INING plays the most vital part in moulding the social and economic environment in any society. It is the most man-intensive industrial sector next to agriculture. It has no limit to its development as there is no limit to industrial demand. Exploration of peat falls in the mining sector. Peat in the area of Baghia and Chande beel in Madaripur district and Koula Mouza in Khulna district was formed by decomposition of vegetal matters. An estimated quantity of 130 million tons of peat has so far been discovered. The peat deposit has a peculiar characteristic - that it lies only 1 m to 3 m below the ground and the thickness of the peat layer varies from 0.7 - 4 m. The mining is much easier and the same is the transportation. It lies spread in an area of 80 - 100 sq. km having a population of about 100,000. The price volume of peat reserve is about Tk. 13,000 crores at the present

The peat was discovered about 30 years back. Yet no progress for the exploration of such valuable resource could be made uptill now due to its high moisture and ash content. In the late eighties a new technology has been developed which could enable the technologists to use biomass and

world market price index.

# Peat and its Social Impact in Bangladesh

M. Wahidur Rahman

An estimated quantity of 130 million tons of peat has been discovered in the southern zone of the country. Using the right technology for exploitation of peat in power generation, Bangladesh can bring about a great social and economic prosperity in the region.

will have great social and economic effect in the region.

#### A) Social effect:

(a) Development of co-operative firm: A market for the sale of peat will be established with the establishment of power plant. About 10-12 lac tons of peat will be required annually for 100 MW Power Plant and the value of the peat will be around Tk. 100 crores. Thus an amount of Tk. 100 crores will be injected in the region of 100 sq miles annually. But the land ownership of the region is divided among 20-25 thousand families. Moreover the exploitation of peat economically requires technical knowledge like construction of embankments against flood, dewatering the region, transportation equipments and arrangements for The establishment of power re-use of this excavated area. All these will require a consid-

crable amount of investment. The present farmers and owners of land can not undertake such activities which in turn give rise for the establishment of 50 - 100 co-operative firms for the initial purpose to exploft peat with ultimate aim to start other economic developmental activities. These cooperatives will get the financial assistance from the national financial institutes like ICB. BSB, BSRS, Gramin Bank, Krishi Bank or any Commercial

Bank for the procurement of

dewatering and transport

equipments. Once an additional amount of 100 crores is available annually with the sale of peat, other economic activities in trade and commerce to meet the daily necessities of life will start functioning in the region. These activities can be organised by the co-operative firms or by individuals. The in-

dividual however may be more successful.

#### (b) Development of economic activities:

I) Mining: A total of 200 acres of land will be excavated to a depth varying from 4 ft to 22 ft to feed one 100 MW power plant annually. This will open up the field of employment for 1500 - 2000 persons. With 3 Nos. power plant of this nature about 5000-6000 persons will be employed in mining and transportation alone.

II) Fishery: 4 blocks of 50 acres will be excavated annu ally. Each co-operative firms will be able to develop these excavated blocks into a regular fish culture ponds having an average depth of 15-16 ft. Fish research centre can be developed and after a few years of developmental activities in this sector will give rise to a production of 7000 tons of fish annually which will be multiplied every year.

in 10 years time, there will be fish production of 70,000 tons annually in the peat zone for every 100 MW power plant. This will employ 3-4 thousand persons per year.

III) Forestry : Embankments around each block in the mining zone is to be constructed for flood protection. Thus there will be 6000 ft of embankment around each block and 18000 ft for 4 such blocks. Fruit bearing and valuable tress can be planted and other vegetal growths can be worked out by the side of embankments. Thus 1000 trees can be developed every year and in 10-15 years time the total trees will be around 10-15 thousand. This will employ

more than 300 persons. IV) Poultry Farm: Poultry

farms can be developed with the development of ponds. Matze and beans can be culti vated by the side of the ponds which can serve as feed to ducks and chickens. The wastes of these ducks and chickens can be used as feed for the fish. A farm of 10000 ducks can be developed each year and in 10 years time 100,000 nos. of ducks will be developed in the region producing a minimum of 50,00,000 ducks and 1.5

V) Industry : With economic development in the society in dustrial growth will take place simultaneously. The prospect of fish and fruit processing factories, rice and ice mills saw mills, bakery and other al lied industry in private sector will emerge. This sector will also require more than 300 persons.

crores of eggs every year. This

will employ 1000 persons.

VI) Unproductive developments: Along with productive developments mentioned so far there will be unproductive developments like construction of residences, buildings, roads, water supply, markets.

The employment in this sector will also be around 500.

C)Development of Education and family planning-

Education in the region will develop with economic development of the area. People will be more conscious and realise the importance of education towards economic and social transformations. They will also realise the necessity of family planning and its effect on economic standard in the society.

i) Employment opportunity of 12-15 thousand persons can be achieved in the region.

