GENDER IN URBAN WATER AND SANITATION SECTOR IN SOUTH ASIA

by

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EXECUTIVE SUMMARY

1. The purpose of this review of the literature is to provide a framework for integrating gender concerns into water and sanitation programs for urban poor in three South Asian countries--India, Pakistan and Bangladesh. The paper extrapolates from three sets of literature-- urbanization, poverty, and women in development--to some of the key concerns of the water and sanitation sector. Among these are: cost recovery, willingness to pay, participate in projects, demand for improved facilities, adoption and effective use and program sustainability.

2. The paper concludes that although Pakistan, India and Bangladesh, among the nine most populous countries in the world, now have fairly low urbanization rates, these are expected to sharply increase. Furthermore, some of the already overcrowded major cities in all three countries can expect enormous growth between now and the year 2000. Available studies indicate that between one-quarter and one-half the urban residents in large cities in all these countries live in slums. Insecure tenure, coupled with poverty and indebtedness, are likely to directly reduce ability of users to take on new debts for water and sanitation improvements; the evidence from this review indicates that a large share of urban dwellers in all three countries would be affected by these constraints.

3. For Pakistan and probably for the large metropolises of India, the population which has migrated to urban areas is fairly immobile after arrival, with a tendency to move mainly within settlements or inside the city, rather than between cities. Seasonal migration is still reported among the poorest rural dwellers in India. This migration is both rural-urban and within the rural areas as migrants seek work as agricultural laborers. In some cities of Bangladesh, migrants are reported to exhibit higher levels of mobility, particularly intra-urban, to avoid high monsoon water levels.

4. The gender ratios in Pakistan, India and especially Bangladesh, favors males over females. Gender ratios are particularly high among migrants and in urban areas. For the most part, migrants are better educated than non-migrants, but there are groups of indebted, often illiterate poor, who constitute an important migrant stream which should be the target of poverty-oriented urban water and sanitation initiatives.

5. With regard to women, the paper concludes that sectoral specialists interested in poverty and a community-based approach, such as the UNDP-World Bank Water and Sanitation Program, cannot afford to bypass women, who are over represented among the poor. Households in poverty often heavily rely on women's earnings. Therefore, family survival is often dependent on a woman's health, education and capacity to work. It is evident from the World Bank's country strategy papers on Women-in-Development (WID) that women as a group in these countries are more vulnerable than men to the extremes of poverty and its consequences. It is, therefore, desirable to include among target groups for poverty-directed sectoral programs particularly vulnerable groups such as the female headed households.

6. Water and sanitation sector professionals working in Pakistan, India and Bangladesh will need to understand and motivate illiterate women with few financial resources, who are encumbered by debt, ill health, inadequate nutrition, and high fertility rates. Longer project gestation periods and special communication strategies, including the use of mass media, may be required. If they are to be mobilized for community participation, these women need to have meeting and work times which accommodate their multiple family and market-oriented obligations and activities. These are important considerations for increase of demand for improved facilities, for their effective use and, for project sustainability and replicability.

7. It may initially be difficult for WSS personnel to gain access to some of these women, especially in Pakistan, where social norms often favor purdah (seclusion). In spite of cultural constraints, many women targeted for urban poverty programs will be economically active, especially among the poorest segments of the population. And preliminary evidence shows women can be organized to take considerable responsibility for hygiene education and for transforming community water and sanitation facilities; in the process, they boost their own skills and self-esteem. Using female water and sanitation staff as community mobilizers have been successful in these instances in Pakistan and Bangladesh.

8. Key strategies and recommendations are summarized below.

Strategies and recommendations for women, water and sanitation

Strategy 1: Determine the relevance of gender issues in ongoing and new projects.

(a) Use timely and cost-effective survey techniques to determine gender issues in a particular setting.

(b) Recognize and record differences in the actual and potential roles women of different socio-economic and cultural backgrounds play in the sector.

(c) Employ research approaches which elicit the full measure of women's work.

Strategy 2: Create mechanisms for the participation of women and communities.

(a) Involve women in all stages of project--from design to maintenance and evaluation --to enhance sustainability and willingness to pay.

(b) Organize women into groups where possible to increase effective demand for improved facilities and to promote appropriate behavioral changes.

(c) Expect to devote longer time for the institution of mechanisms to involve women and be willing to experiment with innovative approaches.

(d) Use NGOs (non-governmental organizations) where possible.

(e) Allow men and women to work separately if social norms demand it.

Strategy 3: Include gender considerations in design, siting and maintenance of facilities.

(a) Provide sufficiently for the privacy needs of women and the norms of modesty.

(b) Provide for security and safety considerations of women in siting and design.

(c) Emphasize low cost solutions and equipment because of extreme urban poverty and indebtedness, especially among households headed by women.

(d) Introduce technologies which consider space limitations in the design of facilities for urban slum dwellings.

(e) Ensure that systems specifications meet women's physical and resource constraints.

Strategy 4: Start small and follow with incremental expansion, using flexible project designs in areas with high potential for success.

(a) Incorporate careful monitoring of on-going projects so that corrective action may be taken if it appears that women are not optimally using or benefitting from facilities.

(b) Provide for flexible project design to accommodate factors which need correction during the course of the project.

(c) Anticipate longer project gestation periods to gain access to women, build trust, organize them and boost their confidence levels.

(d) Consider integrated project design, allowing cross-sectoral inputs to facilitate women's participation.

Strategy 5: Consider appropriate schemes to overcome women's credit constraints.

(a) Weigh the applicability of group guarantee schemes.

(b) Consider alternative credit arrangements, including collateral substitutes and donor guarantees.

(c) Allow women and men to mobilize savings according to their own capacity.

Strategy 6: Accommodate women's time constraints.

(a) Recognize the time constraints of female wage earners as well as home makers.

(b) Provide services reliably so as not to increase imcompatability between women's household and non-household work.

(c) Provide flexibility in community work and meeting times to ensure women's fuller.

(d) Recognize the breakdown in the extended and joint family structures and the implications this has on women's time.

Strategy 7: Provide for measures to overcome women's literacy constraints.

(a) Use simple messages and appropriate media to reach illiterate women.

(b) Develop informal and interpersonal channels of communication by grouping women or by utilizing existing women's networks.

(c) Design training activities of the sector so as to allow participation of illiterate urban slum women.

Strategy 8: Consider a targeted approach.

(a) Assess potential impacts of site and technology choices and of subsidies in a gender specific manner.

(i) Make investment of community facilities in residential areas.

(ii) Invest in technologies that provide a regular and reliable source of service in the immediate vicinity of residential units.

(iii) Avoid subsidies which would discriminate against poor women.

(iv) Create income generating and employment opportunities within the sector that women can benefit from either by having equal access to these opportunities or by enjoying affirmative policies.

(b) Find direct mechanisms of targeting women.

(i) Target women individually.

(ii) Target institutions serving women.

(iii) Target women in particularly impoverished households.

(iv) Target women in occupational groups.

Strategy 9: Strengthen Research in a Number of Areas.

I. INTRODUCTION

1. Much has been written about the roles women play in the water supply and sanitation (WSS) sector (IRC 1985; USAID 1980; ADB and UNDP 1990; ADB 1986; PROWWESS 1989). This literature has a heavy rural focus, but often lacks theoretical clarity and empirical substance. The assumption that women shoulder a heavy burden in the provision of domestic water and family hygiene is a common thread, linking empirical observations to policy recommendations (White el at 1972; Ansell 1980). Although methodologically sound time allocation studies have not been carried out, substantiation is provided to support this assumption in rural areas of some countries (Whittington et al 1990). Results of studies focusing on the time women spend with water hauling indicate close relationship between women's economic productivity, on the one hand, and the household demand for improved services, on the other hand (Bissiliat 1978; Briscoe and deFerranti 1988; Roark 1984).

2. The interrelationship between the heavy burden women shoulder in agricultural production and in the provision of rural infrastructure, including WSS, has led sector planners to treat expected time gains of WSS improvements as productivity gains. This line of thinking has provided economic justification for many rural water supply projects. Expected health gains from water supply improvements and particularly from sanitation investments have also added to expected productivity returns of sector investments. Yet, direct evidence is weak and the applicability of above mentioned relationships to the urban scene is questionable. Therefore, there is need to identify the roles women play in the urban water supply and sanitation sectors and the mechanisms through which sector services can be targeted to them. This paper attempts to do so for three countries of South Asia: India, Pakistan and Bangladesh. Its conclusions are based on the review of relevant literature and on field observations of the authors.

3. The view that women are passive carriers of a burden traditionally associated with their roles and automatically benefiting from water supply and sanitation improvements has changed over the years. By early 1980s there was a clearer realization that women's active participation was necessary for project success. "The many changes in traditional village and community water point maintenance strategies, health beliefs, and sanitation customs, now recognized as necessary for long-term project success, are increasingly seen to life within the province of responsibility traditionally controlled by women" (Roark 1984: 49). There is also a firmer understanding that benefits of improved WSS projects do not automatically incur women, especially in highly segregated and discriminatory labor markets. Therefore, WSS projects seek to define income generating components for women to ensure that expected gains from investments come forth.

4. Several common threads emerge from the analyses of the above mentioned rural focused literature as summarized below. These provide useful insights to issues that may be encountered in poverty stricken urban areas. It is, therefore, appropriate to review the principle indications emerging from the existing global WID literature dealing with the WSS sector before we focus on the urban scene in three countries of South Asia. Accordingly,

(a) Women shoulder a primary and a heavy burden in the provision of domestic water. This burden is substantial when measured in terms of time and volume. Time and effort spent on operation and maintenance of existing sources is also major. Similarly heavy responsibilities are assumed by women with respect to sanitation and waste disposal.

(b) Time spent with water related drudgery constitute a constraint to women's labor.

(c) Seclusion of women, whether for specific age and social groups or generally enforced, reduce women's participation in all aspects of WSS, including transportation of water and solid waste management activities. Other cultural factors also influence family division of labor with respect to sector activities. Similarly, socio-economic differences between households within a culture affect the degree and type of female participation in the sector.

(d) Women make the basic decisions concerning the choice of water sources and their use.

(e) Women's knowledge on water resource management is acquired informally through interpersonal contacts. This also applies to their knowledge on sanitation.

(f) Women's demand for sanitation is often based on their demand for privacy. However, monetary and time cost considerations are also made.

(g) Women's education and income positively impact household demand for sanitation.

(h) Availability of excess female labor retards effective household demand for WSS improvements.

(i) Women are instrumental in the realization of potential health benefits of improved WSS services. When health education efforts purposefully include them in their target groups, such benefits substantially increase.

(j) Women contribute their labor to sector activities outside the domestic realm. They contribute voluntary or paid labor to WSS construction and maintenance activities. They assume well documented roles in the construction of gravity schemes and latrines. They also participate in many aspects of solid waste management, including collection, sorting, trading and recycling.

(k) Women's participation in WSS sector formal employment is extremely limited as is their participation in the overall planning and management of regional, urban and national policies, programs and projects.

(l) While WSS improvements have had positive health and productivity effects on women, negative impacts are also observed in terms of loss of employment and resources, and increased workload without access to increased economic benefits.

5. The International Drinking Water Supply and Sanitation Decade was endorsed by the United Nations General Assembly in 1980. Ten years later, the Global Consultation on Safe Water and Sanitation for the 1990s reviewed the Decade's progress and concluded that its achievements were short of expectations. Its key lessons included the centrality of community participation and of women. Decade experience also showed that large numbers of poor remained unserved despite strong commitment to Decade's goals and that user's needs and expectations were not well understood in the design and delivery of sector services. The New Delhi Statement, the outcome of the Consultation, included further commitment to serving the poor and involving communities and women. Specifically, it stated that services to the rural poor ought to be sustained and be directed to the urban poor. "Communities should have prominent roles in planning, resource mobilization and all subsequent aspects of development. Within these strategies, gender issues will be all important." (United Nations 1990).[1]

6. The identification of the main characteristics of urban women which are relevant to poverty focused urban water and environmental sanitation programs is not an easy task. In order to do this, the paper extrapolates from three sets of literature: urbanization, poverty and Women-in Development (WID). Literature on the water supply and sanitation sector was also reviewed. Following a demographic review, residential, social and economic circumstances of the urban poor and migrants are examined. Subsequently, the situation of urban women is chronicled and the constraints to their full participation in sector activities are identified. The interaction of gender with class and caste in providing WSS services is briefly discussed. Finally, recommendations for effectively targeting and mobilizing poor urban women in the water and sanitation sector are put forward.

7. This review, together with our own observations and empirical studies, reveal that urbanization is at an increase as is urban poverty. Women's share among urban populations and especially among the poorest of the poor is large. Growing urban environmental problems threaten the poor and further increase the women's drudgery. Inadequate and unreliable WSS infrastructure also constrain women's ability to work productively at home and outside. It is evident from the World Bank's country strategy papers on WID that women as a group in these three countries are more vulnerable than men to the extremes of poverty

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[1] United Nations. General Assembly. Report of the Economic and Social Council. A/C.2/45/3, 11 October 1990.

and its consequences (1989a,b,1990a). Sector professionals working in Pakistan, India and Bangladesh will need to understand and motivate illiterate women with limited financial resources, if they are to succeed in introducing improved hygiene and sanitation programs. Other constraining factors associated with urban women in poverty are debt, ill health, inadequate nutrition, and high fertility rates. Inadequate, distant and unreliable water and sanitation facilities place additional burdens on these women because of their complex, multiple, and often inflexible family and market-oriented obligations and activities. If such women are to participate in community action in the sector, they will require flexible work and meeting times in order to accommodate their productive and family responsibilities.

8. The paper concludes that sectoral specialists interested in poverty and a community-based approach, such as the UNDP-World Bank Water and Sanitation Program, cannot afford to bypass women, who are over represented among the poor. Moreover, households in poverty often rely heavily on women's earnings; and family survival is often dependent on a woman's health, education and capacity to work. Gaining access to some women may be difficult, especially in Pakistan, where social norms often favor seclusion of females. In spite of cultural constraints, many women targeted for an urban poverty program will be economically active, especially among the poorest segments of the population. And preliminary evidence shows women can be organized to take considerable responsibility for hygiene education and for transforming community water and sanitation facilities, and in the process, boost their own skills and self-esteem.

II. POPULATION AND URBANIZATION

(a) Population

9. In the past 35 years the world's population almost doubled. It will exceed 6 billion by the turn of the century. Much of growth concentrates in the developing countries, and among them in the last developed ones. In the next 15 years 230,000 individuals will be added to the world population every day and 8 out of 10 of the new residents will be born in developing countries. Where the pace of economic growth is dramatically slow in developing countries.

