

Feature

Health

HEALTH for all is the motto that Bangladesh is endeavouring to accomplish for its people by the year 2000. Accordingly, the government, in collaboration with different international bodies, has undertaken extensive programmes to provide its people with minimum health and sanitation facilities. But the general mass, apparently healthy, exhibit very little vigour, alertness and sustained mental preparedness for the task ahead. The rural population migrating in droves to the cities as well as in their native habitats seem to be perpetually suffering from apathy bordering on suicidal tendency. Strange phenomena indeed as the diseases with severe debilitating and disabling consequences have been eradicated or are in the process of extermination!

With the development of communication, the growth of industrialisation and mass literacy drives, there has been tremendous exposure to modern civilisation in every walk of life. Projects are being implemented to reduce infant mortality and increase general average life span. Yet, looking around one gets the distinct impression as though the people are almost reluctant to change the status quo. Their indifference to efforts taking place to alleviate their suffering is rather discouraging. The ultimate question arises: why? The answer lies in iodine deficiency disorders (IDD).

Bangladesh being a delta is subjected to recurrent floods and heavy monsoon, that washes away the essential minerals from its soil, especially iodine. In some parts, the continuous washing has depleted the soil almost completely, of this micro-nutrient. As a result, crops grown in these areas naturally contain less iodine. As it is, crops grown in Bangladesh contain only 10 micrograms of iodine per kg against 1000 micrograms/kg found in crops from iodine-rich soil. Therefore, a deficiency in the soil results not only in less intake but the altogether absence of iodine from the normal food and water. The effects of which are devastating.

Health Consequences

Iodine deficiency has alarming health consequences, some of which are easily noticeable, while the rest take time to set in, but eventually affect larger section of the population. The most prominent manifestation of this deficiency is goitre; en-

Prevalence of Iodine Deficiency Disorders

by Tasneem Mosaddeq

Iodine deficiency has alarming health consequences, some of which are easily noticeable, while the rest take time to set in, but eventually affect larger section of the population.

larged thyroid gland. This condition ensues when the body fails to produce thyroxine (thyroid hormone) because of iodine deficient diet. Lack of thyroxine or hypothyroidism leads to further health complications — sometimes fatal and irreversible. Occurring in women of productive age, it may severely affect the offspring, resulting in cretinism or mental retardation. Other visible effects are deaf mutism, dwarfism and impediment to the development of the musculo-skeletal system. Thyroid hormones are absolutely essential at the formative stage when the brain and nervous system is developing simultaneously with physical growth. While cretinism in extreme form causes irrevocable damage to mental faculties, in its mild form it is evident in certain prevalent characteristics such as sluggishness, drowsiness, abortions and still births. These individual symptoms collectively has a negative impact on the community. Iodine deficient people are difficult to motivate and educate and the productive level of their work is very low. From a broader perspective, the collection of communities consisting such individuals retards the socio-economic development in general.

Between July 1981 and December '82, the Institute of Public Health Nutrition in collaboration with WHO carried the first National Goitre Prevalence Study. As many as 214,608 people in 417 upazilas were surveyed. And it was found that approximately 11.3 million people suffer from visible goitre. And another estimated 37 million are at risk. Areas where up to 10% of the population suffer from IDD are identified as endemic by WHO. It is not merely the numbers but the widespread prevalence of IDD and its regressive functional implications that is of grave concern.

IDD, if neglected, can result

in serious health complications of unimaginable magnitude. Yet, iodine deficiency by itself is so easy to prevent and control. Ignorance has led to social ostracism and accompanying painful experiences for people with goitre.

Out of public gaze, in some places a community of goitre sufferers grew out of the necessity to survive. Totally unaware of the consequences of iodine deficiency in productivity, women with goitre were married to men with the same affliction. And in the process children were born with congenital abnormalities, neurological and physical crippling conditions. Taking into ac-

count the seriousness of IDD and its endemic prevalence in some areas, immediate and intensive national intervention was recommended. Rising up to the almost insurmountable task of treatment, control and future prevention of IDD,

the government has taken up two projects with the assistance of the UNICEF.

