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REPORT OF THE WORKING GROUP ON THE ERADICATION OF LEPROSY

**Ministry of Health and Family Welfare
Government of India, New Delhi**

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February 1982



**MINISTRY OF HEALTH AND FAMILY WELFARE
GOVERNMENT OF INDIA**

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WORKING GROUP ON THE
ERADICATION OF LEPROSY**

Chairman: Dr M.S. Swaminathan

Members: Dr V. Ramalingaswamy

Dr R.H. Thangaraj

Mrs Anoo Bhagwat

Dr Vikas Amte

Mrs Leela Moolgaonkar

Dr C.G.S. Iyer

Dr B.R. Chatterjee

Dr Gangadhar Sharma

Dr Nityanand

Dr K.V. Desikan

Dr K.C. Das (Member Secretary)

FEBRUARY 1982

M.S. SWAMINATHAN
Chairman
Working Group for the
Eradication of Leprosy

D.O. No. M(S)/PC/82

28 February 1982

My dear Shri Shankaranand,

I have great pleasure in forwarding to you the report of the Working Group on the Eradication of Leprosy. During the last 6 months, the Group has met several times and has also held wide ranging discussions with voluntary and Government agencies involved in the eradication of leprosy in different parts of the country. We have also had the benefit of suggestions from State Governments and inputs from the reports of several earlier committees and meetings. The opportunity provided to the members of the Group by the Prime Minister and you to discuss our tentative conclusions was very helpful.

On the basis of these discussions, we have suggested an integrated action plan for achieving the national goal of eradication of leprosy by the end of this century. We are happy that the national resolve has again found expression in the new 20-point socio-economic programme announced by the Prime Minister on January 14, 1982.

Our major recommendations are given in pages 54-56 of the report. I shall not repeat them in this letter. However, I would like to draw your attention to the conclusion of the Committee that "*a more of the same approach*" with reference to the leprosy control strategy will not lead us to the desired goal. It is essential to combine the medical with the social and human aspects of the problem and view all of them in their totality. The most urgent need is the spread of the message that leprosy is now a curable disease and that there is no need to be afraid of it. We have indicated in the report the public policy issues involved in bringing about a change in the outlook of the society towards leprosy. For this purpose, we need to pay attention to the software aspects of health communication. About 5 minutes in the morning and 10 minutes in the evening could be allotted by the All India Radio every day for health education.

The most challenging tasks lie in the field of early case detection and interruption of the transmission cycle, case retention for the full period of treatment and post-treatment rehabilitation. The total eradication of leprosy is going to be difficult so long as slums and sub-human living conditions persist, unless a safe and effective vaccine becomes available. The Group, therefore, welcomes the emphasis placed in the new 20-point socio-economic programme on the improvement of the environment of slums and on the implementation of programmes for house building for economically weaker sections. We hope that a sense of urgency will be shown in the matter of providing better living conditions to slum dwellers. In order to promote case retention, we have recommended a special "Food for Leprosy Cure" programme which can be initiated immediately on a pilot scale in a few selected areas.

Total eradication may not be possible unless an effective vaccine becomes available. However, we are confident that leprosy can largely become a problem of the past when we enter the 21st century, provided the measures we have suggested are adopted. I hence hope our recommendations will receive immediate consideration and prompt follow up action.

To me it has been a particular privilege to have had the opportunity of working with such a dedicated group of leprologists and social workers. Baba Amte summarised the approach we should adopt in the following words:

“In leprosy eradication work, conviction must be of the heart; if it is of the head alone, then the programme may not achieve the desired success”.

Dr. S.G. Patwardhan and others who have followed Mahatma Gandhi's lead and dedicated their lives to curing and rehabilitating leprosy patients have expressed similar views. We endorse their plea and hope that a blend of compassion and concern will permeate leprosy control programmes together with professional competence and dedication.

With my best regards,

Yours sincerely,

M. S. Swaminathan
(M.S. Swaminathan)

Encl: As stated

Shri B. Shankaranand
Union Minister for Health and
Family Welfare
Nirman Bhavan
New Delhi-110011

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PRESENT STATUS OF LEPROSY IN INDIA AND CONSTITUTION OF THE WORKING GROUP

1. INTRODUCTION

Leprosy is a major health and socio-economic problem in India. The disease has been prevalent in the country from time immemorial. The disease which was once prevalent throughout Europe, reached its peak by about the 14th century AD, but practically disappeared by about the 17th century, even though there was no treatment available at that time. The reason for such a decline is not definitely known but is attributed by most experts to an improvement in the socio-economic condition after the industrial revolution in Europe and also to the strict isolation measures adopted during those days. While there are examples of merciless behaviour towards leprosy patients amounting to ostracism, there also exist examples of philanthropic, compassionate, religious and social workers who brought succour and solace to the leprosy patients. The glorious example of Father Damien inspired a spate of missionary activities in this field. The Christian missionaries had been and still are the major voluntary workers in this field in India and many other parts of the world. In India, religious and social reformers like Shri Chiatanya, Guru Nanak and Swami Vivekananda tried to remove the social stigma attached to these patients and to accept them on the same terms as other human beings. Mahatma Gandhi had not only great concern for leprosy but also gave shelter to leprosy patients in his Ashram at Sewagram and regularly nursed them himself.

In 1873-74, Gerhard Henrik Armauer Hansen, a Norwegian scientist, discovered *Mycobacterium leprae* or the lepra bacillus as the causative organism of the disease. Discovery of the lepra

bacillus exploded the hereditary theory and many other superstitious beliefs regarding leprosy. In the late 1890's, hydnocarpus oil was introduced for the treatment of leprosy. In the early part of the 20th century, Mitsuda of Japan prepared lepromin from lepromatous nodules in leprosy patients which paved the way for classification of patients according to their immunological response. At the International Congress of Leprosy held at Cairo in 1938, attempts were made to institutionalise classification of the disease based on clinical signs, bacteriological status and immunological response. This highlighted the fact that a large majority of cases were non-infective. By 1943, efficacy of the sulfones in the treatment of leprosy had been proved and by 1955 oral administration of DDS (diamino-diphenylsulfone) for control of leprosy was accepted and adopted on a large scale. Reconstructive surgical measures were initiated for correction of deformities about the same time. The decades of the sixties and seventies witnessed great strides in the development of experimental models (mouse foot-pad, armadillo and nude mouse), chemotherapy (clofazimine, rifampicin, ethionamide), and prophylaxis (immuno- as well as chemo-prophylaxis). Currently, existence of dapson resistance has been established and primary and secondary resistance to dapson has been detected in many cases, all over the world. Experiments to culture the organisms in artificial media are being intensively pursued in various laboratories in India and abroad.

It is estimated that there are about 12 million patients in the world predominantly distributed along the tropical and subtropical belts. In India,

it is estimated that there are about 3.2 million cases (as per the 1971 estimates) of whom 15 to 20 per cent would be of the infectious type, 25 per cent with disability of varying degrees and about 20 per cent of the cases being children. Nearly 400 million out of the 684 million estimated population (1981 census) run the risk of infection as they are living in the leprosy endemic parts of the country with a prevalence rate of 5 or more per thousand. Many leprosy patients have settled in colonies, while some are in leprosy homes and hospitals. Majority of them, however, continue to live with their families.

2. THE NATIONAL LEPROSY CONTROL PROGRAMME

The National Leprosy Control Programme (NLCP) was launched in 1954-55 in the country. The Programme moved ahead initially at a very slow pace, in a phased manner spread out over a period of 25 years, and with a patchy coverage. The methodology followed was a mass campaign for early case detection and regular treatment, supplemented by health education so that the quantum of infection in the community could be gradually reduced and thereby transmission of the disease interrupted.

In the initial three plan periods, the programme was partially centrally sponsored and so only a few units were established. The programme gained momentum from the 4th Plan period onwards, after it was made into an entirely centrally sponsored scheme. While by the end of the 4th Plan, only one-third of the endemic population was covered, more than three-fourths of the endemic population has been covered by the end of the 5th Plan. The state of the problem of leprosy and achievements of the Leprosy Control Programme are depicted in Table 1.

It must be emphasized that there are considerable variations in the prevalence of leprosy from district to district within the same state, as shown in the accompanying maps of Tamil Nadu and West Bengal. Tamil Nadu, for example, shows a range of variation from 5.0 to 28.7 per thousand (Table 2 and Map). West Bengal also shows a range of 4.0 to 25.0 per

thousand (Table 3 and Map). Such variations in the prevalence of the disease should be taken into consideration while designing a strategy of leprosy control so that high prevalence districts receive priority.

Table 1

A. Plan-wise figures of population covered, cases detected and brought under treatment

	Plan period	Population covered (millions)	Cases detected and brought under treatment (lakhs)
I Plan	1951-56	2.0	0.017
II Plan	1956-61	14.51	1.12
III Plan	1961-64	15.20	5.60
	1966-69	14.20	7.78
IV Plan	1969-74	130.80	12.40
V Plan	1974-79	324.00	21.50

B. Number of leprosy units and institutions of any kind established or functioning up to the end of the Fifth Plan period

1. Leprosy Homes and Hospitals	300
2. Leprosy Control Units	382
3. Survey, Education and Treatment (SET) Centres	6595
4. Urban Leprosy Centres	430
5. Reconstructive Surgery Units	71
6. District Leprosy Units	106
7. Leprosy Training Centres	42
8. Temporary Hospitalization Wards	190
	(20 beds each)
9. Regional Leprosy Institutes	2
10. Central Institutes for Research and Training in Leprosy	2
11. Voluntary Leprosy Organisations	35
12. International Agencies Engaged in Leprosy Work	8

C. State-wise estimated number of cases and prevalence rates of leprosy (as per 1971 census)

State/ Union Territory	Population as per 1971 census (in lakhs)	Estimated cases projected on 1971 census (in lakhs)	Prevalence rate of leprosy per thousand
1. Andhra Pradesh	435.03	6.28	14.45
2. Assam	146.25	0.12	0.82

Table 1—*Contd*
C. State-wise estimated number of cases and prevalence rates of leprosy (as per 1971 census)

State/ Union Territory	Population as per 1971 census (in lakhs)	Estimated cases projected on 1971 census (in lakhs)	Prevalence rate of leprosy per thousand
3. Bihar	563.53	3.39	6.02
4. Gujarat	266.98	0.54	2.02
5. Haryana	100.37	0.01	0.10
6. Himachal Pradesh	34.60	0.15	4.34
7. Jammu & Kashmir	46.17	0.05	1.08
8. Karnataka	292.99	1.74	5.94
9. Kerala	213.47	0.75	3.51
10. Madhya Pradesh	416.54	0.32	0.77
11. Maharashtra	504.12	2.80	5.55
12. Manipur	10.73	0.06	5.59
13. Meghalaya	10.12	0.06	5.93
14. Nagaland	5.16	0.05	9.69
15. Orissa	219.45	2.37	10.80
16. Punjab	135.51	0.02	0.15
17. Rajasthan	257.66	0.10	0.39
18. Sikkim	2.09	0.016	7.66
19. Tamil Nadu	411.99	7.83	19.01
20. Tripura	15.56	0.10	6.43
21. Uttar Pradesh	883.41	1.63	1.90
22. West Bengal	443.12	3.80	8.53
23. Andaman & Nicobar Islands	1.15	0.01	8.70
24. Arunachal Pradesh	4.68	0.01	2.14
25. Chandigarh	2.57	—	—
26. Dadar & Nagar Haveli	0.74	0.001	1.35
27. Delhi	40.66	0.01	0.25
28. Goa, Daman & Diu	8.58	0.05	5.83
29. Lakshadweep	0.32	0.01	31.25
30. Mizoram	3.32	0.01	3.01
31. Pondicherry	4.72	0.19	40.25
	3481.59	32.527	5.93