10. The speed and magnitude of Third World urbanization has led to soaring land prices and an inability or unwillingness of urban authorities to meet the demands of various sections of the population for adequate housing, infrastructure and services. Urban density compromises environmental health, and urban wage employment cannot keep pace with the demands for job creation. Under these circumstances, it is the poor who have the least access to both employment and housing. Many are forced into the informal sector, for example, construction, street vending, small artisan industries, collecting firewood, and so forth. These activities are often seasonal and are characterized by lower job security and stability than that of wage workers. Unable to afford basic shelter, many of the urban impoverished are forced into crowded slums or become squatters on illegally occupied land

in peri-urban areas. Population pressures, lack of planning and environmental problems typify these areas.

11. Third world debt has led many countries to cut back on public expenditures, thus affecting investments in construction and social services in particular. This has led to further deterioration in living conditions, particularly in major urban centers, where badly needed basic services and infrastructure to help the poor are unlikely to be achieved in the near term. The contraction in expenditures has in turn led to higher unemployment, and decreases in incomes and real wages, aggravating the depth and extent of urban poverty (World Resources 1986).

12. India, Pakistan and Bangladesh are among the ten most populous countries in the world and are expected to remain in that category through the year 2025 (Table 1). In 1985, India ranked second to China in population, with Pakistan placing eighth, and Bangladesh ninth (United Nations 1989).[2] In Bangladesh, four fifths of the population consumes below the minimum caloric requirement, and about one third of the labor force is unemployed. The extremely low land to inhabitant ratio of 0.29 acre per capita attests to the growing scarcity of space. Furthermore, the country imports a substantial quantity of food to meet barely minimum caloric needs (United Nations 1991).

(b) Urbanization

13. Population growth is more than matched by the pace of urbanization. Urban populations will triple in the next 40 years in developing countries with some 150,000 residents being added to their urban areas on a daily basis (UNCHS 1989). Larger cities will continue to grow more rapidly and the super cities in developing countries will be of a size never experienced in human history. As is population growth, urban growth is highest in developing countries. Trends in urban growth are strongly associated with the rate of natural increase in urban areas an urban net migration rates. In particular, India and Pakistan are expected to experience strong rural-urban migration over the next two decades (United Nations 1988).

14. Although it varies by region, urbanization of the world continues at a rapid rate. In 1985, over 40% of world's population was urban; by 2010 that figure will increase to over 50%. Although Pakistan, India and Bangladesh currently have fairly low urbanization rates, their rates are expected to accelerate rapidly, especially in the cities of Bombay, Calcutta and Karachi. The urban population of Bangladesh, which accounted for only 8% of the total population in 1970 and 12% in 1985, is projected at 18% in 2000. This figure represents a more rapid urban growth rate than the average among the 41 least developed countries.

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[2] Bangladesh has the further distinction of being among the 41 least developed nations in the world.

15. The population residing in urban agglomerations of 10 million or more inhabitants has doubled from 1970 to 1985, and will triple between 1985 and the year 2000. Calcutta is already in the 10 million or more population category; Dacca, Delhi and Karachi will join that group by 2000. Moreover, Dacca, Delhi, Greater Bombay and Karachi are among the nine cities expected to show substantial population increases from 1985-2000. Six cities located in India, Bangladesh and Pakistan which are among the world's 33 largest urban agglomerations (Table 2). To conclude, Pakistan, India and Bangladesh are among the nine most populous countries in the world. Although urbanization rates are now fairly low in these countries, sharp increases are expected. Furthermore, some of the already overcrowded major cities in all three countries can expect enormous growth between now and the year 2000 placing great strains on urban infrastructure and facilities (United Nations 1989).

III. THE URBAN POOR: ECONOMIC, SOCIAL, AND RESIDENTIAL CIRCUMSTANCES

(a) Urban Slums and Squatter Settlements

16. Between one-quarter and one-half of urban[3] residents in India, Pakistan, Bangladesh live in slum or squatter settlements. In Delhi, well over one third of the population lives in slums or resettlements (Mazumdar 1990). In Bombay, fully one third of the population lives in slums on about 8,000 acres of land--over 400 persons per acre. If current trends continue, 75% of Bombay's population will inhabit slums by the year 2000. Although fewer in number than the 600,000 pavement dwellers in Calcutta, over 100,000 people currently live on the pavements of Bombay. The city contains the world's largest slum, a conglomeration of shanties called Dharavi. In Dhaka, half the population lives in slums; the same proportion applies to Khulna, the third largest city in Bangladesh (Pryer 1987).

17. In Pakistan, urban development specialists estimate that between 25-30 % of urban dwellers live in squatter settlements called katchi abadis. There are approximately 1300 such areas nationwide, including 100 in Lahore, which house 21% of the city's population (Shah and Anwar 1986). Afghan refugees in Pakistan are swelling the numbers of urban slum dwellers (Pakistan Academy for Rural Development 1988).

18. In Karachi, one third of the city's 6 million inhabitants live in one of the 362 katchi abadis (IRC 1988). Karachi has two distinct types of unauthorized housing. In the first category there are about 120 settlements built on invaded land. Many of these settlements were constructed on the banks of water courses. The second type is created by illegal subdivision of government land by private persons.

19. Slum dwellings are often makeshift, using scavenged materials. In Chittagong, Bangladesh slum housing is usually one story, made of cane or bamboo and wood (McGarry

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[3] This paper focuses on major urban areas in the three countries.

1990). In Dhaka, a study of two slum areas revealed the average family lived in a single room measuring about 42 sq. ft. with 80-90% of families having walls made of bamboo (Akhter 1985). Karachi slum dwellings are commonly classified according to building materials and facilities. Housing ranges from the better pucca (proper cement or concrete dwelling) to semi-pucca, (combination of mud and stone) kucha, (mud) and juggi (thatched house), which is at the poorest quality (Yeh 1981). The overall conditions of living in these settlements are so poor that some have characterized the low-income settlements of Calcutta, Bombay, Delhi and Karachi as "slums of despair", based on residents' belief in their lack of social mobility (Yeh 1981).

(b) Water Supply and Sanitation

(i) Access to Drinking Water and Sanitation

20. The increasing domestic demand for water and sanitation services is compounded by continuing growth in demand for water by agriculture and industry (World Bank 1988). As worldwide demand for water outpaces supply in urban areas, and as overcrowded Third World cities are unable to provide satisfactory sanitation services, it is the poorest and most vulnerable groups within the population who are most likely to be without adequate services.

21. Table 3 indicates the percentage of the urban and rural population in Pakistan, India and Bangladesh with access to safe drinking water and sanitation. In 1985, the population in **rural** Bangladesh had better access to safe drinking water than urban dwellers (49% versus 24%). Urban dwellers had better sanitation with 25% having access in 1985, versus only 3% of rural dwellers. However, **only 5% of the entire populace had access to sanitation services** while 46% had safe drinking water. Compared to rural households, urban dwellers in India had superior access to drinking water (76% versus 50%) and sanitation (31% versus only 2%). Overall, WSS services were better in India than in Bangladesh. Countrywide, Pakistan had 44% coverage for drinking water and 19% for sanitation, with considerably better coverage in urban areas.

(ii) Scarcity, Irregularity and Contamination of WSS Facilities

22. These aggregate numbers translate into dismal portraits in many cities. Only one-third of the solid waste in Karachi is being removed; potable water, which has to be brought 160 km from the Indus, is available only for a few hours a day in most areas (Hardoy and Satterthwaite 1989). Some 3 million people in Calcutta live in bustees and refugee settlements which lack potable water, are subject to serious annual flooding, and have no systematic disposal for refuse or human waste. About 2.5 million others live in unserviced or blighted areas. The sewage system covers only one-third of the area in the urban core, and piped water is available only in the central city and parts of some other municipalities (Hardoy and Satterthwaite 1989). In Madras, only 2 of 3.7 million residential consumers within the local water supply and sewerage board service area are connected to the system. The remainder use public taps at a ratio of 240 persons per tap. Another 1 million

consumers outside the service area rely on wells, which are inadequate due to falling groundwater levels. In Chittagong, standpost in highly commercialized areas can be used by as many as 1500 persons, especially if they supply water regularly with reasonable pressure.

23. In slums of Chittagong, there are hardly any latrines. In one slum area of Dhaka, a study reported that one latrine served 8 to 20 households (Akhter 1987). During the monsoons in Chittagong homes, including the living and sleeping areas, are often filled with one to two feet of contaminated sewage/water. This necessitates temporary intra-city movement for many slum dwellers (McGarry 1990). Monsoon flooding covers available tubewells and taps in many parts of Dhaka, impeding access to sources of clean water. This has an adverse effect on hygienic practices; for instance, hand washing by mothers decrease during the monsoons a habit associated with reduced diarrhea in children. Stanton and Clemens (1987).

24. In summary, water supply in urban slums is characterized by low availability, irregularity and impurity. In all three countries, for fewer urban dwellers have access to sanitation facilities than to water. Sanitation and waste disposal pose serious environmental and health hazards. These hardships all diminish the productivity and health, and create further duress in the lives of the urban poor, who must often walk long distances and then wait in long queues to use WSS facilities. Women, as subsequent sections describes, bear a greater share of these adversities than men.

(iii) Constraints to Sector Improvements

25. Constraints to sector improvement in urban slums and squatter communities are many (Kudat and Fon 1990). In these, widespread poverty goes hand in hand with lack of political power. The pressure the poor can bring about the sector institutions for the allocation of scarce public funds are limited. Existing institutional arrangements retard community participation and mobilization for self-help; neither the central nor the municipal governments act in the best interest of the poor, especially when there is conflict of interest with power groups. The existence of poverty pockets isolate negative environmental externalities of slums. These poverty pockets entrust the poor to the whims of powerful landlords and "muscle men" (Kudat and Fon 1990) . Also, the legislative framework basically provides a guarantee to protect the interest of the power groups. As in Chittagong, the demands of the poor are hardly heard, especially when large numbers of them live in rental quarters. The interests of women receive lowest priority both within the community and in the settlements context.

26. Several distinct patterns of tenure can be observed among low-income populations in India, Pakistan and Bangladesh. Political strengths of these groups are also distinct and vary both within and between the three countries. On the whole, mobilizing support and releasing energies of poor communities to carry out water and sanitation improvements depends on removing threat of eviction. When this threat is absent, demand for improvements depends

whether households have ownership or whether landlords can expect a return to their sector investments.

27. Outside the slum and squatter communities, low-income populations live in individual homes or flats. They may own these or rent them from private landowners or companies. Squatters may occupy public or private lands. Their status is highly variable. In Chittagong, for instance, some individuals take possession of small plots of public land by installing handpumps and mud homes. They then rent these out to poor families. More frequent is the occupation of large plots of public land. In these, the public authorities prevent the installation of water supply or sanitary facilities, not anticipating transfer of lands to their present occupants. In India, on the other hand, such a transfer is frequent owing to political gains scored by the poor and thus, the squatters have more of an incentive to improve their community WSS infrastructure. A similar situation is noted in Pakistan.[4]

28. In slums, ownership and settlement patterns affect resident's ability for WSS improvements. Slums occupied by individual landowning families with close kinship and social ties have higher motivation for self improvement; at the same time, they have greater organizational capacity to bring about changes.[5] The slums that are allocated to special social groups, such as refugees, sometimes lack individual family allotments; thus, home based improvements, such as for latrines, are not made. Clearly, more research is needed on patterns of home ownership and their effects community participation and demand for WSS services. The potential for women's participation in community efforts and in shaping household demand will emerge in this context.

29. The actual and potential availability of WSS infrastructure also depend upon the density and physical outlay of settlements. Extremely high densities coupled with linear organization of single rooms make it difficult to install individual or community latrines[6] and remove the water sources farther away from homes. The cramped and small dwellings and the lack of disposal facilities discourage the transportation of water to slum huts. As a result, women transport a large portion of tasks such as laundry and dishes to polluted ponds and rivers. The concentration of potable water sources such as standposts and handpumps in

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[4] Shan and Anwar (1986) report that slum owners do not consider home ownership an important priority. While 84% owned their houses, only one third owned the right to the land under their dwellings. Katchi Abadis of Faisalabad also attach low priority to land ownership, knowing that the political process will grant them de facto ownership.

[5] Aslam and Jahan (1990) report that most slum dwellers owned their own homes. In bustees of Calcutta, three distinct tiers of tenure arrangements are mentioned (Yeh 1981): ownership, rental and shared rental. Seasonal rental arrangements also prevail (McGarry 1990).

[6] Bakhteari (1987) report that in Karachi, slum residents were reluctant to use space in their small yards for soak pit latrines, in spite of the high payments they made to sweepers. Innovative space arrangements had to be demonstrated for them to be convinced.

public places also discourage women away from safe water sources and result in a relatively high sharing between women and men of water related drudgery, especially where purdah[7] is observed. Women not only suffer from cramped settlements and dwellings because of lack of privacy, but because of the illness their children suffer from lack of sanitary facilities (Mazumdar 1990).

(c) Select characteristics of urban poor

(i) Urban Migrants: Wave or Trickle?

30. Although net rural out-migration rates per 100 inhabitants in India and Bangladesh are currently low for males and females when compared to the rest of Asia and the world, these rates are expected to dramatically increase by the year 2000 (United Nations 1988). These increases, combined with natural growth, are already straining the limited capacity of cities in all three countries. Net urban migration rates are high and account for about a third of urban growth (ESCAP 1988). Bangladesh has the highest net urban in-migration for both males and females among Asian countries (Figure 1).

(ii) Gender Ratios Among Migrants

31. In many Latin America countries, rural female out-migration rates exceed those for males. This is not the case in South Asia where gender ratios of net rural-urban migration favor males over females in both Bangladesh and India. Figure 2 illustrates that about 130 males migrate from rural areas for every 100 females in Bangladesh. For India, the rate is almost 120 males for every 100 females. These ratios are among the highest among the Asian countries listed and indeed, with the exception of South Africa and Kenya, in the world. Figure 3 breaks down for India the dynamics of migration and gender by 5 year age groups. In India, as in Pakistan and Bangladesh, rural to urban migration is male-biased among working aged men, and urban gender ratios are highly skewed in favor of males.

32. Like India and Bangladesh, male migration rates in Pakistan exceed those of females in every age group (ESCAP 1988). Male rates peak at ages 25-29 whereas females migrate at younger ages forming new households with the groom selected by the family. The highest female migration rates occur between ages 20-24. In Pakistan's urban areas, the proportion of migrants among males is nearly double that among females between ages 30 and 44 (Figure 4).