Preventive Measures

Universal Salt Iodization project is primarily intended for long-term control and prevention of IDD. An adult needs 0.15mg of iodine per day. Fortifying normal edible salt with tiny amounts of iodine is a popular and widely used method of supplying the required daily dietary allowance of iodine to large population groups. The use of iodised salt does not need any change in dietary pattern and also the mobilisation of costly and time-consuming distribution system. In Bangladesh formal



An enlarged problem

legislation on the production and supply of iodised salt was passed by the parliament on February 28, 1989. This programme aims to achieve nationwide capacity of Universal Salt Iodization and its distribution throughout the country. In

integrated and also be easily accessible. Campaign on the popular mass media such as TV radio and even newspaper, if launched, will generate the necessary public support and participation for removing IDD completely and effectively.

this context, salt iodization plants will be fabricated locally and set up in phases over a period of three years. Meanwhile, five iodization plants were installed by the government with the assistance of the UNICEF.

The other project is Iodine in Oil Injection (Lipiodol) Campaign. It is basically an interim and immediate method of controlling IDD, specially goitre in hyper-endemic areas. The campaign is conducted by injecting Lipiodol to the "at risk" population of all females (0-45 years age group) and all males (0-15 years). One dose of Lipiodol injection would protect the "at risk" population against IDD up to five years.

This comprehensive Lipiodol campaign so far has been highly successful. 1.4 million people have till now been administered with Lipiodol. A lot of ground still remains to be covered by monitoring and impact evaluation on the population. In this regard, the technologies and facilities at the IPHN for estimating urinary iodine excretion, the simple paper strip method to ascertain the iodine level in iodised salt developed by the Institute of Food Science Technology and the Immunoassay method at the Institute of Nuclear Medicine should be

Corruption, Privatisation Erode Chinese Health Care

by Catherine Sampson

ONE of Beijing's great achievements is that in 40 years of communist rule, life expectancy has almost doubled — from 35 years to 60. However, the days are long gone when China's selfless barefoot doctors never stopped to ponder their profit margin.

During the Cultural Revolution in the late Sixties the removal of a giant tumour from

of TACH to foreigners at the Canton trade fair.

Wang can offer no statistics to back up his claim that TACH, made of ingredients which include citrus peel, angelica and chrysanthemum, relieves the symptoms of AIDS.

One doctor is offering the drug to AIDS sufferers illegally in Canada at a special offer price. Should TACH establish a market abroad, Wang says the

When challenged, doctors defend themselves by saying that they are underpaid at only about one yuan for several hours overtime. In the countryside, many barefoot doctors take extra jobs because they cannot survive on a doctor's salary.

Some doctors over-prescribe antibiotics because they make money from the sale of drugs. Unnecessary prescrip-

China's socialised medical system has made great strides since the revolution in 1949. Life expectancy figures have shot up from 35 to 60 years in four decades. Today, however, China's health-care system is in disarray. As Gemini News Service reports, corruption, neglect by the state and a rising tide of privatisation are eroding the quality of medical services in the world's most populous country.

a worker's belly was hailed as a victory for proletarian medicine.

Recently, state-run newspapers have had to warn consumers against a rash or miracle cures, such as the "magic chair," which are flooding the market but are of dubious efficacy.

Meanwhile, Chinese companies with an eye on a potentially huge market at home and abroad are busy producing medicines which claim to kill the AIDS virus. You can gargle with them, spray them on your body, put them in your bath, or polish apples with them. Some are perfumed.

Shenglu spray, which comes in a discreet perfume bottle, and which claims to kill the AIDS virus within 30 seconds, is made by a company which used to produce door and window frames.

Love Solution, which makes similar claims, is made of ingredients including "margarita liquid, glycerine and water" and is produced by a condom factory. Neither is yet being exported.

United States Food and Drug Administration regulations are so far felling the export plans of another company, Treating AIDS with Chinese Herbs (TACH), on the grounds that there is no proof that it works.

Company chairman Wang Xianmin says that in 1990, and again in 1991, he sold \$30,000 (\$1 = 5.3 yuan) worth

price will go up again. "If you sell too cheaply," he says, "people will think it's no good."

China's new breed of medical entrepreneurs do not miss a trick. Even the official press publishes horror stories, from middlemen taking a cut on blood sales to salesmen who offer illegal ultra-sound scans telling pregnant women whether they should expect a girl or a boy.

Nor does such dirty dealing stop at the gates to the state medical system. Officially, the state guarantees free medical care to state employees.

Many people say, however, that corruption is endemic within the health care system, with doctors and nurses expecting bribes for even the most necessary treatment, especially surgery.

Health care staff rarely demand bribes openly, but patients know the score and are too afraid of the consequences not to hand over cash or, in some cases, a television set.