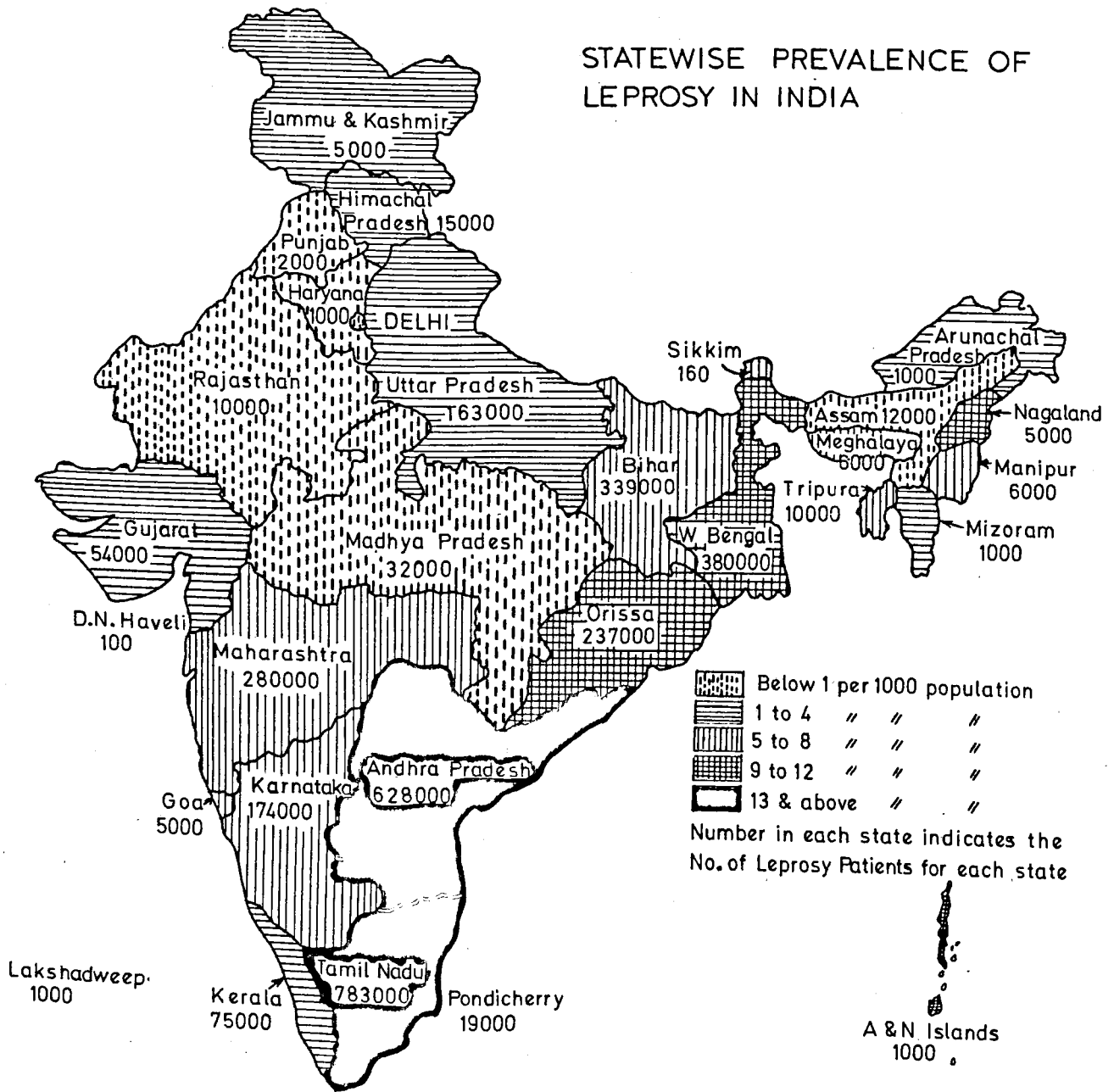
Table 2
Statement showing the district-wise prevalence rate of leprosy in the State of Tamil Nadu (1971)

District	Prevalence rate (per thousand)
1. Chingleput	21.0
2. Coimbatore	15.0
3. Dharmapuri	22.0
4. Kanya Kumari	10.0
5. Madurai	15.7
6. North Arcot	21.0
7. Nilgiris	5.0
8. Peryar	16.4
9. Pudukkottai	14.8
10. Salem	28.7
11. South Arcot	28.3
12. Ramnad	15.0
13. Tanjore	14.1
14. Trichy	15.9
15. Tirunelveli	15.0

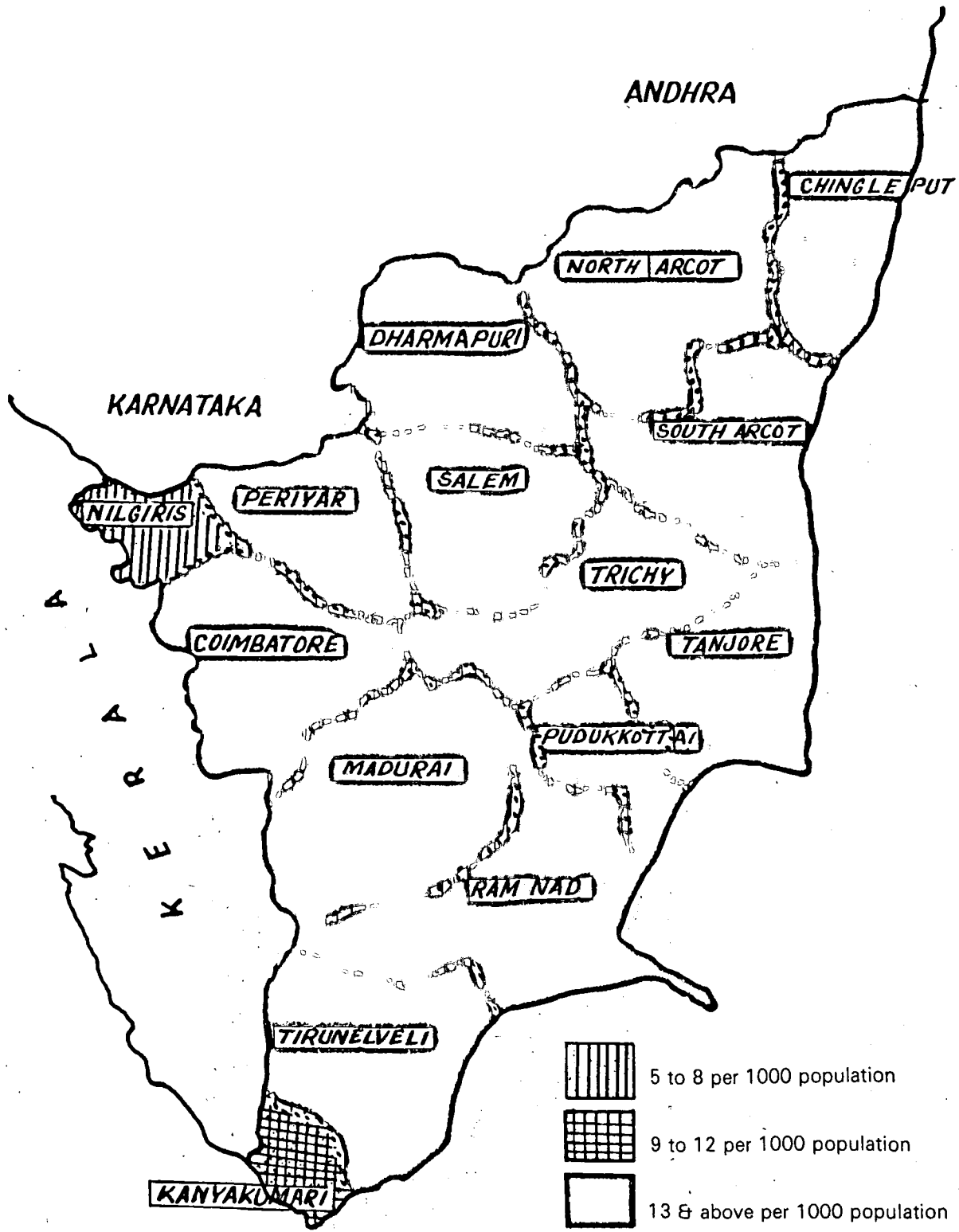
Table 3
Statement showing the district-wise prevalence rate of leprosy in the State of West Bengal (1971)

District	Prevalence rate (per 1000 population)
1. Darjeeling	4.0
2. Jalpaiguri	9.0
3. Cooch Behar	5.0
4. West Dinajpur	9.0
5. Malda	10.0
6. Murshidabad	8.0
7. Nadia	9.0
8. 24 Parganas	7.0
9. Calcutta	5.0
10. Howrah	9.0
11. Hooghly	10.0
12. Burdwan	16.0
13. Birbhum	18.0
14. Bankura	25.0
15. Midnapur	20.0
16. Purulia	25.0

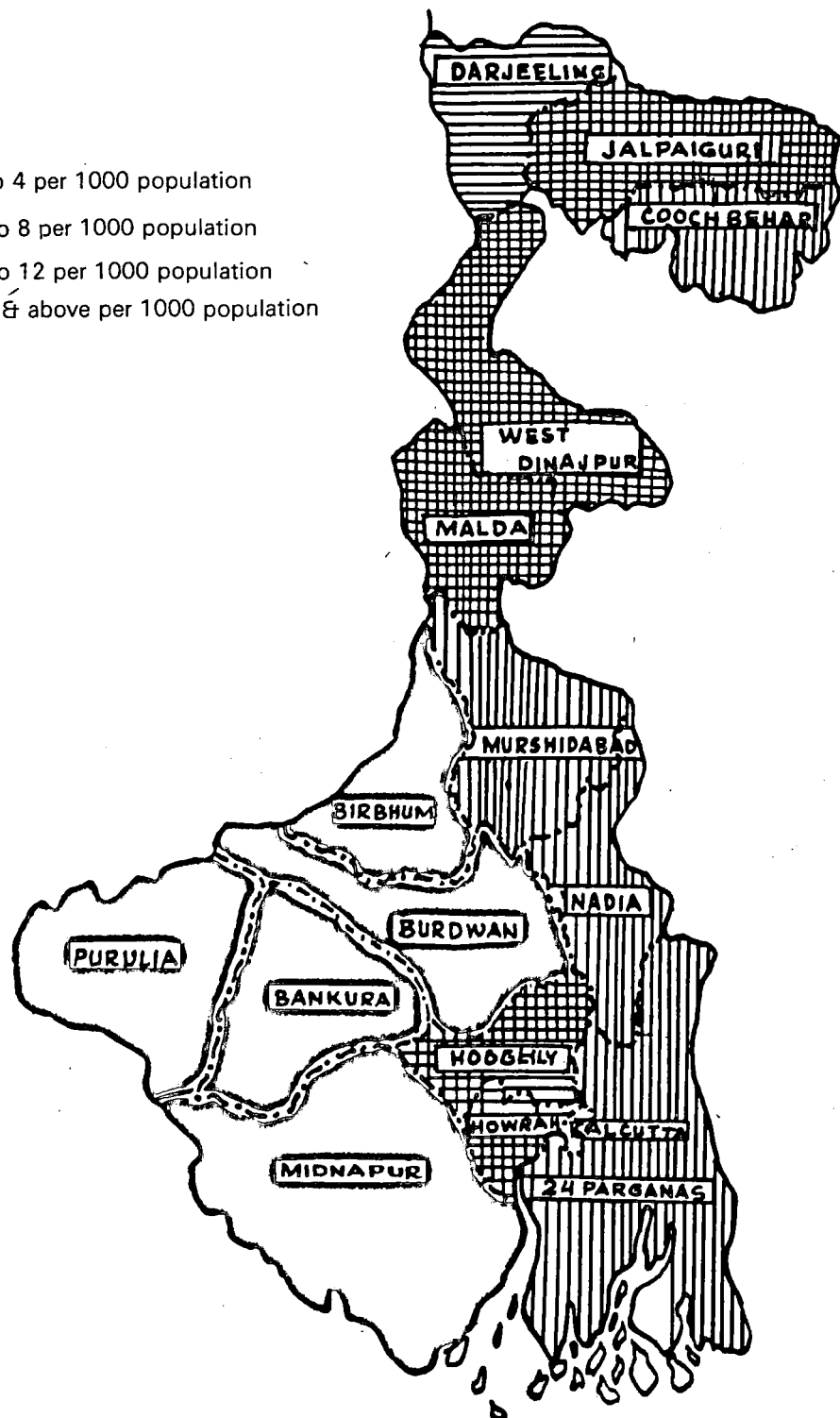
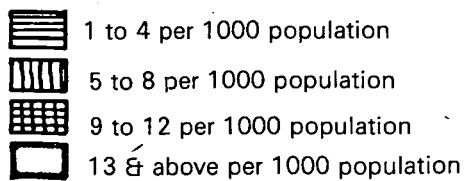
STATEWISE PREVALENCE OF LEPROSY IN INDIA



MAP OF TAMIL NADU STATE
SHOWING THE PREVALENCE RATE OF LEPROSY-1971



MAP SHOWING THE DISTRICT-WISE PREVALENCE RATE OF LEPROSY IN THE STATE OF WEST BENGAL-1971



During the 6th Plan period (1980-81 to 1984-85), it is contemplated to achieve the following physical targets:

Leprosy Control Units	15
Survey, Education and Treatment Centres	200
Urban Leprosy Centres	50
Reconstructive Surgery Units	10
Leprosy Training Centres	3
Leprosy Wards	50
District Leprosy Units	50
Regional Leprosy Institutes	6
Leprosy Survey Units	12
Leprosy Epidemiological Surveillance Teams	15
Leprosy Rehabilitation Promotion Units	15
District-wise Leprosy Pilot Projects for Intensification of Leprosy Control Programme	8

(estimated cost Rs. 40 crores).

During the Sixth Plan, for the period 1981-85, 100 per cent central aid is being given. It is envisaged to achieve a complete coverage of the endemic areas and population by the end of the 6th Plan. The 6th Plan Programme envisages addition of the following manpower in the field: 450 doctors, 3200 field staff, in addition to the existing 1000 doctors and 14000 field staff.

