method of water purification available, although perfect semipermeable membranes are difficult to create. Unless membranes are well-maintained, algae and other life forms can colonize the membranes.

Chemical disinfection: Disinfect water using household bleach. Bleach will kill some, but not all types of disease-causing organisms that may be in the water. If the water is cloudy, filter it through clean clothes or allow it to settle, and draw off the clear water for disinfection. Add about 20 drops of regular, unscented, liquid household bleach for 10 L of water, stir it well and let it stand for 30 minutes before drinking. Store disinfected water in clean containers with covers. Commercial chlorine drops and chlorine tablets are also available at market. These come along with instructions. Chlorine is usually sold in two forms: sodium hypochlorite (liquid bleach) and calcium hypochlorite (powder or pellets). Sodium hypochlorite is the main ingredient in liquid bleaches which initially contain about 5% available chlorine. The principle of chlorination is to ensure "free" residual chlorine of 0.5 mg/L at the end of one hour contact.

The monsoons are a particularly favorable time for the spread of waterborne diseases. As streets get flooded and groundwater tables rise, they tend to contaminate open wells and borewells alike. Bleaching powder is also used to disinfect well. Steps in well disinfection:

Calculating the chlorine dosage for disinfecting a well using calcium hypochlorite (HTH):

Equipment needed: 20 L bucket and HTH chlorine granules or powder

- Calculate the volume of water in well. If height (h) and diameter of well (d) in meter,
  Volume (L) = $(3.14 \times d^2 \times h)/4$ cubic meter
  $= [(3.14 \times d^2 \times h) \times 1000]/4$
  Liter as 1 cubic meter = 1000 L of water
- Fill the bucket with clear water from the well and add 50 g of HTH and stir until dissolved.
- For every cubic meter (m^3) of water in the well add 10 L (half bucket) of the chlorine solution.

Chlorine solution: Prepare 5% chlorine solution by adding bleaching powder with 25% available chlorine. Mix 4 kg of this bleaching powder in 20 L of water. Readymade chlorine solution is also available in market.

Chlorine tablet: This is available in market (e.g. halazone tablet). A single tablet of 0.5 g is sufficient to disinfect 20 L of water.

Iodine: It is generally used for emergency disinfection of water. Two drops of 2% ethanol solution of iodine is sufficient for 1 L of clean water.

Ultraviolet purifier: These purifiers are very easy to use. Deep the pen of the lamp into the water, wait for the light on the side of the pen to turn green, and then stir the pen around in the water until the light turns off. The UV rays kill any bacteria living in the water so that water becomes safe to drink. Keep in mind that this purifier doesn't filter out the now deceased bacteria, but despite their continued presence in your water though they are not dangerous anymore.

SODIS method: Solar disinfection is a type of portable water purification that uses solar energy to make biologically-contaminated (e.g. bacteria, viruses, protozoa and worms) water safe to drink. Water contaminated with non-biological agents such as toxic chemicals or heavy metals require additional steps to make the water safe to drink. The World Health Organization (WHO), UNICEF, and the Red Cross, therefore, recommend the SODIS method as a way to treat drinking water in developing countries.

Principle of SODIS: Exposure to sunlight has been shown to deactivate diarrhea-causing organisms in polluted drinking water. Three effects of solar radiation are believed to contribute to the inactivation of pathogenic organisms:

1. UV-A interferes directly with the metabolism and destroys cell structures of bacteria.

INTERNATIONAL RED CROSS

The Red Cross is founded by Henry Dunant, a young Swiss businessman. It is a non-political, non-official and International humanitarian organization devoted to the service of mankind in peace and war.

Function: These comprise services to armed forces services to veterans disaster service, first aid and nursing, health education and maternity and child welfare. The core tasks of the Committee, which are derived from the Geneva Conventions and its own statutes are:

- To monitor compliance of warring parties with the Geneva Conventions.
- To organize nursing and care for those who are wounded on the battlefield.
- To supervise the treatment of prisoners of war and make confidential interventions with detaining authorities.
- To help with the search for missing persons in an armed conflict (tracing service).
- To organize protection and care for civil population.
- To act as a neutral intermediary between warring parties.