33. It is important to appreciate the implications of gender ratios for the WSS sector. On the whole, there are fewer women than men in most countries of South Asia, including India, Pakistan and Bangladesh. In addition, female participation in urban led migration is low, but at an increase. More acute is the low representation of women among urban populations. Yet another factor is the extremely low presence of women in non-residential areas of cities. As

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[7] religious seclusion of women.

will be shown, women's participation in the labor force is also low. These factors combine to produce the following type of observations:

a) Fewer women than men are beneficiaries of urban WSS services;

b) Lower proportions of women than men benefit from public WSS infrastructure, such as standposts, when these are installed in commercial areas of the city;

c) Relatively fewer women than men benefit from WSS services provided in work places (Kudat and Fon 1990). Thus, targeting women require, among other considerations, the delivery of services to residential area where gender ratios are more even.

(iii) Motivation for Migrating

34. What lures migrants from their home villages to the crowded cities of these three countries? Are they there to stay or return home? The motivations that attrack male and female migrants to cities and patterns of their adjustment affect their WSS demand. Existing literature shows that while historically female migration in South Asia was for marriage and male migration was economically motivated, recent trends strongly indicate that migration among certain groups of Indian and Bangladesh women, especially the poor, is also work motivated. Migrants are often upwardly mobile, they are younger, better educated than the stock they left behind and often compare positively with the poor stock of residents in urban areas, have higher labor force participation rates, are highly motivated to find employment, and seek to improve their shelter and infrastructure conditions in their moves subsequent to their arrival in the cities.

35. Evidence from India suggests female migration for economic reasons is underestimated. The 1971 Indian Census reports that migrants represent a significant proportion (58%) of the total female workers in the country (59% in rural areas and 51% in urban areas) and the work participation rates of migrant women are higher than for the general female population (Mazumdar 1990). A study of 96 South Indian rural Tamils living in Delhi slums reports that most are landless wage earners in traditional occupations, and belong to the lower caste; families migrate in response to **female** economic opportunities as much as responding to those available for men (Mazumdar 1990).

36. Singh's (1986) study of rural to urban migration in the three Indian states of Bihar, West Bengal and Kerala concludes that although the overall volume of rural to urban migration in India is currently small, it is the most important stream, accounting for more than three-fourths of all migrants. **Individuals** are more mobile than **families** and males more so than females. The process is highly selective of young adults, particularly males in the 15-24 age group. In the two northern states, female migration is in large part motivated by the patrilocal system of residence for females after marriage. Women in Bihar and West Bengal tend to migrate more as dependents than in Kerala, where women are more likely to

migrate for their own economic advancement. Higher female migration rates in Kerala also reflect the different cultural perceptions about women's work. In the South, women are probably more likely to be encouraged by male members to seek jobs than in the North. In Bihar, the relatively large tribal population, characterized by abject poverty and mass illiteracy, lead to high work force participation by female migrants (Singh 1986). In Bihar and West Bengal, female migrants often seen jobs involving manual labor and semi-skilled work in construction.

37. Bangladesh slum women cite landlessness, poverty, unemployment, lack of sufficient cultivable land, and erosion as reasons for their migration with their families to Dhaka (Pryer 1987). Among certain groups--female headed households--economic motivation is a key factor. Also, migration among single women, such as those abandoned or divorced, is largely attributable to economic factors (Akhter 1985). In Khulna,[8] the third largest city in Bangladesh, about half of the population resides in legal and illegal slums. In-depth case studies of urban slum families report, as reason for migration, their impoverishment by serious illness and/or death of adults or by loss or decline in productive assets.

38. Pakistani women are less likely to move for economic reasons. A large scale study of migrants to Lahore reveal the differences in migration motivations between currently married (CM) women and their husbands. A large proportion--42% of these women, as well as 20% of widowed, divorced, single women--report marriage as the primary reason for migration to Lahore City.[9] The second major reason, reported in 32% of cases, is the desire to be closer to relatives or friends. For 68% of husbands, economic considerations are the primary reasons for the move (Shah and Anwar 1986).

39. A second Pakistani study suggests that older single females in Pakistan, particularly those aged 45 and above, have a higher propensity to move for economic reasons; divorced women more likely than widowed or married women to do so. Some 64% of this older single women are migrants compared to only 10% of single women in all age groups. Older single women also have high labor force participation rates as changes in their social circumstances necessitate induce them to search work (Shah 1984).

40. Relatives and friends in cities constitute a "pull" factor in Indian seasonal migration (Arora 1987). Personal networks based on kin, caste, village and region of origin are important for urban poor migrants; educated migrants rely more on impersonal channels in seeking housing and employment (Singh 1984). The system whereby new migrants lodge with friends and relatives until they find their own housing and jobs, places additional strains

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[8] Khulna has grown rapidly because of industrialization and large influxes of dispossessed migrants after the partition of Indian and Pakistan in 1947, communal riots in Calcutta in 1965 and the Liberation War in Bangladesh in 1971.

[9] Patrilocal residence, whereby brides move in with the groom and his family, is the major factor in the high rate of marriage migration among women in Pakistan.

on the crowded dwellings and inadequate WSS facilities in urban slums. In the years to come, the perception, if not the reality, of better jobs and amenities in urban than in rural areas, will create further demands on already overburdened water and sanitation facilities, as well as housing, health and education in South Asian cities. As extreme poverty in rural areas increase in its dominance among migration movitations, both the autonomous migration of women and joint migration of couples will increase. Neither existing social networks nor already strained labor markets will be able to accomodate the new comers in destitution. While they, more than any other group, will need access to clean water and sanitation, they will have multiple constraints to meeting their needs.

(iv) Post Migration Mobility

41. We have already noted that insecure tenure diminishes migrants' desires to improve their dwellings and to make WSS investments. A second factor which might reduce migrant aspirations to invest in sector improvements is **continued mobility** once they reach the city. The literature suggests that a portion of migrants continue to move within the cities after arrival, but empirical evidence indicates that urban populations are less mobile than have been assumed to be.

42. In Pakistan, a surprising number of migrants remain in the same slum where they first settle. A study shows that about 41% or 4 million migrants move from India to Pakistan following independence and partition in 1947, and have not moved between districts since that time (ESCAP 1988). Other research confirms that many of those who migrated to Karachi and Lahore arrived at the time of partition and remained in the original city of arrival since (Shah and Anwar 1986). Few Pakistani migrants return from urban to rural areas (Table 3). Urban-to-urban moves account for only 9% of migration, although this type of mobility is more likely to occur than a move back to the rural area. Shah and Anwar (1986) establish some intra-urban mobility but report that inter-urban mobility is relatively uncommon among Pakistani slum residents. Thus, while Pakistani migrants may move within the city, they tend to stay put in the urban setting they initially select. Their intra-urban mobility might well be related to a search for infrastructure improvements, on the one hand, and for a secure tenure situation, on the other.

43. In India, migration to the **large metropolises** often involves a single direct move rather than step migration from smaller towns to progressively larger cities (Singh 1984). Nevertheless, seasonal rural-urban migration appears to occur among some indebted families who work in construction trades in Delhi (Arora 1987).

44. A study of slum and squatter area residents in Chittagong shows an average length of city residence of 16 years and residence of 9 years in the hut currently occupied (Kudat and Fon 1990). A relatively length city residence is also reported by another study (Ryer 1987). However, urban slum families in Bangladesh appear to be more mobile than those in

Pakistan[10] and India; they move both within the city, and in some cases, to rural areas to work seasonally as agricultural wage laborers (McGarry 1990). Move dramatically, during the monsoons, many urban slum houses fill with one to two feet of water, including the living and sleeping areas. This necessitates additional temporary intra-urban movement (McGarry 1990). Stanton and Clemens(1987) were surprised by the mobility of Bangladesh slum dwellers in their Dhaka study on hygiene education. After the initial census enumeration, large numbers of intervention and control communities immigrated (19% of intervention communities and 23% of control communities) or emigrated (38% of intervention communities and 37% of control communities) in response to natural calamities. Thus, overall shelter improvements or getting access to shelter in locations less prone to environmental hazards might rank far higher in the priority needs list of Bangladesh slum residents than improvements in the WSS infrastructure (Kudat and Fon 1990).

45. Seasonal migration to cities may also retard demand for WSS improvements. Not having a permanent base to stay forces these migrants to utilize open spaces and polluted waters to meet their temporary needs. For instance, in drought-prone areas of India where land lies fallow for six months encourage the seasonal migration to Delhi for construction work (Arora 1987). Ninety-six percent of these migrants may come with their spouses who also work in construction.

(v) Education

46. Data presented in this section suggest that generally, migrants in Pakistan and India are more educated and literate than non-migrants.[11] In Pakistan, both male and female migrants appear to be better educated and engaged in higher-level occupations than their non-migrant counterparts (ESCAP 1988). And both males and females are twice as likely as non-migrants to be literate. Male and female migrants have literacy rates of 43% and 20% respectively, whereas percentages among non-migrants are only 22% and 10%. A positive relationship is reported between literacy and migration for women in all marital status categories and for all ages in Pakistan (Shah 1984). In India, Singh (1986) reports a similar association between educational attainment and tendency to migrate. As such, migrants do the more likely residents of slums and squatters necessarily constitute a more difficult target for poverty focused health educational programs in the sector.

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[10] Distances to their place of origin is less for most Bangladesh urban migrants than for many Pakistanis, e.g. from the Northwest Frontier Province. Those with distant homes tend to migrate to Karachi and be less mobile thereafter.

[11] Fewer studies are available for migrants in Bangladesh.

(vi) Indebtedness

47. As already mentioned, besides the more educated opportunity seeker, there is another migrant class, who, driven by indebtedness, pursue a new life in the city. This can be attributed in part to the landholding systems of the sub-continent whereby many tenants are immersed in crushing debt for generations (Robinson 1990). Migration is the response of some to meeting those obligations. Micro-studies in India and Bangladesh show high incidence of indebtedness among migrant slum dwellers (Arora 1987; Pryer 1987). A survey of Indian female construction laborers in Delhi reveal that indebted workers have a higher penchant for migration than non-indebted laborers, as this enables them to repay debts faster. Women choose to migrate with their husbands so that the debt can be repaid faster (Arora 1987).

48. Most families in Pryer's study were deeply indebted (between 65% and 353% of their monthly incomes, with an average of 173%).[12] These debts were usually not to moneylenders, but to shopkeepers, employers, neighbors, and landlords. Severe poverty and lack of assets of these migrants result in the disintegration of the family. Typical survival responses of these households to poverty include sending as many able-bodied persons as possible out to work; diversifying the employment profile; taking loans and credit for food; selling/pawning household assets; gifts and begging from relatives and neighbors; and cutting back on food quantities or going without food (Pryer 1987).

(vii) Income

49. Complicating the high indebtedness is the low income of many slum dwellers. In Pakistan, a typical katchi abadi household earns only about half the average national income; and approximately 85% have incomes below the 1982 country average annual income of US $300 (Shah and Anwar 1986).

50. A large proportion of the incomes of the very poor goes to meet basic needs. In Bangladesh slums, food accounts for 57% to 90% of total household expenditures, with the average being 68%. The balance of income is spent on rent, fuel and debt repayments. With such a high proportion of income going to food, shortfalls in cash come out of the food budget. Indeed, food intake for families in a study averages 63% of Recommended Daily Allowances (Pryer 1987). A sample of 485 lower income urban households in Pakistan shows that housing facilities alone, e.g. fuel, lighting, etc., account for 22% of household earnings (AERC 1989). Transportation is also costly (and time consuming) for many of the urban poor. In Bangladesh, many recent migrants live in fringe areas further from town, requiring high expenditures for transportation to jobs (Femconsult 1987).

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[12] The study did not apportion the amount of debt incurred before migration to that taken on after the move.

51. With major shares of their meager household budgets allocated to survival items and little or no discretionary spending, few slum dwellers are in a financial position to consider major investments in WSS. This is especially so for sanitation investments which may require greater financial sacrifice as well as tenure security and available space. Before project implementation, sector planners are therefore urged to conduct baseline research on household employment, budget, income and indebtedness to elicit information on willingness and ability to pay. Female headed households should be included in any sample as their survival positions are often more precarious.

(viii) Family Structure

52. The increasing nuclearization of the family has several gender specific impacts with implications for WSS service demand. This process reduces potential among adult members of households to share responsibilities with respect to child care, house chores and water related drudgery, increases the pressure on the poor women to work for income, and increases the need for privacy. As such, women, more than men, would seek improvements in water supply and, particularly, sanitation infrastructure. Among the poor, the urban nuclear household formation may be a product of lack of the space needed to maintain large families (Mazumdar 1990). At the same time, the ability of these households to organize around a compound (in traditional style) and make joint investments in WSS services is severely reduced.

53. Pakistan, India and Bangladesh are characterized by three family structures: nuclear families, consisting of parents and children; extended families which share the same budget; and joint families which live together but have separate budgets. The nuclear family is increasingly becoming an urban phenomenon as this section demonstrates. In urban Pakistan, nuclear families form the largest category (57%), followed by extended (38%) and joint families (5%) (AERC 1989). Urban women in extended or joint families prefer extended formations to nuclear, to enjoy greater sharing of responsibilities among the females; only about 4% of urban women in extended families and 25% from joint families prefer a nuclear family (Applied Economics Research Centre 1989).

54. The joint family is commonly believed to be the norm in Bangladesh, with sons bringing brides into their fathers's household. However, this is more widespread among higher income families than among the poor; studies report that about 60-75% of all families are, in fact, nuclear. As in Pakistan, nuclear families are more commonplace in urban than in rural areas.

55. The decline of extended families implies more responsibility to urban females, many of whom are wage earners as well as homemakers. Furthermore in urban settings, the amount of child labor available for domestic chores declines as school enrollment increases. WSS planners will need to find innovative ways to capture the attention and the time of overcommitted urban slum women operating in survival modes. Yet these very women are most in need of time and labor-saving technologies which the sector has to offer.

(d) Summary

56. Available evidence indicates that between one-quarter and one-half the urban residents in major cities in all three countries live in slums. Certain characteristics of slum dwellers act to promote the demand for improved WSS services; others retard it. For instance, insecure tenure, combined with poverty and indebtedness, reduce the ability of poor urbanites to take on new debts for water and sanitation improvements. On the other hand, relative stability of migrant populations and low levels of seasonal and return migration, higher educational levels of migrants, higher levels of female labor force participation, and prevailance of nuclear family formation act as factors inducing the demand for sector services. Each situations gives rise to a different configuration and balance between these factors and determine the overall potential for community participation.