While there has been a substantial expansion of the control programme and good results have been obtained in selected centres, the impact of the programme in the country as a whole has not been satisfactory. We now possess better drugs and also a better understanding of the disease, which if applied effectively, can bring about a radical change, and substantial reduction in the disease within a specified period of time. Along with scientific advances yielding more effective bactericidal drugs, and the possibility of the development of vaccine, there has been a favourable political climate, at present, to launch determined efforts for eradication of leprosy. In her address to the World Health Assembly in May 1981, the Prime Minister of India made a fervent plea to all the developed countries to help the

developing world in the eradication of this disease. The Prime Minister, while addressing a joint meeting of the Cabinet Committee on Science and Technology and Science Advisory Committee to the Cabinet (SACC) on 1st May, 1981, asked scientists to develop a leprosy eradication strategy. Again in June, 1981, at the Central Health Council meeting, she declared the Government's resolve to eradicate leprosy by the year 2000. In pursuance of this objective as also at the request of the SACC, the Ministry of Health and Family Welfare constituted a Working Group of scientists and social workers on leprosy (Appendix I) under the Chairmanship of Dr. M.S. Swaminathan, Member, Planning Commission and Chairman, SACC, to devise a new strategy and action plan for the control and ultimate eradication of leprosy by the end of this century.

The terms of reference of the Working Group are as follows:

To promote:

- (a) Chemotherapy including indigenous production of anti-leprosy drugs;
- (b) Sociological dimensions;
- (c) Legal aspects;
- (d) Treatment Delivery System;
- (e) Role of the Voluntary Sector;
- (f) Health education; and
- (g) Medical education, medical research and rehabilitation.

The main thrust of the action programme should be to reduce the reservoir of infection in the community in the shortest possible time.

The Working Group set up four Task Forces dealing with (a) package of technology, (b) package of delivery system, (c) package of public policy and (d) people's action and mass communication, respectively (Appendix II).

The Working Group adopted the following procedures for eliciting the views of as wide sections of the country as possible:

1. Organising 4 central and 5 regional meetings of the Group with participation of the State Governments, voluntary organisations and

senior persons involved in leprosy work. The four central meetings were held at the office of the Planning Commission, New Delhi, whereas the regional meetings were held at Bombay, Madras, Patna, Wardha and Bangalore.

2. Inviting views from different State Governments.
3. Inviting suggestions from individual scientists and workers in this field from India and abroad.
4. Seeking guidance from various other group meetings held earlier on strategy of leprosy eradication and relevant aspects of leprosy control etc.

The following reports were also consulted:

- (i) Report of the National Leprosy Organisation (NLO) Workshop on Control of Leprosy;
- (ii) Report of the Study Team of the Government of Maharashtra 1981;
- (iii) Report on a Workshop on the Training of Undergraduate Medical Students in Leprosy sponsored jointly by the Gandhi Memorial Leprosy Foundation and the Medical Council of India in 1979;
- (iv) Report of the ICMR Task Force on Leprosy 1980;
- (v) WHO Study Group on Chemotherapy of Leprosy at Geneva (1981);

- (vi) ILO-DANIDA Seminar on Rehabilitation of the Handicapped Leprosy Patients and others.

A sense of urgency was indicated by the Prime Minister herself while addressing a special meeting of non-governmental leprologists, social workers and administrators on 20th November, 1981 (Appendix III). Leprosy has also been included as a part of the new 20-point programme announced by the Prime Minister on January 14, 1982.

In the following pages, the Working Group presents an action-oriented programme and outlines the strategies that should be adopted for the maximum utilisation of existing technologies, with provision for incorporating new technologies that might emerge in future, for early control and ultimate eradication of the disease in the country. Further research in the field must be speeded up, giving priority to the applied aspects within the country itself. The importance of augmenting the quality of work through improvement and streamlining of the policy-making and administrative machinery with the formation of a special Leprosy Commission and Board, and a separate cadre of trained and motivated doctors and non-medical supervisors has been stressed. The need to enunciate appropriate social measures, including recommendations for repealing the Indian Lepers Act (1898) and for correction of all other outdated legal provisions has been highlighted.

PRESENT STATE OF KNOWLEDGE ON CONTROL METHODS

1. INTRODUCTION

The scientific and technological advances made in the field of leprosy treatment during the last three decades have resulted in a total change in outlook towards this disease. With the proper use of available methods, it is now possible to treat with drugs, and rehabilitate by reconstructive surgery, practically all cases of leprosy at any stage of the disease and also control its spread and hopefully, plan for its eradication.

As a result of these advances, there is a decline in the incidence of leprosy in the world, including many of the developing countries. This may be due in part to better diagnostic and detection facilities, and a better system of treatment delivery, and smaller absolute number of cases in these countries. However, in India, the impact of mass therapy through the control programme has not been upto expectations both in degree and coverage. In order to achieve reduction in the incidence of the disease, concurrent action at different levels and points is needed, such as the extension of the programme to areas not so far covered, training of personnel for diagnosis, improvement in case detection, treatment and surveillance, adequate production of drugs, and creation of facilities for reconstructive surgery, rehabilitation of the deformed and displaced patients, and finally organisation and improvement of administrative aspects of delivery of these services to all parts of the country. Since a large majority of the leprosy afflicted are amongst the poorest in the country, it is most important to ensure that the benefits of the proposed modern and effective treatment be made available to all those in need of them.

Sustained research and training on various aspects of the problem, both in the field and laboratory, are essential to provide ever-improving strategies for the treatment, control and eradication of leprosy. The contributions of Indian scientists in the field of leprosy research are well known. Indian scientists have contributed significantly to the advancement of knowledge in various aspects such as the clinical description of the disease and its classification, refined lepromin, development of *in vitro* culture technique, better understanding of immunological and epidemiological aspects of the disease, chemotherapy, chemoprophylaxis, reconstructive surgery as well as development of immunoprophylaxis. What is needed is to broaden this base of scientific activity so that whatever gaps become known, as a result of the field application of the existing technologies, can be quickly filled in by research carried out within the country. It is also essential that the existing and newer knowledge speedily find their place in the training curriculum for different grades of leprosy workers and medical students and also transferred to control of the disease in the field, thus bringing relief to the patients. The scope and competence of the existing training facilities have to be considerably broadened and multiplied for this purpose. The existing operational and administrative machinery also needs to be augmented and streamlined to achieve this. In the following sections, we will examine the existing facilities, try to pinpoint lacunae, and make suitable recommendations on how best to restructure and strengthen the infrastructural facilities through research and training so that total control and ultimate eradication of leprosy becomes a reality.

2. NATIONAL LEPROSY CONTROL PROGRAMME AND THE EXISTING STRATEGY

The programme has established upto March, 1981, 382 Leprosy Control Units (LCU), 6595 Survey, Education and Treatment Centres (SET), 430 Urban Leprosy Centres (ULC) and 35 Voluntary SET Centres, and is at present covering a total population of about 320 millions in leprosy endemic areas. Out of the estimated total number of 3.2 million cases in the country, about 2.4 million cases have been detected, of which 2.2 million have been put under treatment. This number is not constant as in each year, about 2-3 lakh new cases are detected and about 2 lakh cases either get discharged as cured or die. While there is reduction of the disease in some control unit areas as assessed by the Indian Council of Medical Research (ICMR) and some voluntary organisations, there has not been such reduction in many other areas. By and large, transmission is continuing throughout the country and yearly addition of cases is not yet balanced by the elimination rate of cured or dead cases. There are several reasons for this, such as slow expansion of the control programme, patchy coverage, large number of field workers being untrained and unemployed, lack of administrative stress and supervision, acute shortage and high cost of POL, restricting movements in the field, shortage of drugs, lack of accommodation for conducting clinics, inadequate health education, inherent limitations of treatment by dapsone alone, development of dapsone-resistance by lepra bacilli and premature disbanding of the unipurpose leprosy workers for integration into a cadre of multi-purpose workers. The present strategy involves early detection and regular treatment with oral dapsone through domiciliary ambulatory method.

3. NEW STRATEGY

3.1 Chemotherapy

In the context of the technologies available and the existing epidemiological situation of the disease in the country and infrastructure set up in the field, mass scale chemotherapy through a multi-drug regimen of treatment supplemented by early detection of cases, regular follow up

supervision, health education and welfare services to patients would be the only practical effective method available to achieve control of leprosy. There is a possibility of additional technologies like immunological testing for identification of high risk groups, suitable drugs or vaccine for prophylaxis and more effective drugs or drug combinations for treatment emerging, in the near future, out of researches going on within and outside the country.

3.2 Drug Regimens

DDS was till recently the only drug available for mass application in chemotherapy as a measure for leprosy control. Several additional drugs including rifampicin, clofazimine and prothionamide which have powerful bactericidal action against the leprosy bacillus are now available. Sufficient information is also available to indicate that these drugs can be used in combination with DDS (dapsone) for the chemotherapy of leprosy. The use of such drug combinations has become necessary since chemotherapy with DDS alone can result in complications that can adversely influence the leprosy control. Another advantage of using the newer bactericidal drugs in combination with dapsone is that this helps in cutting down the total period of treatment required while at the same time preventing transmission of the disease early during therapy because of their powerful bactericidal effect. Combinations of drugs which could be useful for large scale application have to fulfil the criteria of scientific soundness, operational feasibility and economic considerations. For implementing these regimens in the field, it will be necessary to evolve simplified procedures for identification of suitable cases that could be treated with one or the other regimens depending upon their severity. For this purpose, it is recommended that in the field, cases of leprosy be divided into paucibacillary and multibacillary leprosy. Paucibacillary leprosy includes cases clinically conforming to indeterminate, tuberculoid and borderline tuberculoid leprosy. Multibacillary leprosy will include borderline leprosy, borderline leproma and lepromatous leprosy; in addition, all cases with smear positivity (Dharmendra) will also fall into this category.

Two regimens of combinations of the above mentioned drugs are recommended. The doses mentioned in both regimens are for adult patients with proportionately smaller doses for children and smaller adults: (i) For paucibacillary leprosy, the regimen recommended consists of rifampicin (600 mg) once a month along with dapsone (100 mg) daily, such a regimen continuing for six months. At the end of this period, dapsone may be continued in the same dose depending on whether the patient continues to show signs of activity. (ii) For all multibacillary cases, the following regimen is recommended: rifampicin (600 mg) daily for at least two weeks in the beginning, followed by rifampicin once a month in the same dose for the next two years. In addition, the patient receives clofazimine in doses of 50 mg daily or 100 mg on alternate days and dapsone 100 mg daily for at least two years. This minimum period of treatment should normally be adequate in most cases.

It has already been mentioned that children and adults with small build will receive proportionately lower doses of the above drugs. In addition, it is emphasised that rifampicin should be administered under proper medical care and supervision. Also, continuity of treatment during the scheduled period must be ensured.

It has been also found that follow up treatment with DDS 100 mg + INH 300 mg + thiacetazone 150 mg daily is better than dapsone 100 mg alone given daily.

3.3 Treatment of Reactions

There is a growing consensus that in bacteriopositive cases antibacterial treatment by DDS, rifampicin etc. need not be stopped during reactional stages, unless the patient is definitely known to be sensitive to these drugs. But specific anti-reactional treatment should simultaneously be given to cut short the period of reaction. Choice of anti-reactional drugs depends on the type and severity of reaction. Mild reaction normally responds to analgesics, sedatives or tranquillisers. Moderate to severe reactions may call for the use of injectable antimony compounds,

intravenously in case of trivalent compounds, or either intravenously or intramuscularly in case of pentavalent ones. Preparations like stibophen, (Fantorin), sodium antimony gluconate can be given intramuscularly 3-4 ml. initially daily or on alternate days and biweekly upto 6-10 injections. If there is associated neuritis, prednisolone may help in a dose of 20-60 mg per day for initially 7 days and then gradually tapered off in about 15 to 20 days. Some cases may require low dose of prednisolone to be continued for a longer period. History of hypertension, diabetes or peptic ulcer is a contraindication for systemic prednisolone therapy. Clofazimine and chloroquine phosphate are also used as anti-reactional drugs. For type II (ENL) reaction, thalidomide is the most useful drug and can be safely given to male or post-menopausal female patients, initially 400 mg orally daily, followed by 100-200 mg daily for 2 to 6 months.

3.4 Monitoring of Therapy

It is very important to monitor carefully the effect of treatment and the toxicity of the drug regimens by close observation and regular clinical and laboratory investigations of the cases under treatment, after recording the initial clinical and bacteriological status of the disease. Subsequent assessment with recording of findings should be done at least once a year. Patients showing exacerbation of the disease with more positivity or more fully formed bacilli in smear or showing clinical recurrence of the disease with positivity of smear again, particularly in those who have taken full dose of DDS at least for a year immediately preceding the recurrence, should be suspected to be possible dapsone resistant cases. Such cases should be referred to one of the major institutes on leprosy for confirmation of drug resistance, through mouse foot-pad or macrophage culture technique. It would be necessary to increase the number of mouse foot-pad testing centres and enhance the capacity of existing centres to meet the referral needs.

3.5 Maintenance of Proper Records

One of the major drawbacks in leprosy control units/centres is the lack of properly maintained clinical records of cases and epidemiological

records of the population under control. This hampers project monitoring and assessment. All the workers involved in this programme must be properly trained in record keeping and in working out the age, sex and type-rates of the disease and its prevalence and incidence rates in the community and also in the preparation of working reports.

