

# The Pressure of Urbanisation

**T**HE provisional figures of the 1991 census of Bangladesh indicate that there has been a high speed of urbanization. Although the preliminary count shows that 10.29% of the population of Bangladesh live in municipalities compared to 9.23% in equivalent area of 1981, the actual figure in 1991 for all urban areas are expected to show a much higher level of urbanization. At least 16 new municipalities and other urban areas have come up since 1981 census. The only statistics available in the Preliminary Report of the population census of 1991 limit our interpretation and conclusion for the time being but the overall growth of population size is alarming.

There is a growing awareness of the complexity of urbanization. In less developed regions like Bangladesh, the urban crisis is all the more distressing in view of the fact that urban centres are important areas of economic and social development and the process of cultural change.

## Levels and Trends of Urbanization:

In 1965 the urban population was estimated to be at six per cent while that rose to 16 per cent in 1989, a significant increase over the period. Average annual growth rate was documented at 6.9 and 6.6 per cent during the period 1965-1980 and 1980-1989 respectively (UN 1991). Although the current level of urbanization (16%) is low compared to other developing countries, the rate of growth and the absolute size (19 million in 1990) is quite alarming. Total urban population more than doubled both in 1974 and 1981 with respect to the figures in 1961 and 1974 respectively. The urban population of Bangladesh during 1961-1981 increased by 401 per cent. According to the Bangladesh Bureau of Statistics (1984) about 30 per cent of the total urban population increase during 1974-1981 could be explained by the extended definition of urbanisation in 1981. The inclusion of thana headquarters and small hats and bazars (market places) with electricity which were not previously recognized as urban centres accounted for about 4 million population (BBS, 1984).

The absolute size of the urban population is projected to rise to 35 million by the year 2000. By 1981 Bangladesh had 491 urban centres compared to only 48 in 1961. Dhaka, Chittagong, Khulna and Rajshahi are metropolitan cities, each being the largest city in each of four administrative divisions of Bangladesh. Among these four, only Dhaka and Chittagong are million plus cities. 1981 data identified 11 urban centres with population size between 100,000 and 10,00,000.

Laskar (1985) evaluated the changing pattern of urbanization through the comparison of number of urban centres with size categories of population, distribution of urban population by size classes etc. and found that the urbanization is dynamic.

## Metropolitan Growth, Slums and Squatters

In 1981, the metropolitan cities, namely Dhaka, Chittagong, Rajshahi and Khulna held 45 per cent of the total urban population of the country while Dhaka alone had 25 per cent of the total urban

population. Dhaka the largest city of the country and being the capital of Bangladesh has an important role in the urbanization process. It had a population of 3.5 million in 1981 and its current population is about 6.7 million and projected to grow about 12 million in the year 2000. The second largest metropolitan (Chittagong) city's population was estimated at 1.3 million in 1980 and 2.3 million in 1990. According to the United Nations report, Dhaka and Chittagong combined together accommodate about 47 per cent of the present total urban population (UN 1981). Similarly Khulna, Rajshahi are growing fast.

The rapid urbanization and big city growth have led to the concentration of hundreds of slums and squatter settlements. A recent study identified over 1125 slums and squatter settlements in Dhaka metropolitan area (CUS 1988). These are not concentrated in one or two particular areas but spread over all parts of the city. These squatters accommodate about 50 per cent of the total population of the city. Other big and medium size ci-

ties or even small towns have slums in existence, which are expanding. About 30 per cent of the population of these urban centres are from slum areas. Living conditions in these slums/squatters are very unhygienic and inhuman. The population densities have been estimated to be 2000 persons or more per acre. Per capita living spaces have been found to be less than 10 square feet in many cases. Sanitation is very bad. Utilities are inadequate. Rents are exorbitant and tenure is uncertain. Because, these settlements have grown illegally on public or semi-public lands, the inhabitants of these areas are under constant threat of eviction.

