobs. The distribution of the total construction work force among these occupations has been tabulated in Table 3 for

⁴⁴ Mobile Creches, 1987, p.5

⁴⁵ Ghosh, 1984, p 207.

⁴⁶ Ghosh, 1984, p 207

⁴⁷ Ghosh, 1984, p. 208, 209

some countries.⁴⁸ The selection of these countries was based on the availability of data. Production related jobs account for only 15.84 percent of the total female construction force in the USA and 9.52 percent in Singapore. This is low compared to comparable figures for male participation in production jobs which is 75.05 percent of the total male construction force in the USA and 80.22 percent in Singapore. The rates for male and female participation in Bangladesh are much higher for both males and females. 92.56 percent of the male construction labor force and 95.24 percent of the female labor force works in production related jobs. The data suggests that there is considerable variation between countries in the jobs that women do in the construction sector.

Studies from several developing countries show that division of labor on a construction site is based on sex with an informal set of codes defining 'appropriate' jobs for men and women. Chant describes of the role of women in a self-help housing project in Queretaro, Mexico in which women included in the construction work force play roles which are an intensification of their routine domestic activities such as "...fetching and carrying water, cleaning up after (male) laborers, providing them with food and refreshment."⁴⁹ Chant suggests that there may be a link between the type of household and opportunities for women to participate in construction activity. Women from women-headed households and extended families tended to be more involved in the actual construction work and seemed to participate to a greater extent in decisions regarding construction. Women from nuclear families tended to play a more subordinate role.

The link between household type and participation in construction seems to be substantiated by a study of a women's construction collective in Jamaica.⁵⁰ Members of the collective said that they received greater support from other women in their households than from the men. The study of a self-help project in Managua, Nicaragua reports that even in countries where women have tradi-

⁴⁸ based on data from ILO, 1989-90

⁴⁹ Chant, S. 1987, p.48

⁵⁰ Mcleod, R., 1989 p. 181

tionally been involved in rural construction and possess skills such as wood work, the role of women in urban construction is limited to unskilled work.⁵¹

Women's work is consistently treated as secondary to comparable work done by men. In self-help and community projects, women's work is more likely to be unpaid while men, as providers for their families expect remuneration for their labor (Nicaragua). Men also tend to consider physical and skilled work on the construction site to be more valuable as compared to administration and management tasks (Nicaragua). In the Mexico project, women's contribution to house building was often ignored and men tended to take the entire credit for building their houses.

The studies reviewed also reveal that the women themselves hold the belief that construction is not a suitable occupation for women. A study conducted in Colombo, Sri Lanka⁵² reports the results of interviews with unskilled workers in a community in Colombo. About half of the women stated that they had no skills. Some of them acknowledged that they had skills such as cooking, sewing, weaving and laundering. However, no construction skills were recorded in spite of the fact that many of them had worked on construction sites. In contrast to this, 12% of the men, who had performed construction tasks similar to that of the women reported masonry skills. Evidence from Jamaica suggests that few of the members of the Kingston Womens Construction Collective had ever thought about taking up construction work as a career.

The above discussion indicates that the construction sector does not utilize the full potential of the female work force. Even though a large part of the male work force also performs unskilled tasks, most of the female work force tends to consist of unskilled workers.

⁵¹ Vance, I., 1987, p.150

⁵² Fernando, M; 1987, p.102

Women on Construction Sites in India

In India, most of the women workers on construction sites are unskilled laborers. This is demonstrated in a study conducted by the Mobile Creches as indicated in Appendix 2. An analysis of this survey data shows that 85.46 per cent of the female labor force as against 40.33 per cent of the male labor force was employed in the unskilled category. 11.38 per cent of the female labor force was employed on jobs outside the construction site including domestic work, petty vending, etc. The percentage of males and females in the unemployed category was however approximately equal for males and females.

Although both men and women are included in the unskilled category of workers, their specific tasks in the construction process seem to vary.⁵³ Women generally perform the task of carrying loads of stone, brick, mud and mortar. The loading of rocks on a woman's head is done by men, whereas unloading is done by the woman herself. The logic behind this division of labor is that lifting a weight requires more effort than carrying and dropping loads. Bricks are normally carried on wooden planks measuring approximately 2'-0" x 6". On an average, each trip can transport sixteen bricks. Soaking bricks and handing them to the masons is also a woman's job. The mixing of cement concrete is usually done by men, but the mixture is transported by women.

In addition to wage labor in construction, other domestic jobs are also considered to be solely the woman's responsibility. Cooking and child rearing are the major domestic responsibilities of women. In many cases, women are the major income earners in a household. "...most of their income is spent on food for the family, while their husband's earnings are often spent on liquor."⁵⁴

The difference between the work of men and women extends to the earnings of men and women performing similar tasks. Wage differentiation is one of the attractive features for employers in the

⁵³ Gulati, L.; 1981; p.120.

⁵⁴ Ghosh, 1984 p.207

employment of women for unskilled work.⁵⁵ In spite of the requirement for equal wages in the Contract Labor Act, the Mobile Creche study reported that 70 per cent of the female unskilled labor force was paid the lowest wage of Rs. 6 to Rs. 10 per day as against 14 per cent of the male labor force.⁵⁶

2.5 Economic Aspects of Women's Work in Construction

Employers consider several economic factors while recruiting and training workers for work on construction sites. These have implications for the employment of women in construction. Several theories of labor absorption have been proposed both in the neoclassical and radical traditions. According to the Price-Incentive model discussed by Todaro,⁵⁷ the relative prices of labor and capital determine the mix of capital and labor that will be employed. This model seems to fit in with the nature of production in the construction sector. In the construction industry, several alternative technologies are possible to achieve the same goal. However, the factors to be considered in choosing the appropriate technology are more complex than the simple comparison of costs of capital and labor.

Hillebrandt discusses these factors in her description of the economics of the construction industry.⁵⁸ Employers consider three aspects of costs: the total cost of a project, the work load over time and the cost of different projects underway at any point in time. Thus, the number, type and size of projects determines the choice of inputs. The inputs of construction have been classified as variable costs, fixed costs and postponable costs. Labor, materials, site management, plant and equipment, working capital and estimation costs are the major variable costs. Fixed costs are those

⁵⁵ Manohar, Shobha, Rao, 1981, p.97

⁵⁶ Mobile Creches, 1987, p.5

⁵⁷ Todaro, 1989, pp.256-259

⁵⁸ Hillebrandt, 1974

that are not particular to a project, but are required for the construction firm to survive. These may include the wages of permanent staff, rent for office space, etc. Small firms can be expected to minimize these costs by maintaining a minimal permanent work force and by reducing capital expenses. Postponable costs are those that need not be covered in the near future and may include the capital costs of plant and equipment. Variable costs are those that influence the marginal cost of a project and hence, are the ones considered by employers in making investment decisions. These are especially critical for employers in developing countries who minimize on fixed and postponable costs.

Several questions arise from this discussion. Variable costs include the costs of labor, capital and management as well as time costs. Better management can lead to an increase in labor productivity and hence to a decrease in time costs as well. Labor productivity can be increased by increasing capital input and/or by increasing the skills of the work force. Since most women are employed as unskilled laborers, an increase in their level of skills can be expected to result in an increase in labor productivity. However, there have been few efforts, if any on the part of employers to raise the level of skills of women in the construction work force, in spite of the potential gain from increasing the labor productivity of the work force. Relevant to the issue of the skills of women workers is the examination of the hiring practices of employers in the case of women workers. A study of women construction workers in Warangal in India reports that "...male labor and even child labor is preferred to female labor."⁵⁹ Hence, women are the first to be thrown out of jobs in situations of low demand.

An analysis of the employer's considerations in making employment decisions with regard to women workers suggests that there are several disincentives to hiring women. Several theories have attempted to describe the role of women in the labor force. The Dual Labor Market theory assumes the existence of two types of jobs (Standing, 1981)⁶⁰ The first type of jobs are static jobs,

⁵⁹ Manohar, Shobha, Rao, 1981, p.98

⁶⁰ quoted in Anker and Hein, 1985, p.77

which require a relatively low level of skills and little on the job training. The second type of jobs are called Progressive jobs which offer opportunities for career advancement through on the job acquisition of skills. High rates of turnover for static jobs do not pose any major difficulty to the employer because there are minimal costs associated with training of new workers. Hence, it can be expected that if employers in the construction sector perceive that women have higher rates of turnover, they may prefer to keep women working on static jobs.

There may be other factors responsible for dissuading employers to hire women. Employers may be required to face additional costs for women during pregnancy and childbirth by requirements such as the payment of wages during maternity leave, provision of creches and of nursing breaks. By employing women as casual laborers, formal sector regulations can be avoided. Employers also perceive that women tend to have higher rates of absenteeism associated with the illness of children and other family members. High rates of absenteeism of women are substantiated by studies conducted for the ILO in several countries.⁶¹ The studies do not however confirm higher rates of turnover for women.

Cultural norms and legal restrictions which limit late night or early morning shift work for women, require separate facilities and sometimes even segregate the workplace itself, may put additional burdens on employers. In addition, there may be some protective legislation such as those in Sri Lanka and Uruguay which prohibit the employment of women for night work.

There is also a tendency for certain types of jobs to be 'feminised'. The concept of feminization of certain jobs has been discussed in Craig, Garnsey and Rubery's study of labor segmentation in the United Kingdom. It is proposed that certain types of jobs come to be dominated by women. This can lead to the "...payment of low wages in 'feminised' jobs, not because these jobs require little skill or are unproductive, but because women are employed in them."⁶² Such a trend seems to exist in the construction sector, but additional research will be required in this area. Even though there

⁶¹ Studies quoted in Anker and Hein, 1985, p. 79

⁶² Craig, Garnsey and Rubery, 1985.

are both skilled and unskilled male workers, tasks such as cleaning and preparing meals are considered to be predominantly female jobs. All these factors contribute to the segmentation of the market even in the case of unskilled labor in construction. Although both male and female workers perform similar tasks as unskilled laborers, male workers seem to have greater access to skills and better jobs.

Economic Aspects of Women's Work on Construction Sites in India

An analysis of the economic aspects of women's work in construction in the Indian context suggests that there are fewer disincentives for employers to hire women as construction workers. On the contrary, the organization of the construction industry in India makes it advantageous for employers to recruit female labor in construction. In addition to "wage differentiation, turnover of equal work and the more submissive nature of women",⁶³ there is the added advantage of hiring women to serve as a reserve force that can be utilized at particular stages of construction. Even within families, "...The household maintains women as a reserve labor force, available to join capitalist production when required as in wartime."⁶⁴ Women may also be more willing to do jobs that men refuse to do.⁶⁵ It may then be an advantage for employers to 'feminise' certain types of jobs in order to ensure a steady supply of labor to perform these tasks. These factors are discussed below in relation to the Indian situation.