3.6 Indigenous Availability of Drugs

Taking into consideration the incidence of leprosy cases and assuming that it would be possible to treat all of them, the drug requirements of the country have been computed in Table 4. This Table also gives the present production, licensed capacity and import figures, wherever available. This Table reveals the inadequate production of anti-leprosy drugs in the country. It is important to improve production of these drugs and to make the country self-sufficient in the availability of anti-leprosy drugs. Free licensing for production of anti-leprosy drugs should be considered by the Government till such time that no imported technology is involved. In case of DDS, there is already substantial production in the country by two firms—one in the public sector and the other in the private sector. These firms have been

recently granted permission to augment their production capacity. Necessary steps need to be taken to see that these firms reach their licensed production capacity soon. New licences for production of DDS have been issued to a number of new firms which should also be asked to commence production at the earliest. If all the licensed capacity is utilised in the country, there should be enough DDS available through indigenous production. For clofazimine, two firms have been licensed for production on the basis of technology developed within the country. The Government can exercise its influence to see that these firms start their production without any delay. Till the country becomes self-sufficient in production of these drugs, the existing system of procuring the drugs from both internal and external sources should continue.

With regard to thiacetazone and isoniazid, there is enough production in the country, as these drugs are widely used for tuberculosis and whatever quantity is now needed can be easily met with from indigenous production. For prothionamide, so far, there is no production in the country and it is important to start its indigenous production. Till such time, however, this drug will have to be imported.

Table 4
Production of anti-leprosy drugs in India

Drug	Requirement	6th Plan target	Letters of intent	Licensed capacity	Present production (1980-81)	Import (1980-81)
Dapsone (DDS)	70.0 t	56 t	71.2 t	37.8 t	21.0 t	4 t (this explains the shortage in the country)
Clofazimine	16.5 t	750 t	5.0 t	2.0 t	—	500 kg
Rifampicin	20.0 t	24 t (including for tuberculosis)	2.0 t (4.0 t)	1.0 t	—	4.5 t
Prothionamide	5.0 t	—	—	2.0 t	—	
Thalidomide	100.0 kg					

To cover all the cases of leprosy; DDS 50-100 mg alone daily for all tuberculoid and indeterminant cases of leprosy; and DDS 100 mg in combination with other drugs for all infectious cases and treatment with rifampicin, clofazimine and prothionamide for DDS resistant cases.

Prednisolone and trivalent antimonials are readily available in the country. However, pentavalent antimonials are not freely available. Thalidomide is not made in the country, but the quantity needed is rather small and can be imported.

3.7 Early Detection of Leprosy

The success of the leprosy control programme is dependent upon early detection and management of cases. Leprosy is a disease with a long and uncertain incubation period. Very early signs and symptoms of the disease in many patients are not noticeable by the patient nor in any way affect his life pattern. By the time he becomes aware of the manifestations and reports voluntarily, there is usually a lag period of 2-3 years. On the other hand, potentially infectious cases are likely to harbour a high quantum of bacilli in their body before the clinical disease is well evident. Every year, about 3 lakh 'new' cases are detected, of which about 60 per cent are actually new and 40 per cent, in fact, are old undetected cases; 5-10 per cent of such cases are bacilliferous.

There is need for early detection of both the groups of cases, *i.e.* those with apparent clinical signs and symptoms and those without any manifest signs and symptoms. Early detection can be done by (i) health education, (ii) repeated and continuous examination, and (iii) population surveys—family surveys or surveys of groups of population such as school children, industrial labourers, etc. Holding youth camps, skin camps, student camps and camps by students under NSS and NCC activities may also help in case detection. Involvement of teachers, private practitioners, medical students and interns can also help in identification of early cases.

Even though a big percentage of this inapparent group can be suspected by a trained and experienced worker and can be confirmed by meticulous clinical and bacteriological examinations, a considerable proportion of cases remains outside the scope of existing case detection technology. More sophisticated laboratory tests like fluorescent antibody absorption tests, combined with lepromin test could be

useful. These may also help to identify the subclinical cases or those at high risk. But there are practical difficulties in using these on a mass scale. The other possibility is enzyme immunoassay to detect sub-clinical or early infections. It is known that Mitsuda lepromin negative individuals are at a higher risk of developing progressive form of the disease. Even though this negativity in the child age group is unstable by shifting in many to the positive side on attainment of puberty, conversion of Mitsuda lepromin negativity to positivity can be one of the criteria to judge the efficacy of a possible vaccine in human trial. For this, a large population will be required to be lepromin tested prior to and after the vaccination-trial doses. As a corollary to lepromin screening of the population for vaccine trial, the lepromin-negative group will be identified. This group is at a higher risk than the positive group and could be further examined and followed up to detect probable cases of leprosy amongst them.

For development and standardisation of these sophisticated immune testing technologies and also for the production of vaccine test material in massive doses, additional inputs for research and production will be needed. This can ensure 100 per cent case detection in the earliest, clinical and also in the sub-clinical stages of the disease, which is very essential to achieve eradication of the disease.

3.8 Detection of Drug Resistance

As mentioned earlier, resistance of the lepra bacilli to dapsone is causing concern in India. It is necessary to evaluate the extent of drug resistance in various parts of the country. The technique currently used for detection of dapsone resistance has been the mouse foot-pad inoculation which requires animal house facilities with air conditioning and an adequate number of mice, and a period of 6 to 9 months before results are obtained. Such facilities are limited to only a few centres in India. Newer *in vitro* methods for assessing resistance have been explored in India mainly in the last five years. Of these, the macrophage culture method compares favourably with the results from mouse foot-pad

inoculation tests in a multi-centre trial. It takes only 3 to 4 weeks to obtain results. Another method using *in vitro* culture of leproma derived mycobacteria taking up radio-labelled DOPA has also been shown to be useful. However, both these techniques require more confirmatory studies and a highly sophisticated laboratory set-up. Therefore, further research is necessary in this area to devise simpler laboratory tools. Also, the definition of clear-cut criteria for clinical diagnosis of drug resistant leprosy is very necessary.

All these *in vitro* methods have, however, the potential of being used in evaluating the sensitivity of *M. leprae* to various anti-leprosy drugs and may be exploited to study newer drugs.

4. HEALTH EDUCATION, MASS COMMUNICATION, COMMUNITY PARTICIPATION AND REMOVAL OF SOCIAL STIGMA AND OSTRACISM ATTACHED TO LEPROSY

There is widespread ignorance and wrong notions about the disease in all spheres in the country, with irrational attitudes and behaviour towards leprosy patients and the programme. Patients as well as healthy people react differently to measures taken under the programme for their own protection. Leprosy control, and much less, its eradication, will not be possible without removal of such ignorance and prejudices rampant in the public with regard to the disease. It is of utmost importance to accept leprosy like any other disease and the leprosy patient like any other human being suffering from a chronic illness. Even after achieving this acceptance, cooperation and active participation of the patients and the community will be the key to the success of the control programme.

4.1 Health education and health instructions will help in the removal of ignorance and prejudices against this disease. This can be done by individual and group approaches and also through mass communications. The aids and media needed will vary with the approach and the nature of the target population. Changes in attitude and behaviour will take time to occur. But the process can be hastened by additional

steps like mass communication through important leaders, renowned scientists and opinion builders. However, active cooperation and participation will be forthcoming only when the preaching has actually been translated into action in large numbers, so as to set an example in the community and the patients and public get personal experience or see the reality through education and instructions. Simultaneously with the availability of sympathetic service, a patient audience given to leprosy cases, their doubts, worries and woes will help to win their confidence and active cooperation.

4.2 Mass Communication

In a vast country like India with widespread disease and enormous population with different languages, culture, geographical variations ranging from high mountains to islands in distant seas, communication through mass media has to be resorted to, and the aids used should preferably be audio-visual. Service with prior information, instructions and motivation will have the maximum acceptance and impact. It is necessary to prepare the public initially for the eradication campaign with sociological investigations and studies for systematic and planned communications for better understanding and solution. Sequential communication methods and materials on the basis of serialised items for different states or regions of the country are to be prepared and given to the local communication agencies as standard samples. Local communication media like drama, religious and social gatherings, should also be utilized.

4.3 Community Participation

Community participation is vital for the success of the control programme, as mentioned earlier. It is not practised now in a planned and systematic manner. Health and cure cannot be achieved by a health worker through a one way process. The major role is that of the patient and the community on whose cooperation its success will largely depend. In leprosy, from the preparatory to the consolidation phase, at each and every step, *i.e.* case detection, case holding, rehabilitation, etc. community participation will be essential. Youths, students, teachers, different

formal and informal community leaders can help considerably in this.

5. PHYSICAL DEFORMITIES

Leprosy Control Programme should aim not only at interruption of transmission of the disease but also at individual patient care to prevent functional impairments and physical deformities that occur in later stages of leprosy. Intervention at the field level will help to identify the malady early when it can be prevented from deteriorating into gross damage and deformity or corrected by simple operations and physiotherapy. Effective treatment with prevention of deformities is the surest means of ensuring the cooperation and regularity of treatment on the part of the patient. This will also help to maintain his physical, psychological, social and economic balance. Such a patient will not get lost to himself, his family, children and the society. Even though these measures may appear to be simple, they require planned and systematic actions consistently, over years, with sustained counselling. The staff who are involved in these actions also require training.

The stigma of leprosy is largely due to the physical deformity caused by the disease. The socio-economic dislocation of the patient forcing him to beggary is also mainly due to this deformity which poses a serious problem to not only the patient but his family, as well as to the society. With the currently available measures of reconstructive surgery, physiotherapy and more powerful bactericidal drugs, this social stigma can be eliminated.

5.1 Size of the Problem

About 20 per cent of leprosy patients may be having anaesthesia and/or noticeable deformity of hands/feet, ulceration, depressed nose or blindness, singly or in combination. Details are not available with regard to the proportion of crippled patients, or those having correctable deformities or needing vocational rehabilitation. Studies are needed to collect authentic information about the actual size of the problem.

5.2 Causes and remedies for loss of sensation and physical deformities

Loss of sensation is due to damage to

peripheral nerves and nerve trunks of the limbs by the growth of the bacilli inside the nerves and the resultant reaction of the body. Further, there is superimposition of physical injuries like cuts, burns, pricks, and friction. Secondary infection, if uncared or unattended, can cause further damage. Chemotherapy alone without hand and foot care is not the answer for effective management in such cases. Much of the neural damage and consequent deformities can be prevented by corrective measures as described below. It is important to provide timely medical advice to patients to follow these steps:

(i) Paralysis of nerves can be reversed, in the early stages, by carefully supervised medical treatment supplemented with physiotherapy and also surgery of nerve trunks, in suitable cases.

(ii) Deformities resulting from anaesthesia of the extremities can be prevented by training the patients to protect themselves against trauma of any kind.

(iii) Motor paralytic deformities of hands and feet can be arrested by physiotherapy and also corrected satisfactorily by standard surgical procedures.

(iv) Plantar ulcers will not occur if there is no neurological deficit involving the feet. Even when such a deficit is present, ulceration can be avoided by taking care of the feet and using protective foot-wear.

(v) Even when an ulcer has occurred, it can heal if proper treatment is given; though the ulcers may recur, they can be prevented by proper care, use of protective foot-wear and, in selected cases, by suitable surgical procedures.

(vi) Cosmetic correction of facial deformities is possible by standard plastic surgical procedures.

Most patients may not need any other rehabilitative measures than those mentioned above. A small proportion of patients will need additional vocational rehabilitation measures with or without vocational training. Badly

crippled indigent patients will, however, need institutional care.

5.3 Rehabilitation Needs

The rehabilitation needs are thus the following:

(i) Prophylactic measures to prevent rehabilitation such as prevention of nerve damage, protection of insensitive hands and feet, and corrective surgery.

(ii) Rehabilitation measures such as provision of orthoses and prostheses, vocational guidance, training, job placement and institutional care for the crippled and indigent patients.

(iii) Care of children of leprosy patients (living in slums and colonies) under ICDS scheme.

5.4 Surgical Facilities—Preventive and Reconstructive

Corrective surgical service should be made available in all medical teaching institutions, as well as in all specialised medical centres. The following steps should be taken in this regard: (a) All postgraduate teaching hospitals should provide at least 10 beds for surgery of leprosy patients; (b) Each medical college must be made responsible for providing surgical service to leprosy patients in the surrounding districts in coordination with the leprosy services in that area. In order to ensure such contact and collaboration, the District Leprosy Officer of that area could concurrently have the responsibility of teaching leprosy control in the local medical college; (c) At least two surgeons at the level of Assistant Professor or Reader in every medical college must be trained to achieve competence in the field of corrective surgery for leprosy patients. The state leprosy authorities should have a list of such personnel already available and keep a track of them and utilise their expertise. The Directorate General of Health Services (DGHS) should also maintain a list of surgeons already trained in this field and bring it to the attention of the state authorities; and (d) to meet the above requirements, about 200 to 300 surgeons (the upper figure is preferable to allow for dropouts) who have the necessary competence, will have to be trained within the next five to seven years.

