

ISSN 0586-1179

Vol. 41 No. 1

SWASTH HIND

January-February 1997



swasth hind

Pausa-Phalguna **January-February 1997**
Saka 1918 **Vol. 41 No. 1-2**

OBJECTIVES

Swasth Hind (Healthy India) is a monthly journal published by the Central Health Education Bureau, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, New Delhi. Some of its important objectives and aims are to:

REPORT and interpret the policies, plans, programmes and achievements of the Union Ministry of Health and Family Welfare.

ACT as a medium of exchange of information on health activities of the Central and State Health Organisations.

FOCUS attention on the major public health problems in India and to report on the latest trends in public health.

KEEP in touch with health and welfare workers and agencies in India and abroad.

REPORT on important, seminars, conferences, discussions, etc. on health topics.

Editorial and Business Offices

Central Health Education Bureau
(Directorate General of Health Services)
Kotla Marg, New Delhi-110 002

Edited by **M. S. Dhillon**
 P. K. Wadhwa

Assisted by **G. B. L. Srivastava**
 K. S. Shemar

Cover Design **Harbhajan Singh**
Cover Photo **O. P. Kataria**

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Articles on health topics are invited for publication in this Journal.

State Health Directorates are requested to send in reports of their activities for publication.

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SUBSCRIPTION RATES

Single Copy 50 Paise

Annual Rs. 6.00

This Issue Re. 1.00

(Postage Free)

LEPROSY CONTROL EFFORTS IN INDIA

DR. N. S. DHARMSHAKTU*

With the launch in 1993 of the World Bank-assisted programme of Elimination of Leprosy, the NLEP received a further boost by being enabled to provide full MDT coverage in all hitherto uncovered endemic and non-endemic districts. Upto March, 1995 the total patient load has been reduced to 7,40,000 and a total of 5.8 million cases have been discharged after completion of MDT.

THE ancient Hindu literature of Sushrita Samhita, written around 600 BC, gives a fairly good description of leprosy, its spread and treatment. Voluntary organisations working in India have a long history of involvement in leprosy relief work, starting with leprosy asylums established in the early 19th Century in Calcutta and Varanasi. The Mission to Lepers started at Chama in 1875, and the Indian Council of the British Empire Leprosy Relief Association was established in 1925. The first attempt to control leprosy throughout India started in 1955 with the launch of the National Leprosy Control Programme, when there were thought to be about 1.4 million cases of leprosy.

Control was based on dapsone monotherapy which had to be taken by patients for anything from three years to a lifetime, depending on the type of disease. While the programme remained only input-oriented for a long time, in 1976-77 targets were allotted to the States and Union Territories for case-detection, treatment and discharge so as to make the programme performance oriented. After independence in 1947, a large number of NGOs doing leprosy work came into being, and by 1987 they numbered about 285, covering almost 30% of the recorded patients in the country. Recognizing the contribution and potential of these organisations, the Government of India evolved a system for supporting them in important priority activities. Regular interaction has also been organised, so that they can share their experiences.

*Dy. Director General of Health Services, DGHS, Nirman Bhavan, New Delhi-110 011.

A working group appointed by the government in 1980 laid down the revised strategy, aiming at leprosy eradication through reducing the pool of infection in the population, curbing the sources of infection and breaking the chain of disease transmission. Considering the magnitude of the problem (estimated in 1981 as 4 million cases of leprosy in India out of a total of 12 million cases in the world), and in view of effective treatment available in the form of multi-drug therapy (MDT), the programme was revitalized and redesignated as the National Leprosy Eradication Programme (NLEP) in 1983. The objective was to eliminate leprosy by the year 2000, there by reducing the case-load to less than 1 per 10,000 population. Under the strategy adopted, district MDT societies were formed and funds were released to them to ensure that the drugs reach the patients in a phased manner. Eventually these societies expanded to cover all 201 endemic districts with prevalence of more than five per 1000 population, while the remaining districts were covered by mobile leprosy treatment units with the help of general health care staff. By 1995 all districts of the country had been brought into the MDT scheme.

MDT for all

With the launch in 1993 of the World Bank-assisted Programme for Elimination of Leprosy, the NLEP received a further boost by being enabled to provide full MDT coverage in all hitherto uncovered endemic and non-endemic districts. The government declared that from the start of 1996 no leprosy patient should be on monotherapy, since MDT would be available to pati-

ents in every part of the country. The programme is also receiving regular technical support from WHO, and leprosy work has been further supported by many international voluntary agencies and bilateral aid agencies. Since 1983, the NLEP has been reviewed by State Programme Officers 11 times at national level, and five independent evaluations have also been carried out. Many aspects of the programme are regularly reviewed at national, state and peripheral levels.

Thanks to the concerted and co-ordinated efforts of the government and all other agencies up to March 1995, the total patient load has been reduced to 7,40,000, and a total of 5.8 million cases have been discharged after completion of MDT.

The programme will need to be reviewed thoroughly at more frequent intervals as we approach the year 2000 to ensure that timely remedial action is taken. Dealing with remaining patients and problem cases living in difficult areas will call for unremitting efforts, with the involvement of general health care staff and strong public support. If such activities are undertaken promptly, there is every possibility of achieving the goal of eliminating leprosy by the year 2000. The government's announcement that it will start five pilot projects of community-based rehabilitation on a regular basis will provide a further boost to much-needed rehabilitation services for former leprosy patients now cured but left with disabilities.

Courtesy: Joint Action 21-4/96, Indian Leprosy Foundation



राष्ट्रपति
भारत गणतंत्र
PRESIDENT
REPUBLIC OF INDIA

MESSAGE

Eradication of leprosy continues to be an important challenge before us. The advanced treatment now available must be fully utilised to ensure appropriate control measures in effectively combating this malady. The collaborative work between Government and voluntary agencies should be further strengthened to educate and motivate people towards creating continued awareness and understanding of the problems of the unfortunate victims of the disease.

Bapu's supreme example of personally tending to leprosy patients with love and compassion would always inspire us.

On the occasion of Anti-Leprosy Day, let us resolve to work with dedication to realise Bapu's vision of total leprosy eradication.

I send my best wishes to the Hind Kusht Nivaran Sangh, as well as to other institutions and individuals engaged in the movement against leprosy, for the success of their endeavours.

(Sd/-)

(SHANKER DAYAL SHARMA)

New Delhi
January 6, 1997.



प्रधान मंत्री
PRIME MINISTER

MESSAGE

Every year 30th January is observed as Anti-Leprosy Day. On that day our nation commemorates Mahatma Gandhi's demise by observing it as Martyr's Day too. Gandhiji's concern for leprosy patients is well-known and there could not be a better way to commemorate Gandhiji's teachings than by helping persons afflicted with leprosy in their treatment and rehabilitation. Patients of leprosy do not deserve humiliation through discrimination but deserve to be treated as normal citizens of the society. On the Anti-Leprosy Day, we should dedicate ourselves to educating the people in measures to prevent leprosy and also on the fully curative character of the disease.

I wish success to genuine efforts made by Hind Kusht Nivaran Sangh in motivating leprosy workers and volunteers to fight leprosy and misapprehensions about the disease.

(Sd/-)

New Delhi
December 24, 1996

(H. D. DEVE GOWDA)



SALEEM I. SHERVANI

राज्य मंत्री
(स्वतंत्र प्रभार)
स्वास्थ्य एवं परिवार कल्याण
भारत सरकार
नई दिल्ली-110 011
MINISTER OF STATE
(INDEPENDENT CHARGE)
HEALTH AND FAMILY WELFARE
GOVERNMENT OF INDIA
NEW DELHI-110 011

9th January, 1997

MESSAGE

We observe 30th January as Anti Leprosy Day which is the Martyrdom Day of Mahatma Gandhi. This is a tribute to the Great personality who set an example for extreme compassion for Leprosy sufferers. He himself came forward to serve leprosy patients and gave a call to masses not to hate leprosy patients. With the advancement in science and technology, newer drugs have changed the scenario of leprosy in India. Leprosy no more remains a dreaded disease and is now completely curable. The community needs to be made fully aware of these facts so that the apprehension in the minds of the people about this disease are removed and any person who suffers from this disease is treated like a patient of any other disease without fear of any ostracism.

I wish the 'Hind Kusht Nivaran Sangh' all the best in their endeavour and I give a call to all the countrymen to join hands, to help the Sangh in whatever way, so that their efforts may contribute to Government of India's commitment to eliminate leprosy by the year 2000.

(Sd/-)

(SALEEM I. SHERVANI)

FACTS ABOUT LEPROSY

JOHN BLAND

WITH only four years to go, the world is well on the way to attaining the World Health Organisation's declared goal of eliminating leprosy as a public health problem by the year 2000. Provided there is continued commitment from involved governments, international bodies and non-government organisations, the goal can be reached. This is where we stand with this age-old disease at present.

○ A wasting and debilitating disease, leprosy has been dreaded through the centuries. In past ages, sufferers were forced to live in isolation and were shunned by their own community. But today we know that leprosy is hard to "catch"; physical contact with a patient has to be frequent and long-term for the disease to be transmitted to someone else. We also know that leprosy is curable.

○ Leprosy is caused by a bacillus, *Mycobacterium leprae*, which reproduces very slowly and mainly affects the skin, nerves and mucous membranes. If untreated, there can be progressive and permanent damage to limbs and eyes. But the visible symptoms may not show themselves for 10, 15 or even 20 years.

○ By that time, paucibacillary cases (having few bacteria in their bodies) may have less than one million bacteria; multibacillary cases may have up to 7000 million bacilli in just one gram of skin tissue.