It can be argued that the prevalence of the practice of employing migrant workers on construction sites makes it more attractive for employers to hire women. The long tradition of recruiting labor from villages has given rise to legislation that regulates the provision of housing and other basic amenities to construction workers. In Delhi,

...building contractors are required to provide sufficient materials to build a small hutment of 3.0 mt. x 2.5 mt., a paved area in front of it and toilet blocks for each group of hutments, and workers are entitled to two days with pay in order to build their shelters.....Bathing and washing facilities are required in the ratio of one unit per every 25 residents and toilets and latrines are required to a rate

⁶³ Manohar, Shobha, Rao, 1981

⁶⁴ Saffioti- discussed in Elliot, 1977, p.6

⁶⁵ Bapat and Crook ; 1988, p.1591

of 4 per 100 residents. A minimum of 2 gallons of drinking water per person plus 3 gallons per person for washing is normally required.⁶⁶

In spite of such regulations, another report describing the settlements⁶⁷ says that there is no potable water in the settlement and that electrification is restricted to a few general lights provided by the municipal corporation. Garbage disposal facilities were also found to be lacking. Thus, even in relatively well regulated settlements, the failure to implement regulations often frees employers from the financial obligation of ensuring substantial living conditions for the workers. Most other construction projects that employ labor from other regions also provide housing for workers. In the Warangal study, canal workers from other districts were provided with small huts located on the construction site. In this case also, it was reported that the failure to implement contract regulations led to the prevalence of inadequate living conditions for the workers.

The employment of men and women in a household is advantageous to employers for two reasons. First, one living unit can house at least two workers. In some cases, such as Punjab, it is reported that the regulation for the provision of basic services for workers had not been formulated at the time of the study. Thus, the additional cost of providing housing for migrant workers may not pose any major financial burden on the employer. In fact, it has been recorded that "...migrant labor deprive the local labor force by offering services at lower wages; further, they lower the general wages to the detriment of local laborers."⁶⁸ If employers do not provide housing for the workers, and if labor is not available close to the construction site, they may need to provide a travelling allowance for commuting workers. Thus, it may be cheaper for employers to provide housing on site and employ migrant labor at lower wage rates. The inclusion of women in the labor force, as discussed earlier, provides additional labor at no extra cost except for the daily wage payment.

We have discussed some of the conditions that may discourage employers from employing women on construction sites. In India, if the female labor force exceeds twenty workers, employers are re-

⁶⁶ Payne, G.K., 1977. ps. 114, 145

⁶⁷ Ghosh, 1984

⁶⁸ Manohar, Shobha, Rao, p.98

quired to provide child care facilities on site.⁶⁹ The provision of such additional facilities as well as the probability of higher rates of absenteeism of women due to pregnancy or illness of children may be a disincentive for employers to employ women on construction sites.

It can be argued that in the Indian context, these considerations are not very critical. There has been a repeated failure to enforce legislation. Thus, employers may be able to report a lower figure for female participation in order to avoid legislation requiring the provision of child care facilities.⁷⁰ The failure to implement workers legislation has been reported even in the case of public works.⁷¹ The higher rates of absenteeism may not be a major source of concern because of the abundance of unskilled labor. Besides, the Warangal study reports that "...contract labor regulations and other relevant laws are conspicuously silent about maternity leave for women in construction industry." Even in the case of casual construction labor in railway construction projects, women are not paid any allowance or protected against break in service if they are absent from work for more than twenty days even for maternity.⁷² In fact, contract or casual labor is considered to be part of the unorganized sector. The Abolition of Contract Labor Act in 1971 sought to eliminate the practice of contract labor, but has repeatedly been violated.⁷³

The lack of opportunities for women to acquire skills has been recorded in several studies. Women workers can rarely expect to improve their position, unlike male workers who may someday graduate to skilled work.⁷⁴ From the point of view of employers, the creation of a skilled female work force may not be perceived to yield any substantial gains. Women may not be perceived as a reliable labor resource. Among lower income groups, women may join the work force mainly as a result of adverse economic conditions. Thus, an increase in household income may lead to women

⁶⁹ conversation with a Mobile Creche worker

⁷⁰ from conversation with a Mobile Creche worker

⁷¹ Ghosh, 1984, P. 204

⁷² Manohar, Shobha, Rao, 1981, P.99

⁷³ Ghosh, 1984 p. 204

⁷⁴ Gulati, 1981, p.107

dropping out of the work force. The wives of skilled workers who have higher wages and greater job security may not work outside the home. "... (The) ability to keep away from manual work has been an important distinguishing sign of socio-economic status among us (Indians)."⁷⁵

Employers (contractors) are rarely directly involved in the training and creation of a skilled work force, whether male or female. The structure of the construction work force is such that the recruiting agent and the workers themselves play a more significant role in the development of skills and training. Since formal sector training institutes are extremely limited, most workers acquire skills on the job. It is then useful to examine the social and cultural factors responsible for perpetuating the low level of skills for women construction workers.

There are few incentives for employers to increase labor productivity especially in situations of low demand for construction. In India, labor productivity may be further examined by considering the various types of contracts between the contractor and client. Lump sum and item rate contracts can be expected to utilize labor more efficiently. In the former case, contractors quote a fixed amount for the completion of the entire project. It is therefore in the interests of the contractor to finish the project early, to use labor more efficiently and to avoid rising material prices in regions where inflation is a problem. In the second case, contractors quote separately for labor and materials. Labor rates may be quoted on a daily basis. Time management is important to avoid fluctuating material prices, but the incentive to use labor more efficiently is less than in the first case. The third type of contract is a labor contract in which contractors quote for the wages of labor per day. In this contract, the incentive to increase labor productivity may be even lower. In fact, work pace may decrease and wastage of material may increase if additional work is not forthcoming for the contractor. In all these types of contracts, subcontractors, who serve primarily as labor suppliers are generally not concerned about labor productivity and hence tend not to invest time and resources in building up a more skilled work force. This discussion of labor productivity leads us to further examine the influence of the subcontracting unit on women's work in construction.

⁷⁵ Gadgil, D.R.- quoted in Bose, A.; 1975, p.134

2.6 Subcontracting and Women's Work in Construction

The system of subcontracting reduces management costs on the construction site. In developed countries, subcontracting promotes the development of specialization, whereas in developing countries subcontracting takes the form of "...informal construction enterprises, of casual workers under the supervision of a gang leader or labor recruiter."⁷⁶ The largest construction firms can maintain a relatively steady flow of employment opportunities for their workers. This is difficult for smaller firms which account for a large percentage of the total firms involved in construction activities. They depend on the system of subcontracting for their labor requirements. There is little effort to increase labor productivity on the part of gangleaders who also perform the role of supervisors for their gang of workers. In fact, during times of low demand for construction work, the work pace may decrease. "If gangs cannot see sufficient work ahead of them, they tend to work more slowly than if they know that they can move on to the next operation."⁷⁷

Since an increase in labor productivity is not as important for subcontractors in developing countries, they may not make any effort to increase the level of skills in their gang of workers. However, the work gang does provide an avenue for workers who have the initiative to improve their skills and job prospects. It is easier for male workers to increase their skills. This opportunity is not available for women workers, as will be discussed later in this chapter.

The subcontracting system makes the supervisor of the gang an influencing factor in the development of skills within the workforce. The supervisor may be called a foreman, mukaddam, gang leader, etc. in different contexts. Generally, his duties include maintaining quality control, preventing wastage and pilfering of materials and maintaining tight discipline among the workers. The attitude of the supervisor is then important in determining the division of labor on the construction site.

⁷⁶ Portes and Benton, 1984, p.599

⁷⁷ Hillebrandt, 1974

Some supervisors may have personal biases regarding the suitability of women for work on construction sites. A study conducted in Colombo quotes a foreman's remark: "These women, from their natural foolishness will lose their balance and fall and what a to do we will have then!"⁷⁸ Women may be preferred for unskilled tasks because they tend to be more subservient and take instructions more seriously.⁷⁹

Moavenzadeh stresses the importance of capable supervisory staff in labor intensive production for efficient production on construction sites. Developing countries face a severe shortage of supervisory personnel.⁸⁰ Most of the indigenous supervisory staff consists of gang leaders or managers who have risen from the ranks of workers. This is an additional factor limiting the resources for ensuring better utilization of the work force. Supervisors may prefer not to deal with situations where men and women are required to work together if there is any potential for conflict. A study conducted in Jamaica reports that men and women tend to compete on the job.⁸¹ This may boost productivity, but it may also lead to conflicts if women graduate to supervisory roles. Sexual harassment by male co-workers may present another management problem.⁸² Thus, the foreman may prefer to maintain the division of labor that keeps women working at lower levels of productivity in order to avoid conflicts at work. The role of women as unskilled workers also frees the recruiting agent from the liability of providing continuous work for the women. Since women are considered to be secondary workers, continuous employment may not be considered essential by the migrant households, including the women themselves.

The process of recruiting workers and forming work gangs takes place through informal male networks in Jamaica⁸³ and in India as well. Entry to a gang may therefore be difficult especially for a

⁷⁸ Fernando, 1987, p.106

⁷⁹ Gulati, 1981, p.113

⁸⁰ UNCHS, Habitat, p.204

⁸¹ Mcleod, 1989

⁸² Gulati, 1981, p.114

⁸³ Mcleod, R.; 1989, p.167

single woman. Mobility to higher skilled jobs is even more difficult. Unless the foreman makes a special effort to improve access to skills and jobs for women, it is difficult for individual women to acquire skills and to enter the skilled work force.

The Subcontracting Unit in India

The subcontracting unit in India also consists of a gang of laborers headed by a supervisor or recruiting agent. The recruiting agent plays an important role in the process of recruiting laborers and maintaining continuous employment for his gang of workers. He is referred to as a mukaddam, jamadar or toliadar in different regions of India. The study of migrant labor in Jullunder and Champaran⁸⁴ describes the role of the toliadar in the recruitment process. The toliadar heads a group of five to fifteen workers. This group is referred to as a toli. Several tolis may combine to form a larger group under a jamadar. The jamadar or toliadar acts as a supervisor and as a link between the contractor and laborers. He is paid an amount ranging from Rs. 150 to Rs. 200 per laborer by the contractor in return for recruiting the required number of workers. He rounds up the required group of workers, lends them money for transportation at high rates of interest and often receives a 'cut' of 75 paise to Rs. 1.50 per day from each laborer. He maintains his position by virtue of his contacts with contractors and the dependence created by lending money to the laborers. However, the study also reports that the power of the recruiting agent tends to decrease as laborers become familiar with the system.