5.5 Protective Foot-wear

Provision of foot-wear to patients with insensitive feet must be considered as important as ensuring anti-leprosy treatment. Facilities must be created at control units, for making protective foot-wear. We may need to produce about 500 tonnes of microcellular rubber sheets of 10 mm thickness and 10° to 15° shore to meet the requirements. Since rubber has a shelf life of about one year, the agencies for distribution must function efficiently to avoid wastage and scarcity. It will be ideal to give two pairs of foot-wear to each patient per year. Assuming that 10 per cent of leprosy patients would need protective foot-wear, twice a year, and assuming the patient population to be over 3 millions, about 6,00,000 pairs of foot-wear will be needed per year.

All rehabilitation departments and artificial limb centres in medical colleges and all vocational rehabilitation centres must take in leprosy patients as a matter of course and the leprosy workers at all levels must be made aware of the rehabilitation facilities available in their areas. The need for orthoses and prostheses is very limited in leprosy and is most exclusively confined to foot-drop appliances, fixed ankle braces, weight relieving devices, and prostheses for BK or Syme's amputees. In addition to producing modern devices, provision must also be made, at least at district hospital level and in leprosy hospitals, for making functionally useful, and not necessarily cosmetically superior devices like 'elephant foot' and BK PTB pylon with leather cuff and thigh strap, since manufacturers of these devices do not need the expertise that the regular devices demand, and these devices are found to be very useful for rough and ready use. Further, these devices are far less expensive. We do not have information regarding how many such devices will be needed, but the proportion of leprosy patients needing these appliances will be very small.

6. BASIC AND APPLIED RESEARCH

Leprosy continues to be a challenging problem and many aspects of the disease are still not well understood. Knowledge on growth and nutritional requirements, biochemistry and taxo-

onomy of *M. leprae* is largely lacking. Consequently, no satisfactory method of *in vitro* cultivation of the organism has been developed. Although the possibility of more than one vaccine has been indicated, probing field trials on such vaccines are yet to begin. Much more is required to be known about the immunology of the disease. It is, therefore, necessary to back up the general strategy for control and eradication, with basic research in all the areas mentioned above. There is need for considerable strengthening of existing facilities for research to attract more scientists of diverse disciplines to leprosy research and establish new research centres as well. It is also pertinent to point out that any support given to research in leprosy will necessarily have to be on a long term basis, in view of the chronic nature of the disease, and the very slow growth rate of the organisms seen in the experimental animal.

Some of the directions of research which are of particular importance to the control and eradication programme are discussed in the following pages and also depicted in a flow chart.

6.1 Development of Methods for Detection of Sub-clinical Infection

The latent period of leprosy is of the order of 5 to 10 years. Effective control and eventual eradication of the disease will demand the detection of 'carriers' of infection. The fluorescent antibody method of Abe can detect individuals who carry antibodies reacting with *M. leprae*. Immuno-epidemiological studies are in progress in India and in other countries to see whether the results from this investigation correspond correctly to the infected state. These studies need to be continued and expanded. However, as this method requires quite cumbersome processing steps and availability of a fluorescent microscope, it may not be easily available for use and application in all parts of the country. High priority may be given to the development of alternative procedures such as enzyme immunoassays (EIA). At present, the identification of specific *M. leprae* antigens is under intensive study in many laboratories of the world. Since more than one laboratory is actively engaged in EIA in this country, it should be

possible to develop a specific EIA for leprosy antibodies in the near future. The development of hybridoma technology will further add to the development of EIA. No extra monetary inputs are required as these laboratories are all national centres. They would, however, require a supply of *M. leprae* for which armadillo colonies need to be established. Till such time as this is not done, this material may be procured from the WHO armadillo *M. leprae* bank. EIA developed by these laboratories may be speedily put to field testing, in a good field experimental base.

6.2 Development of Hybridoma Techniques for Diagnostic Kits

The technology for insertion of the genes from antibody producing cells into cells with perpetual capacity for multiplication has opened out new avenues of obtaining highly specific and high titre antibodies. This technology has been successfully utilised in the country for obtaining hybridomas against reproductive tract hormones. Large scale manufacture of diagnostic kits will benefit greatly from the availability of hybridoma making antibodies reacting with *M. leprae* specific antigens. This will be extremely useful in screening for mycobacterial or other isolates of leprosy origin that are claimed to be *M. leprae* or related to it.

6.3 Production of *M. leprae* Specific Antigens

M. leprae is not cultivable, as yet, *in vitro*. As a result, lepra bacilli have so far been collected from the affected tissue of lepromatous patients for preparation of lepromin or for testing animal pathogenicity or other laboratory tests. This source, however, is gradually shrinking and therefore, becoming uncertain. This has also the inherent disadvantages of an impure culture. Currently, huge quantities of *M. leprae* are being produced in America and some other parts of the world by multiplication in the nine-banded armadillo and nude mouse. Techniques have also been developed to get the bacilli free from body tissue materials. Such bacterial material is quite suitable to prepare lepromin and also possible vaccines. A country of the size of India and with its magnitude of leprosy, cannot afford to be dependent on outside sources for such material

for ever, in order to carry out its research trials or operational projects in different centres.

Experimental animals most suited for supply of lepra bacillus are the armadillo, each of which after infection yields 10^{12} to 10^{14} number of *M. leprae* and the nude mouse yielding about 10^{10} to 10^{11} . Thus about 100 nude mice are equivalent to one armadillo. About 200,000 skin test doses of lepromin can be obtained from one infected armadillo.

For this purpose, it would be necessary to establish one armadillo colony, to start with, at the Central Jalma Institute for Leprosy (ICMR) at Agra. A few nude mouse colonies may be set up at the Central Leprosy Teaching and Research Institute (CLTRI), Chingleputtu (Tamil Nadu), Schieffelin Leprosy Research & Training Centre (SLRTC), Karigiri (Tamil Nadu), Central Drug Research Institute (CDRI), Lucknow, All India Institute of Medical Sciences, New Delhi, and the School of Tropical Medicine, Calcutta, and also the Central Jalma Institute for Leprosy, Agra, National Institute of Immunology, New Delhi, and others where facilities for good animal maintenance and breeding are available.

Some additional inputs in the form of equipment, maintenance cost, training etc. will also be needed as some of these animals require a specially sterilized and germ free condition to survive.

The need for creating, within the country, facilities for armadillos and nude mice has been outlined above. A complementary approach would be to encourage the cloning of genes of *M. leprae* by DNA recombinant technology. The Department of Science and Technology (DST) in its thrust area-programmes is taking several steps to speed up work on DNA recombinant technology in different laboratories of the country. The cloning of *M. leprae* specific antigens should be included as a priority item in this programme.

6.4 Chemotherapy

The use of combination of different anti-tuberculous drugs with DDS has greatly

improved the efficacy of chemotherapy of leprosy. There is need for intensive research to make the best use of known drugs as also to discover newer and better drugs for chemotherapy of leprosy. The following areas are of particular importance:

1. To develop a suitable regimen of combination of known drugs to have an optimal chemotherapeutic response and to provide the best cost-time-therapeutic ratio benefit.
2. To develop new delivery forms of the known drugs to prolong their period of action and to reduce the frequency of administration.
3. To develop new, rapid acting drugs that would complement the action of the existing powerful bactericidal drugs like rifampicin and prothionamide.
4. Immune-modulators: As one of the major problems in lepromatous leprosy is the breakdown or total absence of cellular immune defence of the host, agents that can restore the immune-competence of the host would not only complement the chemotherapy of leprosy, but may also provide the ultimate answer to the problem of persisters and relapse.

Facilities for development of new drugs exist in some research centres and university laboratories. Research in this area could be intensified by adopting the task force mechanism.

6.5 The Working Group considers that primary prophylaxis of leprosy through a vaccine is an urgent task which should be given highest priority.

The Special Programme for Research in Tropical Diseases under the WHO is engaged in developing a vaccine based on lepra bacilli. This vaccine is expected to be tried in human beings within the next few years. Indian scientists are also working on a vaccine based on cross reactive mycobacteria having immunological similarity with *M. leprae*. Trials are proposed to be

undertaken shortly under the auspices of the Indian Council of Medical Research with this vaccine.

6.6 Pathogenesis of the Disease

(a) Granuloma formation

The basic pathology involved in the formation of granulomas in the tissues in leprosy patients is not fully understood. Basic research in this field using skin biopsies and experimental animals needs to be undertaken to understand this.

At least two laboratories in the country have established Schwann cell cultures that can offer an appropriate experimental system for investigating the unique property of *M. leprae* viz. predilection for the peripheral nerves.

(b) Mechanisms of reactions

Natural and drug-induced disturbances of the immunological status of leprosy patients lead to severe tissue destruction and neuritis. The mechanism of cell-mediated reactions, the role of immune complexes and complement activation in the pathogenesis of reactions, etc. need further investigation.

6.7 *In vitro* Cultivation of *M. leprae*

Development and screening of anti-leprosy drugs will be greatly facilitated if the organisms could be grown in the artificial medium. *M. leprae murium*, a mycobacterium producing a leprosy-like disease in mice and considered non-cultivable for many years has now been successfully cultivated in a number of laboratories in the last few years. Research efforts in this line should be encouraged and expanded in our country. Very interesting results have already been obtained by some Indian investigators in this area.

7. TRAINED MANPOWER REQUIREMENTS

There are different categories of persons who need to be trained for leprosy control work. These are doctors in charge of different aspects of the leprosy programme, field workers, physiotherapists, laboratory technicians and general medical and public health workers. In addition, groups and individuals like medical practitioners,

teachers and students, social workers, etc., who are in a position to help in the implementation and mass acceptance of the programme will need short term orientation training in leprosy.

7.1 Training of Doctors

In the curriculum of the students in the medical colleges, the teaching of different aspects of leprosy is very much neglected. The Mukhopadhyay Committee appointed by the Medical Council of India has given some very useful suggestions in this regard (Appendix IV). It is, therefore, important that leprosy patients be admitted in general hospitals. Infectious cases may be kept in a separate ward, but in the same hospital campus, so that students can learn more about not only the diagnosis and treatment of leprosy but also the complications and sequelae. Leprosy patients must be presented as 'long' and 'short' cases in the medical examinations as emphasised by the Mukhopadhyay Committee. It would be necessary to prepare and provide proper teaching materials on leprosy such as books, periodicals, slides, charts, etc., for the students. There is also need to start postgraduate degree courses in leprosy.

There is also a need to enlarge the base of the six weeks Leprosy Training Course existing at present for doctors. Centres carrying out training courses regularly at present will require additional staff in the form of one full time trained and experience Medical Officer and one clerk for various activities like fixing the period for the course, selection of candidates, arrangement of lectures, demonstrations, holding examinations and also to correspond with the candidates and sponsoring authorities etc. Experienced leprologists including those retired from service could be invited as guest lecturers on honorarium basis. Their travelling and other expenses should be reimbursed. Some additional costs for movement, contingencies and stipends should also be provided to these centres (whether Government or voluntary).

At any point of time, about 1500 doctors would be working full time on leprosy. Since there is transfer of doctors from leprosy work to other

fields, and doctors would be leaving leprosy service for other reasons, it is estimated that for some more years, about 400 doctors would need to be trained annually to meet the demand. If each of the five centres is able to train an average of 30 doctors in a year, only 150 doctors would be trained. More courses cannot be run by the present training institutions. Therefore, some of the centres listed earlier may be inducted, with advantage, to undertake the training course with additional facilities and inputs being provided.

7.2 Training of Para-medical Staff

There are, at present, about 15000 para-medical workers (PMW) in position, of whom about 5000 are untrained. Further, about 2000 new posts of PMWs are going to be created during the Sixth and Seventh Plan Periods. Moreover, vacancies arising out of retirement, resignations and deaths have to be filled up. It is estimated that, on an average, 1700 new and/or untrained workers have to be trained annually over the coming years. The capacity of the existing training centres is 1300 trainees. For additional requirement, six more training centres need to be established, preferably in states that have a large number of untrained workers in employment.

Of the 2000 non-medical supervisors (NMS) in service, nearly 1500 have not had a supervisor's training. There are only 4 NMS training centres in the country. To train the in-service untrained workers, and also the new cadres, it is proposed that six new NMS training centres be established. There are a number of PMW training centres in some states, particularly those whose full capacity is not utilised because the need of these states for PMWs, at the moment, is minimal. It is proposed that the unutilised capacity of these training centres be used for NMS training, i.e. out of about 4 centres in a state which is sufficient in PMW manpower, two may be converted or upgraded to NMS training centres, while the remaining two can cope with the small need of PMWs for replacement or expansion.

7.3 Existing Training Curriculum

The curriculum of the para-medical training course needs to be reviewed and suitably modified

to lay more emphasis on leprosy and its modern treatment, rather than using too many lecture hours on general medicine. A Committee of three experienced teachers helped by some experienced leprologists should go into this matter.

7.4 Training of Physiotherapists and Laboratory Technicians

With regard to physiotherapy technician training, it was felt that additional training centres are required to meet the need for the intensified programme. These courses can only be run in institutions where facilities are available.

As regards laboratory technicians, instead of spending a good deal of time to train workers as full-fledged technicians, it would be preferable to have, in addition, a cadre of workers trained to carry out routine smear examinations and certain other basic clinical tests that may be required in the field. These workers may be designated as field laboratory assistants.

