

Prospect of Seed Potato Production

by SAM Matur Rahman

POTATO is a short-duration (90-120 days) cash crop. It may be considered as the third staple food in Bangladesh after rice and wheat. For successful production and to achieve the standard quality of any seed crop, three things are exclusively responsible. These are quality seeds of high yielding variety (HYV), methods of cultivation and the weather. It is possible to increase the potato production from the existing acreage by 50 per cent by using quality seeds of HYV. Research findings and practical experiences have established the fact that the importance of quality seed is by far the most important in potato production compared to other crops.

Bangladesh Air Force (BAF) started seed potato production during the cropping season of 1985-86 in its Care and Maintenance (C&M) Unit at Lalmonirhat as contract farmer of Bangladesh Agriculture Development Corporation (BADC). BAF Lalmonirhat was an abandoned air field of Second World War. It is located in the extreme north-western part of Bangladesh. BAF has established its C and M Unit in Lalmonirhat in the month of January, 1983. The soil type of Lalmonirhat is of Tista Flood Plain and is light textured sandy loam with less organic matter content (0.3%) and is deficient in almost all macro and micro nutrients. After gradual development and other intercropping operation, the physical condition of the soil has improved. The soil is acidic in nature and is vulnerable to wind erosion. The total area is high land except some of the lands which are used for drainage purpose.

The weather condition of north-west Bangladesh is favourable for quality seed potato (foundation and certified) production which needs long cool atmospheric temperature. The average day temperature during November and December in Lalmonirhat does not go beyond 30 degree C. It is bright sun shine from late October to late January with negligible rainfall.

Analysing all the favourable points, the BAF Lalmonirhat took a decision to produce seed potato as contract farmer of BADC, though it was not an established crop at that time in the area.

Pre-sowing Arrangement: Pre-sowing arrangement includes field selection, preparation of plot map, land development, land preparation, liaison with BADC officials for collecting seeds, temporary seed storage, accelerating sprouting, sanitation before cutting of tubers and

storing the cut tubers for developing hard coating in the cut portion of the tuber.

The factors considered before field selection are: (i) availability of irrigation facility, (ii) proper drainage systems, (iii) ideal communication facility, (iv) isolation from other crops. Considering all these factors two potato blocks under deep tube well (DTW) No 3 and DTW No 7 were selected. Eight DTWs were commissioned in BAF Lalmonirhat and the command area of each DTW constitute a block. After field selection the plots were measured accurately and maps prepared showing location of the seed plots. Crop rotation in those plots is: green manuring followed by potato followed by Aus and transplanted Aman followed by potato followed by green manuring.

Usually land preparation was started in the middle of September. The practice of land preparation was in the form of three to four consecutive harrowing followed by laddering and two to three times ploughing by country plough followed by laddering. During ploughing, cow dung, mustard oil cake, Triple Super Phosphate (TSP), Gypsum and Zinc Sulphate were spread in the field. After two to three days, Heptachlor at the rate of 2 kg per acre was mixed before final laddering. Seed sowing started after three to four days of final laddering. Seed sowing started after three to four days of final laddering.

BADC officials at Rangpur were informed of sowing schedule and accordingly sent the seed (tubers). To accelerate sprouting in some of the plots, we adopted local methods by using straw and water.

Strict sanitary measures were taken before cutting the sprouted tubers. The labourers were compelled to wash their hands by soap and to rinse knives by disinfectant. Instruction was such that in every cut piece at least two eyes must exist. In the later stage, for foundation seed production, the tubers of 35-45 mm size were cut into halves and 45-55 mm size were cut into two or three pieces longitudinally keeping in view that every cut piece must have at least two eyes. After string, tubers were kept under shed with proper ventilation for 24 hours for developing natural hard coating over the cut portions of the tubers and at this stage the tubers were ready for sowing. No seed treating chemicals were used.