Economic effect:

II) A total of Tk. 800 crores can be accounted for in productive sector alone per year. The unproductive sector will also add Tk. 80 crores to the GNP growth per year.

It can be concluded that peat is the life blood of the people of Madaripur/Faridpur district. Therefore all should be made to exploit this great natural resource for fast economic development as well as moulding the people of Madaripur towards modern technological era and establish power plant based on peat without any loss of time.

### Prosperous Farmers Give up Gambling

ROSPEROUS farmers in Nepal are cutting down on gambling and alc-oholism to be able to invest in new technology to grow vegetables.

The Small Farmers Development Programme (SFDP), implemented by the Agricultural Development Bank since 1975, has brought economic prosperity to the poor farmers by providing credit facilities to increase agricultural produc-

Alcoholism and gambling have become a national pastime in this Himalayan kingdom. The Urahari village in Dang Valley in west Nepal is no exception. But not since 1982 when the credit programme made a debut there.

Under the SFDP, small farmer groups having small farm with an annual income of 2,500 rupees (US\$84) are given loans to buy buffaloes, goats and to do vegetable farming. Prem Raj and four of his fellow farmers formed a group in 1985 and named it "Radha Krishna," the romantie Hindu deity.

The group has since then borrowed US\$3,800 for a wide range of activities including the installation of an irrigation

"It is a miracle that I have been doing on just a small patch of land," boasts Prem. The water keeps me too busy for gambling and alcohol."

He began with vegetable farming to use the water. A cement reservoir was built. Then a network of small irrigation canals. He grew

## to Grow Vegetables

by Jan Sharma

cauliflower, cabbage, eggplant, potato, tomato, pumpkin, chili and onions and brought home US\$1,000 last year.

wastes, barks of timber in

newsprint mills, lignite, peat

and all types of luminous fuel

for power generation. By 1991

about 30 such power plants

based on these fuels will be in

operation all over the world.

Bangladesh can therefore

utilise the technology for the

exploitation of peat in power

generation by establishing 2-3

Units of 100 MW power plants

in southern zone supplying

electricity to the grid system.

Such power plant will com-

1) Peat handling equip-

2) Steam generation units

3) Power generator and ac-

The cost of such power

plant of 100 MW capacity will

be around US\$ 120m which

will be much cheaper than the

present conventional power

plant and exploitation of peat

Medium voltage

4) Step up transformer.

with new technology.

cessories.

switchgear.

Recently, he bought a cement tile machine to make extra money. "I divide my time by attending to goats in the mornings, making tiles in the afternoon, and working in my

US\$12.5 million for the SFDP's initial phase, is providing US\$13 million to help implement the hill-based forest and livestock development project. Landless farmers will be provided with government forest areas cleared by shifting culti-

The farmers will be encour-

A continued partnership with donor agencies will remain a significant feature of the Small Farmers Development Programme.

vegetable farm later," he says. The SFDP, funded by the Rome-based International Fund for Agricultural Development and the Manila-based Asian Development Bank, has provided credit and other supports to 120,000 small farmers for various income generating activities.

Nepal, with a total of 1.3 million small farmers families, anticipates continued support from IFAD in its endeavour to raise the income of vast majority of villagers.

The SFDP "has proved to be a key instrument in creating productive asset such as community irrigation, water mills for agro-processing, community forestry for the benefit of the poor," says a government spokesman.

IFAD, which pumped in

aged to grow tress and forage grass in an integrated manner and involve them in a livestock

The ADB has been supporting the Agricultural Credit Project which is now in the fifth phase. It provided US\$24 million under the fifth credit programme in 1987.

development programme.

Several United Nations agencies are also involved in supporting the SFDP. The United Nations Development Programme (UNDP) has provided technical grants totalling US\$20,000 for strengthening the institutions involved in the

UNDP has also been involved in manpower development in the field of computer and entrepreneurial development in the private sector.

The UN Fund for Population

Activities, the Food and Agriculture Organisation and the **UN Capital Development Fund** are also supporting the various components in the SFDP activ-

Nepal's new government announced last November it has allocated US\$30 million for the SFDP, according to the cabinet secretariat. This has been possible with funding from the ADB.

Nepal and the ADB signed two agreements last December under which the ADB will provide a loan assistance equivalent to SDR 21.895 million and a technical assistance of US\$410,000 for the SFDP.

The technical assistance tied with the loan will help improve the operational efficiency of the Agricultural Development Bank of Nepal, the main agriculture credit agency.