○ At the start of this century, leprosy was universally regarded as incurable. The first breakthrough came in the 1940s with the development of the drug dapsone. This cured the disease, but only if the patient regularly took the proper dose over many years. Moreover *M. leprae* started to develop resistance to dapsone, and it seemed as if the world's only known safe anti-leprosy drug was about to become useless.

○ In 1981 a WHO Study Group was able to recommend treatment with a "cocktail" of three drugs—dapsone, rifampicin and clofazimine—which effectively prevented the bacillus from becoming resistant to any of the three. Called multidrug therapy (MDT), this is the weapon that now seems certain to stop the disease in its tracks.

○ MDT has proved remarkably effective, reasonably cheap and highly acceptable to all patients. The treatment lasts 6 months for paucibacillary cases and 24 months for multibacillary cases. At the end of those periods, the cure is complete.

○ Provided all the countries where leprosy is endemic maintain their case-finding and MDT treatment activities, and provided donors worldwide keep up and even increase the flow of resources—financial and human—to maintain the momentum, leprosy can be eliminated as a public health problem by the year 2000.

○ What does this mean? WHO considers leprosy is no longer a public health problem when the number of cases in a given country falls below one per 10,000 population. Globally, there has already been an astonishing decrease in the estimated number of cases in the world, from 5.4 million in 1991 to about 1.3 million in early 1996.

○ A total of 60 countries are technically endemic for leprosy today. Only 16 of these are rated as "the most endemic countries," and they account for 90% of all cases. They are: Bangladesh, Brazil, Cambodia, Ethiopia, Guinea, India, Indonesia, Madagascar, Mozambique, Myanmar, Nepal, Nigeria, Philippines, Sudan, United Republic of Tanzania, and Zaire.

○ By the end of 1995, nearly 8 million patients had been cured with MDT, which had also prevented the development of physical disabilities in perhaps as many as 2 million individuals. The global coverage of MDT currently stands at 88%.

○ A person may be completely cured but, if there has been severe damage to the limbs, that damage can not always be put right. So there will be a long-term need for rehabilitation and treatment for people disabled by the disease. In many parts of the world, they may also have a struggle to reintegrate themselves into their communities. Ancient fears of leprosy die hard.

○ In July 1994, an international Conference on the Elimination of Leprosy was convened in Hanoi, Viet Nam, where governments, international agencies and concerned NGOs reaffirmed their commitment to this goal. This reaffirmation was enshrined in the Hanoi Declaration, which recommended, among other things, putting into effect a Global Plan of Action for the closing years of the century.

○ The Global Plan of Action drawn up by WHO and its collaborators in the leprosy field envisages the identification and cure of about 3 million cases by the year 2000.

○ WHO, through its Action Programme for the Elimination of Le-

prosy, oversees the quest for resources, monitors and evaluates the activities in each endemic country, and generally co-ordinates the progress towards elimination worldwide. It also promotes the building up of national capabilities to carry out leprosy elimination programmes and encourages research for still more effective drugs as component parts of MDT.

○ WHO also works in close collaboration with the member associations of the International Federation of Anti-Leprosy Association (ILEP) and other NGOs which are making important contributions to work in the field among leprosy patients and with such agencies as the Nippon Foundation and the World Bank.

○ Through the support of the Nippon Foundation of Japan, WHO supplies the drugs needed for MDT in blister packs in order to treat about 8,00,000 patients per year in some 25 countries.

○ Can we look forward to total eradication of leprosy? Provided countries don't relax their guard and provided health personnel everywhere remain alert for the occurrence of any new case that might arise, there is every reason to suppose that some time in the early decades of the 21st century leprosy will go the way of smallpox and will disappear entirely from our planet.

—*Courtesy: World Health Organization*

STATUS OF LEPROSY IN WORLD—1996

- * 12,60,000 estimated cases.
- * 60 endemic countries.
- * 9,40,000 cases registered for treatment.
- * About 5,60,000 cases newly diagnosed every year.
- * 1 to 2 million individuals are disabled because of leprosy.
- * More than 8 million patients have been cured with MDT.
- * No confirmed resistance of *M. leprae* to MDT.
- * Relapse rate with MDT is less than 1 per 1000.
- * Drug cost (blister pack) for curing a PB patient is less than US \$ 4
- * Drug cost (blister pack) for curing a MB patient is less than US \$ 45.

Compiled by Dr. M.G. Singh, Asst. Director of Health Services (Leprosy), Mumbai

Involvement of Consumer Associations/NGOS in The Programme of Food and Drugs Safety and Quality Control

The critical role of the consumer as an important stakeholder is an issue that is receiving increasing importance in Government today. Government attaches considerable importance to active consumer involvement and participation, particularly to consumer protection. This is highlighted in the Common Minimum Programme of the United Front Government which had interalia highlighted the following aspects related to consumer protection :

- (a) The accountability of the Corporate sector to keep in mind the paramount interest of the consumer and to enforce this accountability through an expanded network of consumer courts.
- (b) Need for openness and transparency in governance and to give people access to information at all levels.

The interest of the consumer in matters relating to drugs and food is a crucial aspect of this issue as these are two universal elements that play a vital part in sustaining and nurturing all human life. For the consumers, it is, therefore, important that an assurance is given regarding the quality of the food and drugs he consumes, as substandard products can be deleterious to health.

Government has introduced several statutory and regulatory measures to promote the concept of quality control in the Food & Drug sectors. These measures are also reviewed from time to time to meet the new and emerging requirements. However, given the complicity of the issues involved in enforcing quality control in the food and drug sectors, such measures can be meaningful only if the manufacturer and the consumer play their part to assist the quality control enforcement mechanisms. The various issues relating to quality control in the food and drug sectors, the existing legal provisions and the enforcement infrastructure available are enumerated here. Possible areas where consumer organisations can play a part to help enforce quality control are also detailed. A workshop on involvement of Consumer Associations and NGOs in the Programme of food & drug safety and quality control was held in New Delhi on 14-15 January, 1997, which was jointly organised by the Central Health Education Bureau, Prevention of Food Adulteration and Drug Controller. The workshop discussed these issues to obtain inputs from the consumer organisations towards making this co-operation between Government, the consumer and the manufacturers a more meaningful concept by understanding their concerns and perceptions in respect of this issue and to explore how best these can be met within the framework of Government policies.

Aspects of Quality Control for Drugs

THE administration of drugs is on the concurrent list of the Constitution. Both the Central and State Governments are entrusted with the responsibility of implementing the provisions of the Drugs and Cosmetics Act, 1940 and the Drugs & Cosmetics Rules 1945. The provisions of the Act and Rules in-teralia include the requirements for maintaining Quality Control in regard to Drugs. The Central Government is responsible for the legislation and plays an advisory and co-ordinating role in the administration of the Drugs and Cosmetics Act, whereas enforcement is the responsibility of the State Governments.

Overview of the Scope for quality Control

Quality Control in relation to drugs is complex because it entails close monitoring of the activities of the manufacturers who produce the drugs and the Chemists and Drug-gists who market them.

Manufacturers: In India there are about 300 manufacturing units in the organised sector and 9000 small scale manufacturers licensed by the States. Although the number appears to be staggering, the survey carried out by Phrama Pulse in January, 1996, indicates that the top 65 companies together account for a turnover of Rs. 4,630 crores while the annual average turnover of the remaining manufacturers is only in the range of Rs. 40 lakhs. With this low level of turnover these units would not be able to find adequate resources to observe GMP in the prescribed manner. Given the number of manufacturers, it becomes practically difficult to effectively monitor and supervise these units, with the infrastructure existing in these States, to ensure that they are practising GMP.

Chemists: There are about three lakhs Chemists shops in the country

licensed by the State licensing authorities. Investigations as well as complaints received indicate the following problems in regard to GMP in the drugs sold by them,

1. Drugs are sold by these retail shops without a prescription.
2. Drugs & Pharmaceuticals have deteriorated in standard due to lack of improved storage and packaging facilities. The extreme climatic conditions of temperature and humidity can also cause quality control problems during transit from one State to another.

While these problems are known, given the number and spread of chemist shops in a State it becomes practically difficult for the enforcement machinery to maintain the required level of supervision and monitoring.

Provisions for Quality Control

Over the years Government has introduced a number of measures through the Drugs & Cosmetics Act and the Drugs & Cosmetics Rules to streamline and reinforce the aspect of Quality Control. Some of the important measures thus introduced include:

1. GMP was made legal under the Drugs & Cosmetics Act in 1988 not only for testing of raw materials, in process control, final product testing of raw materials, in process control and final product testing but also for stability studies.
2. Government have acquired power under Section 26A of the Drugs and Cosmetics Act to ban patent proprietary formulations in the market which have been licensed by the States, if on examination, these formulations are found to cause more risks than benefit and/or irrational in the context of present knowledge. The Courts of Law have prescribed

procedures including grant of hearing to the affected manufacturers. On the basis of screening done of formulations from the angle of safety and rationality, Government have so far, through various notifications, prohibited manufacture and sale of 56 categories of formulations. This is an ongoing process.

3. Certain categories of drugs are required to be sold by the Chemists on the prescription of a Registered Medical Practitioner (RMP) only. Such drugs are covered under Schedule H or X of the Drugs and Cosmetics Rules. This schedule has been updated.

4. A list of diseases and ailments for which modern medicines cannot make a definite claim or cure is contained in Schedule J of the Drugs & Cosmetics Rules, which has also been updated.

5. The 4th Edition of the Indian Pharmacopoeia has been brought out which contains monographs of standards more than 1000 drugs, validated by different laboratories.

6. The standards of Oral Dehydration Salts for combating dehydration, have been made similar to that of WHO guidelines. The standards for condoms have also been defined on the lines of the WHO guidelines.