There is some evidence of a system of contract labor in construction reported in the study conducted at Warangal.⁸⁵ Contract laborers are attached to the contractor and have to work wherever they are posted. Most of the laborers are indebted to the contractor and often, the entire family including children are engaged on the construction site.

⁸⁴ Gill, I., 1984

⁸⁵ Manohar, Shobha, Rao, 1981, p.97

Evidence from the study of a construction workers' settlement in Delhi⁸⁶ reports the existence of a similar recruiting network operated by jamadars who recruit labor for construction work in Delhi from villages near Jaipur in Rajasthan. The jamadar pays travel expenses to the workers and advances the necessary loans in return for around twenty per cent of each laborer's daily wage of Rs. 2.50. It is also his responsibility to obtain continuous work for his team. He is the liaison between the laborers and contractor, attending to the needs of his team through direct negotiation with the contractor. His payment is called peshgi and includes a commission as well as interest on any loans given to the laborers.⁸⁷ A description of the workers' housing area suggests that the houses of jamadars are generally larger, built with better materials and have additional amenities such as private water storage facilities.

Leela Gulati's description of a woman construction worker refers to the role of the mistry or principal mason in the recruitment of workers. The mistry's role is not exactly the same as that of a recruiting agent, but he is often responsible for making decisions regarding the employment of laborers on construction sites. He can be described as the contractor's supervisor on site. His role is important because workers seeking employment generally need to maintain good relations with him in order to get continuous employment. The mistry may also receive cuts from the workers in return for employment.

2.7 Social Aspects of Women's Work in Construction

Many construction workers in urban areas are rural-urban migrants who bring with them both their traditional skills and their norms of work. Boserup suggests that the traditional division of labor in agriculture is based on necessity. "In a community where each family produces all the goods and services consumed by that family, the sharp distinction between male and female jobs is a necessary

⁸⁶ Payne, G. K.; 1977

⁸⁷ Ghosh, 1984, p 203

result of the simple fact that families are formed by the union of men and women."⁸⁸ It can be expected that this distinction would become less rigid as specialization and production outside the home become more prevalent. However, prejudices regarding sex roles in production are hard to eliminate as seen in the cases of construction and agriculture discussed below.

The literature on women's role in agriculture reveals some interesting parallels to the role of women in urban construction. The division of labor based on sex is characteristic of most agricultural occupations. It is then possible that this division of labor is transferred to the new urban situation in which many rural-urban migrants find themselves. The following observations about the organization of the agricultural work force seem to have parallels in the construction sector:

1] Women's participation in agriculture is higher at peak seasons of agricultural activity. This has been substantiated by studies conducted in Africa ⁸⁹ and South Asia ⁹⁰ Thus, women in agriculture also tend to serve as a reserve force that can be employed at certain stages of agricultural activity. They are more likely to be employed as casual laborers, working seasonally rather than year-round. They are more likely to be underemployed rather than unemployed both in agriculture and construction.

2] Sexual division of labor is evident in most agricultural operations. In Nepal, decisions about technology inputs are generally taken by women while men take decisions regarding the allocation of labor.⁹¹ Rice transplanting in most of South Asia is done by women.⁹² Husking is also entirely a woman's job. Women are generally entrusted with manual work that serves as a precondition for men's relatively less manual labor inputs.

⁸⁸ Boserup, 1975, p.103

⁸⁹ Dixon, 1982, p.545

⁹⁰ Ahmed, I., 1987, p.21.

⁹¹ Ahmed, I; 1987, p.22.

⁹² Ahmed, I., 1987, p.23.

3] Mechanization in agriculture has tended to displace a large part of the female work force by the substitution of male labor to operate machines. A large number of operations such as husking, which were traditionally performed by women have been mechanized. Mechanical technology is considered to be more suitable for men. The use of tools seems to dictate the division of labor, both in agriculture and in construction.

4] Womens' participation in agriculture tends to be unpaid and is higher in subsistence activities. The line between domestic work and agricultural work is often blurred. This is also true in construction work. Cleaning or cooking the community meal may not be acknowledged as work. In many self-help housing projects, women's participation in construction was viewed as an extension of domestic activities, and was therefore discounted.

There seems to be a transfer of the organization of the work force from the rural to the urban setting. There is not much literature dealing with the sexual division of labor in rural construction. However, there is some indication that women have traditionally been involved in house construction, performing skilled jobs such as wood working. Additional research in this area is needed.

Social Aspects of Women's Work on Construction Sites in India

Construction labor in India generally moves in groups of households from the same village or squatter settlement. Often the recruiting agent also belongs to the same village or community. A study of the construction workers' settlement at Delhi reports that 70 per cent of the construction working community consists of migrants from Rajasthan.⁹³ This cohesion between laborers from the same village is seen in the layout of dwelling units on the construction site. Usually, they are built around a common courtyard.⁹⁴ The existence of these groups provides some security to these households in the urban environment, but also tends to reinforce traditional cultural norms. Besides, the households may be largely insulated from the urban environment since they live on the

⁹³ Ghosh, 1984, p.201

⁹⁴ Payne, G.K., 1977 and field observations.

construction site. Hence, their participation in the labor force is dictated by the norms prevalent in traditional, rural agricultural society as discussed earlier.

2.8 Summary

The unique organization of the construction sector is reflected in the close link between formal and informal employment practices in the sector. The system of subcontracting in developing countries develops because of the fluctuating demand for construction. It helps to create a pool of labor without making employers (contractors) liable for providing stable employment to the labor force. Women's participation in the construction sector is restricted to unskilled work.

The analysis of the labor force in the construction industry in several developing countries suggests that the system of subcontracting is mainly responsible for the influence of subcontractors in labor allocation within the work force. Contractors have little incentive to invest in training a transient work force, even though they may have an interest in increasing labor productivity. They depend on the subcontractor for their requirements of labor. There may, in fact, be some disincentives associated with the employment of women. However, in the case of India, the hiring of women is attractive for employers and subcontractors. It entails almost no additional cost for the employer. Subcontractors in developing countries are mainly suppliers of labor and do not have any special interest in increasing the productivity of the work force. Their interest is mainly focussed on procuring continuous employment for themselves and their gangs of workers. Also, since they generally come from the same village or squatter settlement as the workers, they tend to maintain the social and cultural norms dictating appropriate roles for men and women. Since women's work is considered to be secondary, subcontractors can gain by retaining women as a reserve labor force. These factors serve to keep the female work force at low levels of skills.

Efforts to provide women with access to skills and jobs in construction have met with varying degrees of success. Future attempts must take into account the organization of the work force in the region, the traditional roles of women as well as existing training facilities. Any significant change in the organization of site work should involve the subcontractor as well as the workers themselves.

Table 2. Example of the Composition of the Construction Labor Force

COMPOSITION	PERCENT OF LABOR FORCE
Unskilled Labor	61
Skilled Labor	30
Related occupations	9

Source: Mobile Creches, 1987, p.19

Table 3. Composition of Construction Labor Force by Occupation and Sex

OCCUPATION(1)	USA		SINGAPORE		BANGLADESH	
	Male	Female	Male	Female	Male	Female
Professional and Technical	2.33	2.68	5.91	16.20	0.50	0.00
Administrative and Managerial	11.43	17.32	4.09	6.20	0.66	0.00
Clerical	0.65	55.17	1.02	60.96	3.47	0.00
Production and Transportation	75.05	15.84	80.22	9.52	92.56	95.24
Other	10.54	8.99	8.76	7.12	2.81	4.76
Total (percent)	7,591,000 100	745,000 100	83,892 100	5,630 100	605,000 100	42,000 100

Note:(1) Occupation of labor force as a percentage of the total workforce for each sex.

Source: ILO, 1989-90

3. THE FIELD STUDY

3.1 Introduction

The exploratory study described and analysed in this chapter was designed to examine the contribution of women workers in the construction process. Statistical evidence as well as studies of the construction sector in several developing countries have substantiated the fact that women rarely graduate to skilled or supervisory positions in the construction sector, but are nevertheless visible on most construction sites. The field study attempts to find out what motivates women to work as unskilled laborers in the construction industry and to examine their socio-economic characteristics before and after they started work in the construction sector. Another aspect of the employment of women laborers on construction sites is the mobility of women within the construction sector and in other occupations. The study attempts to address the question of whether unskilled work in the construction sector serves as a foothold into the urban work force and is used by workers to graduate to better jobs within and outside the construction sector.⁹⁵

⁹⁵ Joshi and Joshi discuss the graduation hypothesis and Todaro lists the characteristics of informal sector employment.

This chapter describes and analyses a field study conducted in Bombay in December 1990. The study consists of interviews with twenty-three women construction workers on two sites in and near Bombay. The findings of this study were subsequently amplified by a study conducted by the Mobile Creches in Bombay in 1987. The author came across this study while doing a literature review in Bombay. The findings of this study will be extensively referred to in the analysis of our study. Unfortunately, it was not possible to get the raw data of the Mobile Creche study for our analysis. the Mobile Creches is a voluntary organization that runs centers for the children of construction workers where they are provided with opportunities to play, learn and rest while their parents are working. These centers are provided on the site, in accomodation provided by the contractors which often consists of an unfinished part of the building. The mobile creches set up such centers on sites where a large number of women are employed. Thus, they capture relatively large scale construction sites. The study conducted by the Mobile Creches was conducted on sites where the mobile creches had established day care centers. Some of the information that was sought through these interviews was similar to that reported in the Mobile Creche study. The scope of the latter was greater because of the large sample size and more elaborate interviews used in the study. The focus of the Mobile Creche study was on developing additional programs for the children of the construction workers. Nevertheless, some of the findings are relevant to this analysis and will be referred to wherever applicable.

We will discuss the design of the study and the choice of respondents in the second section of this chapter. The third section will examine the socio-economic characteristics of the women laborers, their patterns of migration and the motivation for migration. The fourth section discusses payment patterns and amenities provided on site for the workers. The fifth section evaluates the work of women in the construction sector. This is followed by profiles of some women workers who were observed to differ from the average woman construction worker. The concluding section summarizes the findings of the field study.

3.2 Design of the Field Study

This section is discussed in two parts: the conception of the study and the field experience during the actual study. It was necessary to make several adjustments to the initial format of the study as dictated by conditions on the field.