INDIAN RED CROSS

It is established by an act of Indian legislature in 1920 with three objectives of the improvement of health, prevention of disease and mitigation of suffering. In peace time, the society provides military hospital with such amenities as newspaper, periodicals, musical instruments and other comfort foods. The Indian Red Cross's programs are grouped into four main core areas: promoting humanitarian principles and values; disaster response; disaster preparedness; and health and care in the community.

- Red Cross promotes the Humanitarian values, which encourage respect for other human beings and a willingness to work together to find solutions to problems.
- Disaster response continues to represent the largest portion of IRCS work, with assistance to millions of people annually ranging from refugees to victims of natural disasters. Disaster services comprise distribution of milk, medicines, vitamin tablets and hundred other items to the famine people and to those who have been hit by the floods.
- The increase in the number of natural disasters countrywide in recent years, Red Cross to devote more attention to disaster preparedness activities. These aim to make Red Cross Societies and communities more aware of the risks they face, how to reduce their vulnerability, and how to cope when disaster strikes.
- Health and community care has become a cornerstone of humanitarian assistance, and accounts for a large part of Red Cross spending. Through these programs, the Red Cross aims to enable communities to reduce their vulnerability to disease, and prepare for and respond to public health crises.

One of the Red Cross's Societies fundamental tasks are guiding, supporting and development of four core areas and others. Capacity building programs and activities include: management and volunteer training, improving branch structures, planning, fund-raising and gender equality. Other major activities include: hospital services, blood bank, HIV/AIDS programs, home for disabled servicemen, vocational training centers, tracing activities, maternity, child and family welfare, nursing, junior Red Cross activities, preparedness and prevention of communicable and infectious diseases, relief operations in fire, railway and other accidents and events.

The Junior Red Cross

The Junior Red Cross gives an opportunity to lakh of boys and girls all over India to be associated with creativities like the village uplift, first aid, anti-epidemic work and building up of an International friendliness, understanding and cooperation. The program focuses on the following areas:

The 2nd Phase of World Bank Project on NLEP started for a period of 3 years from 2001–02. The project successfully ended on 31st Dec, 2004.

After the declaration of the global elimination, a target is reset for the remaining 15 countries to achieve elimination at the national level by the end of December, 2005. India is one of these countries. The National Health Policy of India, 2002 also set the goal of leprosy elimination in India by the end of year 2005.

Important milestones in NLEP in India

- 1955: Government of India launched National Leprosy Control Program
- 1983: Government of India launched National Leprosy Eradication Program (NLEP) and introduced MDT (Multidrug Therapy)
- 1993–2000: World Bank supported NLEP- I
- 2001–2004: World Bank supported NLEP-II
- 2005 (January): NLEP continued with Government of India funds and donor partners support.
- 2005 (December): India achieved elimination as a public health problem. 2012–Special action plan for 209 high endemic districts in 16 States/UTs.

Aim: To reduce the workload to 1 or less than 1 per 10,000 population.

Strategy

- Decentralized integrated leprosy services through General Health Care system.
- Early detection and complete treatment of new leprosy cases.
- Carrying out household contact survey in detection of Multibacillary (MB) and child cases.
- Early diagnosis and prompt MDT, through routine and special efforts.
- Involvement of Accredited Social Health Activists (ASHAs) in the detection and complete treatment of Leprosy cases for leprosy work.
- Strengthening of Disability Prevention and Medical Rehabilitation (DPMR) services.
- Information, Education and Communication (IEC) activities in the community to improve self reporting to Primary Health Center (PHC) and reduction of stigma.
- Intensive monitoring and supervision at Primary Health Center/Community Health Center.