Space maintained during sowing for certified seed production of *Khufi Sundari* and *Patronese* variety was tuber to tuber six inches and row to

row 20 inches. But for foundation seed of cardinal variety they were nine inches and 24 inches respectively. The per acre seed rate varied as the tubers were of different sizes.

There is no recommended doses of fertilizer applicable to different types of soil for seed potato production. However, the applied manures and fertilizer were mustard oil cake 200 kg, cow dung two tons, Urea 120 kg, TSP 80 kg, Muriate of Potash (MP) 120 kg, Gypsum 15 kg and Zinc Sulphate five kg per acre.

There are different techniques regarding the placement of tubers in the prepared field. However, two types were practised considering the time of plantation. During early plantation i.e. from third week of October, the tubers were placed in line without making any depth and in the final

completion of the emergence and when the plants attained a height of 4-5 inches inspection started to find out the virus infected plants or the abnormal plants. These plants were completely uprooted from the field. Weeding along with first earthing-up started after five to six weeks of plantation or when the plants attained a height of 8-9 inches. During first earthing-up, mixed fertilizer at the rate of 20 kg Urea and 20 kg MP per acre was supplied on both sides of the row. After first earthing-up, drains were created in between rows which helped in irrigating the field. Second earthing-up were done considering the plant growth and the remaining fertilizer was applied during the second earthing-up.

The pesticides used were Heptachlor (as soil insecti-

officials and specialist, scientist of Tuber Crops Research Centre (TCRC) of Bangladesh Agriculture Research Institute (BARI) and the Netherlands Specialist working in Crop Diversification Programme of BADC regularly offered expert opinions and helped in the overall management of successful seed potato production.

Even one week before haulm killing, spraying was necessary to avoid infestation of aphids. Haulm killing started when the plants were 90-95 days old. We did it manually by cutting the plants just from above the ground. Haulms were cleaned from the field to avoid any further infestation. Special care had been taken so that no new shoots can grow from the cut stems.

Post-harvest Processing: Harvesting started after 8-10 days of haulm killing. During harvesting special attention was taken to avoid

	(in acre)	BADC (in ton)
1985-86	15	89.60
1986-87	40	201.00
1987-88	50	239.12
1988-89	50	280.00
1989-90	56	280.00
1990-91	48	166.00
1991-92	40	160.00
Total:		1,395.72

Production of seed potato is capital-intensive and per acre seed potato production cost varies depending on the price of seed, fertilizer and pesticides. Seed accounted for 32 to 45 per cent of total production cost, labour accounted for 20-30 per cent of the total production cost. Other costs involved are land preparation, manures and fertilizer, pesticides, irrigation, rouging, harvesting and processing. Without skilled labour seed potato production is completely impossible.

Seed potato production is a highly technical and tedious job. All the techniques of quality seed production like field selection, isolation, crop rotation, selection of variety and seed, planting date, sanitation during tuber cutting, land preparation, application of manures and fertilizer, planting methods and distance, earthing-up and application of second and third dose of fertilizer, use of pesticides, irrigation, rouging, regular inspection and inspection by a national seed quality control team, timely haulm killing, harvesting, curing proper grading and finally careful packing and transportation were strictly followed to ensure quality seed potato production.

During the seven cropping seasons, BAF Lalmonirhat has produced 1,395.72 tons of quality seed potato in 299 acres of land. The average per acre yield of seed potato was 4.66 ton.