Conception of the Field Study

The field study was designed before the author's visit to India in December 1990. Having set out the objectives of the study, a preliminary review of the existing literature was done to identify areas where further research was needed. The study was designed to be in the form of interviews with several women on construction sites. The interviews were structured, including as many coded answers as possible. This type of interview format was considered to be most suitable considering the limitations of time available for the field study. Informal interviews and open ended questions have the advantage of yielding more information and of helping to identify areas for additional research. This type of study seems to be suited to areas such as this where little prior empirical work exists. However, in this case, time constraints would not allow for better rapport between the interviewer and respondents. Besides, the time spent by the women during the interviews would be time spent away from work, and it was not clear that this would be acceptable to the contractors and supervisors. Thus the interviews were designed to take not more than twenty minutes to half an hour of each respondent's time.

The interviews sought two types of information: First, information about the women and their households and second, information about their jobs. A sample interview has been included in Appendix 3. There are two subsections in the first section of the interview. One deals with the quality of life in the village and patterns of migration (questions 1-5). The second subsection deals with their present living conditions and household structure as well as their proximity to the work place (ques. 6-13). The second major section seeks to trace employment patterns, skills and past

experience (ques. 14 -19), as well as information about payment and amenities (ques. 20 - 25). The interview also attempts to find out some of the organizational characteristics of the work place (ques. 28, 31-34). Other questions deal with the willingness of women to learn additional skills (ques. 26, 27) as well as attitudes about appropriate jobs for children. Some open ended questions dealing with their perception of the job and living conditions are also included.

The interviews have been written in English. However, they were actually conducted in Marathi⁹⁶ and Hindi⁹⁷ These can be considered to be the two local languages. The interviews were conducted by two persons.

The sample size could not be determined at the time of the design of the field work, since access to construction sites depended on personal contacts. It was also not possible to choose respondents based on the proportion of small, medium and large scale construction firms because such data was not available. It was thus not possible to design for a completely random sample.

Experience on the Field

Access to sites: Interviews were conducted on two sites, a residential construction site in a suburb of Bombay and an industrial construction site located in Khopoli, a town near Bombay. Access to the residential site was obtained through the Mobile Creche. The site consisted of several medium and high rise residential buildings constructed for the middle and upper income people. This sort of development represents the typical speculative building activity that takes place in the suburbs of Bombay and in other towns and cities in India. The Mobile Creche operated a child care center on this site since a large number of women were employed on the site. The construction was carried out by a builder and permission had to be obtained from the builder's representative on site

⁹⁶ Language of the state of Maharashtra. Bombay lies in the state of Maharashtra.

⁹⁷ Hindi is widely spoken in many parts of north and central India

before the interviews could be conducted. Access to the site would have been difficult without the help of the Mobile Creches.

Access to the second site was obtained through personal contact with the contractor of the industrial complex, and was therefore relatively easy. However, on both sites there were several restrictions regarding the place and time for conducting the interviews. The supervisory staff on both sites did not permit interviewing during work on site, since they expected that it would distract other workers and reduce the work hours of the women workers. This limitation should be taken into account in the design of future studies. Site records could be used to get a representative sample of all workers on a site at any given time. In addition, surveys could be conducted in nearby squatter settlements to capture the 'commuting' section of the work force.

Interviews at the residential site were conducted in the workers' homes. The women who could be interviewed were therefore those who happened to be at home during that time or those who were not working that day for some reason. It was not considered feasible to interview the women who would return to their homes for lunch, because they would have limited time before they got back to work. All interviews were suspended during the lunch hour because even those women who were not at work would have domestic chores. Besides, it would mean that the men would be present during the interview. The presence of men was found to restrict communication with the women. On the industrial site, interviews were conducted in the site office, with the mukaddam acting as interpreter. For a large scale study, it would be useful to conduct interviews in the evening after workers return from work. It would also be useful to interview men as well as women.

Communication with the women: Interviews on the residential site were conducted in Hindi and Marathi. All the women on the residential site could speak and understand the two languages, since most of them came from Marathi-speaking regions. Communication with the women was better at this site because of the common language of the interviewers and the respondents. Besides, the presence of the Mobile Creche staff worker helped to make the women more responsive since the Mobile Creche staff already had a good rapport with the women.

Interviews on the second site were conducted in the site office. Most of the women workers came from the state of Andhra Pradesh, and hence did not speak either Marathi or Hindi. Their mukaddam served as the interpreter. We interviewed fewer women on this site, and we found that they were reluctant to respond. The mukaddam gave most of the responses himself.

Responses to the interviews: Early during the field work, it was established that the women included in the sample consisted solely of migrants who lived and worked on site. These women can therefore be included in the first of the three categories of construction workers discussed in chapter 2. It can be expected that most construction workers do, in fact belong to this category. This is reported in the Mobile Creche study which consists of interviews with more than two thousand families of migrant workers. It is possible, however, that the other two categories of workers may be found on smaller construction sites. The presence of creches on site indicates that the construction is relatively large scale and employs a significant number of women. These characteristics of the work force being interviewed necessitated the deletion of the entire section of the interviews on present living conditions that dealt with issues such as proximity to work, etc. (ques. 6-11).

Owing to the shortage of time and resources, it was not possible to take a pretest of the interview schedule. Hence, alterations to the interview had to be made during the field work. We now discuss some of the responses obtained during the interviews in relation to some specific questions that needed alterations. Information sought about the length of time spent in Bombay (ques. 1) was often confused with the length of time spent on that particular job (ques. 14). Thus, the responses were cross checked with responses to question 16 which dealt with the number, duration and location of past jobs. The open ended questions also did not yield much information as did the questions about skills. Appendix 4 gives a revised list of codes used for the analyses along with a description of the variables used.

We will now go on to examine the findings of this survey and relate it wherever possible to the findings of the study conducted by the Mobile Creches.

3.3 Characteristics of the Migrant Labor Force

Place of Origin: Most of the workers are rural-urban migrants to the city. The places of origin reported are shown in Table 4. Four states of India were represented in the sample selected for the interviews. Of the total work force, 65 per cent were inhabitants of Maharashtra, 26 per cent came from Andhra Pradesh and 4 per cent each from Tamil Nadu and Karnataka. However, if the two sites are considered separately, it can be seen that four out of the five women interviewed on the industrial site four came from Andhra Pradesh. Hence, the regional distribution on the residential site consists of 77.8 per cent of women from Maharashtra, 11.1 per cent from Andhra Pradesh and 5.6 per cent each from Tamil Nadu and Karnataka. Appendix 5 shows the location of these states in relation to Bombay. The Mobile Creche study also found that nearly half of the migrant households were from within the state of Maharashtra and nearly one quarter from the neighbouring state of Karnataka (p.8, Table II:1).

Three of the respondents were inhabitants of urban areas. One was a resident of Bombay and there were one each from Hyderabad and Pune. Twenty-three households were represented in the sample. The average household size was 4.26 persons with 2.86 adults in each household. The households can be described as nuclear families typically including a husband, wife, an adult relative and/or a young child. It is possible however that such families may have been overrepresented in the sample because many of the women who were interviewed said that they could not go to work because of child care responsibilities. In spite of this possible bias, it seems likely that the description of the characteristics of the household would be accurate because the Mobile Creche study also reports that 63.9 per cent of the households had two to five members, 21.6 per cent were single member households and the rest had six to twelve members (p.7, Table I:9). Based on the presence of one or two young children in each of the households surveyed, one can infer that the workers are young persons. The male-female ratio was found to be 0.98 for an average family. This figure should be accepted cautiously because an outlier such as an all-female household is likely to alter the value considerably in a small sample. We did not include any questions about the caste or tribe

of the women workers. Some of the women on the residential site said that they were Banjaras (members of the 'Banjara' tribe).

Motivation to migrate: Around seventy-seven per cent of the women reported 'better employment' as the main reason for migration. The various reasons reported are shown in Table 5. Other reasons included 'no land' and 'no work'. All these are push factors. Two of the women said that they had moved because their families had decided to move. Thus they could be described as associational migrants. However, almost all the women could be called associational migrants since they migrated along with the family. All the adult males in the household were employed on the construction site. Only one household was an all-female household consisting of a mother and her daughter.

In the Mobile Creche study, almost half the respondents said that employment was the main motivation for migrating. Almost 30 per cent reported drought in the village as being the main reason for migrating (P.14, table II:7). The study also points out that if the districts of origin of the migrant households were plotted on a map, they would read like a map of the underdeveloped regions of India (P.9). This seems to stress the fact that push factors are more influential in the decisions of households to migrate.

Ties With the Native Village: Most of the workers (86%) have some family and relatives in the village. Table 6 relates the frequency of visits to the village and the presence of family in the village. It is expected that the two would be positively related. All the households who reported having visited the village at least once in two years had family in the village, whereas 37.5 per cent of households who had never visited the village did not have any family in the village. Table 6 demonstrates that most of the households who had family in the village returned to the village more frequently. It must be noted however, that this figure includes the case of one woman who was a permanent resident of Bombay. Another factor to be considered is that of the number of years spent away from the village. Five of the women who had family in the village said that they had never visited the village. These may be recent migrants and hence this does not indicate lack of

contact with the village. However the tables do not indicate any definite pattern. A larger sample size would have been more useful.

The study attempts to estimate other types of links to the village such as material assets. Ownership of a house and land were used as measures. 59 per cent of the women reported that they had a house. However, in most cases the house was owned jointly by the extended family. Table 7 shows some evidence that the frequency of visits to the village is positively linked to the presence of a house in the village. However, the relationship between the presence of family and the frequency of visits seems to be stronger. The presence of land has not been used as a measure after the interviews were conducted because there seem to have been different interpretations of the term land. There was some confusion about land for the house and agricultural land. Even in the case of land, ownership is shared by the family.

Most women maintained ties with the village. It seems as though the nuclear family on the construction site works together with the extended family in the village to provide subsistence for all members of the household. The division of labor is such that some of the members of the extended household look after the family land and property, while others find other means of employment to supplement the income. In fact, according to the Mobile Creches study, the family in the village provides considerable financial assistance to the nuclear family in order to facilitate migration (P.12)

Recruitment Patterns and Perceived Job Stability: Information about job opportunities in urban areas is mainly obtained through informal channels. 54.5% of the women reported that they had been recruited from the village by the mukaddam or recruiting agent. As seen in Table 8, 58 per cent of the households who had reported the presence of persons from the village on the site had been recruited by the mukaddam. However, a fair number of households that had been recruited by mukaddams did not report the presence of other persons from the village on the construction site. This aspect needs further research. It is possible that those families who reported that they had been recruited by a mukaddam, had later split from the work gang. This may substantiate the

findings of Gill's study discussed in Chapter 3 which suggests that the power of the jamadar may decrease as workers get acquainted with the system. Table 8 shows that of all those who reported the presence of persons from the village on site, 58.33 per cent had been recruited by a mukaddam, while 25 per cent had found the job on their own. This may indicate that the informal network of family and friends is an important source of information for job opportunities.

