

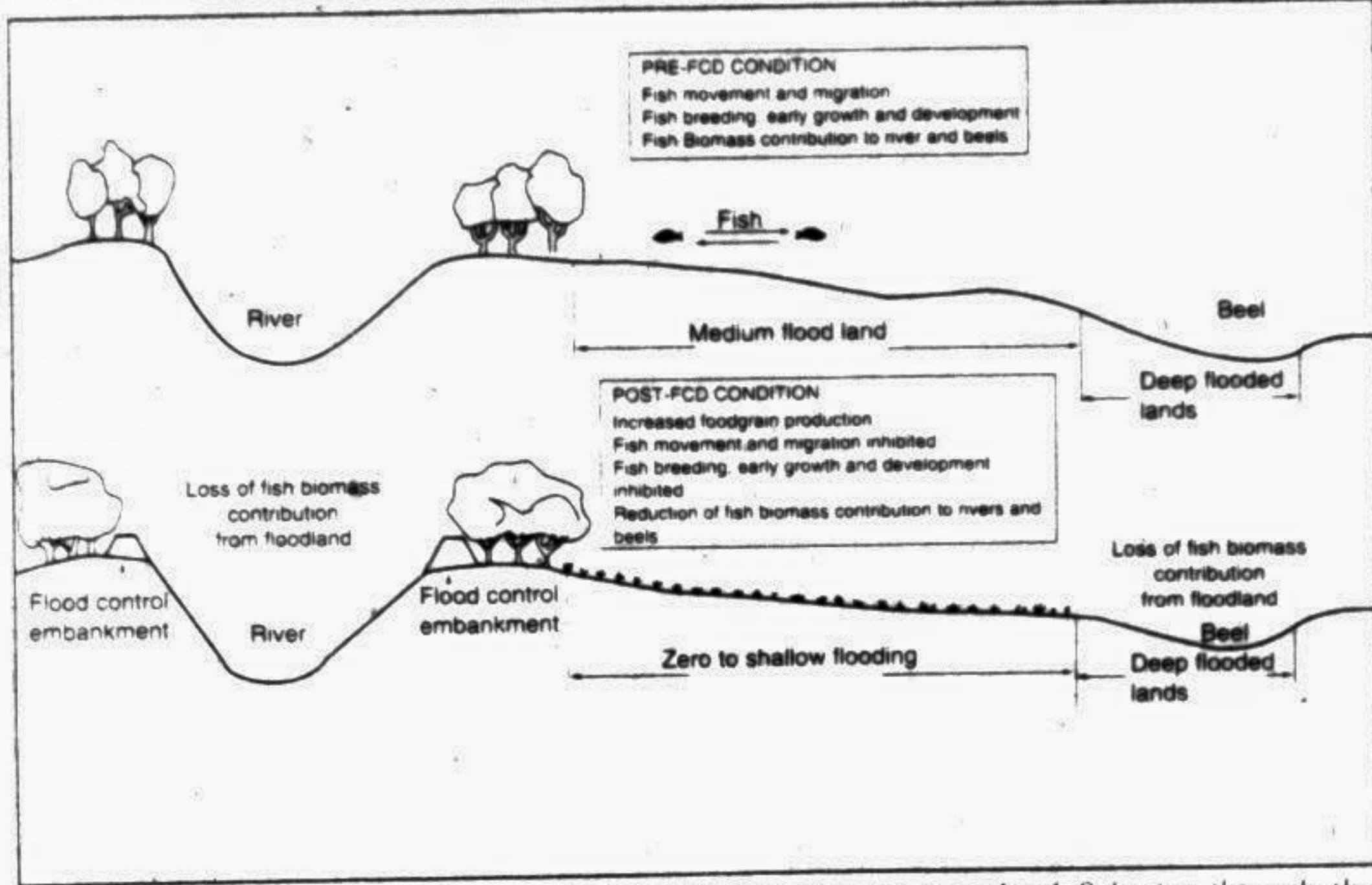
Feature

Development

Fish Culture vis-a-vis Floodplains Fisheries Production

by Dr M Youssouf Ali

In the context of Bangladesh, in addition to fish culture, attention needs to be focused also on sustaining the natural fish production in the rivers and their floodplains and the beels within the floodplains.