57. Particular situations also determine the extent and mode of actual and potential participation of women in sector development. On the whole, the gender ratio of urban populations in Pakistan, India and Bangladesh favors males over females. This suggests that WSS programs ought to be carefully designed and sited in order to benefit women. In addition, the relatively heavy work load poor women assume for income generation and for household chores, imply a particularly critical role for the sector in the survival strategies of these women.

IV. URBAN WOMEN: INDICATORS OF THEIR SOCIO-ECONOMIC STATUS

58. This segment of the report examines the economic and social situations of women in Pakistan, India and Bangladesh. The discussion catalogues barriers to their fuller participation in the economy, their communities, and within their own families. Throughout, the emphasis is on those factors which impact the water and sanitation sector. In particular, this section addresses the circumstances under which women have the economic resources, times, energy, mobility, literacy and authority to the make infrastructure and housing investments. The effects of social class and caste are noted where these might influence sectoral decisions or programs.

59. Three main indicators have been used to define women's productivity and welfare (World Bank 1989b). The first relates to women's participation in the economy and their contribution to household income. The second is associated with demographic factors, including health, life expectancy and gender ratios; and the third indicator revolves around human resource development, particularly education and literacy.

(a) First Indicator: Female Labor Force Participation and Contribution to Household Income

(i) Gross rates

60. Worldwide, ILO statistics highlight a trend of increased female labor force participation, probably hastened by economic contraction in the Third World. In developing countries, female employment grew from 37 to 42% between 1950 and 1985 (Downing 1990). In Pakistan, India and Bangladesh female labor force participation rates are highly variable, but well below those of males (Table 4) . Officially, male participation rates are more than double those of females in India, triple those of females in Bangladesh, and more than sevenfold those of Pakistani women.

(ii) Measurement Issues

61. As elsewhere, in the countries studied, the "one person, one occupation" model of inquiry and data gathering has led to inaccuracies in portraying women's productive contributions and female economic activity has been under reported in conventional censuses. The concepts and definitions used to capture economic activity often exclude women's contributions. For instance, 70-90% of total **productive** hours are allocated by rural Bangladesh women to activities not covered by ILO definitions (Tomoda 1985). In Pakistan, India and Bangladesh, women's primary roles are often perceived to be synonymous with their reproductive and household activities. It has particularly been difficult to measure the extent of women's economic participation in Muslim societies where women, especially the young and newly married, are confined to the home and discouraged from engaging in conversations or monetary transactions with strangers.

62. The way data are recorded leads to further under-counting of women's productive roles, as women often engage in multiple activities of short duration. This poses problems in coding labor force surveys which normally record only primary and secondary activities. For instance, in Pakistan self-reported female participation rates in one study were twice as high as officially reported rates of female labor force participation[13] (Shah and Anwar 1986).

63. Time use studies are among the only statistics collected specifically on women worldwide. Like official labor force participation rates, these are also flawed conceptually, and in measurement. But on the average, time use studies consistently show greater levels of productive work among women than do labor force surveys. They should therefore be

[13] 20% as opposed to 10%.

considered whenever WSS sector planners have the option for survey work.[14] Water and sanitation workers engaged in surveys to evaluate time saved by women with provision of improved sector services or in efforts to add income-generating components to WSS projects should consider these conceptual and methodological issues.

(iii) Variables Affecting Female Work Force Participation

64. A number of factors affect female labor force participation. Among the more important variables explored here include income, social class, and location of work. Generally, **poverty has a greater influence on work force participation than most other factors.** Women in poor households comprise a reserve labor force (Bapat and Crook 1988). In Bangladesh, female employment is in fact a key indicator of poverty--the poorer the household the more dependent it is on the income of women (Chen 1984). In urban slum families in Bangladesh, the only productive household asset is labor and all able-bodied persons are mobilized (Pryer 1987; Kudat and Fon 1990). In Pakistan, the poorer the household, the more it relies on women's income and the more likely it was that women in the household worked in the informal sector (World Bank 1989). In India, poor women in Bihar and West Bengal are often forced to work in tedious and ill-paying jobs.

65. Rural women have higher participation rates than urban women. In Pakistan, 67% of female wage earners are in the agricultural sector (Table 4). That figure is 70% for Bangladesh, and 81% for India. The family based nature of agricultural work, the relative ease with which women can combine agricultural and domestic tasks, and the less strick imposition of purdah in social environments where large kin groups live and work together both facilitate and require a greater involvement of women in this sector.

66. Social class also affects labor force participation rates and patterns among women. In urban Pakistan, the highest and lowest classes of women are more likely to be in the urban labor force, and the middle class women are more likely to keep Islamic seclusion. Also, older women have higher participation rates than younger ones, and uneducated and more educated women usually have higher participation than those with intermediate levels of education (World Bank 1989). Within India, there are North-South distinctions, with more

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[14] Extensive baseline surveys and time use studies are sometimes not practical because of time and financial limitations. In these cases, other cost-effective methods are recommended. Kudat and Fon (1990), administered a brief water survey in Chittagong, Bangladesh, during a regularly scheduled World Bank Mission. Another techniques is **Rapid Appraisal (RA).** RA is based on a cross-validation technique known as "triangulation", whereby more than one point is used to zero in on the phenomenon of interest. Even without tools such as random samples, rapid appraisal provides data that are of a high standard of reliability and validity. An eclectic combination of qualitative and quantitative methods can be used to provide validity and reliability, including, multiple observers, where feasible.

conservative attitudes about female participation occuring in the North.[15] For instance, in Bihar and West Bengal in the North, more educated women were less likely to work than less educated ones (Singh 1990). In Kerala, where females are more emancipated, literacy levels were similar among working and non-working women (Singh 1986).

(iv) Hidden and Home-Based Female Labor Force

67. In the countries studied, women in urban areas and in the informal sector, are particularly invisible to official enumerators. This occurs in part because numerous female enterprises are unregistered, seasonal, part-time and small in scale. Many female entrepreneurs are also home-based, often by choice, further complicating quantification.[16]

68. In India, about 70% of households in a comprehensive study of women in the informal sector in Calcutta were below the poverty line and about 40% of the women surveyed were migrants (Banerjee 1985).[17] Informal sector wages were low, and 50% of respondents had experienced wage stagnation for the previous seven years. Women compensated this situation by taking more than one job (36% of the sample) and working more than 63 hours a week (30%), usually seven days a week (Banerjee 1985).

69. In Pakistan, the informal sector is characterized by the "putting out" system of industrial subcontracting, and domestic service in the homes of others. These informal sector jobs accommodate social norms which strongly favor female seclusion (World Bank 1989; Mohiuddin 1987). Domestic work is an important category in the urban informal sector in Bangladesh; the greatest number of jobs (74%) for women were in household service (Asian Development Bank 1986). Tamil female migrants were disproportionately represented among domestics in a Delhi study (Mazumdar 1990). In a Pune slum community in India, more than 30% of employed women were domestic servants, the largest single job category (Bapat and Crook 1980). Entry qualifications are minimal with no education or particular skills required.

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[15] Analysis of India is complicated by its enormous size, large population, and the incredible diversity and heterogeneity of its people. The North-South distinction usually made in the literature about India conceals much complexity, but nevertheless is useful for this brief overview on women.

[16] Women's informal sector enterprises play a particularly important role during structural adjustment. For example, female-owned microenterprises tend to expand as opportunities in the public and private formal sectors diminish. Furthermore, there is evidence that household dependency on income from women's enterprises increases during periods of economic contraction (Dowming 1990).

[17] Interestingly, the majority of working women were not from the lower status Scheduled Castes, but from upper caste families.

70. Many women engage in home-based work at low wages because their education, skills and mobility permit few other options. In India, home-based work often pays wages below those for agricultural laborers (World Bank 1989a). However, a large group of women and their families prefer home-based work. In spite of lower remuneration, a survey of women in Bombay's informal sector shows **90% of women to have such a preference** (Savara and Everett 1988:15). This type of work allows time flexibility and can be combined with childcare and other domestic responsibilities. Additionally, home-based work reduces the time, expense, and public exposure of women who might otherwise have to take public transport to outside jobs. Thus, the home is where women do productive and domestic work and where WSS facilities are most needed. When such facilities are lacking, women not only suffer because of the ill effects on their own and children's health but also on their ability to work productively for income.

71. Self-employment is also common among women, particularly in the informal sector. In India, an estimated 94% of working women are self-employed (Bhatt 1989). The self-employed category includes rag pickers, catering and food processing, petty hawkers and traders, laundry services, and petty manufacturers. Typically, self-employed women have higher earnings than home-based or piece rate workers employed by others, particularly when they have access to capital to invest in their businesses (Banerjee 1985; NIUA 1987). Self-employed Indian women, such as traders, vendors or tailors, often fare better economically than domestics (Singh 1978).

(v) Gender and Wages

72. Gender discrepencies in wages is almost universal and, in some cases, they are sanctioned by legislation. In the countries studies, they are large and significantly reduce the survival chances of female headed households. In India, minimum agricultural wage rates are lower for females in some states. In 1981 Tamil Nadu authorized a 25% higher rate for " male" tasks; in Kerala, legal wage rates are 45% higher for men. In contrast, wages were equal under the law in West Bengal (Harriss and Watson 1987).

73. Singh (1978) reported significant gender differences in income in his study--Indian women earned only 40% of men per unit of time worked (1978). In a Pune slum community in India, women in the unskilled and service sector category earned half of what men did (Bapat and Crook 1980). Fawcett reports that many migrant urban Indian women took low paying and low status jobs, such as working as coolies (1984). In another study of Indian female migrants, Mazumdar(1990) noted the women tended to be segregated into low paid occupations with virtually no job mobility.

74. In Bangladesh, female wage rates are 10-50% below those for males. Rural women's wage rates are less than half that of men, with the majority of women earning less than US 30 cents per day. Self-employed women also experience differential remuneration from men. Although the Government has now established quotas for females in public service, these are

generally not met. No private sector quotas have been established (World Bank 1990; Berenbach et al 1990).

75. To summarize, poverty is an overriding factor in female labor force participation in all three countries. A large number of women in poverty find work in the informal sector. These women are uncounted, underpaid, and often work at home. Clearly, poor women lacking in education and skills are disadvantaged in the urban wage market and are overrepresented among the urban poor. For this reason, successful initiatives in women in development have stressed income-generating and self-employment. Water and sanitation interventions could also target informal sector workers where they are already organized. Furthermore, time savings achieved through WSS service provision could be quantified since these women are already generating income.[18] Programs might be integrated to include hygiene education, water and sanitation improvements, and technical assistance in income-generating. The latter could include skills upgrading within the sector.

76. Integrating income-generating for women with WSS service provision can raise income levels while enhancing family health and the quality of life. However, planners would need to recognize that while the income and time constraints of these women increase their demand for sector services, these same factors also reduce women's ability to pay and to participate in related community action.

(vi) Control Over Income and Decision-making in Households with Women Workers

77. Degree of control over earnings and a voice in household decision-making are measures of women's economic status. Data from **rural** India indicate a fairly strong link between women's ability to make a recognizable contribution to household income and their decision-making power in the family (World Bank 1989). There is evidence that this is also true in rural Pakistan. In Pakistan, 80-90% of women earning income from livestock products control the disposition of that income (World Bank 1989b). Mohiuddin (1985) found that 42% of female handicraft workers in Sind collected money from such work themselves, and 64% of these had full or partial control over their money.

78. For the poor urban women, the findings are less conclusive.[19] Muslim women in Allahabad, India earned improved say in household decisions through their bidi (hand rolled

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[18] Pasha (1990) introduced a methodology for valuing the time saved through provision of rural water supply in Pakistan's Sind Province. Information is required on the magnitude of time savings, the "shadow" wage rate for women and the proportion of time saved that is likely to be devoted to income-generating activities. His approach does not take into account health benefits nor the benefits attached to additional time to tend to children's and household welfare.

[19] Data were particularly lacking on Bangladesh.

cigarettes) enterprises (World Bank 1989a). Benares sweeper women who were equal earners with their husbands had considerable say about family finances (Chatterjee 1981). In contrast, most poor working women in Calcutta turned their earnings over to the household head to manage and their employment had little effect on their decision-making power or status in the household (World Bank 1989a). Although 75% of the sweeper women in a Delhi study reported that their husbands' earnings were turned over to them and that they were responsible for daily decisions, all the "major financial decisions on loans, purchases, travel and family labor deployment (including the woman's own employment) were taken by men" (World Bank 1989). Furthermore, an earning wife had no right to spend money on herself, while a man invariably kept some money for his personal expenses. In both rural and urban settings, women who head their own households have greater autonomy.

79. In order to effectively target initiatives, sector planners need further information about the extent to which female wage earners control earnings and influence decision-making about housing and facilities.

(vii) Female Heads of Households: A Category of the Poorest and Most Economically Active Women

80. An estimated one third of households worldwide are headed by women (Buvinic and Youssef 1978). The phenomenon is increasing rather than declining (Moser 1990). A greater share of such households live in poverty than do other households; this can be attributed in part to high dependency ratios and lower female earnings. For instance, in Bangladesh, the legal age of marriage is 18 but the average girl marries at 17, usually to an older man. This phenomenon, coupled with high fertility rates, has created a group of impoverished widows with large numbers of dependent children to care for and few adult wage earners to assume the responsibility. Poor women, whose husbands have died, migrated, divorced, or abandoned them, increasingly enter the labor force and makeincomes well below the poverty line (Kudat and Fon 1990).

81. A useful distinction can be made between female headed and female supported households. Among the former are de facto female headed households where men are away for a period of time, and de jure situations resulting from divorce, abandonment, death of spouse, or never married status. Among the female supported group are a growing number of slum households dependent on women's income for survival.

82. There is growing evidence to suggest the usefulness of targeting female headed households in poverty-oriented sectoral interventions in India, Pakistan and Bangladesh. 35% of Indian households below the poverty line are headed by women (World Bank 1989a). Two and one half times as many Pakistani women as men live in poverty--2.5 million compared with 1 million in 1988 (World Bank 1989b).