According to the Mobile Creche study, information about work was obtained from family or relatives (p.12) These could, conceivably belong to different villages. Thus we can say that since the majority of women did report the presence of other households from their village on the site, the recruiting process seems to be linked to the mass migration of several households from a village or a group of neighbouring villages.

The perception of job security could not be quantified. Most of the women indicated that they would continue to look for jobs in the construction sector. Many women said that the mukaddam would find the next job. Others, who had not been recruited through these channels said that they would look for other jobs, but did not expect the job search to be difficult. This is shown in Table nine.

3.4 Payment Patterns and Amenities on Site.

The field study did not directly address the issue of the amount of payment, but did try to find out about the frequency of payment as well as the provision of amenities on site. The Mobile Creche study reports that female laborers are paid less than the males for the same amount of work. (p.22)

Of the materials provided on site, material for housing, water and land were cited most frequently as amenities provided on site. The extent and distribution of amenities is shown in Table 10. All the workers interviewed lived on the site. Most of them reported that they were provided with land,

water and in many cases, building material for pitching their huts. One reported a bonus at Divali (an Indian festival). There was some confusion about who had provided the building material for the workers' huts. Some said it was the mukaddam, others said that the contractor had supplied the material. However, it is likely that there would be an informal agreement between the mukaddam and the contractor about the provision of these amenities. One of the women who had not obtained employment through a mukaddam said that her husband had to go and buy or obtain building material himself, although the contractor provided the space. Water was provided for all the workers. It would be interesting to see whether the workers recruited by a mukaddam get better opportunities and to see whether the workers have some collective bargaining power. However, since the mukaddam can be expected to get some payment from the workers in exchange for providing employment, better amenities may not necessarily indicate that these workers are better off than the others.

The workers' housing was constructed on one part of the residential site. It was not possible to visit the workers housing on the industrial site. The former consisted of huts built on a slightly raised concrete platform (6" high approximately). The huts were constructed of timber or bamboo frames with mud or cloth (sack bag material) panels for walls. The layout of the huts was interesting. Many of the household that came from the same village had huts built around a common open space. This communal space was not seen in the case of households who did not have any acquaintances from the village. The possible effects of this physical layout have been discussed in chapter 3 and provide an avenue for future research.

3.5 Women's Work on the Construction Site

Most of the women interviewed reported that they worked on the construction site. The distribution of women in different categories of work is shown in Table 11. Only two women said that they did not work because it was not the custom for women to work. One of the women inter-

viewed was the wife of a skilled worker (fitter).⁹⁸ Her socio-economic status seemed to have been higher than that of the other workers especially before marriage. It is possible that women whose spouses get higher wages choose not to work outside the home. The other woman said that she would be willing to do work that required less physical labor. Most of the women were unskilled laborers. 77% of the women did 'bigari' work which is the term commonly used to include tasks such as carrying loads, assisting the skilled workers, sweeping and other menial jobs. Two women mentioned 'khodai' work or digging and one reported 'khadi' work or breaking stones. Khadi work may also be included as bigari work in some cases.

One of the interesting observations about the type of work that the women did was the fact that experience does not seem to give any mobility to women in terms of the acquisition of skills. None of the women had worked on jobs outside the construction sector since they had migrated to the city. Some of them had worked on several construction sites, but were still engaged as unskilled workers. This is indicated in table 12 comparing the type of jobs with the length of time spent in the construction sector. Since all the jobs described are unskilled jobs, it could be concluded that there is almost no mobility for women in the construction sector. Most of the women interviewed also said that they would continue to look for future employment in the construction sector. Many of them said that they were not interested in learning new skills (see Table 13), but did not give any reason for this. There is, in contrast to this some evidence that men graduate to skilled jobs through experience. This information was obtained from some of the women who said that their husbands had now learned skills such as masonry and carpentry.

It was also interesting to note the comments of some of the male workers who came back during the lunch break. Several men said that women were not capable of learning new skills. Some said that skilled jobs required greater physical strength. They were, however eager to learn about the purpose of the interviews and wanted to know whether the women were being recruited for some other work.

⁹⁸ Fitter: Workman responsible for cutting and laying reinforcement for Reinforced Cement Concrete work. The job requires the ability to read engineering drawings to determine the size and positions of steel reinforcement.

One of the other areas for further research might be to examine whether women from households that were not part of a group of households from one village may be more willing and eager to learn skills. The presence of others from the village may be one factor that contributes to the maintenance of the social patterns of the native village.

3.6 Profiles of some Women in the Construction Sector

Savitribai: Savitribai has been working on the construction site for two years. She lives with her husband and child in a hut on the site. They come from a village called Umri in Tej taluka. Travel to Bombay takes two days and two nights. She left the village with her husband in search of better employment, but has since visited the village twice. Her parents-in-law live in the village and look after their house.

Savitribai is not presently employed on the construction site because she has a young child. She is, however keen on learning skills such as painting, mistry work (masonry) and carpentry. She says that it is not easy to acquire skills on the job because no one is willing to teach. She plans to learn from her husband. When asked about her future plans for work, she said that she would like to work in the construction sector again, but not as a helper.

This household has not been recruited by a mukaddam. They spent around a fortnight looking for a job. They do not have any contract with the contractor. The contractor provided them with land and water, but they had to obtain the building material themselves. Their hut, like most of the others is self-built.

Savitri's case is not necessarily representative of the large community of workers. She seemed to be more ambitious and eager to learn and earn more as compared to many of the other women. Her aspirations for her son were also high. She hoped that he would study and do 'service' ie. get

a permanent office job. One of the reasons for her positive attitude may be the fact that there was no supportive group from her village on the site. She had to rely on her own resources. One of the interesting questions that may arise from her example is the role that groups of households from a village play in maintaining certain patterns of labor distribution from the agricultural setting in the urban situation.

Laxmi: In contrast to the case of Savitribai, is that of Laxmi. She is a woman from a village called Kamathwada in the Akola district of Maharashtra. She is part of several households (12 huts occupied by households from the village) who were recruited by a mukaddam. She was not aware of the role of the mukaddam in recruitment and payment. This was reported by some other women from the village and by some of the male workers who returned to their home during the lunch hour. The reason she gave for migration was better employment. Laxmi had been living on the construction site for around one year and said that she visited her village once every three months. One of the reasons for this attachment to the village may be the presence of three daughters who lived with her parents-in-law and sister-in-law in the village. She also reported that they had a house and some land in the village which was looked after by her father-in-law.

The household on the construction site included herself, her husband and a young child. She said that she did not work because women in her community were not allowed to work. However, most of the other women from her village reported that they did work on the construction site as unskilled laborers. There may be factors such as caste that are responsible for the different norms governing the participation of women in the labor force. Laxmi was, however, willing to work on jobs that involved less physical labor. Such jobs on construction sites included jobs such as painting. She said that she had never tried to learn any skills and therefore did not know whether it was difficult.

When asked about her aspirations for her children, Laxmi said that she would like all her children to study, but differentiated between sons and daughters about appropriate occupations. She said

that she would like her sons to get jobs involving physical work, and her daughters to get service jobs.

Mirabai: One of the factors to be considered in the willingness and desire of women to learn skills is their prior economic status. This is illustrated in the case of Mirabai. She was the only inhabitant of Bombay in the sample of women workers interviewed. Her economic condition seemed to have deteriorated after marriage. She had studied up to the eighth grade and said that her parents owned a house at Ghatkoper, a suburb of Bombay. Her husband was one of the skilled workers on the construction site. He was a fitter and was responsible for laying the steel reinforcement. She said that they lived on site for lack of a suitable place to rent.

Mirabai did not work on the construction site, and said that she believed that women should not work outside the home. She wanted her daughter to get more schooling, but felt that she should not take up a job. Unlike most of the women who had no complaints about their living conditions, Mirabai said that she did not like the place and would have liked to move out.

Shobha: In addition to prior economic status, education may also change aspirations for jobs and living conditions. This is illustrated in the case of Shobha, a resident of a village called Sugaon in Maharashtra. She had studied up to the eighth grade and said that she did not want to work on the construction site, and hence had not made any effort to acquire skills.

She also said that she had never returned to her village since she left five years ago. She said that her father-in-law lived in the village. They also owned a house in the village, though they had rented it out. When asked about what aspirations she had for her daughter, she said that she would like to educate her daughter so that she could get a service job. Shobha's case suggests another avenue for further research. It may be interesting to see whether formal schooling has an influence on job expectations, and whether jobs requiring physical labor are likely to be perceived as inferior.

Anita: Anita is also relatively educated and has studied upto the fifth grade. She lived with her mother and husband, both of whom worked on the construction site. She said that she herself did not work, but when asked for a description of her jobs, said that she worked as an unskilled laborer. This may indicate that she did not work regularly.

The household had always lived in Bombay, although they maintained close links with their village, visiting at least once a year. She said that there were no other households on the site from her village. She was undecided about what skills she wanted to learn, but said that sex discrimination was one reason why it was difficult for women to acquire skills. Her husband was a skilled worker- a carpenter, who had acquired carpentry skills on the job.

3.7 Limitations of the Study

This study opens up several avenues for further research. We talked only with women working on large construction sites. The characteristics of these women and others on smaller sites or in informal construction may well be different. The small sample size also restricts the scope for making generalizations.

Since the study could not be conducted on the work site, it did not include women 'commuting laborers' who did not live on the site.

The limited time and resources available as well as the time constraints imposed by the women's work necessitated the use of short surveys with few open ended questions. Besides, there was a language barrier on one of the sites restricting communication. These restrictions, as well as the presence of males in some cases may have somewhat distorted the results. However, most of the findings did correspond to those of the Mobile Creche study.

The study provides some insights that can be used to conduct further research in this subject. If interviewers can speak the language of the women, it is easier to get helpful information. The timing of the interviews is also important. Since the presence of males restricts communication with the women, the strategy employed in this study to conduct interviews of women at home while the menfolk were away at work is useful. It may also be helpful to conduct interviews of male workers in order to get a more comprehensive idea of the norms that govern labor allocation on a construction site. The mukaddam is also a valuable resource, and it may be useful to examine his motivation for choosing his occupation in separate interviews. In order to include commuting migrants in the study, it is important to conduct interviews on site or at least to use site records to examine the number of women who could be included in this category.

3.8 Summary

The field study included women construction workers from migrant households living on the construction site. Many of the findings of this study have been corroborated by the Mobile Creches study. We summarize the findings of our study below.