Schematic representation of the impact of flood land removal on inland fisheries through the construction of flood control and drainage projects. — Source: IED/RAS, 1994

FOR the last few years, people of Bangladesh appear to have become aware of the inadequacy of the country's fish production to meet the demand. To solve this problem, everybody seems to have only one solution and that is 'fish culture'. In the public sector, fish fortnights were held with the theme "grow more fish through fish culture". In the exhibitions associated with such fortnights, various fish cultural or aquacultural techniques very demonstrated and leaflets containing guidelines on fish culture were distributed. In the private sector also, everybody talks of fish culture. Everybody preaches fish culture in all forms of water-ponds, beels, baors, haors, rivers and sea to tackle the problem of fish shortage. Newspapers also seem to emphasize only fish culture in their editorials and post-editorials.

This awareness of doing something to solve the fish crisis is, no doubt, a very good augury for fisheries in Bangladesh. But in the context of fish culture, attention needs to be focused also on sustaining the natural fish production in the rivers and their floodplains and the beels within the floodplains. The rivers, beels and the floodplains together constitute the "openwater fisheries production system."

It is to be stressed here that the principal source of fish supply in Bangladesh had always been the openwaters. In the thirties or forties this source used to contribute about 95 per cent of total fish production of the country. Even today, the fish production from the open-water sources account for over 50 per cent of the total catch of the Bay of Bengal. At the end of the current five-year plan in 1994-95, it is targeted that about 43 per cent of the total fish production should come from the rivers (including their estuarine component), beels, haors and the floodplains.

Bangladesh openwaters support over 260 species of fish and over 20 species of freshwater prawn. Populations of these fishes and prawns are self-reproducing and self-sustaining. They continue to sustain themselves as long as their natural habitats are not reduced or drastically altered and their populations are not fished or decimated beyond their respective biological resilience level. Men simply harvest such natural populations of fish and prawn. Hence, the openwater fisheries are also termed as "capture fisheries."

Here it is perhaps pertinent to elaborate as to how the openwater fisheries production system functions in nature. Openwaters can be broadly divided into several components such as (a) the rivers including their estuaries, (b) the monsoon inundable floodplains and (c) the beels or deep depressions within the floodplains that retain water round the year or mostly part of the year. In the dry season, these openwater

components are distinguishable as separate entities. But with the commencement of the monsoon season, these separate components become inter-connected giving rise eventually to an integrated biological production system in the inland openwaters. The sexual maturity and breeding activities of over 260 species of fish and about 20 species of prawn in the inland openwaters are again very finely tuned to the different phases of the monsoon floodings. At the onset of monsoon season, the fishes conditioned to breed in the rivers such as *ruia*, *catla*, *mrigal*, *kalboush*, *ghonia* etc. living in the beels would migrate into the adjacent rivers and join other such fishes in making an upstream migration to reach their breeding grounds to breed. Upon birth, the newly hatched babies of those river breeding fishes enter the floodplains to live and grow there for 5 to 6 months, that is, until water has receded from the inundated floodplains at the end of monsoon season, when they migrate back into the rivers and into the beels to live through the dry season. The freshwater prawns such as *golda chingree*, *chatka chingree* etc. living in freshwater habitats make a downstream migration to the saline environment near the coast at the advent of monsoon to breed in the semi saline habitat. Their newborn young, upon attaining the post larval and juvenile stages, undertake upstream migration through the rivers and eventually enter into the inundated floodplains to feed and grow till the end of monsoon floods. Like the fishes, these also return back to the rivers with the receding

waters. Another group of fish such as *koi*, *shinghi*, *magur*, *taki*, *kholisha*, *punti*, *tipunti*, *mola*, *meni*, *gutum* etc and *ghuso chingree*, *kuchio tcha* etc. prawns breed in the inundated floodplains in the early monsoon. Their newborn babies also feed and grow in the floodplains throughout the monsoon season. These also get harvested in the floodplains.

The above description will shed light on the central role the monsoon inundated floodplains play in the continuation and sustainability of the fish, prawn, tortoises and turtles, pearl bearing freshwater mussels etc in the inland openwaters of Bangladesh.