7.5 Training of General Medical Practitioners

Lectures/demonstrations to make the general practitioners interested and knowledgeable about leprosy have been organised by some voluntary organisations such as the Gandhi Memorial Leprosy Foundation, the German Leprosy Relief Association and the Damien Foundation. Such seminars can also be organised by other voluntary institutions in collaboration with the Indian Medical Association and the medical colleges involving prominent leprologists as guest lecturers. It is advisable to involve the practitioners of indigenous systems of medicine also in this programme.

7.6 In all courses like those meant for the sanitary workers, general nurses, multipurpose workers etc., leprosy should be introduced in the curriculum.

7.7 Some of the voluntary organisations should be persuaded to hold brief leprosy orientation camps for school teachers, social workers and others interested in leprosy work.

7.8 Additional Training Centres

There is need to enlarge the base of the six weeks training courses for full-time doctors in leprosy and four months course for non-medical supervisors.

There are six training centres recognised at present by the Government of India for training of medical officers and five for non-medical supervisors (NMS).

These are:

1. Central Leprosy Teaching and Research Institute, Chingleputtu (for doctors and NMS).
2. Central Jalma Institute for Leprosy, Agra (for doctors).
3. Gandhi Memorial Foundation, Wardha (for doctors and NMS).
4. School of Tropical Medicine, Calcutta (for doctors and NMS).
5. Philadelphia Leprosy Institute, Salur (Andhra Pradesh) (for doctors and NMS).
6. Schieffelin Leprosy Research & Training Centre (SLRTC), Karigiri (Tamil Nadu) (for doctors and NMS).

In addition, some more institutes need to be established to meet the anticipated demand for trained doctors and non-medical supervisors. The institutions that are potentially capable of serving this purpose, after strengthening of their facilities, are listed below:

1. Acworth Leprosy Hospital, Bombay.
2. Dichpalli Centre, Dichpalli (Andhra Pradesh).
3. Sacred Heart Hospital, Kumbakonam (Tamil Nadu).
4. Hemerijok Leprosy Centre, Polambakkam (Tamil Nadu).
5. Leprosy Mission Hospital, Miraj (Maharashtra).
6. Leprosy Mission Hospital, Purulia (West Bengal).
7. Leprosy Field Research Unit, Jhalda (West Bengal).
8. Gouripur Leprosy Hospital, Bankura (West Bengal).

9. ILEP Leprosy Control Project, Dharmapuri (Tamil Nadu).
10. Brambey Leprosy Training Centre, Ranchi (Bihar).
11. Anasuya Leprosy Hospital and Gujarat Leprosy Training Centre, Ajwar Road, Baroda.
12. Department of Dermatology, Institute of Medical Sciences, Banaras Hindu University, Varanasi.
13. Departments of Dermatology in some other large Medical Colleges and Teaching Hospitals, on a selective basis.
14. Regional Leprosy Training and Research Institutes.

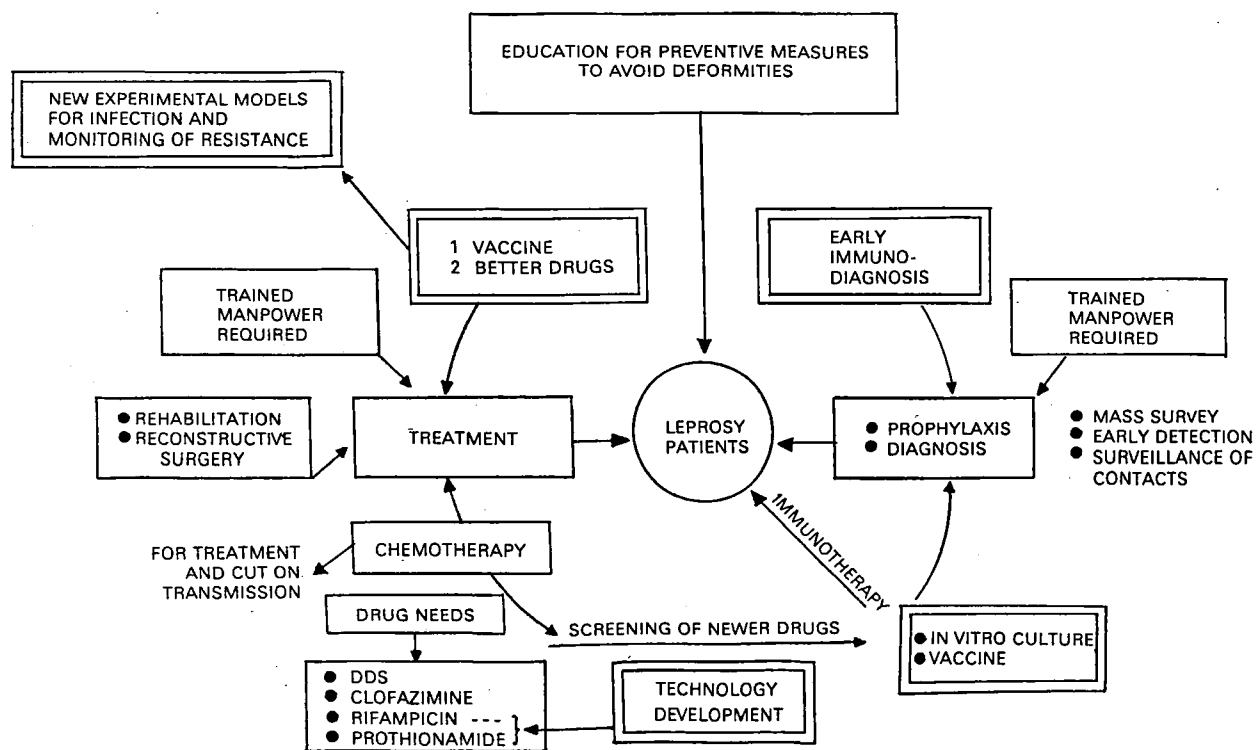
8. INSTITUTIONAL FRAMEWORK FOR POLICY, PLANNING, IMPLEMENTATION AND EVALUATION

The technologies available for a strategy of eradication of the disease will require to be implemented speedily through an integrated plan of actions to derive best results. There are action programmes which have interministerial jurisdictions. Some of these action programmes will require high level policy decisions for newer welfare measures, operational procedures, administrative structures and additional funds. These will require to be resolved quickly if the programme has to gain momentum.

To achieve the goals set, leadership at the highest political level in the country is necessary. The existing institutional framework is absolutely inadequate for this purpose. It needs to be radically changed by raising its level, content as well as status. Even in the new institutions suggested, policy decisions and guidance should be independent of the executing authorities and the evaluation authorities should again be independent of both. The main problem will be the shortage of sufficient number of motivated, trained and experienced doctors and non-medical technicians. Without a definitely earmarked staff for the eradication programme, its implementation will be uncertain. Three very important actions required are as follows:

- (1) The eradication programme should remain vertical to ensure prevention of diversion of staff, vehicles, drugs, equipment and funds till the

FLOW CHART ON
TECHNOLOGY NEEDS



Double lined boxes denote Research Projects.

multi-drug regimen is completed and the endemicity is brought down to below 2.5 per thousand.

(2) There should be a separate cadre of full-time leprosy doctors with at least four promotional stages during a period of 25 years of service.

(3) As an incentive, at least 4 promotional stages for leprosy technicians during their service should be ensured for both Government and voluntary workers. This will ensure sustained participation of motivated workers in the field and technology transfer and operational efficiency in the programme.

DELIVERY OF TREATMENT AND REHABILITATION SERVICES

1. INTRODUCTION

To the best of our current knowledge, transmission of leprosy takes place from a diseased person to the healthy through close contact. Of those who are exposed to the infection, only a few ultimately develop the actual disease. Even amongst these, about 80-85% suffer from a restricted form of the disease owing to a high degree of resistance in the body. Such patients generally do not transmit infection to others. Only about 15-20% individuals who are unable to mount an effective defensive body response to the infection suffer from the infectious form of the disease. In such patients, the lepra bacilli multiply unchecked and are often thrown out of their body through ulcers in the skin and nose in large numbers, posing the risk of spreading the infection to those in contact with them. These patients are the real source of infection in the community.

The National Leprosy Control Programme, initiated in 1955, has been in operation for over 25 years. In the absence of primary prevention by a vaccine, this programme has been based on the use of mass chemotherapy by dapsone orally with a view to reduce the quantum of infection in the community and thereby interrupt the transmission of the disease. This is being done through a campaign of early detection by house to house surveys, follow up treatment under surveillance and health education by individual and community approaches. Out-door clinics are run for each group of villages so that a patient finds it convenient to attend the clinic regularly. In some situations, domiciliary treatment at the patient's residence is also given. But, by and large, due to the slow pace of development of the programme, it has not been able to achieve its objectives of

treating all infectious cases to interrupt the transmission of leprosy. General indifference to the problem at all levels, limitations of single drug therapy (by dapsone), shortage of drugs, administrative bottlenecks and, above all, a very strong social prejudice against the disease that exists in the community are some factors which have hindered the programme. Thus, the undetected and untreated patients continue to transmit the disease in the community and new cases are developing every year.

Till the end of the 4th Plan (i.e. 1973-74), out of a total estimated number of 3.2 million cases (1971) in the country, only 1.2 million cases have been detected and brought under treatment. In the meantime, due to the dependence for therapy on single drug, i.e. dapsone alone for many years, drug-resistant lepra bacilli have emerged. This has led to continuous infectivity in some cases and to relapse of the disease with renewed infectivity even in those in whom the disease had been arrested. Fortunately, more effective newer drugs have been developed which are available in usable form. Effective treatment of all infectious cases is now possible irrespective of their harbouring drug-resistant or persister bacilli. These drugs can form suitable combinations with dapsone for a very effective treatment which can kill the bacilli within a shorter time; the total treatment period can also be considerably curtailed. While this treatment is effective for control of the disease in individual cases, the effectiveness as a tool for achieving early control or eradication of the disease is yet to be established. It requires to be implemented systematically under close supervision and guidance and rapidly extended throughout a large area through suitable campaign so that the

quantum of infection in the community is quickly and radically reduced. Such a campaign will depend on the cooperation of the patients as well as the community. In order to get the cooperation of the patient, his felt needs for a cure of the disease as also prevention and correction of physical deformities and chronic ulcerations will be necessary. The poor socio-economic condition and the social stigma are largely due to the associated physical deformities and disabilities. Hence, prevention and correction of physical deformities and ulcerations and socio-economic rehabilitation of leprosy patients should form an integral part of treatment of leprosy.

Though the existing drugs are very potent, further research is still needed in order to bring out more effective drugs, with less toxicity. Chemotherapy, however effective it may be, can only be a secondary measure for prevention and control of an infectious disease. For primary prevention, development of a prophylactic vaccine is needed for which research is going on throughout the world including India. We should, however, keep our options open for entry of newer drugs and an effective vaccine in our programme, as and when available. For the time being, however, as mentioned in Chapter II, the strategy for eradication has to largely depend on mass chemotherapy with multi-drug regimen treatment in indoor as well as controlled outdoor situations and under close technical supervision, including laboratory and epidemiological monitoring.

2. SERVICES NEEDED FOR ERADICATION OF LEPROSY

Important services needed for containment of infection in the community are as follows:

2.1 Case Detection

Early detection of cases by different methods is important for better results of treatment in early cure, prevention of transmission to others as also prevention of physical deformities. This can be obtained by several means, as follows:

(i) *Voluntary Reporting*: In endemic areas, many people are conversant with the signs of the disease either by their own personal observations or through health educational campaign in the

communities being carried out by different Government and voluntary agencies. Quite often, the patient voluntarily seeks treatment when he is aware of a particular sign giving rise to a suspicion of leprosy or when the disease leads to manifest sickness. Incentives to patients in cash or kind to compensate for wage-loss and reimbursing the bus or train fare, can help in regular attendance to an out-door leprosy clinic.

(ii) *Population Survey*: This is done by physical examination of individuals:

- (a) - Population Groups
 - School surveys
 - Survey of industrial population
 - Hetrogeneous groups by holding skin camps
 - Contact examinations
 - Slum populations in urban areas.

These surveys alongwith health educational campaigns with hand-outs, posters, folders or by showing slides or films, by arranging talks on leprosy will not only help in early detection of the cases and motivation for treatment but can also get across the required message to the families and the community at large. Similarly, contacts of patients who are a high-risk group, require to be followed up regularly since the disease can develop in them at a higher rate than in the normal population.

(b) *Total Population Surveys*: Total population surveys need to be undertaken through a systematic physical examination of each and every individual, family by family, and by house-to-house visits in the village so that all patients in the community are detected and brought under treatment. It is not possible to ensure, by any other means, total case detection in a community. Quite often, the early signs of the disease are not discernible to the common man or the sufferer or his relatives. Hence, it is necessary to entrust detection to a trained and experienced worker. Trained leprosy or general health workers—at least two workers in a group—can do this survey better. Single man survey has not been found to be effective.