Prospects

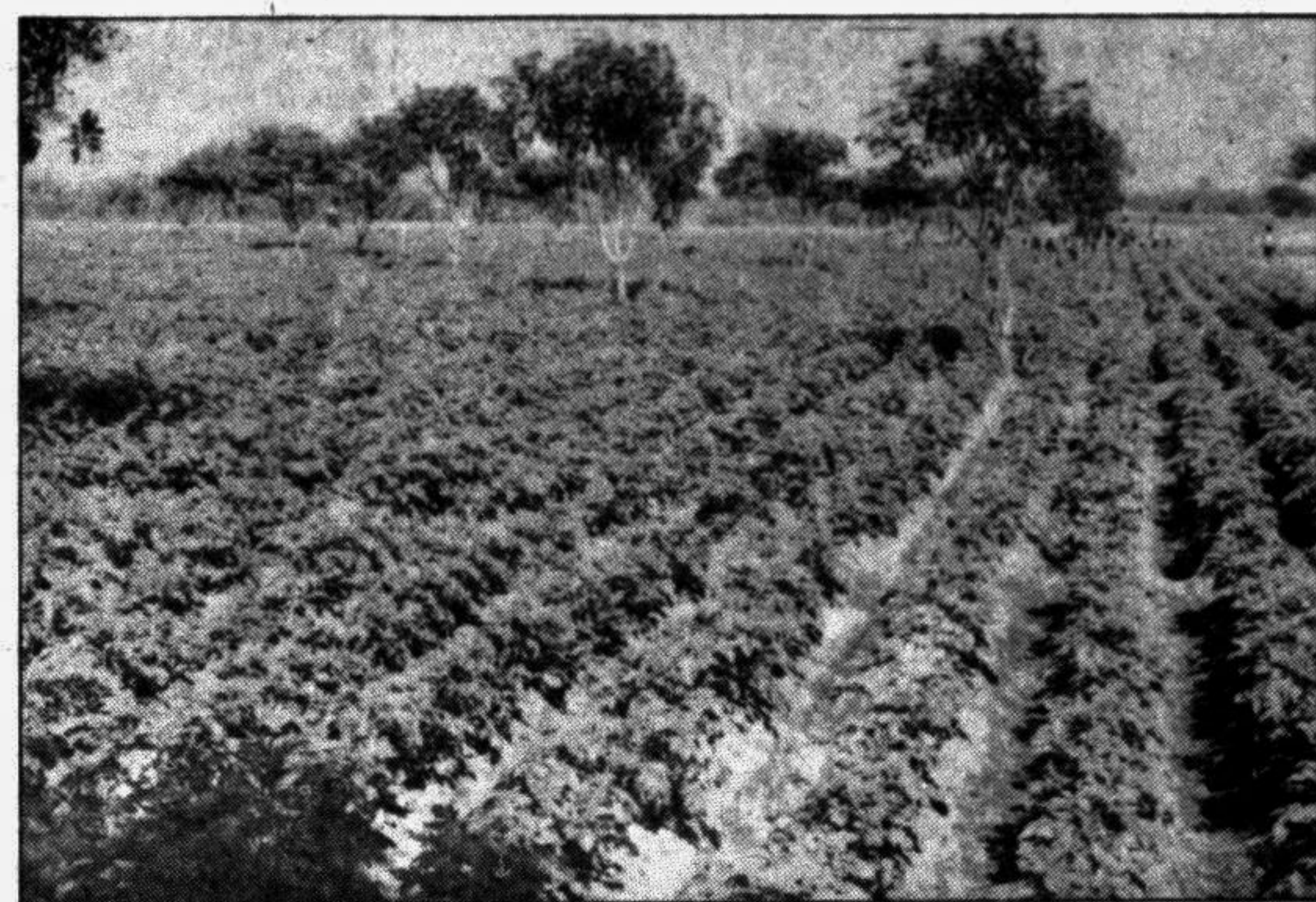
North-West part of Bangladesh has the potentialities for raising high quality seed potato and the East Central part of Bangladesh produces 43.9% of the country's total potato. So these two regions may be selected for the country's seed potato production.

A sound national policy regarding seed production, seed quality control and seed certification appropriate to our agro-ecology and socio-economic structure may be developed for future intensification.

(The writer is Squadron Leader, BAF and an agriculturist and recipient of President Award)

Year-wise seed potato production in BAF Lalmonirhat

Year	Area under seed potato	Seed produced by
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A model potato seed cultivation field at Lalmonirhat

stage of plantation i.e. in the first week of November, the tubers were placed in line of 1 to 1.5 inch depth. During plantation, mixed fertilizer (50 kg mustard oil cake, 30 kg Urea and 30 kg MP per acre) were placed on both sides of the tuber. Earthing up to 2-3 inch height was followed just after placement of fertilizer.