7. In 1996 Government brought out a list of essential drugs for catering to the pharmaceutical needs of the general population. These drugs should be adequate to meet the health care needs of the people and will be generally provided in the public institutions, hospitals, OPDs etc. to the extent finances are available with the Government.

8. Under the Drugs & Cosmetics Act, a provision has also been made by virtue of which consumer organisations can send samples of

any drug to the Central Drug Testing Laboratories for test, after paying the prescribed fee, and demand a report on the same.

In addition to the above measures, the following measures are also on the anvil.

1. A separate draft legislation for Blood Banks and Blood Transfusion services has already been made. It is now proposed to bring it as a separate schedule under the Drugs & Cosmetics Rules. There is also a proposal to create a Cell for drug information which would be accessible to consumer organisations.

2. It has been decided to create a National Drug Authority (NDA) as proposed in the Modifications of Drug Policy, 1994, through legislation to control interstate commerce in drugs, update GMPs establish a Central Licensing Authority for key areas of drug manufacturers and upgrade testing facilities. A cess is proposed to be levied at 1% on the turnover of drugs and pharmaceuticals to meet the cost of expansion of Drugs Control Administration, including establishment of additional testing laboratories, creation of additional testing capacity in the existing laboratories and a continuous training programme. The NDA will also be responsible for inspection of licensing Blood Banks, manufacturing units for blood products, large volume parenterals & sera and vaccines.

(a) Under the NDA all manufacturers who wish to enter into interstate commerce will be required to register separately. A consolidated list, to be known as 'National Drug Register', is proposed to be issued providing the names of all drugs registered under NDA for interstate commerce in drugs. This register will also be made available to consumer organisations.

(b) A separate drug information cell is proposed to be established under NDA to disseminate information on the uses of drugs, adverse drug reactions, precautions and warning in respect of each drug registered for marketing under NDA.

Such information will be available on request to physicians, hospitals and institutions, and consumer organisations.

(c) The State Analytical Laboratory, is also proposed with equipments and additional personnel to augment their testing capacities. This scheme is also voluntary to the States who are willing to participate.

Existing Enforcement Infrastructure

To monitor the enforcement of provisions for Quality Control in relation to Drugs, the Central Drug Standard Control Organisation (CDSCO) assists State Drug Controllers by carrying joint inspections with the State Licensing authorities, and undertake independent inspection of manufacturing as well as sales premises in the respective zones.

In addition to the monitoring of indigenously manufactured drugs, the import of drugs and medicines are also controlled from the quality angle through the separate port offices, where officers under the CDSCO draw samples of the drugs, get them tested and examine the documents and the consignments before allowing the drug to be released by the Customs.

The CDSCO headquarters in Delhi and has 4 Zonal offices located at Ghaziabad, Bombay, Calcutta and Madras and two sub-zonal offices at Patna and Lucknow.

There are at present four Drug Testing Laboratories under CDSCO located at Calcutta, Bombay, Madras and Ghaziabad. The Central Drugs Laboratory, Calcutta is the reference laboratory and is responsible for all legal samples. The other laboratories received the samples as directed by the drugs. Controller General (India) and also act as Government Analysts for many States where drug testing facilities are inadequate or not available at the State level.

There are 17 laboratories under the management of the State Licensing Authorities where all samples of drugs are tested as per direction from the State Licensing Authori-

ties. For legal purposes testing is required to be done by a Government analyst. Such Government Analysts are notified either by the Central or State Governments and are located in the Central or State Laboratories.

There are at present only 22 Central Drug Inspectors and 1100 Drug Inspectors in the country to monitor and enforce the provisions of the Drugs & Cosmetics Act through the above infrastructure.

Shortcomings in the present system

While grant of license for a manufacturing unit is based on minimum requirements of space, equipment, personnel and various other conditions of GMP as stipulated under different schedules of the Drugs and Cosmetics Rules, Quality control of every batch including batch to batch uniformity is the legal responsibility of the manufacturer. Random sampling and testing by Central and State Government agencies cannot guarantee maintenance of uniform quality of every batch of every formulation of each manufacturer.

A drug on test may be declared by an analyst as not of standard quality based on a host of parameters. Sometimes a particular batch may be declared as not of standard quality if it does not conform to the labelling requirements as given under the labelling provision or excess moisture content due to bad storage or due to crack or fissures on the outer coating etc.

The manufacture of spurious medicines is a clandestine activity like counter fitting coins and generally resorted to by unlicensed unscrupulous manufacturers. Generally such activities are carried out not in one place but in different places at the periphery and investigation needs active assistance from the Police.

Measures to improve supervision and Monitoring

In order to improve the enforcement mechanism, Government is proposing to increase the number of Central Drug Inspectors to 300. Similarly under a separate scheme,

it is envisaged to strengthen the State Drug Enforcement Staff, which is voluntary to the States who agree to participate in the scheme. A provision has been made for the addition of approximately 1100 Drug Inspectors in the State Governments.

Despite the above measures to strengthen the monitoring and enforcement mechanism effective enforcement of the provisions of the Act can come about only with the active co-operation of the consumer and the manufacturers. It is in this context that we would initiate the consumer organisations to assist us in disseminating information about these provisions in the Drugs and Cosmetics Act where the consumer can act as the "eyes & ears" of the Drug Enforcement machinery and help to bring about true quality control in regard to the drugs we consume.

Potential areas for Cooperation with Consumer Organisations

The areas where such participation is possible within the ambit of

the existing measures in the Drugs & Cosmetics Act are enumerated here :

(1) Report to the concerned State Licensing Authorities if some chemist shops are reported to be deliberately violating the laws of the land and engage in unethical activities, viz., selling prescription drug without prescription, selling expired drugs to the gullible consumer, reluctant to give cash memo, storing antibiotics and other biological including vaccines improperly (i.e. without having proper cold storage facilities), substituting one brand of drug for another, etc.

(2) Report to the concerned State Licensing Authorities if there are reliable reports to indicate that any manufacturing unit has joined hands with unscrupulous unlicensed units to produce sub-standard/spurious drugs for short-term gains.

(3) Inform the Central Government if any particular formula or combination of formulations or any patent and proprietary medicine is consi-

dered to be irrational, giving reasons for the purpose of examination.

(4) Educate consumers through workshops on "do's and don'ts" regarding use of drugs and special care that is required to be observed and information to be shared by consumers with their treating physicians, particularly consumers belonging to vulnerable groups, viz., pregnant women, children, elderly people, convalescents, etc.

(5) Consumers may demand from Central Government a summary profile of safety and efficacy of a new drug once it is registered for marketing. They may also ask for adverse reactions of the drug reported abroad and also of the approved indications, and whether any special precautions to be observed during the intake of the medicine.

(6) Effort should be made by the consumer organisation to create a Core group of people who will be knowledgeable on all aspects of drugs including Drugs Regulations to act as opinion leaders in the community. ○

Leprosy—No Longer a Public Health Problem : W. H. O.

At the start of this century, leprosy was universally regarded as incurable. The first breakthrough came in the 1940s with the development of the drug dapsone. This cured the disease, but only if the patient regularly took the proper dose over many years. Moreover, *M. leprae* started to develop resistance to dapsone, and it seemed as if the world's only known safe anti-leprosy drug was about to become useless.

Fortunately, in the 1981 a WHO Study Group was able to recommend treatment with a "cocktail" of three drugs—dapsone

rifampicin and clofazimine—which effectively prevented the bacillus from becoming resistant to any of the three. Called multi-drug therapy or MDT, this is the weapon that now seems certain to stop the disease in its tracks.

MDT has proved remarkably effective, reasonably cheap and highly acceptable to all patients. The treatment will last 6 months for paucibacillary cases and 24 months for multibacillary cases. At the end of those periods, the cure is complete.

—Courtesy : Health For All

ROLE OF CONSUMERS IN FOOD SAFETY

FOOD is one of the essentials of life besides air and water. No doubt, the paramount requirement for the nation is the availability of food in sufficient amount but equally important is the fact that the food we eat, must be wholesome and free from contamination so that the consumption does not cause any ill-health or disease and does not produce a crippled nation where the population is a burden on the society and eats away the national economy.

The declaration of Alma-Ata in 1978 for achieving 'Health for All' by 2000 AD to which India is a signatory, implicitly implies that Food safety is an essential component of primary health care to prevent disease and promote health.

With the advent of industrial civilization, and economic liberalization in the country for the last five years, changes in the lifestyle of the people specially in urban areas is observed. Introduction of new foods and snacks by industries, has necessitated the use of new types of food additives in their manufacture and preservation for a longer period of shelf life. This, coupled with the use of fertilizers, pesticides and other chemicals to increase the production and ensure safe storage, have added risks to the food safety problem, if they are not used judiciously and scientifically.

According to the report of the Joint FAO/WHO Expert Committee on Food Safety brought out in 1983, illness due to contaminated food is perhaps the most widespread health problem in the con-

The PFA Division at Headquarter has been arranging periodical training programmes for the consumer organisations so as to acquaint them with the provisions of the Act, Rules and Standards as well as to ensure their active participation in the programme. A number of publicity materials have been brought out.

temporary world and is an important cause of reduced economic productivity. Inadequacy in reporting food borne diseases (as per the report of WHO, in developing countries, the ratio between real and reported cases may be as high as 100:1) add to the alarming problem. The phenomenal increase in the production of foods is apparent but their quality has not kept pace with the expectations of the consumers.

Measures for Food Safety and Quality Control

Various measures for assuring safe foods to the consumers are:—

- (i) Legislative and control measures by the Government.
- (ii) Self-discipline by the industry and trade by adoption of Code of Ethics and Good Manufacturing Practices, and
- (iii) Strong consumer movement through public education and community participation.