The inundated floodplains fishery production had been playing another very important role for centuries and that is, social and economic benefits to the rural poor. During the monsoon months, the expanded flood waters carry fish and prawn populations literally to the door steps of the rural households in and around the floodplains, making them accessible freely and easily to the vast multitudes of the rural poor. Almost every member in the rural households — men, women and children participate in this seasonal fishing activities in the inundated floodplains for as long as there water. Such fishing activities are termed as "subsistence" fishing. Subsistence fishing activities are carried out mainly by the people who are too poor to buy fish at markets and who, therefore, enter a wageless labour system producing food for them and their families by catching freely available fish and prawn from the inundated floodplains. As a matter of fact, subsistence

fishing on the floodplains provides a cushion against poverty. Subsistent fishermen catch mainly the small "miscellaneous" fish as distinct from the principal commercial species such as major carps (*ruia*, *catla*, *mrigal*) and *ilish*. These so called "miscellaneous small fishes" constitute the "poor peoples fish." Economic and nutritional values of these miscellaneous fishes for the rural poor are immense.

Conversion of inundated floodplains into dry lands through construction of embankments and drainage development has resulted in the elimination of fish production and harvest thereof from the converted inundable floodplains. According to a report, upto the end of the third five-year plan ending June 1990, an estimated 3.30 million hectares of monsoon inundable floodplains have been protected against flooding through the construction of (a) 7,024 km of embankments, (b) 3,017 km of drainage channels, (c) 6,884 hydraulic structures, (d) 1,064 river closures and (e) 3,888 bridges and culverts. According to the currently available information and knowledge, a harvest of between 152 kg and 650 kg of fish is obtained per hectare per year from the inundated floodplains presently in Bangladesh. In terms of fish production or catch, protection of 3.3 million hectares of monsoon inundated floodplains means that the country has lost an estimated total catch of between 5,01,6000 metric tons and 21,45,000 metric tonnes of fish per year that hitherto were being taken by the rural "subsistent fisher-

men" every year. This total harvests do not normally pass through the marketing channels and therefore do not become visible. This loss of fish production, moreover, is irretrievable. In addition, monsoon inundated floodplains also contribute substantially to the riverine fish production. The Flood Control and Drainage (FCD) and Flood Control, Drainage and Irrigation (FCDI) projects had been planned and executed without studies on their impacts upon openwater fishery production system and also of resultant impacts upon the people dependent on such fish production. The other impact, a more serious one, is that the loss of floodplains is causing erosion of biodiversity of fish and other aquatic animal species. Already, some of the floodplain dependent fish species have become very rare or extinct. Future flood control projects as envisaged in the massive Flood Action Plan, will further enhance the loss of openwater fish production and openwater species biodiversity of fish, prawn, mussels and other living aquatic organisms. One expatriate fisheries expert conversant with Bangladesh openwater fisheries appropriately had said, "What is cyclone to the coastal areas, Flood Action Plan is to the fisheries of Bangladesh."

Reduction of openwater surface areas also greatly enhances pollution of the residual waters in the floodplains, khals and beels still left over. chemical pesticide residues enter such residual waters in the form of run-off from crop fields. In lethal doses, pesticide residues directly kill fish, prawn and other aquatic organisms. In sub-lethal doses, the pesticide residues in being accumulated in the bodies of fish and prawn. Eventually, such chemical residues enter the body of humans consuming such chemically contaminated fish and prawn. Accumulated chemical residues so transferred to the humans cause a host of diseases including cancer.

It is, therefore, necessary that in future, fisheries development should not remain confined to "fish culture" but also include sustenance of fish habitats, particularly the inundable floodplains to a permissible limit. Simultaneously, a programme of "fisheries resources management", based on adequate studies, needs to be undertaken to assist the fish and prawn populations to spring back to their optimum level in the available openwaters of the country.

Fisheries resources in the openwaters are "common property renewable natural resources" gifted by the nature with no cost to men as opposed to fish culture or "culture fisheries" which are private property. To obtain production from fish culture, one has to invest money and resources. Fish culture of culture fishery cannot also restore or sustain biodiversity of fish, prawn, mussels, tortoises and turtles found in nature.

Thus, it can be iterated that "fish culture" can never be a substitute of natural fish production in the openwaters.

Bee-Keeping : Reaping Sweet Profits

by Jagadish Chandra Saha

BE-KEEPING is the art of caring for and manipulating colonies of honey bees so that they will collect and store a quantity of honey above their own requirements. In recent years bees have been frequently utilized in many countries of the world to pollinate crop plants in order to increase the production of seed, fruit, vegetables and fibres. Besides, bees are also being cultivated for the production of pollen, royal jelly, wax, propolis and bee venom which have great importance in industrial uses and food value as well.