83. There is substantial regional and settlements specific variation in female headship, as well as official underestimation. A recent Quetta slum study reported less than 3% of

households were female-headed (Aslam and Jahan 1990). In contrast, Shah and Anwar found that women headed 12% of households in their Lahore sample, while males headed 88% (1986). This is a much higher incidence than the 1973 Housing, Economic and Demographic Survey which reported that only 1% of all Pakistani households were headed by females. Breakdown in urban families has no doubt resulted in more widows and divorced women heading their own families. Among female heads, 87% were widowed, divorced or separated. Not surprisingly, female heads had higher work participation rates than women in male headed households--23% versus 17% (Aslam and Jahan 1990). A recent Chittagong study, reported 10% of households surveyed were female-headed (Kudat and Fon 1990). In contrast, among the rural poor in Bangladesh, that figure is 25%, reflecting the rising incidence of divorce and abandonment (Berenbach, et al 1990).

84. WSS planners might appropriately target female headed households in poverty-oriented programs. However, because these households rarely cluster in geographic terms, the task is not an easy one (Kudat 1989). WSS planners should be aware of special constraints facing female headed households:

- Their incomes may be too low to qualify for housing/infrastructure projects.
- Their time is limited for community participation because of their multiple work loads.
- They may have irregular incomes due to self-employment or work in the informal sector.
- It may be difficult for these women to pay fixed sums of money for services at specified times.
- They may lack legal status and proof of stability of employment which is oftern required in credit programs.
- These women are less likely to be educated and therefore to have access to loan information, as well as an understanding of complex loan applications and procedures.
- They will have less experience in dealing with bureaucracies; likewise male bureaucrats in WSS agencies may tend to overlook them because of the relatively low status accorded to women in these countries.

(viii) Women's Time Constraints

85. The **dual** and interlocking domestic (home and reproductive) and productive (working and earning) roles of women have been well documented. Among the poor, household reliance on women's remunerated and unremunerated labor is high (Kudat 1990). When flexibilities exist, women combine household and non-household work. Studies show that

women work substantially longer hours than men, simultaneously accommodating infrastructure services, domestic tasks and income generating efforts. The flexibility in the simultaneous execution of tasks typically undertaken ny women is reduced when they are required to work fixed hours in the formal or the informal sector (Kudat 1991). Working women in poverty, especially those heading households, have the least time to participate in community infrastructure improvements.

86. Among the Benares sweepers, women work longer hours and harder than men (Chatterjee 1981). The work day of Delhi migrant women is 9-10 hours outside the home with additional time required for fulfilling domestic duties (Arora 1987). Scarce and inadequate water supply and sanitation in slums in all three countries place additional time burdens on women who must often walk long distances to facilities and then queue once there. In Bangladesh, women used water sources which they knew were polluted because they did not have the time or energy to go to more distant cleaner sources (World Bank 1990). Sacrifices made in the quality of water consumed are particularly high for poor women who work, because of extreme poverty, in very low paying jobs, such as maids (Kudat and Fon 1990).

87. The obvious message for WSS sector planners is that sufficient, reliable, and nearby facilities will help address women's time constraints. There is another more subtle message as well. That has to do with the provision of services in a reliable and regular manner so that the compatibility between women's domestic and productive work is not jeopardized (Kudat 1991). It is not only important for women to have flexibility in having access to WSS infrastructure but also in the scheduling of community meeting. Evidence from Pakistan's Aga Khan Rural Support Program indicates that **time flexibility** is an important factor in getting women involved. Women were more involved in community action and meetings when they were allowed to schedule these flexibly around their other commitments (World Bank 1989b).

(ix) Credit as a Factor in Women's Economic Productivity and Participation

88. Besides time, credit also constrains poor women's productivity and participation in sector activities. Women may have difficulty financing improvements because of lack of collateral. As a result of the basically patrilineal inheritance systems in Pakistan, India and Bangladesh, women are less likely to inherit and own land. When women do tap credit markets, they are more likely to obtain loans from informal sources, such as family, friends or moneylenders, than from formal financial institutions. Not only do women have fewer assets, such as land, but they are also hampered by less knowledge of, and experience with, formal financial markets. Women's confinement because of purdah and consequent restrictions about public money transactions and appearances outside the home are other barriers to having access to credit. Banking manuals in Bangladesh actually prohibit illiterates and women in purdah from opening savings accounts in rural banks (Berger 1987). All of these factors mean women have less access to financial resources for housing and WSS sector improvements.

89. Group guarantee schemes are among the more effective mechanisms, where women lack property or collateral in their own right. Bangladesh is a leader in the field of group guarantee schemes offering credit for small borrowers. There are two well-established and widely imitated mechanisms for alleviating the credit constraints of rural women. The Grameen (Rural) Bank, a private initiative, grew out of attempts to reach the landless poor who lacked normal bank collateral to obtain credit.[20] The Women's Cooperative Project of the Government of Bangladesh's Integrated Rural Development Program, which started establishing cooperative associations for rural village women.[21] In both schemes, women demonstrated extremely high discipline and repayment rates.

90. In India, the Self-Employed Women's Association (SEWA) formed as a trade union and advances the rights of self-employed women. Beginning in 1971 with a small membership, SEWA today sponsors over 40 cooperatives in rural and urban areas, ranging from dairy and wasteland rehabilitation groups, pottery, carpentry, hand block printing, and bamboo artisans, to vegetable vendors and wastepaper pickers (Ford Foundation 1990). In Gujerat, SEWA cooperatives get preferential access to raw and recyclable materials. Through SEWA, waste pickers have secured government contracts to retrieve waste paper from state offices and mills--a healthier and more reliable source than the trash heaps they previously scavenged.

91. These successes demonstrate clearly that poor women are good credit risks. Furthermore, illiterate women can be organized in groups and even poor women can mobilize savings. WSS planners in these three countries could consider the inclusion of group guarantee schemes to provide credit for women otherwise unable to participate or benefit from their programs.

(x) Female Workers in Solid Waste Management (SWM) and Municipal Refuse Recycling

92. SEWA's activities in aiding scavengers bring us to the topic of female workers in SWM and refuse recycling. The socio-political dimensions of waste recovery are important and the role women play in the sector epitomizes these (Furedy 1984,1990). The participation of women in SWM starts within the household and ranges from product choices

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[20] Borrowers are organized into five-person groups, who first establish a pattern of savings before seeking a loan. By 1987, there were 300 branches in 5,400 villages with nearly 250,000 persons participating. Women constituted 75% of total members and held almost 70% of outstanding loans. Loans are small, about US $100, and repayment rates are high--97% within one year of disbursement and 99% within two years.

[21] Membership costs about ten cents, and women deposit weekly savings, attend meetings, and learn about topics such agriculture, small enterprises, family planning and hygiene measures. Repayment rates approach 100%, and by 1984 over one-fifth of the country's administrative units had women's cooperative associations (World Resources 1986).

to decisions in the type of waste to be sorted, sold, disposed and recycled. At other aspects of management, women can be seen as waste collecters, scavangers, dung makers, waste traders, workers in recyling activities, traders of recyled goods, promoters of recycling, communicators and educators of better waste management practices, etc.(Briscoe 1978; Ramachandran 1972; Singh 1978) Country, socio-economic, caste and class differences are substantial, but neither the extent of women's participation in solid waste management activities nor the variations are adequately documented.
Also inadequately documented is the surprisingly active role women played among formal sector sweepers in India and in Pakistan.

93. Low caste Indian women hold jobs in municipal solid waste management and as private sweepers. Many more are in informal sector waste recycling (Chatterjee 1981; Karlekar 1982). In Delhi, males in families are often employed as municipal sweepers while women work for 6 to 20 private households as sweepers. Men sometimes pass their municipal jobs on to their wives. Male mobility out of scavenging jobs is increasing, while women have far fewer chances of leaving this caste occupation and thus were skeptical about their daughters' futures (Karlekar 1982). Sweepers are generally close knit and residentially segregated because of social ostracism. Both males and females have economic bargaining power as there is high demand for their services and few other castes are willing to replace them. Consequently, among Benares sweeper families, men share cooking and housework, and women have more freedom and independence than among higher castes.

94. While Muslim women are probably less likely than lower caste Indian women to be scavengers due to seclusion, the çabadiwallas in Karachi are responsible for sorting and recycling wastes. Entire families work in the garbage dumps extricating metal, plastic, rags, bones and rotis, efficiently extracting about 98% of all recyclable materials. Income for a family working a garbage dump can be as high as Rp.300 per day(about US$ 15) whereas the minimum wage is only Rp. 900 per month. Women are also employed in large numbers in formal sector positions in **sanitary services**. For example, gender desegregated data for India indicate that females accounted for over 40% of workers in this category in both 1971 and 1981 (World Bank 1989).

95. Solid waste often helps poor women and their families meet their needs for work, housing, fuel, clothing and food (van Wijk-Sijbesma 1985; Furedy 1990). A World Bank project guidebook proposes that refuse collectors and informal scavengers assist in waste reduction through their picking, and that municipalities encourage recycling, assisting informal workers with respect to health, working conditions and marketing (Cointreau 1982). Others propose job creation strategies for women in waste recycling (Kudat and Fon 1990). These would have dual impacts--with positive repercussions in both environmental and economic spheres.

(xi) Seclusion of Females: Effect on Labor Markets and the Water/Sanitation Sector

96. Purdah[22] is practiced to different degrees in Pakistan, Bangladesh and India where the custom both defines and shapes labor markets and female participation. Purdah conceals both form and face and restricts the spatial and occupational mobility of women in all three countries. By restricting female spatial movement, purdah limits the tasks women are allowed to perform. Managing a male labor force violates purdah; so does making cash transactions in public. Therefore the bazaar is off limits to women in purdah. Female participation in physical and infrastructure development in a Quetta, Pakistan slum community development project was extremely low because of purdah restrictions. Women were not even allowed out of the house for vocational training (Aslam and Jahan 1990).

97. Pakistan has the most sexually segmented markets. Men work in the streets and outside jobs, while females are confined to home based production or those production and service activities where sex seclusion can be assured, and male contact minimized (World Bank 1989b). Shah and Anwar (1986) noted that purdah is a dominant force in the lives of urban Lahore women in the katchi abadis (squatter settlements) --85% wore burqah (the strictest and most traditional form of purdah) or chaddar (more modern purdah costume). Through its impact on labor force participation and work options, purdah has a major effect on household income. In Shah and Anwar's study of migrant women, married women who wore **burqah** had the lowest labor force participation rates (14%), followed by those who wore **chaddar** (21%) and finally those who did not observe purdah (29%). Women's education has a curvilinear. Older women and educated women were the most relaxed about observance of purdah. Purdah-observing households generally have lower incomes (Shah and Anwar 1990)[23]. "Purdah observance limits the earning ability of working women in two ways: first by restricting their movement outside the house, and second by restricting their choice of jobs".

98. Although the situation is less rigid in India than in Pakistan, a similar "inside-outside" dichotomy which emphasizes female dependence and vulnerability, and requires male mediation with the outside world (World Bank 1989a). Purdah is rigidly observed by only wealthier Muslims and high caste Rajputs, primarily in Northern regions.[24] In both India and Pakistan, withdrawal of women from the labor force remains one of the chief symbols of high economic and social status (World Bank 1989a,b). Even in the South, where purdah is practiced only by Muslims, higher caste women are secluded in their houses between

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[22] Purdah translates literally as veil and figuratively as the veiled seclusion of females.

[23] Among laboring women who worked outside the home and did not wear burqahs, the average monthly income was Rupees 471/month versus 283/month for those who wore burqahs.

[24] Even Rajasthani female construction workers completely veil their faces as they shovel sand and carry head loads of bricks (World Bank 19891).

menarche and marriage. In Himachal Pradesh, extensive male migration has forced poor women to work on family farms, but this work is rationalized as an extension of domestic work which is morally and socially sanctioned (Harriss and Watson 1987).

99. The purdah situation in Bangladesh is more fluid than in Pakistan. Traditionally, men disapproved of women's outdoor activities and women preferred jobs that could be performed in their homes. In rural Bangladesh, the norms of purdah often exclude women from the public sphere--fields, markets, roads and town (Chen 1984). But poverty and landlessness are leading to changes in the situation. In the last two decades, pressing poverty among the landless and near landless has led to women being allowed to take jobs outside the home (World Bank 1990a). Purdah is now a luxury which few of the working class poor can afford, and is mainly practiced by middle and upper class families (Asian Development Bank 1986).

100. Observance of purdah has important implications for WSS planners. Women in purdah have significantly less mobility and are more difficult to access and to organize. Hiring of female WSS staff may be necessary to reach these women, yet recruiting women, especially for jobs requiring field work, is also made difficult by purdah. In Pakistan, for instance, it is not uncommon to have difficulties to find female remunerators to conduct interviews with women in their households. Furthermore, women keeping seclusion may have lower incomes and therefore less ability to invest in housing and facilities improvements. More women's groups, such as those formed in Karachi's Orangi Project, are needed to help secluded women participate in community water and sanitation initiatives, gain access to resources, raise a collective voice, and increase their wages.

101. Besides affecting women's labor force/community participation and incomes, purdah has other implications for the WSS sector. Privacy, especially for secluded women, is of paramount importance in designing and implementing WSS initiatives. Women in seclusion often cannot use facilities in public places whereas men can easily do so (van Wijk-Sibjesma 1985).[25] The high privacy requirements for women in purdah dictate that they can defecate in the fields before dawn or at night. As a result, they suffer from various ailments and risk of their safety (Hussein 1989b). In Bangladesh, women may control water and food intake to limit biological functioning during the day (World Bank 1990a). In Dhaka slums, it is virtually impossible for women to use the latrine in the daytime. Their only chance is to use it at night when the male crowd is minimal (Akhter 1985).

102. In a study carried out in a town near Delhi, even prosperous Muslims and Hindus did not have latrines. Women had to go to the fields to defecate at 4:30 am so they would not be observed by men. Men and women used separate fields. If a women was unable to go early in the morning for some reason, she had to wait all day, or alternatively, walk to distant abandoned fields or to the river (Ghosh 1990). In much of India, urban women

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[25] Mosques are also a place for provision of water in villages, but women may not be allowed to enter.

previously used public places before sunrise or after sunset, but urban crowding now prevents them from doing so (Pathak 1990). Public water sources may also be out of bounds for women in seclusion. This applies to obtaining water and to using taps for bathing. While men can bathe at public taps, women, especially those in purdah cannot do so. This is a special problem among female street dwellers, such as those in Bombay and Calcutta. Even when not in purdah, a woman bathing at a public is construed as advertising immoral behavior (World Bank 1989a). In Bombay, women without private toilets are forced to use isolated locations where they are vulnerable to rape and molestation (Agarwal and Anand 1982).