Legislative Measures

One of the Constitutional Obligations on the part of Government is to ensure pure and wholesome food by preventing adulteration. The Department of Health in the Ministry

of Health & Family Welfare has therefore enacted a legislation known as Prevention of Food Adulteration Act in the year 1954 (PFA Act, 1954). The Act has come into force since 1st June, 1955 and has been amended from time to time (1964, 1976 & 1986) to plug the loopholes and make the provisions more effective. The objectives envisaged in the Act are:—

- (i) To ensure pure and wholesome food to consumers.
- (ii) To protect consumers from fraud or deception.
- (iii) To encourage fair trade practices.

Other legislations which are complementary or supplementary to the PFA Act are:—

- (A) Essential Commodities Act, 1954: formulating control orders like:
 - (a) Vegetable Oil Products Control Order 1947 regulating production of vanaspati, margarine and other hydrogenated fat.
 - (b) Fruit Products Order, 1955, regulating production of fruits and vegetable products.
 - (c) Solvent Extracted Oil, Deoiled Meal and Edible Flour

(Control) Order, 1967 regulating production of solvent extracted oils and oilseed flour.

- (d) Meat Food Products Order, 1973; regulating production of processed meat food products.
- (B) Two other legislations aiming at Quality Certification of food articles are:—
 - (i) Agricultural Marketing Act and Rules, 1937—Certifying agricultural products like Atta, Besan, Spices, Edible oils, Honey, Butter, Ghee Fatspread by affixing "Agmark".
 - (ii) Bureau of Indian Standards, Act, 1986 (previously designated as ISI Certification Mark Act) operating ISI Certification in case of processed food articles including food additives/packaging materials used in food, e.g. vanaspati, biscuits, confectionery, food colours and plastic packaging.

The landmark legislation passed in the year 1986, solely developed to protect the interest of consumers, is the Consumer Protection Act, 1986 being administered by the Ministry of Civil Supplies, Consumer Affairs & Public Distribution. A lot of importance is now being attached to consumer affairs and particularly to consumer protection.

Infrastructure for PFA Enforcement Activities

The Government at the Central as well as at the State levels have created the following infrastructure for enforcement of the Act:—

- (i) Food Inspectors—3500 (Approx).
- (ii) Food Laboratories under the States/local bodies—81 (For analysis of food).
- (iii) Central Food Laboratories—4 (For analysis of appeal samples).

Future Proposals For Augmentation

It is needless to emphasise that the existing infrastructure is hardly adequate to do justice to the programme, specially in the context of liberalisation and the mushroom growth of food industries over the years. Possibilities are, therefore, being explored for strengthening the infrastructure with financial support from the World Bank. The schemes envisaged are:

- (i) Strengthening of PFA infrastructure at the Central level.
- (ii) Opening of more Central Food Laboratories.
- (iii) Creation of Zonal Offices and Import Quality Control.
- (iv) Establishment of District Food Inspection Units.
- (v) Augmentation of State Food Laboratories with staff and equipments.
- (vi) Creation of network of Management Information System (MIS).
- (vii) Involvement of NGOs/Consumer Organisations in the Programme.

Responsibilities on the Part of the Industries

One of the measures for ensuring food safety is to have self-regulated control and code of ethics on the part of the Food Industries. The industries/traders are required to realise their responsibilities to the country and consumers as a whole by adopting good agricultural practices/good manufacturing practices and a code of ethics in marketing of food commodities. Though after enactment of Consumer Protection Act, 1986, many of the industrial organisations and Chambers of Commerce and Industry have formulated their own code of ethics and set up Consumer Grievance Cells for redressal of consumer grievances but they are yet to come upto the expectations of the consumers.

Involvement of consumers under the existing programme

Realising the useful role which consumers could play in the programme of Food Safety and Quality Control, the Central Committee for Food Standards (CCFS), a statutory advisory body—to advise the Central Government on matters arising out of the implementation of PFA Act, Rules and Standards—includes five consumer representatives, one of whom should be from the Hotel Industries. Even individual consumer/consumer organisations have been given power to draw sample of food articles and initiate legal action in case the sample is found to be adulterated.

The PFA Division at Headquarters has been arranging periodical training programmes for the consumer organisations so as to acquaint them with the provisions of the Act, Rules and Standards as well as to ensure their active participation in the programme. A number of publicity materials have been brought out.

International Scenario

Codex Alimentarius Commission, a joint body of FAO and WHO formulating standards of food articles at the international level, is represented by 150 countries including India. The Commission has been gaining importance in recent years with the expansion of World Trade in Food. The Commission has also expressed its concern about food safety, from time to time. The establishment of the World Trade Organisation in January, 1995 has further enhanced the importance of the work of the Codex.

In order to ensure active liaison with Codex Alimentarius Commission, India has constituted a National Codex Committee (NCC) Chaired by Joint Secretary, Incharge of PFA Division in the Ministry of Health and Family Welfare and having representatives from different concerned Ministries, Industries and six consumer organisations. Consumer parti-

icipation in formulation of food standards has been realised even by Codex and that is why one full agenda item under the heading "Consumer Participation" in codex work was included in the meeting of Codex Committee on General Principles held in November, 1996. The criteria for defining consumer organisations, as brought out by the Consumers International in the paper prepared by them for consideration in the Codex Meeting, may be of relevance to India as well.

Criteria for Defining consumer Organisation

1. the organisation should be active on belief of the interests of the consumers;
2. the organisation should not be connected in any way with any commercial or trading venture and should be non-profit making in character;
3. does not accept for any commercial purpose; advertisements in their publications;
4. does not allow selective commercial exploitation of infor-

mation and advice given to consumers;

5. the organisation should not be concerned with the advancement of party or political causes; and
6. the organisation should support and complement the activities of other consumer organisations in the country.

Role to be played by consumer organisations

Experience in administration of food laws has revealed that Consumers/Consumer Organisations may take lead roles in areas outlined below:—

1. They may act as informants to the Government by providing information about malpractices of food adulteration, if any, and at the same time assist the Government for inspection of such food articles.
2. They should organise Seminars/Workshops in regional languages and also train individual consumer in common methods of detection of adulterants of food.

3. Utilise the various mass media like TV, Radio, Private Broadcasting Organisations by arranging discussions/vedio spot/clippings.

4. Arrange an exhibition in schools and colleges on matters concerning food safety and quality control and educate the students on this aspect.

5. Demand safe and wholesome food from the industries by arranging strong consumer movement. A lot of contribution could be made in improving quality of street food by resisting sale of unhygienic food.

6. Ten golden rules for food safety as brought out by WHO be adopted and be given wide publicity by the consumers through various mass media.

At the end it may be concluded that if consumers are vociferous and extend their helping hands to the Government, then only it will be possible to ensure pure and wholesome food to the consumers. ○

NATIONAL IMMUNIZATION DAYS

On 18 January 1997, the Government of India conducted the second round of December 1996—January 1997 National Immunization days (NIDs) for polio eradication, also known as Pulse Polio Immunization. Of more than 900 million people living in India, 121 million children below 5 years received extra doses of oral polio vaccine (OPV) during the NIDs. On 7 December 1996, the Government of India succeeded in immunizing 118 million (98%) from the targeted 121 million children below 5 years age. This exceeded the previous year's effort when 93 million children below 3 years were immunized on 20 January 1996, representing the largest single-day immunization event conducted at that time in the history of the world.

—W.H.O.

CONSUMER AWARENESS IS THE FIRST STEP TOWARDS MEANINGFUL CONSUMER PROTECTION

SHRI SALEEM I. SHERVANI*

The Union Minister of State for Health and Family Welfare, Shri Saleem I. Shervani inaugurated the two day workshop on consumer awareness on 14th January, 1997 at Constitution Club in New Delhi. Speaking on the occasion Shri Shervani stressed the need for a healthy working partnership between the consumer, Government, manufacturer and the retailer to accomplish the goal of assuring safe and reliable quality in Food and Drugs. We reproduce here the text of the inaugural speech.

**Union Minister of State for Health & Family Welfare, Govt. of India, New Delhi.*

WE have gathered here this morning on a momentous occasion in the history of our endeavour to achieve quality control in the food and drug sectors in India. This is the first time that Government has taken the initiative to seek the cooperation of Consumer organisations, and through them the individual consumer, as also the manufacturers and retailers, to formulate measures to effectively implement quality control in two areas of vital interest to every consumer viz. food and drugs. Government has increasingly recognised the fact that the consumer is an important stakeholder in the services it dispenses and that without his active cooperation, besides the self discipline which manufacturers and retailers must impose, the exercise of quality control cannot be truly effective. The Common Minimum Programme of my Government has also underlined the importance of consumers and consumer protection. Hence, this is an opportune moment for us as consumers, manufacturers and Government to sit together and explore the cope of forging a harmonious alliance that will strengthen the movement for achieving quality control in the key areas of food and drugs.

Food and drugs are two of the most critical ingredients which sustain and nurture human life. In a country like ours, given its vast size and population, there are myriad problems that need to be tackled if

quality has to be ensured in these sectors in a meaningful manner. For example, in view of the huge size of our country and the variations in climatic and developmental conditions, the method of transporting drugs from the one State to another itself becomes a crucial aspect of quality control. The poor conditions of roads, storage and transportation adversely affect the packaging and consequently the quality of the drugs we consume. Similarly the methods and practices adopted in manufacture of drugs and food have a significant impact on the ultimate quality of these products. Even the manner in which these products are stored in the retail outfit, i.e. whether or not they are insulated from the vagaries of weather and other deleterious environmental conditions, determine the quality of the food and drugs we finally consume.