The cabinet secretariat said concessional loans will be provided to small farmers in 39 districts on the basis of joint guarantee without any collateral for small irrigation projects, production of foodgrains and fruits, fishery, cottage and rural industries to provide jobs to women and increase their income.

Women members must compose one-fourth of small farmers groups receiving loans. The groups are each entitled to receive a maximum loan of 30,000 rupees (US\$1,000) a

Critics argue that the SFDP has not contributed significantly to sustainable development. "The project (SFDP) will be there so long as the funding



Agriculture is most promising in this fertile soil.

will be there. Once the funding is gone, the SFDP will also be gone," says one SFDP official.

Others do not agree. "A continued partnership with donor agencies will remain a significant feature of the SFDP for two reasons," explains Shyam Khadka, a senior officer of the SFDP of the Agricultural Devel-

opment Bank in Kathmandu. He says the credit programme is heavily biased to-

wards creating productive facilities which has a very high import content. The need has been for low cost resources to cater to specific target groups like small farmers.

The second reason, he ex-

plains, is that with the Fifth Agricultural Credit, the Bank will have to pay interest rates almost equal to the commercial rates for regular borrowing from the government. -Depthnews Asia.

### Total Development For Women Farmers

new approach to improving women's status I is being tried with success in the South Indian state of Tamil Nadu.

It focuses on "total" rather than solely economic development and avoids a welfare orientation.

Now on its second year, the Tamil Nadu Women's Development Project provides supervised credit and technical support for the setting up of income-generating activities

family incomes of below 4,800 rupees (US \$320) including the landless or those with small or marginal farm households, especially women heads of households. Many other women are expected to benefit indirectly.

Farming activities assisted are the improvement of crop productivity on degraded land through soil and water conservation and improved crop practices, and the introduction of new crop such as mango and

women in 72 groups.

An IFAD project report says their level of development is "impressive, as indicated by the regularity of their meetings, savings made and awareness of the benefits of joint action on the part of members."

As an alternative to the traditional moneylender who charges high interest rates, the women have also established an informal credit system to respond to emergencies or small capital needs,

In Tamil Nadu, there are more men than women, indicating high mortality rates among the latter

matched to the beneficiary's

particular circumstance. The US \$30.6 million project, undertaken by the Tamil Nadu Corporation for the Development of Women, is financed by the International Fund for Agricultural Development (IFAD) which also extends technical assistance with the United Nations Development Program.

Beneficiaries are the poorest rural women in the three contiguous districts of Dharmapuri, Salem and South Arcot, the most backward in Tamil Nadu in terms of women's status.

In 1981, Tamil Nadu had a female population of only 977 per 1,000 males -- an indication of higher mortality rates among women as a result of being deprived of life's basic necessities.

The eight-year project, launched in September 1989, will directly assist 40,320 women with bank credit. These will be women with agave, and mulberry for silk worm-rearing.

Animal husbandry, with fodder production, is also an important activity. To assist landless women, the project seeks to lease government land for the purpose. Other activities suitable for landless women are cottage industries such as silk reeling.

An essential feature of the project is the organisation of the women into groups as the focus for the delivery of credit, extension services and training. Such groups also become a source of mutual support which held the women develop self-reliance and confidence to work for social

It is through group consultation and approval that activities are selected for funding by formal credit channeled through the Indian Bank Ltd.

As of March 1990, 1,135 women have been organised into 53 groups. The appraisal target for the period is 1,080

and to serve as a savings facility. Bank credit is extended only to those who are members of this group savings and loan fund.

Substantial held has been received from non-government organisations which have assisted in the identification of project beneficiaries, formation of the women into groups and training of the project's

social extension workers. Aside from training in technical and business management skills, beneficiaries take part in consciousnessraising meetings and literacy classes.

The Tamil Nadu Women's Development Project was identified by an IFAD mission in April 1987, which discussed the project with the Department of Women and Child Development of the Indian Ministry of Human Resource Development, the government agency responsible for wo-

men's affairs. -Depthnews Women's

# 'Female Wanted' Jobs On The Rise

by Cheong-Ja Lee

BANGKOK: A grim deadly game of "falling genetic dominocs" goes on daily, largely unnoticed, within the world's remaining rainforests. But calls to reserve tracts of virgin forests to halt this lethal

drain of plant and animal species - source of priceless genetic materials — are falling on deaf ears. The reason is simple; land-

hunger, stoked by rapid population growth, continues to strip the remaining land of its vegetation. And human greed often speeds up the process.

Deforestation extent is now

Forestry Officer Y. S. Rao say pithy comparisons, used both in media and daily conversation, reflect this. For example: "This region clear-cuts the equivalent of

well known. FAO Regional

one Korea a year." Others say: "Non-logged tropical forests today have shrunk to a land area only equivalent to that of the US."