(iii) *Diagnosis by referral centres:* Many general hospitals and private practitioners or doctors engaged by other establishments like industries, agriculture and others like the E.S.I. doctors can often detect leprosy while attending to patients in general or special out-door clinics. They often refer such patients to a well-established leprosy hospital or centre for follow up treatment or for bacteriological examination and confirmation of diagnosis, particularly when the patient is not a clear-cut case or has complications requiring special treatment.

(iv) *Health educational campaigns* in the community at large are often followed by a spurt of voluntary reporting by those with suspicious signs who seek confirmation of diagnosis and treatment. This is a direct result of motivation by the campaign.

2.2 Treatment Delivery

(i) *Delivery point:* Treatment is normally delivered through outdoor clinics held every week at fixed roadside points for every 5-10 villages either in the shade of a tree or under a temporary shed or some other permanent structure. Often, outdoor clinics are held in general hospitals in special Dermatological Clinics or alongwith general Medical Outdoor Clinics. Special Leprosy Clinics are often held in open verandahs of a Health Centre or a general hospital. Outdoor clinics are also held regularly in most leprosy homes, hospitals or permanent leprosy clinics. While majority of the patients will need only outdoor treatment and can follow their normal vocations, a small percentage who are more sick or who have developed some complications due to nerve damage or eye affections or chronic ulcers, will require temporary hospitalization for special treatment. Patients suffering from acute exacerbation of the disease or reaction also require hospitalisation for investigation and treatment. During the Fifth Plan, some leprosy wards for temporary hospitalisation have also been created and attached to medical colleges, district hospitals or health centres and general hospitals and patients are being admitted in these for investigation and treatment.

A district-wise campaign through multi-drug regimen of treatment has also been undertaken on a trial basis as a methodology for early control of leprosy, and as a further step towards eradication of the disease. The regimen of treatment through such a campaign is expected to prevent the development of drug-resistant *M. leprae* in the majority of multi-bacillary cases as well as possible interruption in transmission of the disease in the community. This can also help in preventing large-scale drop-out of patients from treatment.

(ii) *Intervals of holding clinics and frequency of reporting of patients for treatment:* Normally, leprosy clinics are held once a week in outdoor situations. However, where the clinics are attached to a major leprosy institute or hospital, they are usually held daily or on alternate days. A patient attending a clinic once a month normally collects a month's tablets for treatment, with the advice that in case he notices any difficulty or deterioration in his disease condition, he should report on the day of the next clinic. Otherwise, he is to report after a month for collecting the next stock of drugs and for getting his condition reviewed.

(iii) *Case taking:* While new patients come for diagnosis and treatment, their clinical condition is to be noted in Case Cards and their infectivity status confirmed by bacteriological examination. This will also help in subsequent assessment of the progress under treatment. There should be an examination of the important nerves in the limbs as well in the face and eyes for early diagnosis and management of possible complications.

(iv) *Drug regimen:* Latest development in chemotherapy of leprosy has suggested that all active leprosy patients and possible recurrent or reactivating cases should be given multi-drug treatment regularly, under supervision, with at least two anti-leprotic drugs of which one should be bactericidal such as rifampicin, clofazimine and prothionamide. *Dapsone and rifampicin should be common in all the combinations.* The Group therefore recommends the following regimens:

(a) For pauci-bacillary smear-negative, but active cases: DDS 100 mg daily plus rifampicin 600 mg once a month (supervised). Extension of treatment by DDS alone will subsequently depend on the condition of the patient, but normally treatment for six months should be sufficient.

(b) Multi-bacillary cases: For all active multi-bacillary cases and smear positive patients, DDS 100 mg daily plus rifampicin 600 mg daily for the initial 2 weeks and then once a month (supervised) plus clofazimine 100 mg on alternate days or 50 mg daily at least for a period of 2 years which should normally be sufficient for most of the cases. Children in either case, i.e. (a) and (b) will, however, receive correspondingly lesser doses (Chapter II under item 2.2).

(v) *Care of hands and feet*: While the patient is attending the clinic or is under self-medication, a special service for the care of hands and feet is necessary to avoid injuries and to prevent deterioration of such conditions which have already led to an injury or development of acute ulcers. The damage to the nerves and the consequent slow progressing paralysis of muscles and contracture deformities have to be prevented by giving rest to the affected part, providing splints, giving warm wax-bath, massage and remedial exercises. In some patients, decongestion of the swollen nerves or even reconstructive surgery might be necessary to prevent further damage or for purpose of correction. Pre- and post-operative care and physiotherapy about which the patient himself can be properly guided through counselling by a physiotherapist or sometimes by a doctor or a surgeon, are also necessary. The care of the eyes should be a regular responsibility of the individual who is giving treatment to a leprosy patient. Unless the patients' felt needs are met and they are cured of the disease, ensuring prevention of damage to the limbs and eyes, suppression of disease will have no meaning.

(vi) For preventing the development of chronic ulcers in insensitive soles of the feet and also for its cure, patients should be provided with protective

shoes, as an integral part of treatment. It is advisable to have shoes with a soft microcellular rubber insole.

(vii) Some patients may require to be provided with crutches, artificial limbs or other orthotic/prosthetic devices.

(viii) Patients not manageable at a field leprosy clinic or P.H.C outdoor where all the services are not available, will have to be referred to specialised centres in general hospitals or special leprosy centres where the specific type of service for management of complications of fitting of prosthetics are available.

Sympathetic attention to the patient and helping him to meet his felt needs in different stages of the disease ensure his cooperation for a regular follow-up treatment over years.

(ix) Monitoring of treatment should be done regularly both by clinical and laboratory examinations for progress and also toxicity of drugs.

2.3 Welfare and Rehabilitation of Leprosy Patients

Rehabilitation services and welfare programmes should also be considered as an essential and integral component of the eradication programme. It is necessary to provide optimum nutrition along with drug therapy for the undernourished patients. They may also require to be provided with dietary rations to ensure at least two square meals a day, and to help achieve an early cure of the disease. Efforts should also be made to make the patient retain his avocations and to place those who are without avocations in new jobs so that they can earn their livelihood, maintain good nutrition and also to provide education for their children. While there is a need for extension of the existing facilities of rehabilitation and social welfare as available to all handicapped people, to cured and non-infective leprosy patients also, for some time to come, it will be necessary to establish leprosy rehabilitation centres attached to existing leprosy homes, hospitals, or through separate welfare schemes in order to create more opportunities for

leprosy rehabilitation. This dual system will have to continue in the interest of both the groups of patients. A joint effort by the Ministries of Health, Social Welfare and Education, Employment, Labour and others, with the Health Ministry acting as the nodal Ministry, should be undertaken for a practical programme of rehabilitation of the leprosy patients. This can inspire more confidence in the patients and also encourage them to be more regular in treatment. However, all such rehabilitation centres should be qualitatively controlled so that turnovers with extension of benefits to many are ensured. Simultaneously, efforts should be made to improve the living conditions of the community in rural and city slums of which the leprosy patients also form a part. Unless basic amenities like proper sanitation, water supply, more floor space and better hygienic habits are ensured, no improvement in general health or measures for prevention of diseases can succeed.

In case of the socio-economically dislocated patients who are living in self-made leprosy colonies, *jhuggies* or *jhopries*, there will be uncontrolled entry of active and infectious patients all of whom are indigent and forced to sustain themselves by begging. Such patients continue to expand their family by begetting children. Most of these patients live under extremely poor hygienic conditions without any water supply, sanitation or regular treatment and care. A large number of such types of colonies (more than 300) exist in the country, housing nearly a lakh of such population. These need to be helped speedily with provision of regular medical treatment, nutritional supplements, water supply, sanitation, permanent structure for dwelling houses and basic educational facilities. They need vocational training and sheltered work centres. Many such colonies are situated by the side of the traditional leprosy homes or hospitals. Vocational units created in these places can serve as training-cum-production centres. Such homes can also organise primary education and vocational training for the children of such patients. There should be a definite programme in which both the State Governments and voluntary organisations can participate actively

in systematic manner towards rehabilitation of these patients so that they lead a rational life.

3. RECORDING AND REPORTING OF DATA

A comprehensive and uniform system of data collection, recording and reporting for documentation, feedback and retrieval is necessary in order to follow up the programme and understand its impact on the endemicity of the disease. Clinical records of individual cases and epidemiological records of individual villages, blocks, districts and states should be maintained and reported on a monthly or quarterly basis and analysed at least once in a year. Apart from maintaining uniformity in this, the design should have retrieval facilities through a computer system. It is understood that a Committee is going into the question of designing suitable forms for data collection and recording. The W.H.O. has already a standard computer-based proforma for data collection. This Committee should take urgent action to revise the proforma against the background of information provided in the foregoing paragraphs.

4. TEACHING AND TRAINING

Leprosy in undergraduate medical curriculum as existing at present, is considered to be inadequate, particularly with respect to practical training and teaching of modern developments and advances in this field. There are training facilities under the Programme for doctors and other non-medical technical personnel through different orientation courses in leprosy held in specialized leprosy institutes. Stipends are also being provided for this purpose. Training is imparted to multi-purpose workers and community health volunteers also under the Rural Health Scheme, which has a nominal part on leprosy in the curriculum along with many other diseases. As this does not afford any realistic and practical training on the diagnosis and treatment of leprosy patients, it is necessary that the following steps are taken to gear up the training programme:

(a) The existing curriculum of undergraduate medical training should include a few more lectures and practical/demonstration classes

along with ward duties on leprosy which may be done in consultation with the Medical Council of India as well as the Indian Council of Medical Research.

(b) All medical colleges should have facilities for diagnosis of leprosy and treatment in all its aspects. The entry point could be the Dermatology Out-door Clinic. In addition, colleges located in leprosy endemic areas should have a leprosy ward and urban leprosy centre attached to them, both for indoor treatment as also for field investigations.

(c) The existing training programme in leprosy needs to be standardized and qualitatively improved through a common curriculum and examination system. Training facilities in health education, mass communication and public participation also need to be qualitatively improved. A few more training centres—both in Government and voluntary sectors—will be necessary to meet the training needs, because the number of untrained doctors and non-medical technical personnel in this field is quite large. It will also be necessary to start fresh short orientation courses in leprosy for training of multi-purpose workers, community health volunteers and their supervisors so that they can also attain enough proficiency to function independently of the specialized leprosy doctors and workers.

(d) Stipends should be made available for all these trainees from the Central Government directly through the training centre during the training period itself, to meet their daily needs. The existing system is not serving this need.

(e) Ventilation of knowledge through the means of Health Educational Camps or seminars for the local general practitioners, administrators and the public as part of the training programme should be undertaken, particularly in hyper-endemic areas. This will help in better cooperation and participation from these groups as well as identification of the disease in the early stages and will enable them to react in a more cooperative and systematic manner in following

the treatment programme and for mass campaigns for eradication of the disease (See also Chapter II).

5. ADMINISTRATIVE ASPECTS

Infrastructure

As the existing National Leprosy Control Programme is to be transformed into a time-bound National Leprosy Eradication Programme, with the specific goal of eradicating the disease from India by the turn of this century, a radical change in the existing policy-making body, administrative system and infrastructure will be necessary to gain speed for a satisfactory implementation with regard to quality as well as quantity, within a stipulated time frame. The Working Group is of the unanimous opinion that nothing short of a National Leprosy Commission, a Leprosy Eradication Board, a special cadre of trained and experienced doctors and technical personnel will be able to achieve the desired goal. While it would be necessary for the dual system (both vertical and horizontal programme) to continue for some time to come, to promote a harmonious and coordinated action, specialist staff will also be needed for specialized campaigns and for control work in high endemic areas of the disease and also to give guidance in multi-purpose districts—at the PHC, taluk and district levels. Specialist staff will also be necessary at the state, regional and central levels. Special services of experienced leprologists will be required in specific campaigns for consultation in different districts, regions and institutes both for operational as well as for training, research and guidance. The following actions are called for at different levels at the Centre and the States.

(a) *Central level*

The integrated programme of leprosy eradication should be executed through a Central Programme Officer with long experience in leprosy control work and not below the rank of a Deputy Director-General, who should be designated as Director, Leprosy Eradication Programme. He will work directly under the supervision of the Director General of Health

Services and assisted by a Deputy Director for Leprosy Control (of the rank of Assistant Director-General) and two Assistant Directors of Leprosy Control (of the rank of Deputy Assistant Director-General) and should be supported by epidemiological, health educational, statistical and secretarial staff. This Unit should function as the Executive Unit of the Leprosy Control Board and as a part of that Board under its control. The Director, Leprosy Eradication Programme, will be basically responsible for planning, programming, organisation and implementation of the Eradication Programme as per the policy decision of the proposed National Leprosy Eradication Commission and under the direction of the National Leprosy Control Board (*vide* Chapter VI). The programme may be redesignated as the National Leprosy Eradication Programme, in order to impart a sense of committed goal, purpose and urgency. The office of the Leprosy Cell should be adequately strengthened with extra technical, administrative and financial supports and provided with adequate working space, storage facilities, data processing unit, records room and at least two vehicles (with drivers) for transport and efficient functioning. Considerable authority should also be allowed to vest with the Director to enable him to discharge the enhanced responsibilities and duties and for an efficient and speedy implementation of the programme.