While legislation has been introduced to cover a number of issues in this area, Government machinery is not adequate to enforce these requirements at every stage. In the Drug sector alone, there are approx. 900 manufacturers in the large scale sector, 3000 manufacturers in the small scale sector and three lakh chemists and druggists retailing these products, besides agencies which handle their wholesale stocking. In the Food sector the figures are even more substantial, particularly

when we consider the number of retailers in this area, including even wayside vendors. Government machinery on its own cannot create a significant impact in ensuring quality when one weighs the fact that each of the multifarious activities that are undertaken to shape the end product from the stage of manufacture to the time of its sale to the consumer plays a vital role in ensuring the quality of the product consumed. Government machinery can at best undertake random checks to ensure that the system prescribed for ensuring quality control is in operation; but its effectiveness can be ensured only if the manufacturers and consumer join hands in this effort.

The consumer movement in this country is still at a nascent stage and is yet to assert itself aggressively. The Consumer Protection Act is, no doubt, a milestone in this regard and food and drugs are both areas that come within its ambit. However, the objective of this legislation can be fulfilled only if the consumers are aware of the various legal provisions and rights conferred upon them and the steps that they can take to protect their legitimate self-interest. Consumer awareness is thus the first step towards meaningful consumer protection.

It is a fact that very often the consumer is denied his rights because he was not aware of them. For example, how many consumers, would you think, are aware that under the Drugs and Cosmetics Act, 1940 there are provisions to report to the State Licencing Authorities if a chemist sells prescription drugs without a proper prescription, is reluctant to give a cash memo, substitutes one brand of drug for another, or that

there is even a list of diseases and ailments listed in Schedule-J of the Drugs and Cosmetics Rules for which modern medicines cannot make a definite claim of cure? Awareness of these legal provisions would not only have saved many consumers from the clutches of unscrupulous vendors and medical practitioners, but would have even saved many lives.

Manufacturers and retailers in the area of food and drugs have a greater responsibility than those in other industries because they are involved in activities which impinge directly on the lives of human beings. According to the report of the Joint FAO/WHO Expert Committee on food safety in 1983, illness due to contaminated food has been stated to be perhaps the most wide-spread health problem in the contemporary world and an important factor in reduced economic productivity. Your responsibility to the consumer is, therefore, of paramount human interest because any factor that is harmful for the health of people is an insult to human decency, national pride and international fraternity, there is therefore, an imperative need for self discipline on the part of manufacturers, to not merely ensure that they comply with the requirements of the enforcement machinery, but to adopt a code of Ethics and Good Manufacturing Practices to ensure that every product and every batch produced can pass the most rigorous test of quality control.

Government on its part is also aware that to sustain the enforcement of quality control in the wake of economic liberalisation, the accelerated manufacturing activities in the food and drug sectors and the growing consumer movement, there

is a need to augment our enforcement machinery not merely in terms of added personnel, but more through a network of facilities for analytical testing of these products. But most important, in my view, is the need to be sensitive and responsive to the grievances and provide immediate and meaningful redressal.... We are currently engaged in an exercise for augmenting laboratory facilities in the country with external assistance to enlarge the enforcement personnel and also for upgrading skills of the staff engaged in this sphere of activity.

This is a good beginning. But much more remains to be done. It is time that each one of us, be it the consumer, Government, manufacturer or retailer realises the need for a healthy working partnership, the need to recognise and respect each other's rights and responsibilities and what is expected of each one of us, if we are to accomplish the goal of assuring safe and reliable quality in food and drugs. There is much at stake for all of us in this endeavour, as it ultimately impinges on a common national interest. I am happy to see that representatives of consumers, industry, retailers and even Government have enthusiastically gathered here today to this first workshop on a subject which touches each one of us. I hope you will share your thoughts and concerns and come to a better understanding of each other's priorities. This could be the first step towards laying the foundation of a vibrant mass movement for ensuring high and stringent standards of quality control not merely in the areas of Food and Drugs but in all dimensions of the Health Sector. I wish you all success in your deliberations, and am confident that you will come forward with some pragmatic recommendations for consideration of the Government."

The WHO Golden Rules for Safe Food Preparation

1. Choose foods processed for safety

While many foods, such as fruits and vegetables, are best in their natural state, others simply are not safe unless they have been processed. For example, always buy pasteurized as opposed to raw milk and, if you have the choice, select fresh or frozen poultry treated with ionizing radiation. When shopping, keep in mind that food processing was invented to improve safety as well as to prolong shelf-life. Certain foods eaten raw, such as lettuce, need thorough washing.

2. Cook food thoroughly

Many raw foods, most notably poultry, meats and unpasteurized milk, are very often contaminated with disease-causing pathogens. Thorough cooking will kill the pathogens, but remember that the temperature of *all parts of the food* must reach at least 70°C. If cooked chicken is still raw near the bone, put it back in the oven until it's done—all the way through. Frozen meat, fish and poultry must be thoroughly thawed before cooking.

3. Eat cooked foods immediately

When cooked foods cool to room temperature, microbes begin to proliferate. The longer the wait, the greater the risk. To be on the safe side, eat cooked foods just as soon as they come off the heat.

4. Store cooked foods carefully

If you must prepare foods in advance or want to keep leftovers, be sure to store them under either hot (near or above 60°C) or cool (near or below 10°C) conditions. This rule is of vital importance if you plan to store foods for more than four or five hours. *Foods for infants should preferably not be stored at all.* A common error, responsible for countless cases of foodborne disease, is putting too large a quantity of warm food in the refrigerator. In an overburdened refrigerator, cooked foods cannot cool to the core as quickly as they must. When the centre of food remains warm (above 10°C) too long, microbes thrive, quickly proliferating to disease producing levels.

5. Reheat cooked foods thoroughly

This is your best protection against microbes that may have developed during storage (proper storage slows down microbial growth but does

not kill the organisms). Once again, thorough reheating means that *all parts of the food* must reach at least 70°C.

6. Avoid contact between raw foods and cooked foods

Safely cooked food can become contaminated through even the slightest contact with raw food. This cross contamination can be direct, as when raw poultry meat comes into contact with cooked foods. It can also be more subtle. For example, don't prepare a raw chicken and then use the same, unwashed cutting board and knife to carve the cooked bird. Doing so can reintroduce all the potential risks for microbial growth and subsequent illness present prior to cooking.

7. Wash hands repeatedly

Wash hands thoroughly before you start preparing meals and after every interruption—especially if you have to change the baby or have been to the toilet. After preparing raw foods such as fish, meat, or poultry, wash again before you start handling other foods. And if you have an infection on your hand, be sure to bandage or cover it before preparing food. Remember, too, that household pets—dogs, birds, and especially turtles—often harbour dangerous pathogens that can pass from your hands into food.

8. Keep all kitchen surfaces meticulously clean

Since foods are so easily contaminated, any surface used for food preparation must be kept absolutely clean. Think of every food scrap, crumb or spot as a potential reservoir of germs. Cloths that come into contact with dishes and utensils should be changed every day and boiled before reuse. Separate cloths for cleaning the floors also require frequent washing.

9. Protect foods from insects, rodents, and other animals

Animals frequently carry pathogenic microorganisms which cause foodborne disease. Storing foods in tightly sealed containers is your best protection.

10. Use pure water

Pure water is just as important for food preparation as for drinking. If you have any doubts about the water supply, boil water before adding it to food or making ice for drinks. Be especially careful with any water used to prepare an infant's meal.

—WHO

SWASTH HIND

TIPS TO CONSUMERS

A. WHILE SHOPPING

1. Read label before purchase—
 - (a) Name, trade name or description of food;
 - * (b) Names of ingredients used in the products;
 - (c) Name and address of the manufacturer/vendor/packer of food;
 - (d) Net weight, number or measure;
 - * (e) Batch number or code or Lot number;
 - * (f) The date of manufacture/packing;
 - (g) If the product is infant food, see date by which it is to be consumed;
 - (h) If the product is claimed to be enriched with nutrients, see the quantities of minerals, proteins or vitamins on the label;
 - (i) Synthetic product shall not depict picture of fruit. The word 'Synthetic' shall appear in capital letters. The word "Fruit" shall not be used in describing the products.
2. Purchase food articles from licensed vendors and insist on Bill or Cash Memo.
3. Prefer foods sold in packed containers even if you have to pay more.
4. Prefer food certified by Government agencies like—
 - (a) Agmark in case of spices, edible oils, ghee, butter, honey, atta etc.
 - (b) I. S. Certification Mark in case of Milk powder, Condensed milk, Infant milk food, Infant formula, Milk cereal based weaning food, Food colours, confectionery, biscuits, vanaspati (I. S. Certification is must).

(c) F. P. O. in case of processed fruit products like jam, jellies, ketchup, pickles, chutny, soft drinks or fruit beverages.

5. Prefer use of iodised salt in place of common salt.
6. Avoid coloured foods especially sweetmeats, sharbats/ice-candy.
7. Avoid silver leaves or other decoratives on food.
8. Buy food articles from reputed firms.
9. Buy whole masala or certified masala packs.
10. Do not buy cut/exposed fruits/vegetables.
11. Do not use container or packages used for insecticide, chemicals or non-edible items.
12. Report to Health Officer/Director (PFA)/Food and Drugs Administration in case of any complaint regarding food adulteration.

B. WHILE PREPARATION/SERVING FOOD

To protect family follow these simple tips:

1. Choose processed food.
2. Wash your hands with soap and water before you start preparing food and after every interruption.
3. Cover cuts in hand by bandage.
4. Cut your nails short and keep them clean.
5. Cover your head with hair net/band.
6. Wear clean over cloths.
7. Keep all kitchen surface meticulously clean.

*There are some exemption in case of specific packages, consult Prevention of Food Adulteration Rules for details.