**Rural-Urban Differentials:**  
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# Rice-milling Machine with a Difference

**I**T is now almost mid-day, but the sky is grey and overcast with heavy monsoon clouds, and it is dark in Dalagram Village in Kaliganj Thana 36 km northeast of Lalmonirhat district town in northern Bangladesh. Approaching the cluster of thatched huts amidst mango trees and bamboo clumps, the drone of a mechanically-powered motor is clearly audible. In the little hut that houses the device, two poor women — Jahanara and Shoneka — in their early thirties are working at a small rice milling machine and sweating on this hot, humid and gloomy August day.

Today it is Jahanara and Shoneka's turn to operate the rice milling machine which has been developed by Rangpur Dinajpur Rural Service (RDRS) as a household technology for creating employment for rural women. Two more women — Maleka and Nirubala — make up the sub-group of four from the Chameli Women's Group which is pilot-

mount the diesel engine and rice huller as a single portable unit.

This eliminates the need for (and cost of) permanent foundations and a building. The technical feasibility of this has been piloted and demonstrated during 1990 and 1991, in both men's and women's groups.

After a detailed evaluation of the technical and economic feasibility of the milling operation, and training for the women's groups which will be taking up machine rice milling, the prospects for replication, both within RDRS and in other organisations, will be clearer.

Bangladesh produces upward of 18 million tonnes of rice annually. Every year this is processed at a cost of about Tk 10 (\$ 0.29) per maund (37 kg). Annually this amounts to Tk 5,000 million (\$ 143 million). If women were able to capture a portion of this mar-

ket, this would mark an enormous gain for women's employment and income.



Maleka and Nirubala working at the rice mill.

ing the rice milling equipment newly developed by RDRS. The four women come from two different parent groups organised by RDRS, a large Non-Governmental Organisation (NGO) working in northern Bangladesh.

Rice processing is a multi-million dollar business in Bangladesh. At the village level it is controlled by women. In its small industrialised form, the roadside mill, it is controlled by men. Putting low-cost mechanised rice milling equipment in the hands of women offers a way to maintain this essential source of income at the village level, under women's control.

Besides these direct policies on urbanization, policy measures in other sectors such as policies on population, rural development and rural settlements, regional development, communication and transport, housing, land utilisation, environmental system, available food and medical facilities.

Young literate as well as illiterate people move to the cities in the hope of getting jobs, for higher studies and for business activities. But finding nothing gainful, many of them become vagrants. This means that urban growth and the expansion of urban economic activity are not in balance. Mass influx of migrants created new problems like unemployment, a high incidence of crime, the proliferation of shanty towns and substandard housing. Natural calamities like cyclone, famine, flood and river-erosion render many people homeless and economically destitute. Lot of them had to migrate to cities for shelter, security and protection.

for women. At a time when so much emphasis is being placed on increasing employment opportunities for women in rural areas of Bangladesh, it is ironic that as rice processing becomes increasingly profitable, women are excluded by virtue of the high capital costs and the technical nature of the activity.

One way for women to profit from machine-based rice processing is for them to own and operate the equipment. With this objective in mind RDRS has undertaken a project to adapt mechanically-powered rice milling equipment to suit it for ownership and operation by women's groups.

The aim is that women's groups would finance and operate small rice husking machines which use small (5hp to 8hp) diesel engines and have a capacity for 150-250 kg of paddy per hour. Individual women working at the household level will procure paddy, parboil and dry it and then pay to have it husked by the group-owned machine. Each household would be responsible for the purchase of paddy and sale of rice.

To facilitate the introduction of this small-scale processing technology, a system has been developed to close-

Jahanara and Shoneka or Maleka and Nirubala can process about 20 maunds (740 kg) of paddy in a good day but on a cloudy or rainy day they can manage only up to 10 maunds (370 kg). Customers are charged at the rate of Taka 10 (\$ 0.29) per maund and each of the two women working at a time receive Tk 2 (\$ 0.06) per maund.