After-sowing Cultural Practices: On an average 80 per cent emergence took place within 20-25 days after plantation. Sometimes very light irrigation was given in some areas of the field for emergence, due to shortage of moisture in the field. It gives good results for complete emergence of the tubers. After

cide), Ripcord (as broad spectrum insecticide) and Diathane M-45 (as fungicide). A cocktail spray of Ripcord and Diathane M-45 was the normal practice. Spray schedule was followed strictly and at least three to four sprays were made in each field during one crop season.

Rouging (elimination of diseased and genetically diversified abnormal plants) continued from the early stage of plant growth till maturity. Every plot was visited carefully to ensure that the field is completely free from any abnormal plants.

An inspectorate team comprising BADC quality control

heat injury cutting of the tubers and cleaning of the tubers. Within 2-3 hours of harvesting, harvested tubers were carried from the field to the shed. Sorting of tubers started after 4-5 days in the shed according to the size prescribed by BADC officials. BADC procured only three different grades of seed potato; that is 28-35 mm is grade I, 35-45 mm is grade II and 45-55 mm is grade III. Rest of the harvest were disposed of locally.

Burma Now Framing a Population Policy

by Minn Thu

SEEMINGLY without meaning to, Burma has reduced its population growth rate from 2.7 per cent to a current 1.88 per cent.

This success came about even though family planning remains a highly sensitive and culturally taboo subject in this predominantly Buddhist country. It was also achieved without any clear direction from the government which is still trying to firm up its population policy.

Until recently, Burma apparently did not see the need for a definite policy, at all. Some three decades ago, when other developing nations were beginning to recognise the burdens inflicted by excessively fast-growing populations, Burma did not consider it had a problem. In fact, in the early 1960s, the country, which has a total land area of 261,228 square miles, believed there was still room for population growth and no need for birth control.

In spite of this, contraceptives like the pill and condoms were available in the country. Doctors were performing sterilisation operations. Poorer families were given official assistance in regulating fertility, through sterilisation, for health and socio-economic reasons.

The law made abortion a criminal offence. Physicians performing an abortion risked not only losing their licences but also being put in jail. But it was known that there were doctors who provided "services" to women who sought to end unwanted pregnancies.

This situation has led to the drop in the population growth rate, which in turn has apparently prompted the government to realise that a clear policy on population is now needed to enhance development efforts.

Health Minister Pe Thein, a physician who was the only civilian in the all-military

Cabinet until he himself became a colonel, says Burma is now trying to determine the best population for the future.

Today's total is officially estimated at 41,552 million. In 1941 there were only 16 million people. The count is expected to reach 50 million by the year 2000, according to General Chit Swe, agriculture and forests minister.

In line with its apparent determination to manage population growth more effectively, the government has

After decades of relative inaction, the Burmese authorities have accepted that the population growth rate can no longer be left to chance

moved to implement several measures.

Among other things, child spacing, rather than family planning, has been identified as a priority. Health authorities see child spacing as important in promoting the health and survival of women.

Dr Thein has deplored the rising rates of illegal abortions and maternal deaths. Experts say as many as 40 per cent of maternal deaths in the country are due to illegal abortions resulting from unwanted pregnancies. This appears to be the highest rate in the world.

Access to information will also be improved as the authorities recognise that many unwanted pregnancies could be avoided if women only knew what to do. Recent government pronouncements envisage counselling services for couples and better access to modern methods of contraception.

Recent research conducted in Burma generally supports

the new directions the government is taking. Studies have shown that there is a positive attitude towards family planning as people seem to recognise the overall benefit. However, there are wide gaps between knowledge about family planning and actually practising it.

The pill was found to be the most widely used contraceptive but it was not the most preferred method. Most of those surveyed expressed a preference for the injectables which were, however, inaccessible to many because of high cost.