8. Wash food grains/vegetables, fruits, eggs, fish, meat thoroughly before cooking/eating/storing in refrigerator.
9. Avoid contact between raw foods and cooked food, specially, raw meat/fish/egg/poultry meat.
10. Cook food thoroughly at boiling temperature.
11. Serve cooked hot food immediately.
12. Store cooked food carefully, preferably below 10°C or above 60°C.
13. Do not store cooked food in danger zone, i.e., between 10°C to 60°C, specially perishable food articles.
14. Protect foods from flies, insects, rodents and other animals.
15. Wash your hands with soap and water before starting eating.
16. Do not prepare/cook food several hours before eating.
17. Re-heat cooked food thoroughly to make all parts of food above 70°C.
18. Keep the refrigerator door closed, defrost/clean your refrigerator every week.
19. Do not consume stored prepared food if having off (rancid) flavour/smell or food in which froth has set in.
20. Use pure and clean water preferably potable water in preparation of food.

BABY-CARE

21. Remember mother's milk is best for your baby. Continue feeding breast milk as long as you can.
22. After 4 months of age, baby needs solid food. Start giving home-made weaning food, instead of expensive tinned food.
23. Do not give left over food to your baby.

Prevention of Food Adulteration Unit of the Directorate General of Health Services.

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Simple Tests for Common Adulterants in Foods

Food is essential for nourishment and sustenance of life. Adulteration of food cheats the consumer and can pose serious risk to health in some cases. Food adulteration is thus a punishable offence under the provisions of Prevention of Food Adulteration Act, 1954 and the Rules made thereunder. Consumer awareness of quality of food and alertness in detecting common types of food adulteration can thus help in arresting this menace and enable Government to achieve the objective of 'Health for All by 2000 A.D.'

The following information will help to give the consumer an opportunity to detect a few common adulterants in food. These tests will simply help the consumers to screen their day-to-day food articles. But for detailed conformatory test and quantification under P.F.A. Act the analysis in a laboratory is must.

<i>S. No.</i>	<i>Name of Food Article</i>	<i>Adulterant</i>	<i>Simple Method for detection of Common adulterants</i>	<i>Remarks</i>
1	2	3	4	5
1. MILK AND MILK PRODUCTS				
	(i) Milk	Water	(i) The lactometer reading shall not ordinarily be less than 26. (ii) The presence of water can be detected by putting a drop of milk on a polished slanting surface. The drop of pure milk either stops or flows slowly leaving a white trail behind it. Whereas milk adulterated with water will flow immediately without leaving a mark.	Lactometer is marked in degrees ranging from 0—40. The test is not valid if skimmed milk or other thickening material is added.

S. No.	Name of Food Article	Adulterant	Simple Method for detection of Common adulterants	Remarks
1	2	3	4	5
		Removal of fat	The lactometer reading will go above 26 while the milk apparently remains thick.	The test is not valid when other thickening material is added.
		Starch	Add a few drops of tincture of Iodine or Iodine solution. Formation of blue colour indicates the presence of starch.	
		Glucose	Dip a diasticks-strip in the investigational milk sample for 30 seconds. The blue stick turns to green for presence of glucose.	
		Sugar	Take 5 ml milk and add 2 ml concentrated hydrochloric acid and 50 mg resorcinol to it. On heating formation of red colour indicates the presence of sugar.	
		Urea	Take 10 ml of milk and add 1 tea-spoonful arhardal or soyabean seed powder to it and wait for 10 minutes. Dip a strip of red litmus in the mixture. The change of colour of the strip to blue indicates the presence of urea.	
		Alkali	Take 10 ml milk and add resolic acid solution. The change of colour to rosy red indicates the presence of alkali.	
	(ii) Khoa and its products	Starch	Boil a small quantity of sample with some water, cool and add a few drops of Iodine solution. Formation of blue colour indicates the presence of starch.	
	(iii) Chhaina or Paneer	Starch	Boil a small quantity of sample with some water, cool and add a few drops of Iodine solution. Formation of blue colour indicates the presence of starch.	

<i>S. No.</i>	<i>Name of Food Article</i>	<i>Adulterant</i>	<i>Simple Method for detection of Common adulterants</i>	<i>Remarks</i>
1	2	3	4	5
(iv) Rabri		Blotting paper	Mix top layer with 20 ml acidified water (1:1 water : hydrochloric acid) in beaker by a glass rod. The appearance of suspended fibre indicates the presence of blotting paper.	
(v) Ghee		Vanaspati or Margarine	Take about one teaspoonful of melted sample of Ghee with equal quantity of concentrated Hydrochloric acid in a stoppered test tube and add to it a pinch of sugar. Shake well for one minute and let it stand for five minutes. Appearance of crimson colour in lower (acid) layer shows presence of Vanaspati or Margarine.	The test is specific for sesame oil which is compulsorily added to Vanaspati and Margarine. Some coal tar colours also give a positive test.
		Mashed Potatoes, Sweet potatoes and other starches.	The presence of mashed potatoes and sweet potatoes in a sample of Ghee can easily be detected by adding a few drops of iodine, when iodine, which is brownish in colour turns to blue then mashed potatoes/sweet potatoes/other starches are present.	If the test is positive <i>i.e.</i> red colour develops only by adding strong Hydrochloric acid (without adding crystals of sugar) then the sample is adulterated with coal tar dye. If the crimson or red colour develops after adding and shaking with sugar then alone Vanaspati or Margarine is present.

S. No.	Name of Food Article	Adulterant	Simple Method for detection of Common adulterants	Remarks
1	2	3	4	5
(vi) Butter	Vanaspati or Margarine	Take about one teaspoonful of melted sample of Butter with equal quantity of concentrated Hydrochloric acid in a stoppered test tube and add to it a pinch of sugar. Shake well for one minute and let it stand for five minutes. Appearance of crimson colour in lower (acid) layer shows presence of Vanaspati or Margarine.	The test is specific for sesame oil which is compulsorily added to Vanaspati and Margarine. Some coal tar colours also give a positive test.	If the test is positive <i>i.e.</i> red colour develops only by adding strong Hydrochloric acid (without adding crystals of sugar) then the sample is adulterated with coal tar dye. If the crimson or red colour develops after adding and shaking with sugar, then alone Vanaspati or Margarine is present.
	Mashed potatoes, Sweet potatoes and other starches.	The presence of mashed potatoes and sweet potatoes in a sample of Butter can easily be detected by adding a few drops of iodine, which is brownish in colour turns to blue if mashed potatoes/sweet potatoes/other starches are present.		
2. OILS AND FATS	Argemone oil and Butter Yellow [C.I. 19]	Take small quantity of oil in a test tube. Add equal quantity of concentrated Nitric acid and shake carefully. Red to reddish brown colour in lower (acid) layer would indicate the presence Argemone oil.	Colourless (not yellowish) Nitric acid may be used. Artificial colour if present will usually be a bright shade of colour, generally	

S. No.	Name of Food Article	Adulterant	Simple Method for detection of Common adulterants	Remarks
1	2	3	4	5
			If colour disappears on heating, the butter yellow is present.	red or pink. The test may sometimes give misleading result. The test may not respond if the Argemone oil is present in small quantity.
		Mineral oil	Take 2 ml of the oil sample and add an equal quantity of N/2 Alcoholic potash. Heat in boiling water bath (dip in boiling water) for about 15 minutes and add 10 ml of water. Any turbidity shows presence of mineral oil.	If mineral oil is present in small quantity this test may not be positive.
		Castor oil	Take about one ml of the oil, add 10 ml of acidified petroleum ether and mix well. Add a few drops of ammonium molybdate reagent. Immediate appearance of white turbidity indicates the presence of castor oil.	If castor oil is present in small quantity, this test may not be positive.
		Cottonseed oil	Heat 5 ml oil with 2 ml amyl alcohol and 1 ml of solution of sulphur in carbondisulphide. Formation of red colour indicates the presence of cotton seed oil.	
		TOCP	Add a crystal of butter yellow to oil. The instantaneous formation of red colour indicates the presence of TOCP.	The usually detectable limit is upto 2% of contamination and hence may not be useful for minute traces.

S. No.	Name of Food Article	Adulterant	Simple Method for detection of Common adulterants	Remarks
1	2	3	4	5

3. SWEETENING AGENTS

(i) Sugar	Chalk powder	Dissolve 10 gm of sample in a glass of water, allow to settle. Chalk will settle down at the bottom.	
(ii) Pithi sugar	Washing soda	Add few drops of Hydrochloric acid, effervescence (give off bubbles) will indicate the presence of washing soda.	
	Chalk powder	Dissolve 10 gm of sample in a glass of water, allow to settle. Chalk will settle down at the bottom.	
(iii) Honey	Sugar solution	A cotton wick dipped in pure honey when lighted with a match stick burns and shows the purity of honey. If adulterated, the presence of water will not allow the honey to burn. If it does, it will produce a cracking sound.	This test is only for added water.
(iv) Sweetmeats, Icecream and beverages.	Metanil yellow (a non-permitted coal tar colour)	Extract colour with luke-warm water from food articles. Add few drops of concentrated Hydrochloric acid. If magenta red colour develops the presence of metanil yellow is indicated.	
	Rhodamin-B	Any pink coloured food if coloured with Rhodamin-B will give fluorescence in sun-light. Shake coloured food sarbats/syrups with carbon tetrachloride the colour will disappear and will re-appear on addition of a drop of hydrochloric acid with a shaking in case of 'Rhodamin-B' is present.	

S. No.	Name of Food Article	Adulterant	Simple Method for detection of Common adulterants	Remarks
1	2	3	4	5
		Saccharin	(i) Taste a small quantity Saccharin leaves a lingering sweetness on tongue for a considerable time and leaves bitter taste at the end. (ii) Take two spoons of liquid sample or about 5 to 10 gms of solid sample with little quantity of water in a test tube, add few droos of Hydrochloric acid and 10 ml of solvent ether. Shake well. Decant the ether layer into a test tube or a beaker, evaporate the ether spontaneously. Add one drop of water (warm) to the residue and taste. Sweet taste will indicate the presence of sachharin.	See Box
		Aluminium foil	Aluminium foil is whitish grey in colour and is readily soluble in concentrated Hydrochloric acid while pure silver foil is not.	