An official newspaper told how in one hospital surgeons and nurses scrubbed down before an operation and then raise their hands above their heads to keep them clean in every way.

Then they refused to enter the operating theatre until the patient's relatives had stuffed money into their pockets. The going rate is about 500 yuan, or about two and a half months average wage.

tion of antibiotics led to deafness among many Chinese children.

Some private entrepreneurs, seeing the money to be made, have set up their own clinics. Earlier this year, 16,466 private, and collectively-owned clinics were "closed nationwide because they were unlicensed or had overcharged."

Only 12.5 per cent of private clinics had met state standards.

The ever-growing number of people who move outside the state sector into private business have to foot their entire medical bills, not just the bribes.

Western experts say that the socialist health care system reached its peak in the early eighties and has since suffered from a lack of investment because it is not seen as a productive sector. The army and other large-scale enterprises have their own, self-contained health-care systems.

In the countryside, however, rural reforms have broken down the old, collectively-operated, free medical system, and most people must now pay for their treatment.

Better qualified personnel and equipment are only available for villagers who are referred for treatment in a township clinic. — (GEMINI NEWS)

(Catherine Sampson is a British journalist based in Beijing.)

As a rule cancer is triggered when certain, normally harmless genetic factors (genes) undergo mutation as a result of external causes. Here, for example, a single element in the molecular chain of this gene, the DNA, is replaced by another element. As each gene has at least hundreds, and sometimes even hundreds of thousands of such elements, this seems to be only a slight modification. Nevertheless, under certain circumstances it can have devastating consequences.

The reason for this is that the gene supplies the instructions for synthesizing protein molecules, and as a result this can bring about a defective protein.

Proteins are made up out of good 20 different amino acids.

A mutation in the gene can result in an exchange of elements occurring also in the attendant proteins; valine could be incorporated, for example, instead of glycine. But this can have definite consequences for these proteins because they all have convoluted and interwoven chains of molecular structures of an extremely complex nature, and it is the structure of the respective proteins which determines their particular behavior. This is because this struc-

A Pill Against Cancer — More than just a dream?

A team of scientists at the Max Planck Institute for Medical Research in Heidelberg have succeeded in deciphering parts of the degenerative process of intestinal cancer. Now their efforts are being directed at methods of intervening in this process so that it can be interrupted.

ture ensures that the actual and extremely minute function complex of such chains is characteristically turned outward, thus offering access point to its reaction partner.

Thus, if this spatial arrangement is altered by the exchange of just a single amino acid, this can have fatal consequences.

It is precisely this kind of form alteration which scientists in Heidelberg have been tracing. They were able to demonstrate this on a protein called p 21 because of its low molecular weight of 21,000 units. This protein is attributed to a genetic factor which has long been known as an oncogene: a gene whose mutation can lead to the formation of tumors. Cancer researchers have so far been able to identify about 50 of these

oncogenes in human genes. In the process it has been discovered that these are very often involved in the transmission of growth signals from the cell surface to the cell nucleus, and that one of them reacts with an especially energy-rich molecule, called guanosine triphosphate, better known simply as GTP. This is p 21.

In the case of intestinal cancer it was possible to show that defective p 21 was formed in 50 per cent of the cases, and in cancer of the pancreas the proportion was up to 90 per cent. p 21 is part of a signal chain which transmits growth instructions into the cell's interior. The trigger is a messenger substance, which makes contact on the outer wall of the cell and attaches itself to the p 21. In this condition the protein bonds itself with the energy-rich GTP and is now in the position to con-

nect itself with a receptor molecule in the cell's interior.

Normally this signal is immediately interrupted again due to the fact that a part of the GTP molecule is split off, which breaks the bond to the receptor molecule. However, in the case of defective p 21, the receptor molecule remains coupled and now incessantly transmits the growth and cell division instructions within the cell. Thus it is transformed into an uncontrollably multiplying cancer cell: a tumor begins to proliferate.

At the Max Planck Institute in Heidelberg, scientists succeeded in making the distinction between normal and defective p 21 literally visible. It was found that two adjacent loops protrude out of the relatively compact proteins, which have string-shaped and helical structures. One of the loops is responsible for bonding the receptor molecule, while the other is involved in the bonding of GTP. It was on the second loop where the false amino acid for defective p 21 was actually found. This tiny alteration of the characteristics of the loop prevents the splitting off and "provides the receptor molecule with a permanent parking place", as one of the scientists expressed it.