Activities

- Early detection of leprosy cases
  - Multibacillary leprosy is labeled when there are 6 or more skin patches and/or 2 or more nerves affected. Skin smear is positive.
  - Paubacillary leprosy is labeled when there are 5 or less than 5 skin lesions and/or 1 more nerve affected. Skin smear do not show bacilli.
- Intensified health education and public awareness campaigns.
- Regular treatment of leprosy cases providing multidrug therapy (MDT) at fixed centers near the patient.
  - Multibacillary (MB) leprosy: For adults the standard regimen is: Rifampicin 600 mg once a month, Dapsone 100 mg daily, Clofazimine 300 mg once a month and 50 mg daily Duration = 12 months.
  - Paucibacillary (PB) leprosy: For adults the standard regimen is Rifampicin 600

MDT Dose for Multibacillary Leprosy

Adult	*Child 10–14 years*	*Child 6–9 years*
Day 1	**Day 1**	**Day 1**
Supervised monthly treatment	**Supervised monthly treatment**	**Supervised monthly treatment**
Rifampicin 600 mg	Rifampicin 450 mg	Rifampicin 300 mg
Dapsone 100 mg	Dapsone 50 mg	Dapsone 25 mg
Days 2–28	**Days 2–28**	**Days 2–28**
Daily dapsone 100 mg	Dapsone 50 mg	Dapsone 25 mg

- Printing of immunization cards, monitoring sheets, cold chain chart vaccine, inventory charts, etc.
- Providing responsibilities to ASHA, women self-help groups, etc. for mobilization of children to immunization session.

National Program for Control of Blindness

National Program for Control of Blindness is launched in the year 1976 as a 100% Centrally Sponsored scheme with the goal to reduce the prevalence of blindness from 1.4% to 0.3%. This program incorporates the earlier trachoma control program started in the year 1968. As per Survey in 2001–02, prevalence of blindness is estimated to be 1.1%. Rapid Survey on Avoidable Blindness conducted under NPCB during 2006–07 showed reduction in the prevalence of blindness from 1.1% (2001–02) to 1% (2006–07). Various activities/initiatives undertaken during the five-year plans under NPCB are targeted towards achieving the goal of reducing the prevalence of blindness to 0.3% by the year 2020.

Main causes of blindness are as follows: Cataract (62.6%), Refractive Error (19.70%), Corneal Blindness (0.90%), Glaucoma (5.80%), Surgical Complication (1.20%) and Posterior Capsular Opacification (0.90%) and Posterior Segment Disorder (4.70%) and Others (4.19%). Estimated National Prevalence of Childhood Blindness/Low Vision is 0.80 per thousand.

Goals and Objectives of NPCB in the XII Plan

- To reduce the backlog of blindness through identification and treatment of blind at primary, secondary and tertiary levels based on assessment of the overall burden of visual impairment in the country.
- Develop and strengthen the strategy of NPCB for "Eye Health" and prevention of visual impairment; through provision of comprehensive eye care services and quality service delivery.
- Strengthening and upgradation of RIOs to become center of excellence in various subspecialities of ophthalmology.
- Strengthening the existing and developing additional human resources and infrastructure facilities for providing high quality comprehensive Eye Care in all Districts of the country.
- To enhance community awareness on eye care and lay stress on preventive measures.
- Increase and expand research for prevention of blindness and visual impairment.
- To secure participation of Voluntary Organizations/Private Practitioners in eye Care.

Revised strategies

Based upon the finding of the survey conducted during 1998–99 and 1999–2000, the strategies are taken as following.

1. To make the NPCB more comprehensive by
   - strengthening services for other blindness like corneal
   - blindness
   - refractive errors in school going children
   - improved follow-up service of cataract operated persons
   - treating other causes of blindness like glaucoma
2. To shift
   - from eye camp approach to a fixed facility
   - from conventional surgery to IOL implantation for better quality post-operative vision.
3. To expand the world bank project activities like constructions of eye OTs, eye wards at district level, training of eye surgeons, modern cataract surgery and supply of eye equipments.
4. To strengthen participation of voluntary organizations in the program and to earmark geographic areas to NGOs and government hospital and improve the performance of government units.
5. To enhance coverage of eye care services in tribal and underserved areas through identification of bilateral blind patients,