4. FOODGRAINS AND THEIR PRODUCTS

(i) Wheat, Rice, Maize, Jawar, Bajra, Chana Barley, etc.	Dust, pebble, stone, straw weed seeds, damaged grain weevilled grain, insects, rodent hair and excreta.	These may be examined visually to see foreign matter, damaged grains, discoloured grains insect, rodent contamination, etc.	Damaged/discoloured grains should be as low as possible since they may be affected by fungal toxins, Argemone seeds, Dhatura seeds etc. In moderately excessive amount can result in risk to health Discard the damaged / undesirable grains before use.
Ergot (a fungus containing poisonous substance)	(a) Purple black longer sized grains in Bajra show the presence of Ergots.		

S. No.	Name of Food Article	Adulterant	Simple Method for detection of Common adulterants	Remarks
1	2	3	4	5
			(b) Put some grains in a glass tumbler containing 20 per cent salt solution. Ergot floats over the surface while sound grains settle down.	
		Dhatura	Dhatura seeds are flat with edges with blackish brown colour which can be separated out by close examination.	
		Karnel Bunt	The affected wheat karnel have a dull appearance, blackish in colour and rotten fish smell.	
		Argemone seed	Assemble mustard seed but show a protrusion on close examination. The surface of Argemone seed is grainy and rough while that of mustard seed is smooth. When Mustard seed is pressed inside it is yellow whereas Argemone seed is white.	
	(ii) Sella Rice (Parboiled Rice)	Metanil yellow (a non-permitted coaltar colour)	Rub a few grains in the palms of two hands, yellow would get reduced or disappear. Add a few drops of dilute Hydrochloric acid to a few rice grains mixed with little water, presence of pink colour indicates presence of Metanil yellow.	
		Turmeric (colouring for golden appearance)	Take a small amount of sample in a test tube, add some water and shake Dip Boric acid-paper (filter paper dipped in Boric acid solution). If it turns pink, turmeric is present.	See Box
	(iii) Dal	Whole and split Khesari Dal	(i) Khesari dal has edged type appearance showing a slant on one side and square in appearance in contrast to other dals. (ii) Add 50 ml of dilute Hydrochloric acid to the sample and keep on simmering water for about 15 minutes. The pink colour developed if indicates the presence of Khesari dal.	The test is only for Khesari dal (Metanil yellow if present will give a similar colour immediately even without simmering).
		Clay, stone, gravels, webs, insects, rodent hair and excreta.	Visual examination will detect these adulterants.	Reject if the number of insects is large or if the odour is unpleasant and taste bitter or gritty.

S. No.	Name of Food Article	Adulterant	Simple Method for detection of Common adulterants	Remarks
1	2	3	4	5
		Metanil yellow (a non-permitted coal-tar colour).	Take 5 gms of the sample with 5 ml of water in a test tube and add a few drops of concentrated Hydrochloric acid. A pink colour shows presence of Metanil yellow.	
(iv)	Atta, Maida, Suji (Rawa)	Sand, soil, insects, webs, lumps, rodent, hair and excreta.	These can be identified by visual examination.	
		Iron filings	By moving a magnet through the sample, iron filings can be separated.	
(v)	Besan	Khesari Flour	Add 50 ml of dilute Hydrochloric acid to 10 gms of sample and keep on simmering water for about 15 minutes. The pink colour if developed, indicates the presence of Khesari flour.	The test is only for Khesari dal (Metanil yellow, if present will give a similar colour even without simmering.)
(vi)	Parched Rice	Urea	Dip 25 gm of parched rice in 50 ml distilled water for 5 minutes. Collect the liquid in a separate container. Add to it 1 teaspoonful of arhar dal or soyabean seed powder and wait for 10 minutes. Dip strip of red litmus in the mixture. The change of colour of the strip to blue indicates the presence of urea.	

5. SPICES AND CONDIMENTS

- (i) Whole spices Dirt, dust, straw, insect, damaged seeds, other seeds, rodent hair and excreta. These can be examined visually.
- (a) Black pepper Papaya seeds
- (i) Papaya seeds can be separated out from pepper as they are shrunken, oval in shape and greenish brown or brownish black in colour.
- (ii) Divide seed into two pieces by a sharp blade. Perform the iodine test (for starch) on white portion which will not respond in case of papaya seed but positive to black pepper.
- Light black pepper Float the sample of black pepper in alcohol (rectified spirit). The mature black pepper berries sink while the papaya seeds and light black pepper float.
- Coated with mineral oil Black pepper coated with mineral oil gives Kerosene like smell.

S. No.	Name of Food Article	Adulterant	Simple Method for detection of Common adulterants	Remarks
1	2	3	4	5
	(b) Cloves	Volatile oil extracted; (exhausted cloves)	Exhausted cloves can be identified by its small size and shrunken appearance. The characteristic pungent taste of genuine cloves is less pronounced in exhausted cloves.	
	(c) Mustard seed	Argemone seed	Mustard seeds have a smooth surface. The argemone seed have grainy and rough surface and are black and hence can be separated out by close examination. When Mustard seed is pressed in side it is yellow while for argemone seed it is white.	Use magnifying glass for identification.
	(ii) Powdered spices	Added starch	Add a few drops of tincture of Iodine or Iodine solution. Indication of blue colour shows the presence of starch.	Iodine test for added starch is not applicable for turmeric powder.
		Common salt	Taste for addition of common salt.	
	(a) Turmeric powder	Coloured saw dust	Take a teaspoonful of turmeric powder in a test tube. Add a few drops of concentrated Hydrochloric acid. Instant appearance of pink colour which disappears on dilution with water shows the presence of turmeric. If the colour persists, metanil yellow (an artificial colour) a non-permitted coal tar colour is present.	The test is only for Metanil yellow.
		Chalk powder or yellow soap stone powder	Take a small quantity of turmeric powder in a test tube containing small quantity of water. Add a few drops of concentrated Hydrochloric acid, effervescence (give off bubbles) will indicate the presence of chalk or yellow soap stone powder.	
	(b) Chillies powder	Bricks powder, salt powder or talc powder.	Take a teaspoonful of chillies powder in a glass of water. Coloured water extract will show the presence of artificial colour. Any grittiness that may be felt on rubbing the sediments at the bottom of glass confirms the presence of brick powder/sand, soapy and smooth touch of the white residue at the bottom indicates the presence of soap stone.	This test is only for earthy material.
		Water soluble coal tar colour.	Water soluble artificial colour can be detected by sprinkling a small quantity of chillies or turmeric powder on the surface of water contained in a glass tumbler. The water soluble colour will immediately start decending in colour streaks.	

S. No.	Name of Food Article	Adulterant	Simple Method for detection of Common adulterants	Remarks
1	2	3	4	5
		Oil soluble coal tar colour.	Take 2 gms of the sample in a test tube, add few ml of solvent ether and shake. Decent ether layer into a test tube containing 2 ml of dilute Hydrochloric acid (1 ml of HCL plus 1 ml of water). Shake it, the lower acid layer will be coloured distinct pink to red indicating presence of oil soluble colour.	See also Box.
(iii)	Hing	Soap stone or other earthy matter	Shake little portion of the sample with water and allow to settle. Soap stone or other earthy matter will settle down at the bottom.	In compounded Hing due to presence of starch a slight turbid solution, may be produced. However, this will settle down after keeping.
		Starch	This is equivalent to the test conducted for milk in Hing.	
(iv)	Saffron	Dried tendrils of maize cob.	Genuine saffron will not break easily like artificial. Artificial saffron is prepared by soaking maize cob in sugar and colouring it with coal tar colour. The colour dissolves in water if artificially coloured. A bit of pure saffron when allowed to dissolve in water will continue to give its saffron colour so long as it lasts.	
6. MISCELLANEOUS FOODS				
	Common salt	White powdered stone	Stir a spoonful of sample of salt in a glass of water. The presence of chalk will make solution white and other insoluble impurities will settle down.	
	Tea leaves	Exhausted tea or tur or gram dal husk with colour	(i) Take a filter paper and spread a few tea leaves. Sprinkle with water to wet the filter paper. If coal tar colour is present it would immediately stain the filter paper. Wash the filter paper under tap water and observe the stains against light. (ii) Spread a little slaked lime on white porcelain tile or glass plate, sprinkle a little tea dust on the lime. Red, orange or other shades of colour spreading on the lime will show the presence of coal tar colour. In case of genuine tea, there will be only a slight greenish yellow colour due to chlorophyll, which appear after some time.	

<i>S. No.</i>	<i>Name of Food Article</i>	<i>Adulterant</i>	<i>Simple Method for detection of Common adulterants</i>	<i>Remarks</i>
1	2	3	4	5
		Iron filings.	By moving a magnet through the sample, iron filings can be separated.	
	Coffee	Chicory	Gently sprinkle the coffee powder sample on the surface of water in a glass. The coffee floats over the water but chicory begins to sink down within a few seconds. The falling chicory powder particles leave behind them a trail of colour, due to large amount of caramel.	
		Tamarind seeds powder and date seed powder	Sprinkle the suspected coffee powder on white filter/blotting paper and spray 1 per cent sodium carbonate solution on it. Tamarind and date seed powder will, if present, stain blotting paper/filter paper red.	
	Supari Pan Masala	Colour	Colour dissolves in water.	
		Saccharin	Saccharin gives excessive and lingering sweet taste and leaves bitter taste at the end.	
	Catachu powder	Chalk	Chalk gives effervescence (gives off bubbles) with concentrated Hydrochloric acid.	This test is only for chalk.
	Silver leaves	Aluminium leaves.	(i) On ignition, genuine silver leaves burn away completely, leaving glistening white spherical ball of the same mass whereas aluminium leaves are reduced to ashes of dark grey blackish colour. (ii) Take silver leaves in test tube, add diluted Hydrochloric acid. Appearance of turbidity to white precipitate indicates the presence of silver leaves. Aluminium leaves do not give any turbidity or precipitate. (iii) Take a small portion of metal leaves and add a few drops of concentrated Nitric acid. Silver leaves will completely dissolve whereas aluminium leaves will remain undissolved.	
	Vinegar	Mineral acid	Test with the Metanil yellow indicator paper, in case, the colour changes from yellow to pink mineral acid is present.	See Box.