- Most of the households are rural - urban migrants from within the state of Maharashtra. The rest are mainly from neighbouring states and come from the more undeveloped regions of these states.
- Push factors such as lower wages in agriculture and the lack of land or house are the major causes of migration. Almost all the women in the sample may be described as associational migrants, who followed the primary male migrant.
- Most women maintain ties with the native village. There is evidence of a cooperative effort on the part of the nuclear family on the construction site and the extended family in the village to provide subsistence for the household. This is seen in the pooling of resources of the

household to facilitate migration and the regular visits of the construction workers to their village.

- A little more than half the women reported that they had been recruited from their villages by a mukaddam or through family and friends. However, a fair number of women reported that they had found the job on their own. Some reported that they had approached the mukaddam on reaching the city.
- Most women did not seem to think that finding another job on a construction site would be difficult. Therefore, employment in the construction sector can be said to be characterised by ease of entry.
- Our study suggests that workers recruited by mukaddams seemed to have better facilities. However, this is in return for a portion of their income spent on the mukaddam's monthly 'cut'. However, the system needs to be studied in greater detail to make any useful conclusions.
- Mobility within the construction sector does not seem to be related to the amount of experience in the case of women construction workers. It would be useful to conduct a similar study for the mobility of men in the construction sector in order to get a more definite comparison.
- Our study indicates that most of the women do not have the motivation to learn new construction skills. They are bound by the traditional norms governing the type of production activities considered to be suitable for women.

The study provides avenues for further research. For instance, it may be useful to study the effect of gang migration on women's work. It would also be interesting to see if prior economic status and education has an effect on women's aspirations and performance on the job. It was more difficult to draw conclusions about the role of subcontracting in the access of women to skills. The subcontracting unit has emerged as an important influencing factor in women's work as seen in the literature review in chapter 2. This aspect merits further investigation and a field study designed to

examine the role of subcontracting in labor organisation on construction sites should include interviews with subcontractors, contractors and male laborers.

Table 4. Place of Origin of Women Construction Workers

STATE	PERCENTAGE OF TOTAL SAMPLE	PERCENTAGE OF SITE 1 SAMPLE (Residential)	PERCENTAGE OF SITE 2 SAMPLE (Industrial)
Maharashtra	65.22	77.78	20.00
Andhra Pradesh	26.09	11.11	80.00
Karnataka	4.35	5.56	0.00
Madras	4.35	5.56	0.00

Source: Patet, N.A.; Field Work, December 1990

Table 5. Motivation for Migration

REASONS FOR MIGRATING	PERCENT OF TOTAL SAMPLE
Better employment	77.30
Accompanying family members	9.10
No land	4.50
No work	9.10

Source: Patet, N.A.; Field Work, December, 1990

Table 6. Influence of Family Ties on Frequency of Visits to the Village

FREQUENCY OF VISITS TO THE VILLAGE	PRESENCE OF FAMILY IN THE VILLAGE	
	YES (%)	NO (%)
more than once a year	6 (31.58)	0 (0.00)
once a year	3 (15.79)	0 (0.00)
once in two years	5 (26.32)	0 (0.00)
never visited	5 (26.32)	3 (100.00)
TOTAL	19 (100.00)	3 (100.00)

Source: Patet, N.A.; Field Work, December 1990.

Table 7. Relationship Between Visits to Village and Property in Village

FREQUENCY OF VISITS TO THE VILLAGE	PRESENCE OF PROPERTY IN THE VILLAGE	
	With Property (percent)	No Property (percent)
more than once a year	5 (38.46)	1 (11.11)
once a year	3 (23.08)	0 (0.00)
once in two years	3 (23.08)	2 (22.22)
never visited	2 (15.38)	6 (66.67)
TOTAL	13 (100.00)	9 (100.00)

Source: Patet, N.A.; Field Work, December 1990.

Table 8. Relationship Between Migration Patterns and Information Source

SOURCE OF INFORMATION	PEOPLE FROM VILLAGE OF ORIGIN ON SAME WORK SITE	
	Yes (%)	No (%)
Mukaddam	7 (58.33)	5 (50.00)
Search (self)	3 (25.00)	4 (40.00)
Previous employer	0 (0.00)	1 (10.00)
Do not know	2 (16.67)	0 (0.00)
TOTAL	12 (100.00)	10 (100.00)

Source: Patet, N.A.; Field Work, December, 1990

Table 9. Future Employment Expectations

FUTURE EMPLOYMENT EXPECTATIONS	PERCENTAGE OF TOTAL SAMPLE
Look for work in in construction	75.00
look for other work	5.00
quit work	5.0
undecided	15.0

Source: Patet, N.A.; Field Work, December, 1990

Table 10. Amenities Provided on Site

AMENITIES PROVIDED	PERCENTAGE OF TOTAL SAMPLE
building material, water	4.5
water, land	22.7
building material, water, land	68.2
building material, water, land, bonus	4.5

Source: Patet, N.A.; Field Work, December, 1990

Table 11. Women's Work on Construction Sites

TYPES OF JOBS	PERCENTAGE OF TOTAL SAMPLE
carrying loads	73.90
digging	8.70
breaking stones	4.30
do not work	13.00

Source: Patet, N.A.; Field Work, December, 1990.

Table 12. Relationship Between Type of Job and Experience in Construction

LENGTH OF TIME SPENT IN CONSTRUCTION	TYPES OF JOBS PERFORMED BY WOMEN				TOTAL
	no work (%)	carrying (%)	digging loads(%)	breaking stones(%)	
less than one year	1 (25.00)	1 (25.00)	2 (50.00)	0 (0.00)	4 (100.00)
one to five years	0 (0.00)	11 (91.67)	0 (0.00)	1 (8.33)	12 (100.00)
more than five years	2 (28.60)	5 (71.40)	0 (0.00)	0 (0.00)	7 (100.00)

Source: Patet, N.A.; Field Work, December, 1990

Table 13. Desire to Learn New Skills

DESIRE TO LEARN SKILLS	PERCENTAGE OF TOTAL SAMPLE
Yes	38.10
No	33.30
Do not know	28.6

Source: Patet, N.A.; Field Work, December, 1990

4. CONCLUSION

4.1 Summary

This study attempts to provide a better understanding of the various factors involved in the employment of women on construction sites in India and to find reasons for the high proportion of unskilled workers in the female labor force on construction sites. We discussed several economic and socio-cultural factors responsible for the existing organization of the labor force on construction sites. Our findings suggest that the structure of the construction industry makes the employment of women on construction sites possible. The role of subcontracting is central to the issue of the low level of skills of women workers. In order to clarify the role of subcontracting, we discussed the production process of the construction industry and the resulting structure of the construction industry. We briefly summarize these below.

The product (building) of the construction industry is largely custom built and is therefore not suited to mass production. Hence, the industry is more dependent on the current demand. Workers in the industry are hired on a temporary basis. The hiring of women is made possible because of the fact that employers can use the women as a labor reserve at certain stages of construction.

The production process in the construction sector is fragmented and entails a temporary collaboration of several actors. Most construction firms can be described as small scale firms. The scale and nature of operations limits the resources and time available to create a more skilled work force.

The technologies of production are very flexible in the construction process. Several technologies can be used to achieve the same result. Labor - intensive production is predominant in developing countries and includes a higher proportion of unskilled labor as compared to unskilled labor.

The formal construction industry in many developing countries has close links with the informal sector and largely depends on it for its labor and material inputs. Subcontracting is common in many developing countries and consists of gang workers headed by a subcontractor who serves mainly as a labor supplier in developing countries. Construction skills are mainly acquired through on-the-job training and apprenticeships.

We relate these characteristics of the construction industry to the two questions we posed at the beginning of this analysis with regard to women's work in construction in India:

What makes women's participation in construction activity possible?

In the Indian context, the hiring of women is attractive to employers because it entails little additional financial outlays and provides flexibility to 'hire and fire' as the demand for labor fluctuates. Protective legislation for women may dissuade employers from hiring women, but the actual use of women workers is facilitated by failure to implement such legislation in India.

Why are most women on construction sites in India employed as unskilled workers?

The subcontracting unit seems to play a major role in the level of skills of women workers. We discussed the social and economic factors that keep women working on low-skilled tasks. Within the subcontracting unit, there are opportunities for workers who have the initiative and the necessary contact with skilled workers to acquire skills on the job. Women find it difficult to use this avenue because the work gang operates through informal male networks.

The role of the subcontractor in India is solely to supply labor to the main contractor. Hence, an increase in labor productivity may not be a major concern for the subcontractor, especially if the demand for construction is low and jobs are difficult to come by. The inability of the main contractor to maintain a large, permanent work force makes him more dependent on smaller subcontracting units for his supply of labor.

The subcontractor often comes from the same village or squatter settlement as his gang of workers as shown in the literature in India and other developing countries. Most often, he does not possess any special construction skills. He may tend to reinforce the traditional norms governing the division of labor in his community. Moreover, it may be in the interest of the subcontractor to keep women working on jobs that men may refuse to do.

4.2 Training Opportunities for Women in Construction

There have been some attempts to increase the employment potential for women in construction. Many of these have met with considerable success. These efforts, and the difficulties encountered in implementing these projects will be discussed in the concluding part of this chapter.

Training for skilled jobs in construction can be achieved by providing pre-employment training or through on the job training and apprenticeships. Several efforts have been made to equip women with skills in 'non-traditional' occupations such as construction. The following discussion is based on efforts in Jamaica (McLeod), Nicaragua (Vance), Mexico (Chant) and Sri Lanka (Fernando) to increase the participation and skills of women in construction and the provision of housing. The Central Building Research Institute in India, the Regional Housing Centre in Indonesia and the National Building Research Station in the Sudan conduct training workshops for workers, foremen

and technicians as well as professionals.⁹⁹ We could not locate any studies dealing with the performance of these programs.

The Womens' Construction Cooperative in Jamaica is a good example of a training program for women in construction skills. This program was launched at a time when construction activity was booming and jobs were readily available. The training infrastructure was available since residential training facilities for men were already in use. In addition to skills, there was an emphasis on teaching women to cope with work situations in a male dominated occupation. Candidates were selected from the same community in order to build up a community support resource for the women. The criteria for selection included literacy and numerical skills, and the presence of community leadership and political affiliation since this was an important factor in construction employment. These criteria may have helped to select the most promising candidates, thus ensuring a higher success rate.

On-the-Job training is also another source of training available to most gangs of male workers in Jamaica. This avenue was not readily available for women since informal male networks were the major mode of access to these gangs. Female gangs were created to overcome this. A third aspect of the training program was the recognition that repairs and maintenance work had the potential to generate substantial employment opportunities for women. Training women for this was found to be especially favourable because female clients felt more secure to let women into their homes.