This success, which has been hailed as "pioneering", will now be pursued in two directions in Heidelberg. On the one hand, researchers are trying to discover similar disturbance mechanisms for other protein changes, which also lead to tumor developments.

On the other hand, possibilities are being sought to neutralize the fatal effect of amino acid exchange. For it is thoroughly conceivable that there are substances which could prevent the coupling to the receptor molecule from occurring.

The problem is that such an effect must be restricted to the defective proteins — normal p 21 may not be effected, so as not to interfere with the growth of healthy cells. At present, computer simulation of the molecular processes is being used to try to design suitable substances. If this is successful, it will still be many years before an appropriate medication arrives on the market.

Be that as it may: "A pill against certain types of cancer is no longer pure utopia", in the opinion of Dr Fred Wittinghofer, one of the team leaders in Heidelberg. — GRS FEATURE

— Dietrich Zimmermann

Aging Poses Increasing Problem

THE AGING OF the world's population in one of the most important demographic phenomena of our time," says former United Nations Secretary-General Javier Perez de Cuellar.

The world's elderly population-defined as persons 60 years and older-is growing rapidly in developing countries as well as in the industrialized countries. Commonly characterized as "graying," by the year 2025, seven in ten older persons will come from developing countries, the UN predicts. These countries are faced with a quandary: How to take care of their elders and invest in economic development with limited resources.

The needs of the elderly range from continued employment for those sometimes referred to as the "younger older," to health care for the chronic ailments that come during "old old age."

The South will have to accommodate the growing numbers of its elderly far more quickly than the North did in the past, says William Seltzer, chief of the UN Statistical Office.

Seltzer was among the participants at a 1 October UNFPA-organized symposium on population aging held to mark the first International Day for the Elderly.

Third most single majority

"It all the world's elderly were considered as a single nation, that nation would be the world's third most populous, coming immediately after China and India," says David Horiach, chief of the UN Population Division's Population and Development Section. "In 1990, there were 487 million persons aged 60 or over, accounting for approximately 9 per cent of the world's population. Over the next 10 years this figure should increase to 10 per cent."

However, says Horiach, the age structures of sub-Saharan African countries are getting younger. "Population aging is unlikely to be a significant problem for them before 2020. Age structures in a majority of countries in Latin America and Asia became younger in the 1950s and 1960s, but the trend was reversed around 1970 when substantial fertility decline started."

"The proportions of elderly

are not numbers are increasing rapidly" in the developing countries, says Seltzer. "At the same time, changes in social and cultural patterns, such as the flight of young people to towns and the spread of the nuclear family, mean that the traditional resources to care for the elderly are being undermined."

Elderly persons make up some 12 per cent of the population of industrialized countries; 4.5 per cent in developing countries. By 2025,

where, for example, widows are entitled to only a portion of their husbands' pensions.

Although old age dependence ratios are expected to increase, falling youth dependence ratios will more than offset this trend. "Hence the developing countries can expect a fall in the total dependence ratio between now and the year 2000," says Horiach. But total dependence ratios — the ratio of dependents to producers in a given economy

form of isolation and immobility.

"Industrialized countries are discovering that the best place for the elderly is their own home, rather than some institution," he says. "This is the traditional model in many developing countries, where the family is central to the culture and traditions."

But in the absence of cultural norms that keep three, sometimes four generations under one roof, there are legal



An old man in Bangladesh finds pleasure in the company of a youngster.

according to UN projections, the proportions will be 19 per cent and 8 per cent, respectively.

Although the world's population is almost equally divided between women and men, there are only 79 elderly men to every 100 elderly women, says Horiach.

"In all regions bar South Asia, women live longer than men," says Catherine Pierce, chief of UNFPA's Special Unit on Women, Population, and Development. In consequence, "a higher proportion of elderly women are alone than are men."

"In developing countries, women's general health is much worse than men's. Health and nutritional deficiencies throughout life mean that women enter old age more unhealthy than men," says Pierce.

She adds "the culture of poverty follows women even in industrialized countries,"

— are projected to rise in industrialized countries, where the expected rise in old age dependency is more than double the expected fall in youth dependency.

"Don't lose the family"

The key policy question in industrialized and developing countries alike, says Tarek Shuman, is: "Who is going to pay the bill?" Shuman is director of the international programme of the centre for aging at San Diego State University in California.

"The younger generation is paying for the elderly, no matter how you look at it" Shuman told population during a recent visit to New York.