LIST OF APPARATUS AND REAGENTS FOR DEVELOPING A SIMPLE KIT

APPARATUS

1. Magnifying Glass
2. Spatula
3. Magnet
4. Forcep
5. Lactometer
6. Beaker
7. Petri dishes
8. Dropper
9. Reagent Bottles
10. Spirit lamp
11. Test tube ordinary
12. Test tube stoppered
13. Glass rod
14. Test tube stand
15. Small plastic tray white
16. Porcelain tile white
17. Glass Cylinder
18. Glass Marking Pencil
19. Filter Paper
20. White silk cloth
21. Cotton

REAGENTS

1. Hydrochloric acid
2. Nitric acid
3. Petroleum ether
4. Solvent ether
5. Rectified spirit
6. Iodine/Tincture of iodine
7. Potassium Hydroxide

8. Ammonium Molybdate
9. Boric acid
10. Sodium Carbonate
11. Metanil yellow powder
12. Amyl alcohol
13. Butter yellow
14. Carbon tetrachloride
15. Sulphur
16. Soyabean seed flour or Arhar dal
17. Resolic acid
18. Diasticks
19. Resoreinol

PRECAUTIONS TO BE TAKEN

CAUTION

1. The testing kit should be kept beyond the reach of the children as it contains harmful chemicals.
2. Solvent ether is highly inflammable. Keep it away from fire.
3. Acids are highly corrosive. In case of acid burn wash immediately with cold water containing sodium bicarbonate (Meetha soda).
4. Use gloves while performing the tests.

In case of further clarification regarding tests, Director, Central Food Laboratories, Ghaziabad; Calcutta; Mysore; or Pune; or Assistant Director General (PFA), Directorate General of Health Services, Nirmal Bhavan, New Delhi-110 011 may be contacted.

METHODS FOR TEST

1. *Test for Metanil Yellow*: Take some sample in a test tube and add some amount of water, shake well. Add few drops of diluted hydrochloric acid, violet colour in the water portion indicates the presence of Metanil yellow.
2. *Test for Starch*: Boil the sample with some water in a test tube, cool and add a few drops of iodine solution. Appearance of blue colour indicates the presence of starch.
3. *Baudouin test*: Take about one tea-spoonful of melted ghee or butter with equal quantity of concentrated hydrochloric acid in a test tube and add to it a pinch of sugar. Shake well and allow to stand. Appearance of crimson red colour shows the presence of vanaspati or Margarine.
4. *Boric acid test for Turmeric*: Take a small amount of sample in a test tube, add some water and shake. Dip Boric acid paper. If it turns pink, turmeric is present. Boric acid paper can be prepared by dipping a strip of filter paper in the Boric acid solution provided in the kit. Boric acid solution can be prepared by dissolving 5 gms. of boric acid in 100 ml concentrated Hydrochloric acid.
5. *Metanil yellow indicator paper*: Metanil yellow indicator paper can be prepared by dipping a strip of filter paper in metanil yellow solution. (1 gm Metanil yellow coal tar colour dissolved in 100 ml of water).
6. *Oil soluble coal tar colour*: Take a small quantity of chillies powder in a beaker and add 5 ml of rectified spirit (alcohol). Dip a small piece of white silk for two minutes. Remove the silk piece and wash with water. If the silk cloth is permanently dyed, it indicates the presence of oil soluble coal tar colour.

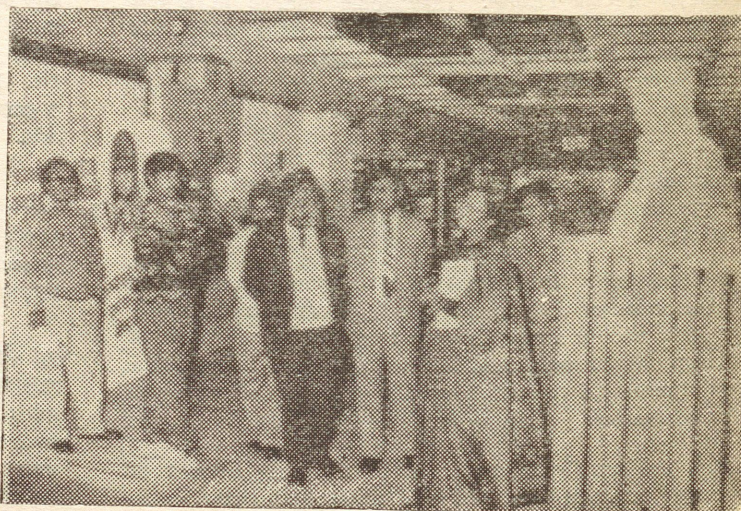
5th Conference of Central Council of Health and Family Welfare (8—10 January 1997)

THE Central Council of Health and Family Welfare is the highest decision making body in the Ministry of Health and Family Welfare Sector with Union Minister of Health and Family Welfare as the Chairman and the Ministers in-Charge of all States/UTs and some eminent persons as members of this Council. The fifth conference of the Council of Health & Family Welfare was held in New Delhi from 8th to 10th January, 1997. Hon'ble Prime Minister inaugurated the Conference which was chaired by Hon'ble Union Minister of State for Health and Family Welfare. The Minister in-charge of Health & Family Welfare of all States/UTs, other eminent members and experts and officers also attended the conference and discussed important issues concerning Health, Family Welfare and Indian Systems of Medicines & Homoeopathy.



Above : Prime Minister Shri H. D. Deve Gowda inaugurated the 5th conference of the Central Council of Health & Family Welfare in New Delhi on 8th January, 1997. Sitting next to the Prime Minister (extreme right) is Shri Saleem I. Shervani, Union Minister of State for Health and Family Welfare who also addressed the conference. Director General of Health Services, Dr. S. P. Agarwal (extreme left) delivered the welcome address.

Below : Smt. Renu Sahni Dhar, Joint Secretary of the Ministry, visiting the exhibition on Health & Family Welfare issues during the Conference. Seen in the picture are Dr. (Mrs.) T. Bhasin, Director, CHEB, Dr. Manjit Singh, C. M. O. (T) and Dr. S. Saxena, DADG (NHP) among others.



BOOK REVIEW

Creating Supportive Environments for Health

Stories from the Third International Conference on Health Promotion, Sundsvall, Sweden

edited by *B.J.A. Haglund, B. Pettersson, D. Finer, and P. Tillgren*

1996, xii+201 pages (available in English, French and Spanish in preparation)

ISBN 92 4 156180 70

Sw. fr. 50.-/US \$ 45.00

In developing countries : Sw. fr. 35.-

Order no. 1390003

This book provides a wide-ranging collection of stories, from developed and developing countries alike, illustrating the many ways in which environments can be altered to promote better health. Intended to serve as both a source book of ideas and a stimulus for action, the book concentrates on stories that yield practical lessons about the best strategies for tackling specific problems in specific settings. Throughout, stories are also critically assessed in terms of a conceptual framework that helps identify factors contributing to success.

The handbook has 13 chapters presented in three parts. Chapters in the first part, focused on strategies, outline the basic components of supportive environments, explain the health promotion strategy analysis model (HELPSAM), and describe experiences using seven basic approaches to change: policy development, regulation, reorientation of organizations, advocacy, building alliances and creating awareness, enabling, and mobilizing and em-

powering. Also identified are the obstacles commonly encountered when efforts are made to change the physical, social, economic, or political environment.

Against this background the second and most extensive part presents and discusses over 140 stories showing how different needs for a supportive environment have been met using a diversity of strategies. These range from the use of legislation to foster school health programmes in China to government policies that encourage healthy eating in Norway, from the role of NGOs in upgrading housing in Malasia to consumer mobilization to combat hazardous chemicals in the Philippines. To facilitate comparisons, stories are grouped together in separate chapters dealing with education, food and nutrition, home and neighbourhood, work, transport, and social support and care. In story after story, community participation consistently emerges as a strategy that helps give projects the best chance of success.

The final part, on steps for action, explains how these diverse experiences can be used to extract several practical lessons and develop basic frameworks for planning and action. Apart from demonstrating the need for planned strategies that draw on a range of approaches, these chapters further clarify the HELPSAM model for analysis and planning and introduce the supportive environments action model (SEASAME) based on a sequence of eight progressive steps, moving from the identification of needs and problems, through the setting of targets and mobilization of resources, to implementation and monitoring. The handbook concludes with a questionnaire that can be used to compile information about local projects, evaluate their success, and extract lessons for the future.

—W.H.O.

Government measures for assuring safe foods to the consumers

One of the Constitutional Obligations on the part of Government is to ensure pure and wholesome food by preventing adulteration. The Department of Health in the Ministry of Health & Family Welfare has, therefore, enacted a legislation known as Prevention of Food Adulteration Act in the year 1954 (PFA Act, 1954). The Act has come into force since 1st June, 1955 and has been amended from time to time (1964, 1976 and 1986) to plug the loopholes and make the provisions more effective.