The remaining money goes to the group fund. If the two women can process 20 maunds, they will receive Tk 40 together or Tk 20 each which is about the local wage rate.

Therefore, household rice milling will not be economically viable unless they can process at least 20 maunds per day. For this reason, the women's groups operating milling machines need to publicise their venture more widely in order to attract more customers. RDRS will be making further technical refinements of the machine to complete better with the larger, roadside mills, with the aim of generating employment for thousands of poor women in rural Bangladesh.

— RDRS Feature

# Dollar-a-Year Pump Brings Hope to the Farmers

**T**HE other day curious villagers and over-enthusiastic children converged on a patch of farmland at Savar, 25 kilometres west of Dhaka, Bangladesh's capital.

They had come to help inaugurate a new irrigation pump which the village doctor had just put up on his five-acre farm.

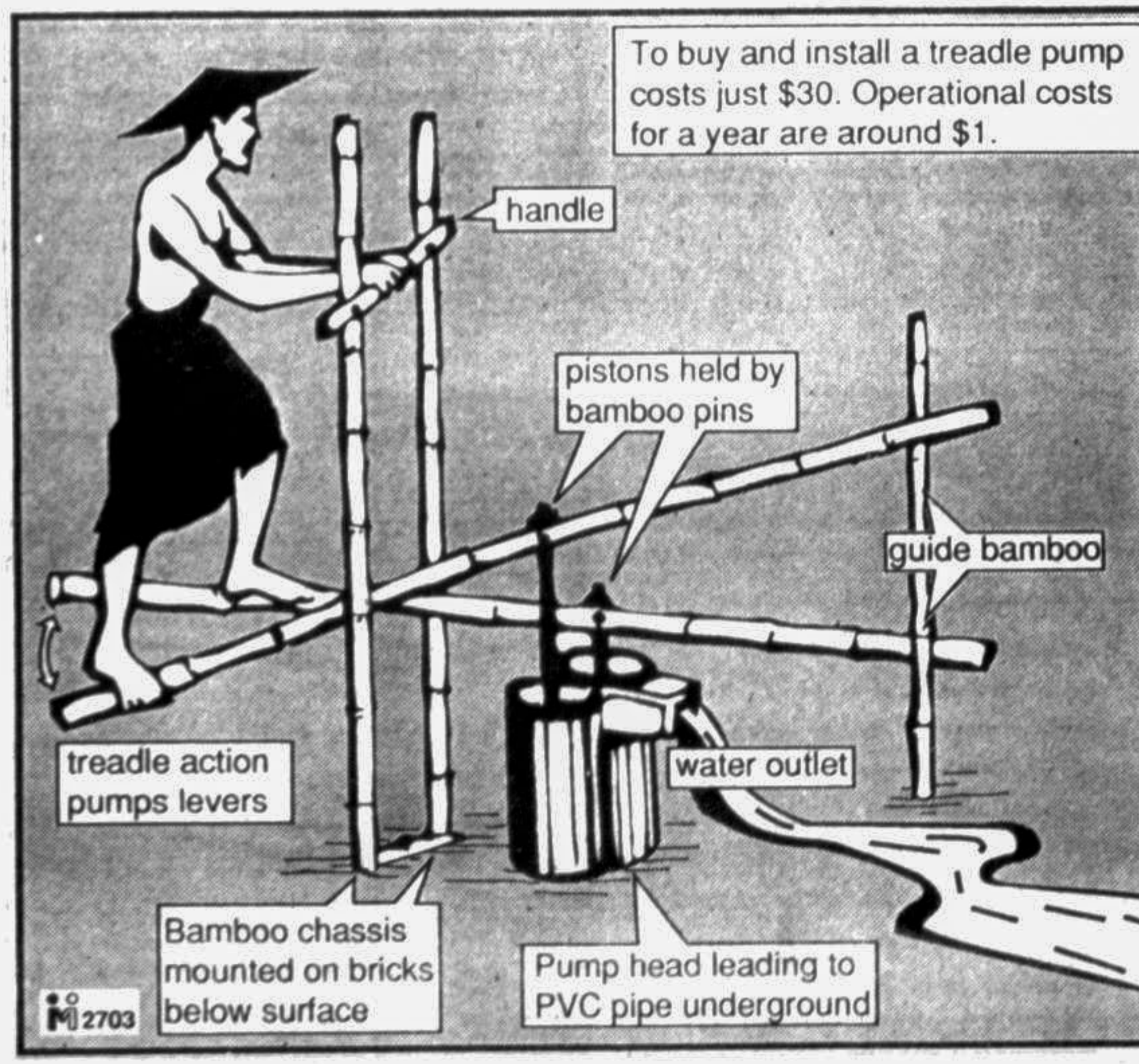
The pump, consisting of simple mechanical gadgets built with PVC pipes and bamboo levers, was standing ready to be commissioned.