Despite knowledge about contraception, health workers found that many Burmese still clung to age-old superstitious beliefs. Many people still believed that pregnancy was beyond human control, so spacing was out of the question.

Some women used traditional indigenous medicines for birth spacing. The medicines are supposed to regulate women's monthly cycles. Advertisements in privately owned publications suggest that some of these medicines can also induce abortion.

To reduce the practice of illegal and dangerous abortions, experts stress the need to provide women with access to information about modern methods in order to avoid unwanted pregnancies.

Burma's cautious initiatives are drawing the support of international organisations. The United Nations Children's Fund (UNICEF) is reportedly willing to play the role of broker between the government and international nongovernment organisations (NGOs) in the field of health.

The International Planned Parenthood Federation (IPPF) and other NGOs have already conducted sessions with health workers to update them on developments in the population field. — Depthnews Asia

Debt Crisis Still Cripples Growth

by Frank Nowikowski Buenos Aires

IT is ten years since Mexico defaulted on its debt repayments and started the Third World debt crisis. Today the effects are still felt, especially in developing countries. The total long-term debt of developing countries in 1991 stood at \$1,000 billion. During the last decade people in sub-Saharan Africa have seen their real income fall 40 per cent and in Latin America and the Caribbean by 45 per cent.

Latin American and Caribbean countries have seen a steep decline in their economic output while sub-Saharan Africa has been worst hit by the decline in commodity prices. Prices of two of Africa's main foreign exchange earners, coffee and cocoa, are currently at their lowest level in 17 years. This, says the 1992 Trade and Development Report, has resulted in a five per cent contraction in the value of exports.

The debt crisis affected not only the poorest countries; industrialised countries suffered a seven per cent fall in income measured as gross domestic product (GDP) and a four per cent drop in manufacturing.

Industrialised countries can make up this loss in a decade by putting more emphasis on the economic ideology of John Maynard Keynes and less on monetarism such as Milton Friedman. But it would take a miracle for the Third World to make up for the lost decade within the next ten years. The GDP of Latin America and the Caribbean, for instance, would have to grow by an annual 10 per cent.

Except for middle-income countries, the task will have to be spread over 30-40 years. The rate of export for low-income countries fell from nearly six per cent a year from 1965-80 to 0.5 per cent from 1980-88. To regain lost ground within a decade they would need to increase exports by more than 11 per cent yearly. Latin America has increased the volume of exports only to see their value

decreased by deteriorating terms of trade. The counterpart of these worsening terms of trade for poor countries is improved terms of trade for OECD countries which increased the growth rate of the volume of their export over the decade from 4.2 per cent to

diture on education from 20 per cent to nine per cent. In Latin America education spending has fallen from 15.4 to 11 per cent of government spending. There are similar declines in health spending. Apart from much of Asia which has made tremendous strides

debts than the Third World. Bankers have redefined debtors as "good customers". Brazil, Mexico, Argentina and the Philippines which were, and are, notoriously bad repay-ers, have no end of bankers throwing money at them. On the other hand, no one is in-

The 1980s saw the beginning of the Third World debt crisis. The World Bank called it the "lost decade." During this period real income in sub-Saharan Africa fell by 40 per cent and in Latin America and the Caribbean by 45 per cent. A decade on, reports Gemini News Service, not only much of the Third World remains heavily in debt, the industrialised world, too, is having to live with debt as a result of free-market policies.

5.1 per cent.

Economists are not agreed on whether the "lost decade" was a necessary shake-up, eliminating poor practices and, through re-structuring, laying the foundations for future growth. In other words, are they leaner and fitter or simply emaciated?