103. The evidence is clear that the design and siting of water and sanitation facilities will have a major impact on women's use of these amenities. Involving users, i.e. women in this case, in decision-making about design and siting would provide planners with the information they require. Appropriate questions in baseline surveys would also elicit women's concerns about privacy and security.

(b) A Second Set of Indicators: Health, Life Expectancy and Sex Ratios

104. A second set of indicators of women's productivity and welfare are health, life expectancy and gender ratios. These provide a relative notion of the conditions of women's lives and the status accorded to them. The welfare of poor households is often dependent on the ability of women to work, with health being a major determinant of their ability to do so. High fertility rates and frequent pregnancies at a young age contribute to high maternal death rates in South Asia. These are compounded with nutritional deficiencies, lack of water and sanitation facilities, women's economic and domestic work load, and inadequate health care systems.

105. Water and sanitation improvements are key elements in health strategies. Some experts suggest that women's exposure waterborne diseases can be greater than that of other family members due to the amount of time spent washing clothes, bathing children and getting household water (U.S. State Department 1991). Women have the additional burden of caring for sick family members whose health problems result in part from poor sanitation, for example, diarrheal diseases which are prevalent among children.

106. Low food intake compromises the productivity and health of adult women.[26] A woman learns that when food is scarce, she must eat less so her brother, and later, her husband and sons can eat more. A typical Bangladesh girl receives some 20% fewer calories/day than her brother and is more likely to be malnourished (UNICEF 1987). In Bangladesh women eat 30% less than men and that Bangladesh women comprise the largest

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[26] In spite of their own ill health, these women must care for sick family members whose health problems result in part from poor sanitation, for example, diarrheal diseases which are prevalent among children (World Bank, 1990).

share of those living below poverty, defined as under 2122 calories/person/day (World Bank 1990). Studies show that between 1975 and 1982, women's caloric intake actually declined while men's increased (Berenbach, et al 1990). An area study in Bangladesh showed that boys received 11-16% more calories and 14-22% more protein than girls. After age 15, that differential rose to 61% more calories for boys and 53% more protein (Asian Development Bank 1986). In India, a study showed that boys are given more fatty and milky foods than girls. As a result, girls are four times more likely than boys to suffer from acute malnutrition but more than 40 times less likely to be taken to a hospital (USAID 1990).

107. Discrimination in food intake, with preference to males is one reason why girls **in the sub-continent across social groups**, are more likely to be retarded in growth (Harriss and Watson 1987). In Bangladesh, Pryer (1987) notes that women and young female children are acutely and/or chronically malnourished.[27] Among Lahore slum women, morbidity is high, especially for widowed, single or divorced women. Almost 62% of these women report their health as "usually bad" or "very bad" (Shah and Anwar 1987).[28]

108. In almost all developed and developing countries, life expectancy is greater for females than males. The **exceptions** are India, Bangladesh, Pakistan (United Nations 1987).[29] In most countries there are more females than males in the population.[30] In South Asia, gender ratios favor males because of high levels of mortality among very young female children and women in their reproductive years (due to pregnancy and childbirth). Moreover, gender ratios in the sub-continent " are generally getting more extreme over time" in favor of men (Harriss and Watson 1987).

109. By the fourth year in rural Bangladesh, female deaths exceeded those for males by 53% (Chen 1982). In rural areas of India, mortality among children under the age of four is 50% higher for females than for males in Uttar Pradesh and the Punjab, and 20% higher in Rajasthan and Gujurat (Chen 1982).

110. High gender ratios and low life expectancy for women in these three South Asian countries are related to the low social status of women, their economic undervaluation as well as to a set of traditional and modern practices of avoiding birth of or pregnancy for female children. The few studies available, including India (Rosenzweig and Schultz 1982)

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[27] Morbidity was attributed to environmental conditions, physical and mental stress, and inadequate nutrition.

[28] The authors note that this finding is especially important in light of the paucity of morbidity data in Pakistan.

[29] Very recent figures indicate the longevity of Indian women is now about on par with that of men.

[30] The reasons women live longer may be that they are more physiologically efficient than men, and those who are not pregnant or lactating need less protein and energy (Rivers 1982).

and Bangladesh (Khan 1985) indicate a strong relationship between female employment opportunities and gender-specific survival chances. " Where female employment opportunities are high, relative female survival chances are greater." (United Nations 1987)

111. To conclude, sector improvements can make a major contribution to this second indicator of women's status--by raising levels of maternal and child health and reducing female workloads. Income-generating components which WSS projects could incorporate or the employment they might generate also have the potential to enhance women's incomes and productivity through health improvements. Integrated multi-sectoral community water and sanitation programs are recommended to improve women's living conditions and health, enhance their economic value by teaching of productive skills, and increase their earnings through income-generating components. This has the prospect, at least in India and Bangladesh of adding to their life expectancy. Chatterjee (1989a) notes that to ensure higher female survival it is important to increase the actual economic contribution of women to household income, and not just labor force participation that may disguise underemployment or low wages.

(c) Third Indicator: Education and Literacy

(i) General Considerations

112. Female education and literacy are important indicators of the status of women and of a country's ability to mobilize human resources for effective economic development. WSS programs, too, recognize the importance of community mobilization, social marketing, hygiene education and accompanying behavioral changes for their success. They also recognize the importance of reaching women, as much as men, for these purposes. It is , therefore, important that they are based on an adequate understanding of the educational characteristics of the communities concerned and and an analyses of the communication structure.

113. In Pakistan and Bangladesh, female literacy and education lag far behind that for males. In Pakistan, female literacy is 16%, less than half the 35% achieved by men (World Bank 1989b). In Bangladesh, female literacy rates, at 19% among the population 15 and above, are less than half the 40% rate achieved by men (World Bank 1990). In India, national literacy is higher at 36%. But only 25% of the female population is literate compared with 47% of males (World Bank 1989). The number of illiterate females exceeds those who are literate; almost 60%--or 200 million-- of illiterates are girls and women. Rates for rural women are significantly lower than for urban women and females among the Scheduled Tribes and are even. Enrollment rates for females in primary and middle schools are increasing over time but still lag behind those of males.

(ii) Development Support Communication for Women

114. In the rural context, it has been established that "before women can be enlisted as teachers of new information that will be beneficial to project success and the long-term goal of improved family and community health, they must first be allowed to act as local mediators of change through complete access to all relevant information with resulting community control of decision that arise from this information." (Roark 1984). However, "access to information", which is already complicated in the rural setting because of control of knowledge and of decisions, becomes far more complex in urban settings where social heterogeneity makes the evolution of "community knowledge" and "community control over decisions" difficult. Added difficulties emerge from the complex interaction of urban communities with the broader urban environment. Thus, the type of information women ought to receive and the channels, media and medium for such information is made especially difficult to specify. When, in addition, religious and class membership exert highly different barriers to accessibility of women, on the one hand, and accessibility of information by women, on the other hand, a far more careful strategy has to be formulated to ensure women's participation in community projects and in social marketing/hygiene education efforts.

115. Hygiene education and WSS maintenance programs rely on information directed towards women; and communication between people and policy makers is the foundation of participatory development (Kudat 1988). However, because women are bypassed in large measure by the formal education system, they are often out of the communications loop as well. Impediments to communication also include women's secondary status, their lack of self-confidence and self-esteem, and the fact that they must often obtain their husbands' or fathers' permission to attend gatherings and in many instances, would not be allowed to speak to male officials.[31]

116. Although written brochures and handouts cannot be used with illiterate women, the mass media, especially radio, are appropriate communication channels, particularly where women are home-based because of social norms. Also effective is media produced at the local level by local women in order to teach and share experience (Kudat 1988). Other principles for communicating with women include:

- Carefully choosing media for access to the target group
- Selecting media which consider the already established networks of communication which women utilize

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[31] For example, in a predominantly Muslim slum in Sri Lanka, women were barred from attending public meetings at which information was made available about the slum upgrading program (Fernando 1985).

. Ensuring that messages are appropriate for that target group

. Considering women's multiple responsibilities in the timing of media programs.

Development planners should be aware that women's relative poverty and lack of income, education and information hinders their access to a broad range of media, in particular television and newspapers (Kudat 1988). At the same time, cultural considerations such as purdah severely limit women's exposure to messages which may be posted in public places or be transmitted in such places, including movie theaters.

(iii) WSS Sector Success in Organizing Illiterate Women

117. There is heartening evidence from the WSS sector that illiterate and uneducated slum women can be mobilized. Furthermore, there is evidence that involving women in implementation enhances project effectiveness.

118. The Dhaka Urban Volunteers (UVP) of the International Center for Diarrheal Disease Research, Bangladesh (ICDDRB) program began in 1981 in Dhaka slums which are home to two million or half the city's population. Only 23% of residents had access to private latrines; the rest shared with up to 40 families. Water taps and tubewells were not always functional and were often submerged in the rainy season. The project was based on community participation and carried out by women volunteers. Treatment of diarrhea through ORS was carried out by local women within their own communities. The volunteers were illiterate, "shy" and required husband's or father's permission to move about city or work outside their homes. The volunteer program led to greater community involvement with communities diagnosing their own problems and organizing themselves. Community leaders and landlords donated resources as well. Female volunteers experienced more self-assurance and got respect from male leaders, moved about freely and learned new skills. Some even taught themselves to read and write. Volunteers were reported to start income-producing activities with interest free loans through private donations. As an added benefit, work in the volunteer program gave women the skills and confidence to seek other jobs.

119. Karachi's Orangi Pilot Project (OPP), originally focussed on sanitation with a major share of costs borne by low-income residents. It is an example of effective community participation where even the low-income households demonstrated willingness to pay for services because they were closely involved in their design, construction and maintenance. Two subsequent Orangi projects focussed on the low income, largely illiterate female population in the slum--the welfare program and women's work centers. The welfare program used lane-based women's leaders to deliver preventive health, child immunization and family planning. The women's work centers provided employment and raised wages by eliminating contractors. Piece-rate earnings in OPP-initiated women's work centers were about 30% higher than prevailing rates in similar slum areas. Women's position in the household improved because of their income-earning capacity. Women workers expressed higher self-esteem and felt they were accorded more respect by family members after taking

up employment. About 40% of women workers said they had more control over family expenditures as a result of their work. The project also created a class of women entrepreneurs; three times as many OPP women went on to become self-employed, compared with non-OPP respondents.

(iv) Orangi's Lessons About Women

120. Significantly, 50% of OPP respondents believed that the responsibility for sanitation rested with the household/lane compared to only 25% of non-OPP respondents. Willingness to pay seemed to be linked with the quality of their service, with 75% of OPP residents satisfied with their sanitation, compared with only 35% in non-OPP areas. OPP women demonstrated more knowledge of preventive health as well--twice as many OPP as non-OPP women knew what to give children for diarrhea. Finally, because large numbers of women were confined to the home, the housing and lane sanitation improvement had a greater positive impact on women and children than on men.

(v) Culture, Social Class and Gender: Effects on Access to Water and Sanitation Services

121. Although there is growing realization that other than engineering considerations are necessary to ensure the success of water supply and sanitation projects, little effort has been made to examine the role of cultural factors in project acceptance and community participation (Gibbs 1984). Women epitomize culture; belief systems, norms and values concerning purity, cleanliness and pollution not only determine demand for and use of sector services, but the fact that different standards are applied to women and men often imply greater demand on behalf of women than men. Awareness of these belief systems and their gender specificity is critical before embarking on campaign to motivate people for sector improvements and to change their behavior. As in India, important distinctions cultures make between "ritual purity" in contrast to "cleanliness" may well explain the differential adoption of latrines by some religious groups and the roles different castes play in the formal and informal employment within the sector. The roles societies assigns to women and men within and outside the family are also highly variable; the cultural specifications of daughters, sons, brides, mothers, grandmothers, healders, teachers, leaders, etc., all affect their potential for project participation and the strategies to be employed in mobilizing and motivating communities. To do so requires anthropological expertize and is highly complicated in urban communities composed of people from different cultural backgrounds (Chandra 1964).

122. "In parts of India...the proper seclusion of women in an important issue. Residents may have preference about where wells or water taps should be placed depending upon local notions of how visible the women, who will carry the water, will be. In some places, people may prefer taps to be located only inside compounds, even though in the past women have always gone outside the home to collect water from a local source. This is because compound taps enable local residents to further reach cultural ideas of female seclusion." (Simpson-Hebert 1984). When such taps are not provided, women may simply opt to use

polluted ponds and rivers in the community than walk farther away to sources of clean water (Kudat 1991).

123. India provides another example of the interaction of cultural beliefs, the norms regulating women's behavior and sanitation practices. In rural WSS projects in Uttar Pradesh compost pits were dug outside villages for the disposal of refuse. They remained unused, even though their use was strongly endorsed by the local village councils. Villagers were even fined for depositing their refuse elsewhere. Yet, because it was unacceptable for women to be seen carrying loads of refuse and for men to do what was considered "women's work", the traditional practice of depositing refuse in an open space near the house continued (Simpson-Hebert 1984). Thus, understanding the culture and the roles women play are essential to the successful formulation and execution of projects.

124. Culture in South Asia is also closely associated with caste and class. Therefore, service providers and community organizers in the sector need to be sensitive to major social groupings as well as gender. All three countries are characterized by high levels of stratification by social class, and in India, by caste as well. Monopolization of water and sanitation facilities by influential people has been reported in Uttar Pradesh, India and in Pakistan (van Wijk-Sijbesma 1985). It is therefore important to recognize that women from minority groups may not have access to public taps and hand pumps either because they live in neighborhoods which are not served or they are denied use of WSS facilities. In India, religion and caste influence accessibility of water. Ghosh (1990) noted in her study of a town near Delhi that Muslims had one well, lower caste Hindus had another, and upper class Hindus had their own well. Provision of facilities for the lower caste poor can create jealousy and tension in communities already socially strained (Pathak 1990).

125. Obviously, solutions are not easy when the problem and this sector implications are not well understood. In Bangladesh, for instance, Chen (1984) suggested organizing women homogeneously by social class to avoid problems associated with social standing. In other countries, similar remedies may be relevant. The key message to sector specialists is to incorporate preliminary sociological analysis into any baseline planning in order to uncover the relative importance of culture, class and caste in a particular setting and the implications for project design, community participation and the participation of women.

(d) Summary

126. This section concludes that water and sanitation sector professionals working in Pakistan, India and Bangladesh will need to understand and motivate illiterate women with limited financial resources, who are encumbered by debt, ill health, inadequate nutrition, and high fertility rates. Longer project gestation periods and special communication strategies, including the use of mass media, may be required. If they are to be mobilized for community participation, these women need to have meeting and work times which accommodate their multiple family and market-oriented obligations and activities.