The crowd watched with deep curiosity as four children stood on a pair of bamboo levers and started to treadle with great gusto. Water gushed out through the pump's nozzle and soaked the sun-baked soil.

This was the first Treadle Pump demonstrated to the villagers of the Savar area, where the land is called tanger and the ground water level is 40 feet deep. In local Bengali dialect, tanger means high and arid land.

The opening of this new irrigation device can bring good luck for Dr. K.A. Manzur. More importantly, it heralds new hope for thousands of marginal farmers in the area.

Unproductive land across the country can now be irrigated and cultivated round the year to grow a wide variety of mixed crops.



To buy and install a treadle pump costs just \$30. Operational costs for a year are around \$1.

The Treadle Pump is foot-operated and works on the suction mode. It has a double-piston cylinder with foot valve, two bamboo treadles, a bamboo frame and PVC pipe to lift ground water.

This is not a piece of transplanted technology, but originated as a specific response to a painful part of Bangladesh's reality — drought and famine.

The device was conceived

Dev wondered if multiple cylinders could be attached to a single tubewell and the down-stroke to one would energise the up-stroke to the other working in a suction-mode.

Rangpur-Dinajpur Rural Service (RDRS), a local non-government organisation (NGO) in the country's northern districts, took Dev's idea. In the 1970s and early 1980s, two RDRS engineers — Gunnar

Barnes and Marceline Rozario — patiently and methodically designed, tested and experimented with hundreds of models until they came up with the Treadle Pump.

Over the last five years it has been used successfully across the country by farmers who found it cheap, useful, simple and easily maintainable. To buy and install, it costs a farmer only \$30. Its operational cost round the year is just about one dollar.

Depending on the depth of the water table, a single pump can move from two to four litres of water a second. And

highlands under irrigation facilities.

William H. Derrenger, IDE Director, calls the pump "a miracle in the context of Bangladesh's needs. This is the kind of appropriate technology that development agencies have always dreamt of."

"It's a franchise... it's like Honda and Toyota cars for the poor people." In the context of a fragmented rural farmland, and in view of a huge, largely unproductive rural labour force, and abundant surface and sub-surface water resources, Bangladesh — with the help of the Treadle Pump, should

more productively utilise all its agricultural resources." The pump should lead to the formation of a productive partnership between the wealthy owners of unproductive land and the eager but jobless sharecroppers. It should provide highly productive employment to thousands of rural families.

A recent study suggested that food production could be increased by 50 per cent in Bangladesh if the landless and marginal farmers are equipped with the Treadle Pump.

More than 100,000 were sold across the country last year, according to IDE figures, bringing the total to about 700,000. And now interest in the pump is growing abroad — in countries like India, Nepal, Sri Lanka, Vietnam and Brazil, where they want to introduce it for farmers of the Amazon basin.

IDE has given the pump the brand name Krishak Bandhu. It means "The friend of the farmer."

About the author: ROUSHAN ZAMAN is a Bangladeshi who is Chief News Editor of the United News of Bangladesh. Born in 1950, he graduated with Honours in History from Dhaka University, did an MA there and became a journalist in 1973.