Another effort was made by SAVE (US Save the Children) in Colombo to recruit women for training in carpentry, masonry and roofing. It was found that women were very reluctant to apply for training for what was predominantly a male occupation. The training program organizers also had to deal with the trainers' prejudice regarding the suitability of women for construction work. However, during the course of the project, the number of applicants increased to such an extent that informal modes of training had to be adopted to accommodate all the women. The work force was

⁹⁹ UN., 1976, p.114

divided into teams of eleven, made up of seven semi-skilled and skilled workers and four unskilled workers who dug foundations. During the course of the work, the unskilled workers learnt skills on the job.

The self-help housing project in Nicaragua also encouraged the participation of women in construction activity. Building work was required by the ministry to be undertaken by work groups consisting of an equal number of men and women. There was no specific attempt to improve skills. However, it was observed that women played a greater role in the design of the project while the men's contribution was greater in terms of physical work. Consistent good work was rewarded by certificates from the ministry. A large number of these were received by women. This helped to increase their confidence.

There have been other attempts to train women in construction skills. There are however, very few studies evaluating their effectiveness and replicability. This may be attributed to the fact that these are recent programs that can only be evaluated after a few years.

Another aspect of training is that of assisting trainees to find employment. This need was recognised by the Jamaican project. Auditions were held to induce private contractors to try out women workers. Most of the auditions in the Jamaican case secured employment for the women. However, such tools can be used mainly to break the ground and may be less effective when the number of potential employees grows. The hurdle of starting capital was overcome by loaning tools for auditions and permitting slow repayment of the cost of the tool.

The Colombo project recognized that the main barrier to employment of women is the management of the construction industry. As discussed earlier in this chapter, the role of the foreman is important in a system where subcontracting is predominant.

From the experiences of these three training programs reviewed above, it can be concluded that the following factors are important for the success of any effort to improve the skills of women in construction.

1] The organization of the workforce must be understood. The role of the supervisor or foreman is important in the provision of access to skills for women workers. In some situations, this may be achieved by creating work teams with an equal mix of men and women. In other situations, it may be more desirable to maintain separate work gangs of men and women.

2] The existing training opportunities for men and women should be surveyed. In Jamaica, the infrastructure for training was available for the new project. In a country like India, almost all workers, male and female learn skills on the job. Each situation would thus call for different modes of training.

3] The traditional role of women must be understood. This has implications not only for the jobs that women take up in construction, but also for other factors such as facilities at work.

4] It may be desirable to initiate programs for supervisory personnel including subcontractors, since management skills seem to be limited in many developing countries.¹⁰⁰

4.3 Directions for Further Research

There are several other factors that have been identified as possible influences in the determination of the allocation of work on construction sites. The limited empirical evidence has failed to provide us with any conclusive relationships. However, we discuss these here in order to provide directions for further investigation.

¹⁰⁰ UN., 1976, p.115

- There seems to be a relationship between the type of household and the extent and nature of women's participation in construction work. It is seen from studies conducted in some developing countries that women in extended households have greater freedom to participate in construction activities and also seem to be more involved in active decision making.
- It is suggested in several studies that there is a different value attached to physical labor versus administrative or managerial work by the laborers in the construction sector. The former is considered to be more superior.
- Evidence strongly indicates that there is a tendency within the construction sector to feminise certain types of jobs, especially those that male laborers may refuse to do. In the absence of resources to mechanize such tasks, contractors and subcontractors may prefer to maintain a work force that can perform these tasks.
- There may be a positive relationship between the presence of persons from the same community on a site and the perpetuation of traditional norms of labor distribution.
- There may be a difference in the avenues that women in the three categories of migrant workers discussed in our study use to achieve mobility within the construction sector.
- Prior economic status and educational background may influence the attitudes of women regarding work on construction sites (positively or negatively) and the learning of skills.

There is also a need to look at future patterns of women's participation in the construction labor force. In order to evaluate this, there is a need for additional research in the following areas:

- The relationship between labor versus capital inputs and the number, type and size of projects undertaken by contractors. It is relevant to see whether there is a substantial variation in these in the context of India's construction industry. This has implications for the employment of women in construction work.

- The effect of a possible increase in mechanization of operations in the construction industry on the participation of women in the construction work force.

4.4 Implications for Policy

Our analysis indicates that an increase in labor productivity can be achieved through the creation of a more skilled work force. An increase in the level of skills of women workers, who are mostly employed as unskilled workers would help to achieve this. This is especially relevant to the case of developing countries who do not have adequate resources to increase labor productivity through increased capital input.

If it is assumed that the system of subcontracting will continue, it is important to realize that any change in the organization of the labor force would be most effective if it is initiated by the subcontractor and his gang of workers. The incentive for subcontractors to equip more women with special skills can be provided by encouraging contractors and subcontractors to work together. As in the case of Japan,¹⁰¹ efforts to increase cooperation between contractors and subcontractors could take the form of loans, training facilities for workers and training of supervisory personnel. Subcontractor's cooperatives are also worth exploring, since these can help overcome the resource deficiencies of these small firms.

Our study indicates that, one of the important obstacles to increasing labor productivity is the low demand for construction that may in fact encourage contractors and subcontractors to decrease the pace of work. Strategies should therefore aim towards increasing the demand for construction including new construction as well as repairs and maintenance. The increase in demand is intimately linked to supply factors such as material inputs, labor and capital inputs and hence, policies to increase demand must deal with other inputs in addition to labor. We will not discuss this aspect in

¹⁰¹ Ganesan discusses cooperative efforts between contractors and subcontractors in in Japan.

greater detail, since it does not deal directly with the subject of this analysis. We mention it here because an increase in the demand for construction can create the initiative for subcontractors to increase the level of skills of their work groups.

In addition to the desirability of increasing labor productivity, increasing women's skills and economic status is in itself an important objective. Legislation should aim at enabling the employment and mobility of women rather than creating bottlenecks through several restricting acts, such as acts prohibiting the employment of women for night shifts. Legislation could be enacted to employ a certain percentage of women on construction sites and a certain minimum percentage of women as skilled workers. This would encourage employers to invest in creating a more skilled work force.

Another aspect to be considered is the adoption of training programs from one cultural context to another. As discussed in our analysis, the design of training programs for women should be sensitive to several factors such as the economic level of the country, the organization of the construction work force, the traditional norms governing the participation of women in construction and the training facilities already in place.

Training opportunities for women in construction have been largely the result of efforts made by international aid agencies. One of the questions that arises from this study is the need to evaluate the advantages of training women in what are considered to be unconventional occupations for women. This question merits further study. In the Indian context, it seems appropriate to train women in construction skills. It can be expected that employers will continue to recruit migrant families for work on urban construction sites. Hence, women will continue to form part of the construction labor force. If mechanization in construction increases, it is more likely that unskilled, and especially female labor will be displaced. The creation of a higher skilled female work force will help to limit this displacement.

BIBLIOGRAPHY

- Ahmed, I.; "Technology, Production Linkages and Women's Employment in South Asia"; International Labour Review, Vol 126, No. 1, January-February 1987, pp.
- Anker, R., Hein, C.; "Why Third World Employers Usually Prefer Men"; International Labour Review, Vol. 124, No. 1 Jan-Feb. 1985, pp.73-90.
- Bapat, M., Crook, N.; "Duality of Female Employment: Evidence from a Study in Pune"; Economic and Political Weekly, July 30, 1988, pp. 1591-1595.
- Basu, T.; "Plight of Railway Construction Casual Labour"; Economic and Political Weekly, February 14, 1981, pp. 229-230.
- Bhalla, A.S., Edmonds, G.A.; "Construction Growth and Employment in Developing Countries"; Habitat International, Vol. 7, No. 5/6, 1983, pp. 195-206.
- Bose, A.; "A Demographic Profile of Indian Women"; Devaki Jain (ed) Indian Women; 1975, pp.125-186.
- Boserup, E.; "Women in the Labor Market"; Devaki Jain (ed), Indian Women; Publications Division, Ministry of Information and Broadcasting, Government of India, 1975, pp. 99-112.
- Cassimatis, P.J.; Economics of the Construction Industry: Studies in Business Economics, Number 111; 1969.
- Chant, S.; "Domestic Labour, Decision Making, and Dwelling Construction: The Experience of Women in Queretaro, Mexico"; Moser, C., Peake, L. (eds), Women, Human Settlements and Housing, 1987, pp.33-54.
- Craig, C., Garnsey, E., Rubery, J.; "Labour Market Segmentation and Women's Employment: A Case-study from the United Kingdom"; International Labour Review, Vol 124., No.3, May-June 1985, pp. 267-280.
- Dixon, R.B.; "Women in Agriculture: Counting the Labor Force in Developing Countries"; Population and Development Review, Vol. 8, No. 3, September 1982, pp.539-490.

- Elliot, C.M.; "Theories of Development: An assessment"; Wellesley Editorial Committee (ed) Women and National Development: The Complexities of Change; 1977, pp 1-8.
- Fernando, M.; "New Skills for Women: A Community Development Project in Colombo, Sri Lanka"; Moser, C., Peake, L. (eds), Women, Human Settlements and Housing, 1987, pp.33-54.
- Ganesan, S.; "Growth of Housing and Construction Sectors: Key to Employment Creation" Diamond, J., McLoughlin, J.B. (eds) Progress in Planning, Vol. 12, Part 1, 1979.
- Ganesan, S.; "Housing and Construction: Major Constraints and Development Measures"; Habitat International, Vol. 7, No. 5/6, 1983, pp. 173-194.
- Ghosh, C.; "Construction Workers"; Lebra, J., Paulson, J., Everett, J. (eds) Women and Work in India: Continuity and Change, New Delhi, 1984, pp. 201-211.
- Gill, I.; "Migrant Labour: A Mirror Survey of Jullunder and East Champaran"; Economic and Political Weekly, June 16-23, 1984, pp.961-964.
- Gulati, L.; "Devaki, The Construction Worker"; Profiles in Female Poverty, pp. 99-135.
- Hillebrandt, P.M.; Economic Theory and the Construction Industry; Macmillan Publishers, London, 1974.
- ILO; Yearbook of Labour Statistics: 1989-90; 49th issue, Geneva.
- ILO; The Improvement of Working Conditions and of the Working Environment in the Construction Industry; Geneva, 1983.
- Joshi, H., Joshi, V.; Surplus Labor and the City: A Study of Bombay; New Delhi, 1976.
- Lebra, J., Paulson, J.; "Introduction" Lebra, J., Paulson, J., Everett, J. (eds) Women and Work in India: Continuity and Change, New Delhi, 1984, pp.1-24
- Manohar, K.M., Shobha, v., Rao, J.V.; "Women Construction Workers of Warangal"; Economic and Political Weekly, Vol. xvi, No.4, 1981, pp.97-99.
- McLeod, R.; "The Kingston Women's Construction Collective: Building for the Future in Jamaica" Ann Leonard (ed) SEEDS: Supporting Women's Work in the Third World; 1989, pp. 163-194.
- Mitra, A., Mukhopadhyay, S.; "Female Labour Absorption in Construction Sector"; Economic and Political Weekly, March, 11, 1989, pp.523-528.
- Moavenzadeh, F.; "The Construction Industry"; Rodwin, Allen and Unwin (eds), Shelter, Settlement and Development, 1987, pp.73-109.
- Mobile Creches; Under the Shadow of the Scaffolding: A Study of Migrant Construction Workers; 1987.
- Moser, C.O.N.; "Gender Planning in the Third World: Meeting Practical and Strategic Gender Needs"; World Development, Vol. 17, No. 11, 1989, pp. 1799-1825.
- Payne, G.K.; "A Case Study of Delhi"; Urban Housing in the Third World, 1977.