These spin off into finetuned comparisons. "Tropical forests are being chopped down," says one, "at the rate of a football field a minute."

Tragedies also sweep into headlines underscoring visible effects of deforestation: soil erosion, descrification or flooding. In one stark instance over 200 people were buried by mudslides in Southern Thailand, due to flash floods triggered off by illegal logging.

But the far more deadly threat is less visible. This is the irreversible loss of species and genetic material. Its consequences are, therefore, less understood, which constitute a multiple threat to life itself.

Genes in animal and plant species, teeming in rain-

forests, form the foundation of evolution. "Their loss produce 'domino effects' along the entire ccosystem," Professor Daniel H. Henning of Eastern Montana College told a meeting convened here by the UN Food and Agriculture Organisation (FAO).

"Protection of this resource is investment for continued life on earth. Its loss closes little-understood options for the

tary Victor O. Romos told the FAO meeting. Tropical forests have now shrunk to only 6 percent of the earth's surface. This rate guarantees that in 30 to 40 years virtually all rainforests will be gone.

When they go, a quarter to a full one-third of this God-given diversity will disappear forever, he said. This plunder would wipe out carth's most

in Bangladesh, India, Nepal, Pakistan, Sri Lanka, Burma, Indonesia, Philippines and Thailand, only less than 2 million square kilometres are left. This is roughly 29 percent of the original," the Filipino ex-

ecutive added. Establishment and maintenance of protected areas forms the best option for biodiversity conservation. It is only within intact natural tropical forests

Women job hunters in South Korea are often barred by advertisements saying that only men should apply.

future," he said, More than half of all species

- between 10 and 20 million kinds of plants and animals live in tropical forests. These form the largest reservoir of unexploited genetic traits.

These genes form building blocks for new or improved plants and animals. They are the source of new plants like "miracle rice." Anti-cancer medicine, for example, comes from the periwinkle plant in Madagascar. Sap from an Amazon Basin tree, the copaifera langsdorfit, can be used directly as fuel in diesel engines.

tones" in complex ecological But only ! percent of tropical forest species have been examined for medicinal and other uses. No more than 15 percent have been given scientific name. About 85 percent

At current deforestation rates, between 15,000 and 50,000 tropical forest species become extinct yearly, Philippine Agriculture Undersecre

are as unknown.

complex biological and productive communities. These represent millions of years of as yet not-understood evolu-

"We are dealing with absolutes," Ramos said. "Every species that is lost is lost forever."

'domino effect' of negative consequences. These doom to extinction species and genes along the entire ecosystem. The web of life breaks down," Many species are "keys-

"This triggers off a lethal

structure, Dr. Henning further explained. Taka out one tumble into extinction. Asia and the pacific are in the midst of this mass extinc-

species occurs in islands and tropical forests. kilometres of wildlife habitats

"keystone" and other species

tion, Ramos observed. Mach of habitat loss and extinction of "Out of 6 million square

that these species evolve. All leading scientists agree tropical forests once damaged, are unable to regenerate primary forms of diversity.

Today, Asia and Pacific have . set up more than 900 units of protected areas. These cover more than 85 million hectares. But these are inadequate, Ramos said.

Those who clamour for more protected areas must deal with powerful business and political interests," he explained. These interests do not understand more appreciate what is at stake. Thus, protected areas deteriorate into compromise, a grudging token to appease a vocal environmental movement or an international donor."

This conflict partly explains weaknesses of protected areas systems. Wetland and marine ecosystems, for example, are not represented. They are crippled by lack of scientifically-based plans and critical shortages of trained personnel

and equipment. Research is feeble and has little relevance to management. Laws need substantive strengthening to provide political muscle and funds for innovative approaches.

The FAO meeting urged Governments to enlarge protected areas. They should keep core areas inviolable. In addition, buffer zones have to be provided.

But public support and commitment are lacking. This is due to widespread misconceptions about protected ar eas, their values and importance, the FAO meeting was warned. Special measures to enhance conservation will fail if they do not provide tangible benefits to local people.

Government must recruit farmers, fishermen and ordinary people, even politicians as partners. "We must raise the concept of protected areas management from a scientific imperative to a political imperative," Ramos said. Do this or you lose votes, he said.

Above all, widespread poverty remains a major constraint. How can impoverished farmers be helped to see protected areas as a source of their own upliftment, and not just for the elite.

Protected areas do keep options alive. But whose options are we talking about? This farmers or the multinationals? Ramos asked. "And when political leaders

cite agricultural and medical improvements found within the rich biodiversity of protected areas, whose agriculture and medicine do we refer to?" He concluded: "We, who

espouse the management of

protected areas, must be prepared to answer these hard questions."

-Depthnews Science