127. Sectoral specialists interested in poverty and a community-based approach, cannot afford to bypass women, who are overrepresented among the poor. Households in poverty often rely more on women's earnings; and family survival is often dependent on women's health, education and capacity to work. In these three countries, women as a group are more vulnerable than men to the extremes of poverty and its consequences. Among target groups for poverty-directed sectoral programs could be female headed households who often have lower incomes due to fewer adult earners and more dependents.

128. Culture, class and caste play important roles in affecting community participation in all three countries. Social norms in all three countries impose extreme standards of modesty upon women, which has many implications ranging from the siting of facilities to female employment within the sector. Furthermore, it may initially be difficult for WSS personnel to gain access to some of these women, especially in Pakistan, where norms reinforce purdah (seclusion). Female water and sanitation staff/community mobilizers have been successful in these instances in Pakistan and Bangladesh. In spite of cultural constraints, preliminary evidence shows women can be organized to take considerable responsibility for hygiene education and for transforming community water and sanitation facilities; in the process, they boost their own skills and self-esteem.

V. STRATEGIES AND RECOMMENDATIONS FOR INVOLVING POOR WOMEN IN URBAN WATER AND SANITATION PROJECTS

123. Gender is an issue not just of equity, but also of effectiveness. Involving women to enhances project results, increases cost recovery and positively impacts sustainability. Among the more dramatic examples are the Baldia and Orangi Projects in Karachi, and the Dhaka hygiene education program (World Bank 1989b; Bakhteari 1987; Stanton and Clemens 1987a). Needless to say, the promotion of women within the WSS sector is not an easy matter. Nevertheless, this section suggests strategies and makes recommendations to this end. The conclusions reiterate the circumstances under which women have the economic resources, time, energy, mobility, literacy, and authority within the family to devote to infrastructure and WSS issues.

Strategy 1: Determine the relevance of gender issues in ongoing and new projects.

(a) Use timely and cost-effective survey techniques to determine gender issues in the project setting.

If baseline surveys are part of project planning, engage local sociologists and WID specialists to structure appropriate sectoral questions. Include questions on women's productive and domestic roles, time use and constraints, time spent by various household members getting water, sources, alternatives, cost, incentives to invest, etc.

In some cases, extensive baseline surveys are not practical because of time and financial limitations. Kudat and Fon (1990) used a survey methodology which proved

feasible during a brief, regularly scheduled World Bank mission. In other cases, **rapid appraisal** offers an alternative. Even without tools such as random samples, rapid appraisal provides data of a high standard of reliability and validity. Using "triangulation", an eclectic combination of qualitative and quantitative methods, provides validity and reliability.

Among suggested rapid appraisal techniques for WSS project planning and implementation are:

. Interviews with key informants

. Group meetings with appropriate subgroups of potential beneficiaries

. Follow-up individual/household interviews with a **purposive** sample of members of the target group

. Observation to verify trends and issues.

(b) Recognize and record differences in the actual and potential roles women of different socio-economic and cultural backgrounds play in the sector.

"Gender targeting ultimately means the recognition of the differences in needs, aspirations, capabilities and potential contributions of groups of individuals which comprise a society...Thus, targeting women means a policy commitment to respond to social diversity and a political commitment to be accountable for different groups of constituencies...By implication, the recognition of gender as an important dimension of sector policy/programme formulation and implementation means that relevant decisions will be made in cooperation with women and taking women's views into consideration...To the extent that the recognition of the importance of gender in sector planning is a natural extension of the appreciation of social heterogeneity, intra-group differences ought to be as important as inter-group differences. Thus, responding to women in the WSS sector implies an appreciation of the fact that poor and rich women, working and dependent women, and women from different ethnic, religious and other cultural backgrounds have different needs, aspirations and capabilities." (Kudat and Fon 1990).

(c) Employ research approaches which elicit the full measure of women's work.

These might include time budget surveys or querying female household members, including female heads of households. Other appropriate actions include structuring survey questions with sufficient interview time scheduled in each household to do in-depth questioning. Women's domestic labor contributions, including water carrying, should be assigned productive value.

Strategy 2: Create mechanisms for the participation of women and communities

(a) Involve women in all stages of project from design to maintenance and evaluation --to enhance sustainability and willingness to pay.

(b) Organize women into groups where possible to increase effective demand for improved facilities and to promote appropriate behavioral changes.

Groups allow women to pool resources for production or collateral to obtain credit and other inputs as well as to share equipment which might be too expensive to own on an individual basis. Groups help eliminate problems with male/female interaction as it is more acceptable for male staff to meet with groups than with individual women. Women's groups, such as those formed in Karachi's Orangi Project and Baldia Projects, are needed to help secluded women participate in community water and sanitation initiatives, gain access to resources, raise a collective voice, and increase their wages.

(c) Expect to devote longer time for the institution of mechanisms to involve women and be willing to experiment with innovative approaches.

What institutions should be established to ensure that development policies and programmes recognize the needs and potential contributions of women? This is not an easy question and has only recently been raised with respect to the WSS sector (Kudat and Fon 1990). In the three countries studies, there is little in way of organizations or institution building that would help mobilize women to voice their needs. Governmental organizations of women, commonly called the "national machinery", have been established in all three countries. These organizations, however, have extremely limited resources and insufficient staff to promote women's mainstreaming in sectors other than those traditionally viewed most relevant to women's needs. In none of the countries, the WSS sector agencies have established units charged specifically with WID issues; nor has any of the existing staff been asked to be in charge with the promotion of women's status within the sector. On the whole, there is an apparent lack of institutional capacity to deal with community participation and gender issues and it will take time and innovative efforts to remedy the situation.

(d) Use NGOs where possible .

Non-Governmental Organizations (NGOs) are active in all three countries. In India, these organizations undertake innovative research on appropriate technology and community participation techniques. There are many in number and are highly variable with respect to technical and grass-roots orientations. Some are simply non-profit firms, established in major cities and provide consultancy services to the donor community and to the government. Others are research and training institutions. There are also grass-roots organizations that are active in the field. The Government's financial support for these organizations has helped develop them. Many solutions established by NGOs are highly relevant, sustainable and replicable; there is also international recognition of their contributions. This is less the case

in Pakistan and Bangladesh. Pakistan has provided an important grass-roots experience within the WSS sector, Orangi, which is discussed in length. In Bangladesh, grass-roots movements have given rise to innovative credit schemes that the WSS sector can learn from. However, most of the national and international NGOs in Bangladesh concentrate in such sectors as population, health and education and extensive experience within the WSS is not yet to develop.

(c) Allow men and women to work separately if social norms demand it.

Strategy 3: Include gender considerations in design, siting and maintenance of facilities.

(a) Provide sufficiently for the privacy needs of women and the norms of modesty.

Extreme modesty is expected of women in all three countries with regard to biological functioning. Requirements are even more rigid for women in seclusion and the preference would be for facilities which would not require women to go far in public view, especially in daylight hours. Latrine and bathing facilities for women should be private and secure. **Privacy of women,** especially in densely settled areas is a determining factor in latrine acceptance **by both men and women** (van Wijk-Sijbesma 1985). Household and community facilities which honor these social norms will more likely be optimally used.

(b) Provide for security and safety considerations of women in siting and design.

Distant facilities, used by mixed groups, where women may not be secure from harassment or molestation have been cited as problems in urban facilities provision. Special care needs, therefore, be given to involving women in the evaluation of alternative project sites.

(c) Emphasize low cost solutions and equipment because of extreme urban poverty and indebtedness, especially among households headed by women.

While most countries define poverty by income levels, studies of migrant slum dwellers in India and Bangladesh suggest the need to consider indebtedness as a major component of poverty. The poor have survival level incomes and many borrow just to eat. A considerable number of slum dwellers in the studies reviewed had high levels of indebtedness (as well as few assets), thus affecting their ability to invest in housing and facilities.

TABLE 1
THE 10 MOST POPULOUS COUNTRIES IN THE WORLD, RANKED BY SIZE, MEDIUM VARIANT, 1985, 2000 AND 2025
(POPULATION IN THOUSAND)

1985		2000		2025	
Country	Population	Country	Population	Country	Population
1. China	1 059 522	1. China	1 285 894	1. China	1 492 550
2. India	769 183	2. India	1 042 530	2. India	1 445 570
3. USSR	276 946	3. USSR	307 737	3. USSR	351 450
4. USA	239 283	4. USA	266 194	4. Nigeria	301 312
5. Indonesia	166 464	5. Indonesia	208 329	5. USA	300 796
6. Brazil	135 564	6. Brazil	179 487	6. Pakistan	267 089
7. Japan	120 754	7. Pakistan	162 467	7. Indonesia	263 251
8. Pakistan	103 241	8. Nigeria	159 149	8. Brazil	245 809
9. Bangladesh	101 147	9. Bangladesh	150 589	9. Bangladesh	234 987
10. Nigeria	95 198	10. Japan	129 105	10. Mexico	150 062

Source: United Nations 1989: 57.

TABLE 2

URBAN AGGLOMERATIONS WITH POPULATION OF TWO MILLION OR MORE IN 1985 AND AVERAGE GROWTH RATE OF URBAN AGGLOMERATION, 1970-2000

Rank in 1985	Agglomeration	Country or area (1)	Urban agglomeration population (millions)			Average rate of growth of Urban agglomeration	
			1970	1985	2000	1970-1985	1985-200
1	TOKYO/YOKOHAMA*	JAPAN	14.87	19.04	21.32	1.65	0.75
2	MEXICO CITY*	MEXICO	8.74	16.65	24.44	4.30	2.56
3	NEW YORK	USA	16.19	15.62	16.10	-0.24	0.20
4	SAO PAULO	BRAZIL	8.06	15.54	23.60	4.38	2.79
5	SHANGHAI	CHINA	11.41	12.06	14.69	0.37	1.32
6	BUENOS AIRES*	ARGENTINA	8.31	10.76	13.05	1.72	1.29
7	LONDON*	U.K.	10.55	10.49	10.79	-0.04	0.19
8	CALCUTTA	INDIA	6.91	10.29	15.94	2.65	2.92
9	RIO DE JANEIRO	BRAZIL	7.04	10.14	13.00	2.43	1.66
10	SEOUL*	KOREA, REP.OF	5.31	10.07	12.97	4.27	1.69
11	LOS ANGELES	USA	8.38	10.04	10.91	1.20	0.55
12	OSAKA/KOBE	JAPAN	7.60	9.56	11.18	1.53	1.04
13	GREATER BOMBAY	INDIA	5.81	9.47	15.43	3.26	3.25
14	BEIJING*	CHINA	8.29	9.33	11.47	0.79	1.38
15	MOSCOW*	USSR	7.11	8.91	10.11	1.50	0.84
16	PARIS*	FRANCE	8.33	8.75	8.76	0.33	0.01
17	TIANJIN	CHINA	6.87	7.96	9.96	0.98	1.49
18	CAIRO/GIZA*	EGYPT	5.33	7.92	11.77	2.64	2.64
19	JAKARTA*	INDONESIA	4.32	7.79	13.23	3.93	3.53
20	MILAN	ITALY	5.53	7.50	8.74	2.03	1.02
21	TEHERAN*	ISLAMIC REP. OF IRAN	3.29	7.21	13.73	5.23	4.29
22	MANILA/QUEZON*	PHILIPPINES	3.53	7.09	11.48	4.65	3.21
23	DELHI*	INDIA	3.53	6.95	12.77	4.52	4.04
24	CHICAGO	USA	6.72	6.84	6.98	0.12	0.14
25	KARACHI	PAKISTAN	3.13	6.16	11.57	4.51	4.23
26	BANGKOK*	THAILAND	3.11	5.86	10.26	4.22	3.73
27	LAGOS*	NIGERIA	2.02	5.84	12.45	7.08	5.05
28	LIMA-CALLAO*	PERU	2.84	5.44	8.78	4.33	3.19
29	HONG KONG*	HONG KONG	3.40	5.16	6.09	2.78	1.12
30	LENINGRAD	USSR	3.98	5.11	5.84	1.67	0.85
31	MADRAS	INDIA	3.03	4.87	7.85	3.16	3.15
32	MADRID*	SPAIN	3.37	4.83	5.42	2.40	0.77
33	DACCA*	BANGLADESH	1.50	4.76	11.26	7.70	5.74

Source: United Nations 1989:356.

TABLE 3.

PAKISTAN: INTERNAL MIGRANTS BY MIGRATION STREAM, 1981

Stream	Number	Percentage
Total[b]	5 159 743	100.0
Rural-rural	2 221 581	43.1
Rural-urban	2 295 421	44.5
Urban-rural	171 959	3.3
Urban-urban	470 782	9.1

Source Pakistan, Population Census Organisation, *1981 Census Report of Pakistan* (Islamabad, December 1984), table 5.2.

[a] Based on previous and current place of residence.

[b] The table excludes migrants whose previous place of residence was Kashmir and Northern Areas, other countries, or not reported.

Source: United Nations ESCAP 1988.