Since time immemorial bee-keeping has been practised haphazardly in Bangladesh. At early time this activity could be called as 'bee-hunting' not as 'bee-keeping'. It was done through a crude method mainly for honey collection a method that is still being practised.

Keeping or rearing bees in wooden hives probably started in the country at the time of the Gandhian self-reliant

cottage industries Corporation (BSCIC) first introduced the modern and scientific bee-keeping in 1977 in the country. Simultaneously, its promotion and extension was started to the target people mainly as a substantial income generating source. But nowadays it has been proved that one can undertake the bee-keeping activities as a fulltime livelihood profession in the potential areas in the country and/or by way of migratory bee-keeping. Since 1977 BSCIC has trained about ten thousand bee-keeping in the country. Most of them are producing honey by rearing or keeping bees as a substantial or fulltime income generating activity. Realising the successful efforts of bee-keeping launched by BSCIC, many other organisations have already undertaken bee-keeping programme as a good weapon for self-employment and poverty alleviation as well.

However till today there may not be more than 15 thousand bee-keepers trained or sponsored by BSCIC including all other concerned organisations. Whereas the total number of bee-keepers might be 0.4 million if there were 5 bee-keepers on an average in each village throughout the country. It would therefore, be highly feasible to undertake a large extension programme for bee-keeping covering almost every village throughout the country. On the other hand, a permanent research, demonstration and marketing programme can also be undertaken right now so that a scientific programme like bee-keeping can be smoothly promoted in comparison to global bee-keeping.

The writer is a manager of the Bee-Keeping Project under BSCIC, Dhaka.



Collecting honey : Small investments big profits

movement in the 1940's. Before this, people used to keep bees in wooden logs, clay pots, bamboo and straw baskets etc. Their efforts appear to be very limited. In the 1950's the government of the then East Pakistan came to know and understand the feasibility and necessity of bee-keeping and accordingly tried to start it in Sylhet district. The result was not satisfactory due to insufficient technology and improper planning. During this whole time bee-keeping cum chatters-cum-amateurs were trying to keep bees in hives. A few of them were partly successful but diseases and other problems resulted in failure.

In the 1960's Bangladesh Small and Cottage Industries Corporation (BSCIC) started

till to day, promotion and extension of the modern and scientific bee-keeping throughout the country is mainly launched by the BSCIC. The result of the programme is very encouraging.

In the context of present socio-economic structure of Bangladesh there is a great potential for bee-keeping, its development and scientific expansion. Its necessity is also undeniable. Other than honey production, enhanced yield of agricultural and horticultural crops, quality seed production and forest wealth development through cross-pollination, employment generation and large number of plantation by the bee-keepers are of vital importance to the socio-economic development of the country. Bangladesh Small and

sand bee-keepers trained or sponsored by BSCIC including all other concerned organisations. Whereas the total number of bee-keepers might be 0.4 million if there were 5 bee-keepers on an average in each village throughout the country. It would therefore, be highly feasible to undertake a large extension programme for bee-keeping covering almost every village throughout the country. On the other hand, a permanent research, demonstration and marketing programme can also be undertaken right now so that a scientific programme like bee-keeping can be smoothly promoted in comparison to global bee-keeping.

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Time marches on

In 1994, global population will rise by 89,712,000. That equals:



WHILE delegates to the global population summit are gathered in Cairo, more than one billion acts of sexual intercourse will occur around the world. The nine-day conference opening September 5 is designed to address the consequences. Population growth, sex education, reproductive health and women's rights are just a few of the subjects on the agenda for discussion by 20,000 delegates to the United Nations International Conference on Population and Development. Not surprisingly, given the controversy and sensitivity of the topics, tough debates are expected. "It's become a minefield of emotionally-charged subjects," Sunetra Puri of the International Planned Parenthood Federation (IPPF) says of the draft document

which will provide the framework for conference discussions. She describes the 118-page booklet as "the Bible for Cairo." Her use of the term Bible to describe the draft document is apt because pre-conference reporting has been dominated by the battle between advocates of sex education, birth control and abortion and traditional religious organisations, most notably the Roman Catholic Church, which encourage "natural methods" of family planning. Pope John Paul II has warned that the conference could represent "a serious setback for humanity" if it sanctions abortion and artificial forms of birth control. At the opposite end of the spectrum are non-governmental organisations (NGOs) calling for access to information

Delegates Talk through One Billion Acts of Sex

Daniel Girard writes from London

and services on contraception, sex education and abortion to be guaranteed as a "human right."