- Portes, A., Benton, L.; "Industrial Development and Labor Absorption: A Reinterpretation"; Population and Development Review, Vol. 10, No. 4, December 1984, pp.589-611.
- Sanyal, B.; "The Urban Informal Sector Revisited"; Third World Planning Review, Vol. 10, No. 1, 1988, pp. 65-83.
- Todaro, M.P.; Economic Development in the Third World; 1989, Chapters 8,9., pp. 237-289.
- United Nations; World Housing Survey, Ch. ix, pp.112-117.
- United Nations Center for Human Settlements (Habitat); "The Construction Industry in Developing Countries"; Construction and Civil Engineering.
- Vance, I.; "More than Bricks and Mortar: Women's Participation in Self-help Housing in Managua, Nicaragua"; Moser, C., Peake, L. (eds), Women, Human Settlements and Housing, 1987, pp.33-54.
- Visaria, P.; "Level and Nature of Work Participation by Sex, Age and Marital Status in India, 1961"; Economic and Political Weekly, May 1983, pp.901-918.

APPENDICES

Appendix 1: Occupations on a Typical Construction Site

Source: Mobile Creches, 1987, p.19.

OCCUPATION			
Unskilled	Mud & Brick Carriers	1933	27.3%
	Mukkadam	58	0.8%
	Thekedar	30	0.4%
Skilled	Supervisor	51	0.7%
	Mixer Operator	25	0.4%
	Mason	219	3.1%
	Driver	57	0.8%
	Wireman/Electrician	35	0.5%
	Plumber	33	0.5%
	Carpenter	228	3.2%
	Watchman	61	0.9%
	Mechanic	46	0.6%
	Plasterer	16	0.2%
	Fitter/Welder	175	2.5%
	Painter	20	0.3%
	Lift Operator	6	0.1%
	Crane Operator	17	0.2%
Related Occupation	Peon	24	0.3%
	Store Keeper	6	0.1%
	Water Carriers	34	0.5%
	Canteen Man	9	0.1%
	Security Man	2	—
	Mistry	86	1.2%
	Tile layer & polisher	24	0.4%
	Stone Breaker	84	1.2%
	Engineer	6	0.1%
	Gardener	7	0.1%
	Sweeper	6	0.1%
	Work Outside the site	Fish Vendor	34
Domestic Work		58	0.8%
Vegetable Vendor		16	0.2%
Other work		60	0.9%
Office peon		3	—
Shop assistant		3	—
Unemployed		39	0.6%
Students		1490	21.0%
Children not attending school (0.3 to 10 years)		480	6.8%
Others		Unemployed boys (11-18 years)	53
	Unemployed girls (11-18 years)	60	0.9%
	Housewives (11 and above)	747	10.5%
	Very young and old persons	711	10.0%
	No response	38	0.5%
	TOTAL	7090	100.0%

Appendix 2: Sex distribution of Construction Labor by Occupation

Source: Mobile Creches, 1987, p.20. Table III:5

OCCUPATION	MALES(percentage)	FEMALES(percentage)
Manual Labor	40.33	85.46
Mason	8.23	0.67
Carpenter	8.23	0.29
Fitter/Welder	6.79	0.00
Stone Breaker	2.80	1.15
Mistry	3.34	0.00
Other construction work	25.31	0.00
Other occupations	3.38	11.38
Unemployed adults	1.09	1.05
TOTAL	100.00	100.00

Appendix 3: Sample Questionnaire

QUESTIONNAIRE
SOURCE: WOMEN CONSTRUCTION WORKERS

=====

BACKGROUND INFORMATION: (Migration, family)

=====

1. How long have you lived in Bombay?

- _____ less than one year
- _____ one to five year
- _____ more than five years
- _____ always lived in Bombay

If i, ii or iii applicable, continue; otherwise skip to 6.

2. What is the name of your home town / village?

- _____ name of the village
- _____ state
- _____ distance (hours)

State codes:

- 01 Maharashtra
- 02 Gujarat
- 03 Madhya Pradesh
- 04 Uttar Pradesh
- 05 Rajasthan
- 06 Kerala
- 07 Andhra Pradesh
- 08 Tamil Nadu
- 09 Bihar
- 10 other (specify) _____

3. Why did you decide to move to Bombay?

- _____ for better employment
 - _____ accompanying family members
 - _____ famine (fam) / flood (fl) / other natural calamity
 - _____ for education
 - _____ no land
 - _____ other (specify) _____
- _____
- _____
- _____

4. How often do you visit your native village?

- _____ less than once a year
- _____ yearly
- _____ once in two years
- _____ less than once in two years
- _____ never

5. Do you have any of the following in the village?

Y = yes N = no

_____ family
_____ house
_____ land

PRESENT LIVING CONDITIONS:

6. Where do you live in Bombay? _____

7. How long have you lived there?

_____ less than a year
_____ one to two years
_____ more than two years

8. Do you own or rent your home?

_____ own
_____ rent

9. Where did you live earlier? (in Bombay)

10. How do you travel to work? By:

_____ bus
_____ train
_____ walk
_____ other (specify) _____

11. How much time do you spend travelling one way?

_____ less than or equal to half an hour
_____ half an hour to one hour
_____ one to two hours
_____ more than two hours

12. How many persons live together in your present house in Bombay?

adult /child	sex	occupation	relationship to respondent

13. How many rooms (excluding toilet / bathroom) does your home have?

_____ number of rooms

=====

INFORMATION ABOUT THE JOB:

=====

codes for 12, 13:
 01 days (indicate number)
 02 months (indicate number)

14. How long have you been working on this construction site?

15. How long have you been working with the same contractor?

16. What were some of the jobs that you held in the past two years?

job description	duration	employer

17. How did you hear about this job?

_____ from family
_____ from friends
_____ other (specify) _____

18. How long did you spend looking for a job? _____

19. How long do you expect to work here? _____

20. How are you paid?

_____ on a daily(d) /weekly(w) / hourly(h) basis
_____ on a job (piece) basis
_____ in cash(c) or kind(k)

codes for payment in kind:

01 food
02 housing
03 waste building material
04 other (specify) _____

21. Do you have a contract? _____

y = yes n = no

22. What is the duration of your contract? _____

codes for duration:

01 days (number)
02 months (number)
03 job on particular site
04 other (specify) _____

23. Will you look for another job after this one?

Yes: _____ in the construction sector _____
other occupations _____

No: _____ continue in present job _____
quit work _____

29. What type of jobs would you like your children to take up?

codes:

- 01 in construction
- 02 in government service
- 03 blue collar: manufacturing
- 04 white collar
- 05 own business

30 How many children do you have? _____ boys _____ girls

31. Do your children also work on the construction site?

y= yes n=no

32. Do you have a husband? _____

y= yes n= no

33. where does he live? _____

34. Where does he work? _____

codes for 33 and 34:

- 01 in Bombay
- 02 in the village
- 03 in another city
- 04 part of the time in the village
- 05 other (specify) _____

35. Tell me a little bit about yourself

36. Tell me something about the advantages and disadvantages of working in the construction industry.

Appendix 4: Revised Coding List for Interviews

1] How long have you lived in Bombay?

- 01 = less than one year
- 02 = one to five years
- 03 = more than five years
- 04 = always lived in Bombay

2] Name of town or village and state of origin.

3] Why did you move to Bombay?

- 01 = for better employment
- 02 = accompanying family
- 03 = famine/ flood / natural calamity
- 04 = for education
- 05 = no land
- 06 = no work

4] How often do you visit your native village?

- 01 = more than once a year
- 02 = once a year
- 03 = once in two years
- 04 = less than once in two years
- 05 = never

5] Do you have family, house or land in the village?

- 01 = yes
- 02 = no
- 03 = do not know (no response)

6] How many persons live together in your present house in Bombay?

- Number of adults
- Number of children
- Number of men
- Number of women

7] How long have you been engaged in construction activity?

- 01 = less than one year

- 02 = one year
- 03 = more than a year.

8] How did you hear about this job?

- 01 = from family
- 02 = from friends
- 03 = Mukaddam
- 04 = searched
- 05 = previous employer
- 06 = do not know (no response)

9] How often are you paid?

- 01 = daily
- 02 = weekly
- 03 = fortnightly
- 04 = once a month
- 05 = thrice a month

10] What other facilities do you have on site?

- 01 = food
- 02 = clothinge
- 03 = building material
- 04 = water
- 05 = land
- 06 = divali bonus

11] Do you have a contract?

- 01 = yes
- 02 = no
- 03 = do not know (no response)

12] Will you look for a job after this one? what type of job?

- 01 = yes, in the construction sector
- 02 = yes, in other occupations
- 03 = continue in present job
- 04 = quit work
- 05 = undecided

13] What are some of the jobs that you do?

- 01 = bigari work (carrying loads)
- 02 = masonry
- 03 = finishing work
- 04 = khodai (digging)
- 05 = khadi work (breaking stones)
- 06 = do not work

14] Would you like to learn new jobs?

- 01 = would like to learn
- 02 = do not want to learn
- 03 = do not know

15] Do any of your friends or relatives from the village work on this construction site?

- 01 = yes
- 02 = no

16] What type of jobs would you like your children to take up?

- 00 = no child
- 01 = inconstruction
- 02 = government service
- 03 = blue collar jobs
- 04 = services
- 05 = own business
- 06 = education
- 07 = agriculture
- 08 = no job
- 09 = do not know
- 10 = no work

Appendix 5: Locations of States of Origin of Women.



Vita

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