TABLE 4

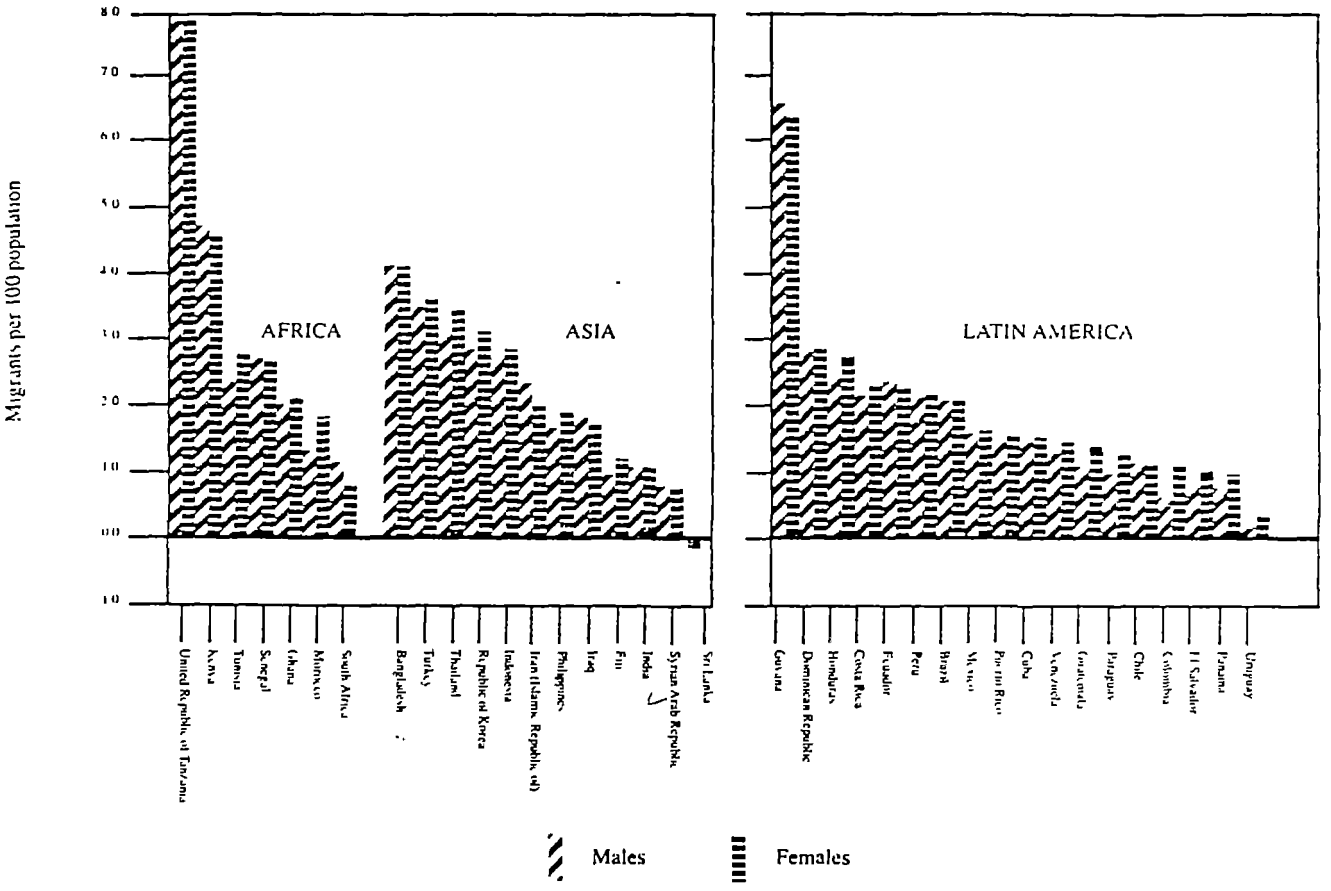
ECONOMICALLY ACTIVE WOMEN WAGE EARNERS IN ASIAN COUNTRIES

Country	Population* 1,000 (1984)	Economic activity rate (%)* Male	Female	Sector (% Women) Agriculture	Services	Industry	Rural population below poverty† line (%)
South Asia							
India	746,400	53	20	81	9	11	48
Pakistan	97,336	52	7	67	10	9	58
Sri Lanka	15,933	68	23	64	6	17	n.a
Bangladesh	93,531	57	13	70	10	12	94

Source: World Development 1989.

FIGURE 1

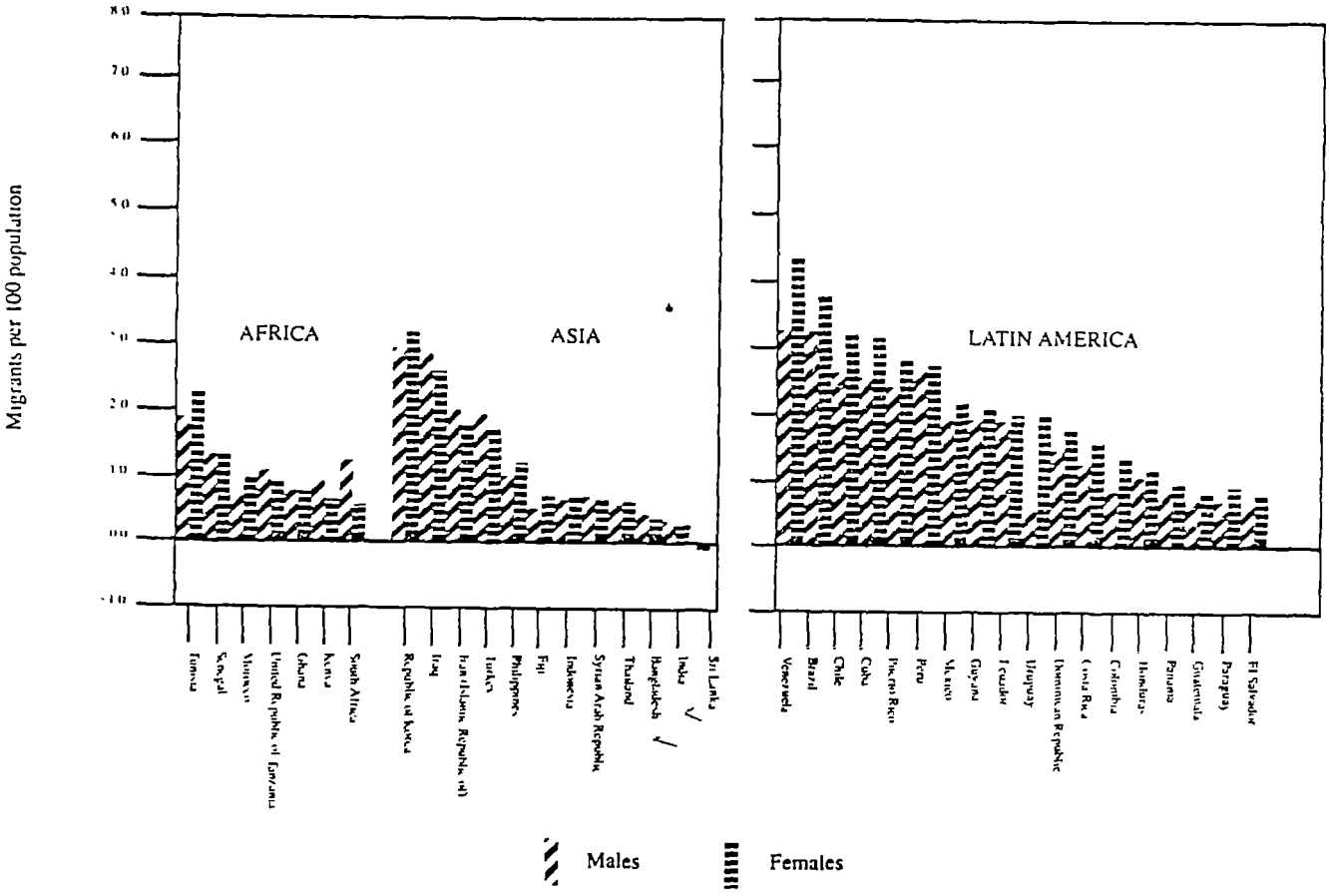
NET URBAN IN-MIGRATION RATES BY GENDER IN SELECTED COUNTRIES



Source: United Nations 1988:192.

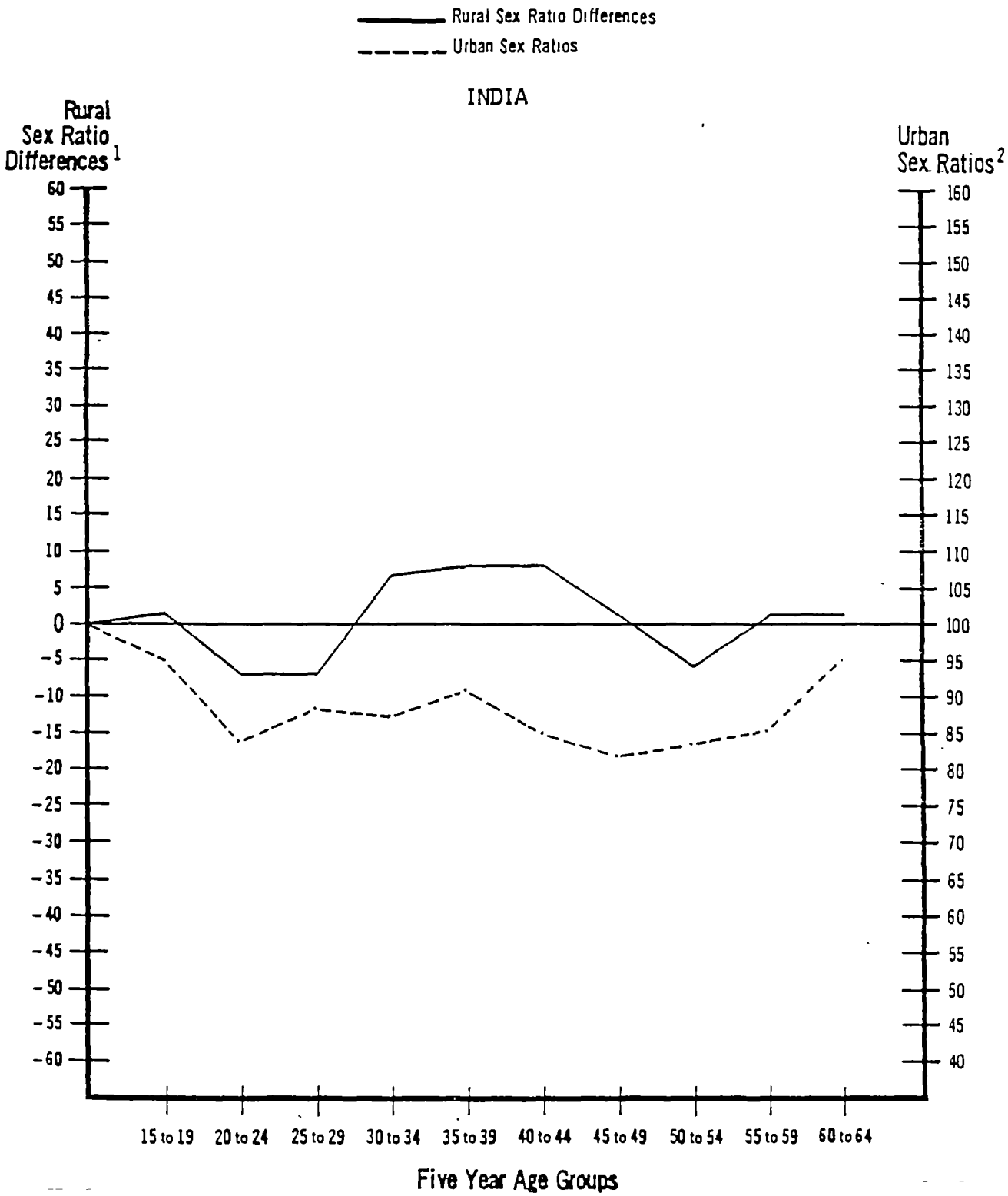
FIGURE 2

NET RURAL OUT-MIGRATION RATES BY GENDER IN SELECTED COUNTRIES



Source: United Nations 1988:191.

FIGURE 3
RURAL-URBAN MIGRATION AND URBAN GENDER RATIOS BY AGE COHORT



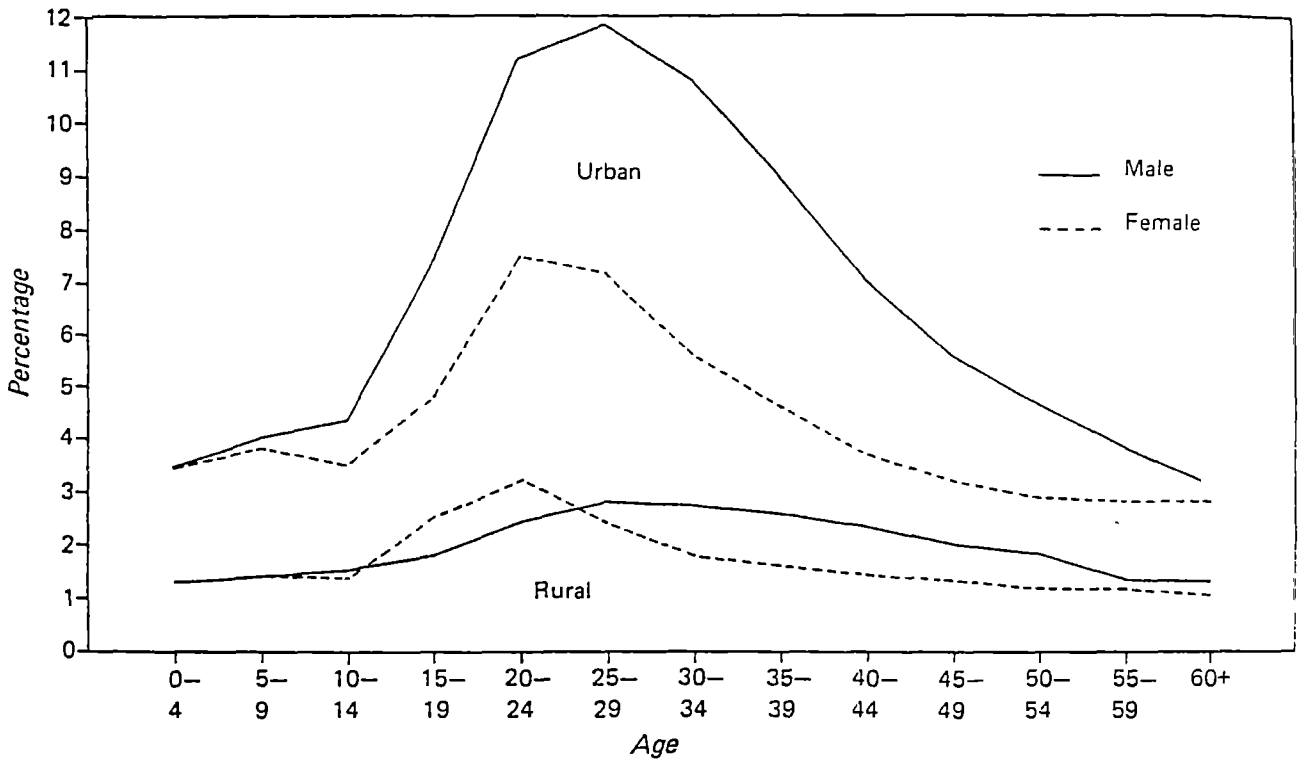
1. 1971-1980

2. 1980

Source: UNCHS 1985.

FIGURE 4

PAKISTAN: MIGRANTS THE PREVIOUS FIVE YEARS AS A PERCENTAGE OF TOTAL POPULATION BY AREA OF RESIDENCE, AGE AND GENDER, 1981



Source: ESCAP 1988.

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