The draft document was hammered out line-by-line by representatives of more than 170 UN member states in a pre-conference meeting last April. Delegates failed to reach consensus on resolutions on a variety of emotive issues, including sexual and reproductive health, family planning, fertility regulation, safe motherhood, elimination of unsafe abortion and the reproductive and sexual needs of adolescents. The wording of the text on those topics has been put in brackets in the draft and will be the focus of discussion in Cairo.

"What we are all talking about are our own lifestyles," Puri says. And as with all lifestyle debates, particularly ones that cross regions and cultures, opinions are all over the map.

Campaigners concerned with women's rights are worried that the clash with the Vatican may push other issues to the background. But they are pleased that the conference draft document stresses the need for sexual equality and improvements to the political, social, economic, educational and health status of women.

"Women have been acknowledged for their central role and that certainly has to be seen as an important starting point," says Edda Ivan-Smith of Action Aid, a British NGO.

Although there is always concern that such a huge conference will be long on rhetoric but short on action, Ivan-Smith says it is crucial victory to have "development" in the title of the Cairo conference. "That has to be applauded," she says. "It shows that the focus is no longer just on numbers."

But numbers will be on many minds. Few dispute that the world's population increase is too fast for comfort. Even though the rate of growth has slowed over the past two decades, the number of people is rising faster than ever, according to the UN. Some 909 million people will be added this year and every 12 months until 2015.

It took 123 years for the number of people on the planet to increase from one to two billion but in just 11 years — 1987 to 1998 — it will have grown from five to six billion, the UN predicts. At the current pace, global population will reach 8.5 billion by 2025.

Most of the growth is taking place in the South, where more and more people are migrating to already overcrowded cities. UN projections show 94 per cent of global population increase between 1995 and 2025 will occur in the developing world, with the number of people there rising from about 4.4 billion to 7.1 billion.

One of the aims of the conference is to mobilise money and commitment for the effort to slow this growth. IPPF assistant secretary-general Dr Pramilla Sananayake estimates that \$9 billion a year is needed for family planning around the world and an additional \$50 billion a year for primary health care, including water and sanitation, communicable disease control and basic drugs.

John Rowley, editor of People & Planet magazine, a joint publication of four population and environment organisations, believes that social payoffs must be stressed in order to get more funding.

"When governments realise that there are tremendous social, economic and environmental benefits to be had, then reproductive health will attract the funding that is needed," he says.

Despite the very real threat that the language of the draft document will be watered down to make sex education, contraception, women's rights and other key issues nothing more than words on paper,

Senanayake is optimistic that the Cairo conference will still be a big step forward for humanity.

"The final document is never going to be the be all and end all," she says, "but with all the signatures on it we'll be able to wave it in the face of decision-makers and get them to follow it."

— Gemini News

Face to Face

WHEN I got married I was illiterate. No children were born and my husband encouraged me to go to school. It was funny to see me studying among those small children! I studied every night and passed the exams. Now I have registered for the final SSC exam. I want to study in college and then serve the people. I could be a Union Organiser with RDRS, couldn't I? I am also the secretary of Urbashi Women Group. We solve our problems together.

Nasima Begum
Urbashi, Nageswari
Thana

ALL families on my Char have been involved in weaving for many generations. My grandfather was a weaver and I started weaving when I was seven. I will explain to you what my work is. My husband goes to the market and buys these used woollen clothes from foreign countries, maybe also your country. The clothes look like new, but they say that people over there throw them away. We village people do not have

Rezia Khatun
Dokkin Nanager Chars

the habit of wearing clothes like that, so we turn them into something else. I use the wool to weave shawls, which I sell for 100 to 150 Taka. My husband pays 30 to 60 Taka for the clothes, so I make a good profit. In the past we women weavers had some problems. In the off-season, we would have no income and no food for our children. But RDRS is helping us. This year I received a loan of 3000 Taka and there was no need for hunger. You see how much better our lives have become?