Whereas the economic costs of aging fall on the young, says Shuman, the social burden is borne by the elderly themselves, most commonly in the

measures: Shuman cites examples in the United States, where courts are mandating family alternatives to institutionalization.

Applications for certain state old-age benefits are investigated to ensure that the elderly person in question has no next-of-kin in a position to provide care, he says.

Family care, Shuman argues, is more cost-effective and more likely to enhance the lives of the elderly than institutionalization.

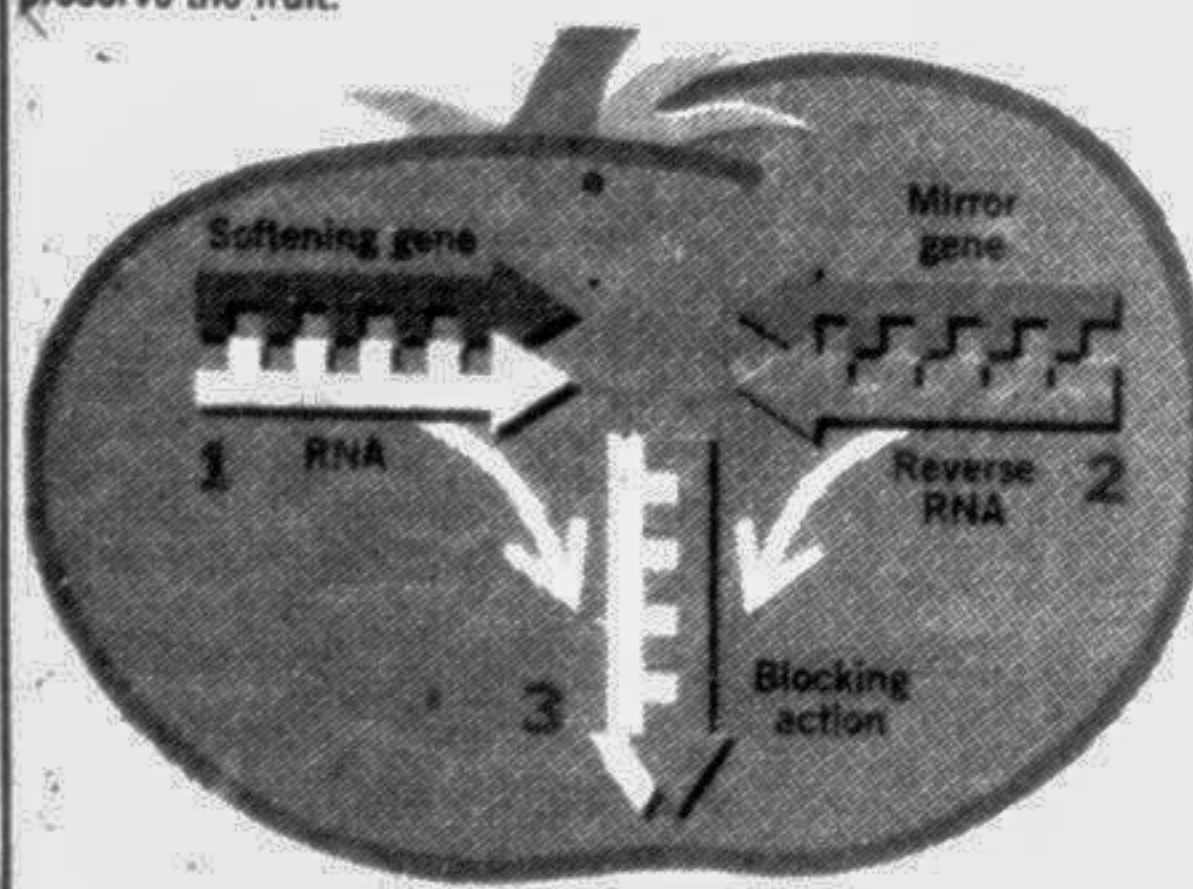
"Developing countries should think twice before investing in institutions," says Shuman.

"This is where the UN comes in. It should emphasize an important message: 'Don't lose the family'."

(UNFPA)

HOW TO MAKE A LONGER-LASTING TOMATO

- 1 Tomatoes have a "softening" gene. It produces RNA to help manufacture a protein that causes rotting.
- 2 Calgene scientists insert a mirror image of the softening gene that produces a reverse copy of the RNA.
- 3 The reverse RNA blocks the action of the regular RNA and helps preserve the fruit.



In praise of Tomato