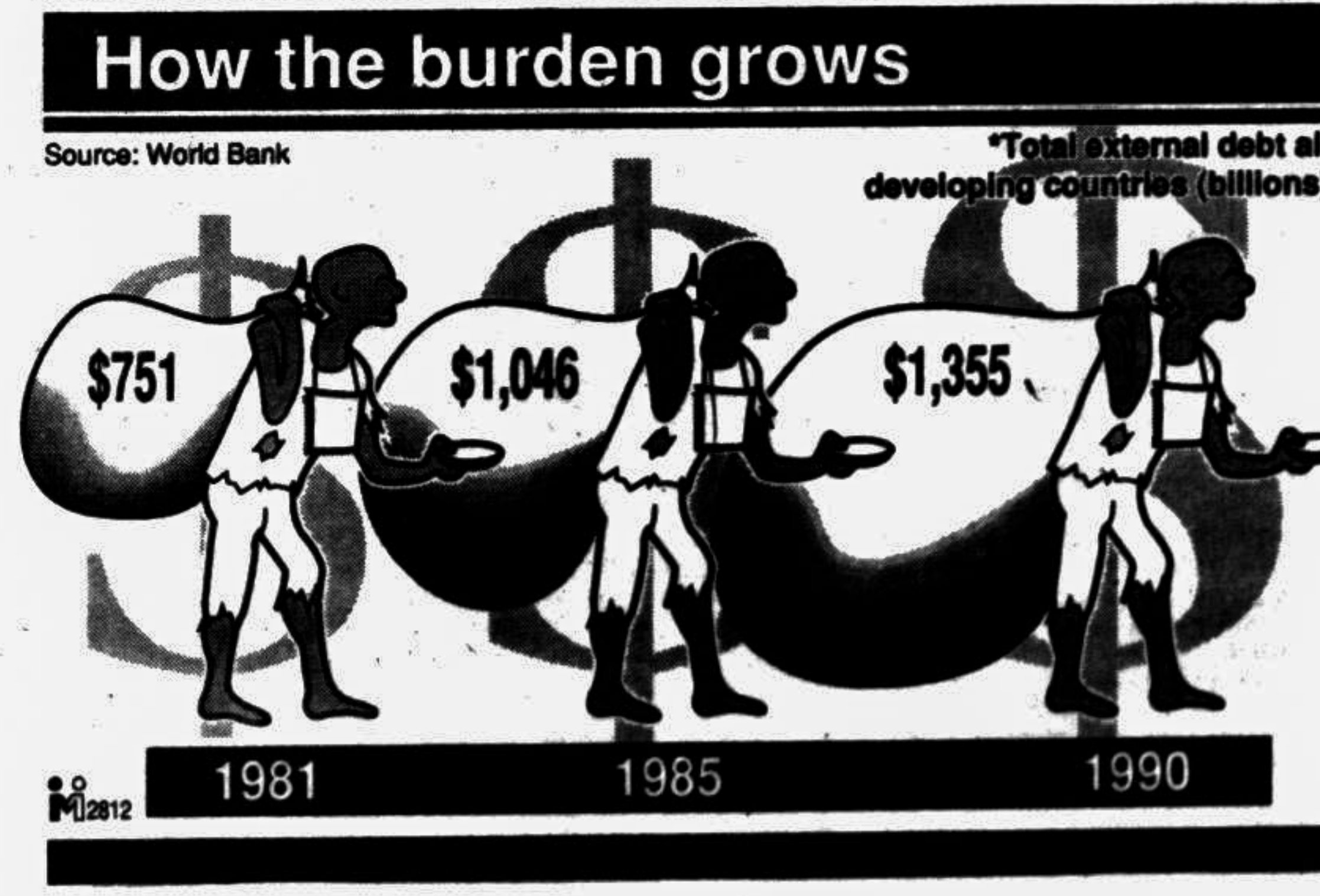
There is some support for the second view. Low-income countries have slashed expen-

during the 1980s most of the Third World, especially Africa, Latin America and the Middle East, is worse off.

Ten years on from the start of the debt crisis, the world's economy is as bad or worse. What has changed is perceptions. World debt is greater than before, but it is no longer a problem afflicting only the developing world. In fact rich countries now have larger

terested in lending money to Romania which fully paid off its foreign debt under the communist regime of Nicolae Ceausescu.

Mexico has its eyes on the benefits of membership of the North American Free Trade Area, so it is prepared to act as a reliable and "responsible" nation. In 1991 Mexico paid \$16 billion to service its debt — more than it earned through



Oxfam claims privatisation, trade deregulation and fiscal austerity, have translated into rising maternal mortality and child malnutrition rates, soaring food prices, rapidly decaying health care systems, destruction of rainforests and depletion of mineral resources. Free market policies promoted by US Presidents Ronald Reagan and George Bush have "failed to keep their promises of increased employment and sustainable economic growth," says the report. — Gemini News

Centre for Blind a Beacon of Hope

by Nyla Daud

The idea is to integrate the sightless into the mainstream so they can learn to move around in the ordinary world

A single flight of steps, broad and welcoming, leads into the Aziz Jehan Trust Centre for the Blind.

From her frugally furnished office, Trust Administrator Salma Jan takes the visitor into neat, airy rooms where some two dozen students may be found on any given day. In the prized Recording Room, she turns on a tape recorder which begins to read out a chapter from the 12-grade course book in Urdu, the national language.

A young girl puts on ear phones, listens to the entire lesson and later asks for a recording on her own cassette so she could listen to it at home.

A trained beautician holds rapt an audience of six or so women in another room. She promises that in three months she will turn them into well-groomed, confident ladies — ready to face the world of the sighted — if they come for the weekly sessions.

The Centre is considered an oasis of hope for the blind in a society where a public support system for such handicapped is woefully lacking — where there are no special buses or toilet rooms, where the white cane is an embarrassing appendage and where education in Braille does not go beyond high school level.

It was set up in 1988 by Ms Jan in honour of her mother Aziz Jehan Begum who had spent the last 32 years of her life in darkness, and who desired that the less privileged blind should be helped to cope.

To build the facilities alone, the project was monumental — Ms Jan initially had to do it single-handedly. But she had shared the trauma of her mother's sightlessness, and abandoning the project was out of the question.

She then converted the upper floor of the town house where she lived into what she proudly calls a rehabilitation centre. Friends and family pooled resources to help equip the place.

About 60 blind people have since benefitted from Centre courses and facilities, which are offered for free. Following the grooming course for women is a cooking course — using no special tools or gadgetry, the class literally follows its nose to cook chapatti (leavened flattened bread), sal-

ads and curries. Ambitions rise higher as the women are told of the wonders of knitting and sewing. The patterns feel intricate, but the women's determined faces tell the observer that even these skills will be learned in due time.

Shabana, born with an eye defect, says, "Now I don't have to wait for my mother to get back from work to cook bread. My younger sister lights the stove and puts the dough within reach. It may take a longer time (to do it), but still I have become slightly independent."

Mearwhile, Secma has realised she has dry skin. "Now I am going to use a moisturiser," she says.

A separate class is held for the men in grooming and mobility. Faraz, 16, has corrected his unbecoming slouch and has learned to focus his eyes, which used to shift habitually because of blindness.

One problem is transport, says Mr Jan. "I am sure many more would come if there are volunteers to pick up and drop some of the students."

Various other aspects of rehabilitation work have attracted volunteers. Young Salma, herself disabled, called up to say she would be ready to record lessons for the students. One man wanted to read out Faiz, Pakistan's famous poet. Yet another volunteered to record the English course.

Little by little the Centre is getting richer in its collection of Braille magazines and books. The Committee Room has playing cards, special games, music cassettes and domino sets. A Braille map of an American city inspires hope that one day Lahore will have one such map to improve the blind's mobility.

"The idea," says Salma Jan, "is to integrate the sightless into the mainstream of life. Blind children must be admitted into ordinary school so they can learn to move around in the ordinary world."

An example of the blind's potentials is Shabana Khatoon, a young girl who trained at the Centre and who later worked as receptionist in a local beauty parlour. She is now studying for a college degree and hopes to be employed as a telephone operator so she could finish her studies and help put three other siblings — all born blind — through school.