(b) State level

At present, except in a few states, the State Leprosy Officer (SLO) gets posted on promotion, from a totally unrelated field and before the officer can come to terms with the problem and get a grasp, he gets transferred to another service. Consequently, the Programme suffers in most states, from a lack of direction, without long term planning and follow up action. It is, therefore, recommended that:

(i) The S.L.O should be selected from amongst the seniormost of the Leprosy Control Officers of the state who have worked for more than 5 years either as a Zonal Leprosy Officer, District Leprosy Officer or even as a Leprosy Control Unit Medical Officer who has had the requisite

training and long years of field experience in leprosy control work.

(ii) He should remain in that position for a minimum period of 10 years in order to enable him to take a long term view of the problem and to give him time for appropriate planning and operation.

(iii) He should be responsible for the planning, programming and implementation of the Leprosy Eradication Programme in the state through the Government as well as Voluntary Organisations in the field.

(iv) He should hold at least the rank of a Deputy Director of Health Services, preferably Joint Director in the larger, high leprosy endemic states.

(v) While he continues to stay in leprosy service, his promotional avenues in the state cadre post or in a higher scale of pay should be ensured through a time scale with promotional avenues for every 5-7 years of qualified leprosy service.

(vi) Leprosy control staff of all categories at the state, district and peripheral levels will remain under his direct administrative control through the Zonal/District Leprosy Officers and *not* under any other state or district level officer. The Chief Medical Officer of Health/District Health Officer should, however, cooperate and act according to the advice of the Zonal/District and State Leprosy Officer in relation to leprosy control work through multi-purpose and community health volunteers in his district. The S.L.O. should implement the Eradication Programme in the state as a whole, in close coordination with and guidance from the Director, Leprosy Eradication Programme at the Centre.

(vii) The office of the S.L.O. should be suitably strengthened with additional technical and administrative staff, vehicles and suitable budgetary allocations for easy mobility to achieve a speedy and effective implementation of the Programme. There should be a Senior Zonal Leprosy Officer (in the rank of Assistant Director)

attached to his office so that one of them will always be available at the State Headquarters while the other is on tour. There should be a store, and records room in his office, a statistician with an assistant and facilities for data processing and analysing. A Mobile Epidemiological Surveillance Team consisting of a Senior field-experienced Medical officer and a few senior paramedical workers with appropriate training will be of help for concurrent assessment and monitoring of the Programme at the state level. Adequate secretarial assistance should also be provided.

(c) District level

The District or Zonal Leprosy Officer with a team of supporting staff should be provided at a rate of one per district where the prevalence of the disease is at least 5 per thousand and he should be designated as District Leprosy Officer (DLO) and one per 2 or 3 districts having a prevalence rate of less than 5 per thousand and he should be designated as Zonal Leprosy Officer (ZLO). Such an officer should be selected from amongst the senior leprosy control unit medical officers particularly from amongst those who have been working satisfactorily after undergoing the scheduled leprosy training course. The period of experience after training should be a minimum 5 years. The Z.L.O. or D.L.O. should be responsible for the organization, implementation and supervision of the Leprosy Eradication Programme (Government and Voluntary) in the district or the zone of districts, under supervision and guidance of the S.L.O. He must be administratively independent of the Chief Medical Officer of the district and the entire medical and para-medical staff of leprosy in the district or zone should be under his overall administrative control. He himself will be under the administrative control and guidance of the S.L.O. For leaving the station, he should take clearance either from the S.L.O. or in case of emergency, the District Health Officer or the Chief Medical Officer of district. His promotional avenue in the State Health Cadre or in the proposed separate Leprosy Cadre should remain open through a time-scale promotion after every 5 or 7 years of qualified satisfactory service and it should be

possible for him to hold the service rank of a Chief Medical Officer of Health or District Health Officer on promotion while he continues in leprosy service. There should be a experienced Non-Medical Supervisor, Health Educator, Laboratory Technician, Statistical Assistant, a vehicle (along with a driver), a motor-cycle, an office with space for records, store, laboratory and sufficient administrative staff attached to his office.

(d) Unit or Block level

(i) In districts with a prevalence of 5 or more per thousand population, there should be a few control units at the rate of one unit for every 3 to 4 development blocks or Primary Health Centre (PHC) areas under the charge of a full-time trained medical officer supported by other non-medical technical and administrative staff as laid down in the existing National Leprosy Control Programme. This pattern has to continue till the district passes through the intensive multi-drug campaign phase and the prevalence rate in the district comes down to less than 2.5 per thousand.

(ii) In districts with prevalence rate of 2 to below 5 per thousand, leprosy work should be looked after by the trained multi-purpose workers under the guidance of an experienced and senior para-medical worker attached to a PHC.

(iii) In districts with a prevalence rate below 2 per thousand, leprosy service can be delivered through the integrated General Health Service workers, e.g. multi-purpose workers and community health volunteers.

In the last two situations (ii & iii), the Medical Officer of the PHC or rural dispensary/subsidiary health centre and the general health workers must be made to undergo a short but intensive orientation training in leprosy. It is necessary to issue firm directives in that direction. For such districts, during the interim period, till these staff are trained and able to undertake the responsibility of detection, treatment and assessment of leprosy patients in their respective blocks, they may be helped by a trained Non-

medical Supervisor at a rate of one such supervisor for every 2 Primary Health Centres and a trained Medical Officer for every 4 or 5 Primary Health Centres.

5.1 Leprosy Cadre

The greatest handicap of the National Leprosy Control Programme has been the non-availability of requisite number of motivated doctors and non-medical technical personnel like supervisors, laboratory technicians, health educators and physio-technicians. This has been largely due to the lack of promotional opportunities and scope for career building or private practice as compared to those of the general hospitals. It is well recognised that work in this line demands not only considerable knowledge and experience but also a highly motivated and sympathetic approach to the patient as well as ability for hard and painstaking field work, which cannot normally be expected from a person of the general cadre. As a result, after training and placement, the recruited medical officer tries to get transferred to other services or else leaves the service at the earliest opportunity. For obvious reasons, such a person is not much interested in his patients, which hardly encourages the latter to seek diagnosis and treatment from the officer. This is a frequent happening that causes considerable loss of investment, dislocation of work and scant respect for the Programme itself. Even doctors who develop an interest in the work and reveal some promise and consistency, often leave leprosy service in order to get the benefit of promotion elsewhere. In such a state of uncertainty and non-availability of motivated service, one cannot achieve the desired goals through a time-bound programme. It is, therefore, imperative to ensure availability of service consistently from a band of motivated, trained and experienced leprosy workers. It is necessary to have a separate and specialized cadre of leprosy doctors within the Medical Service of each state where leprosy is of considerable magnitude. Willing medical officers from the existing cadre or from outside should be recruited to this new cadre by giving opportunities for promotion, at least in four stages—say within a period of 25 years or life-long service in

leprosy. This should be on a time-scale promotion basis. Those who opt for or enter this new cadre will thus have sufficient promotional incentives and will be motivated to continue in leprosy work without any grievance or a feeling of neglect or frustration. By this means, it will be possible to get considerable number of interested and committed doctors for leprosy work. The services in the cadre should be strictly non-practising with provision for adequate compensation by way of Non-Practising Allowance (NFA) and Special Leprosy Pay.

5.2 Similarly, a combined cadre of Non-Medical Supervisors, Laboratory Technicians, Health Educators and Physiotherapy Technicians under the designation of Senior Leprosy Technicians Cadre may be created with at least four promotional avenues. This will act as an incentive to the existing leprosy field workers and will also motivate them to undertake leprosy training and to continue in the field consistently for years without leaving the service for other lucrative fields. Leprosy para-medical workers can continue under their existing system with provision of Special Leprosy Allowance as given in the 5th/6th Plan pattern, with the promise that the posts in the Senior Leprosy Technicians Cadre will be filled up from amongst them on selection and seniority basis.

5.3 A New Cadre of Leprosy Unit Officers

While the creation of a special cadre for medical officers working in leprosy will help considerably in recruitment of doctors for this work, the Group considered that in order to facilitate the work of the doctors, it would be desirable that senior and experienced non-medical supervisors who have put in at least 10 years of service, be considered for promotion to a higher grade as Assistant Unit Officers, provided they complete successfully a course of training to be specially designed for this purpose. Creation of such promotional avenues for para-medical staff will serve as an incentive for better work.

6. OPERATIONAL STUDIES AND EVALUATION

6.1 Operational Studies

There is a need for controlled trials of different operational methods in the field, for case

detection, treatment, specially designed drug regimens, mass campaigns, health educational campaigns, community participation etc., before they are actually applied on a massive scale in the programme. These need to be undertaken in a selective number of districts in order to develop the methodology and the working pattern. It is also necessary to assess the impact of such operations on the endemicity of the disease. One such operation trial by district-wise multi-drug regimen of treatment is currently ongoing in two districts, viz. Wardha in Maharashtra and Purulia in West Bengal, and is likely to extend to 8 other districts in the country through application of Dapsone + Rifampicin + Clofazimine treatment followed by Dapsone + INS + Thiacetazone, for a period of one to two years in different dosage schedules to enable us to identify the best regimen. This treatment is expected to bring an early cure to the patient, prevent development of drug resistance and also to interrupt transmission of the disease by making the germ nonviable. If this trial is successful, it can be applied throughout the country to achieve early control of the disease. The best form of drug combinations is yet to be developed by a trial of different combinations and different doses, even while keeping the options open for entry of newer drugs likely to emerge in future, and of rejecting the ineffective and less effective drugs. Similarly, trial of different immune testing materials to identify high risk groups and also to use as possible candidates for vaccines to protect against leprosy, a specified and well-surveyed population in a specified area, with epidemiological assessment should be kept ready, in reserve, for controlled trial of such materials in the field. The Indian Council of Medical Research (ICMR) can take an initiative in this as part of an advance action strategy. Similarly, The Central Health Education Bureau can also undertake test trials of media produced by them in the form of pamphlets, posters, folders etc., for pre-testing them before they are passed on to the states for multiplication and use in the field.

6.2 Evaluation of leprosy control under the Eradication Scheme will have to be undertaken concurrently as well as periodically, at the

central, State and district levels, both for performance of individual units and the Programme as a whole in individual districts and states through an epidemiological assessment to monitor the impact of the programme on the endemicity of the disease. For this, a limited number of special staff, experienced in epidemiology and statistics and tabulation of data will be required at the Central, State and district levels. Concurrent evaluation will be undertaken by the Director (Leprosy Control) at the Central level, State Leprosy Officer at the state level and the District Leprosy Officer and the Unit or PHC Medical Officer at the Unit/Block level for leprosy eradication activities in their respective jurisdictions, who will submit their reports to the district, State and central authorities, as usual. This will also help the Leprosy Eradication Board to collect the Unit/District/State and also all India-wise information for monitoring. The Central Leprosy Cell, however, can function under the Leprosy Eradication Board, after formation of the Board.

6.3 While the programme officers will be undertaking the concurrent assessment, there is also a need for an impartial periodical assessment by a separate agency like the ICMR or a Sub-Committee of the Leprosy Eradication Board. These agencies will have to create an epidemiological assessment team under them for this purpose.

7. ALLOCATION OF TARGETS TO THE STATES AND RELEASE OF FUNDS

Tentative annual physical and objective targets and financial budget allocations earmarked for each state and union territory must be communicated to them 2 months ahead of the beginning of the financial year and confirmed within the first month (April) of the budget year so that the states get adequate time to prepare their annual programme and budget and get it reflected in the state annual plan programme and budget. This will help the states to implement the programme in the earlier part of the year; it will also then be obligatory on the part of the State Plans and Finance Sections to clear the programme early in the year.

8. VOLUNTARY SECTOR

At present, 40 large and small national voluntary institutions and eight overseas voluntary organisations play a significant role in leprosy control in the country. While the overseas organisations need not financially depend on the Government, the national voluntary institutions are almost entirely dependent on the Government because they work under the grants-in-aid scheme to voluntary institutions. The honorarium being given to doctors (@ Rs.1000/- p.m.) and P.M.Ws. (@ Rs.375/- p.m.) is pitifully inadequate, although they are not volunteers, but are actually employees on a job. The corresponding Government employees, in addition to salaries of one and a half to two folds, enjoy the benefits of Non-Practising Allowance and Special Leprosy Pay, even though they may be untrained. Many of the workers of the voluntary institutions are not only well trained but have been in service for long periods and are highly experienced and skilled, deserving much more than their counterparts in Government Units. These grants-in-aid are also very irregularly released and quite often, the employees are paid their honoraria as arrears for six months or more at a time. On the slightest complaint from legislators or district or state administrators, the grant is withheld and the workers suffer. The rate of grants towards salaries of staff, treatment and welfare of patients, health education, diet for in-patients and administrative costs need to be changed to encourage these organisations. Grants should be released 50 per cent in advance and the balance 50 per cent after receipt of previous year's audited statements.

Voluntary institutions, by their very nature, have some advantages in running effective leprosy control programme. The Task Force recommends that all suitable voluntary institutions be financially rehabilitated and their staff paid salaries in accordance with the norms in Government service. This applies only to those voluntary organisations which are engaged in field control programmes.

Wherever possible, the sphere of activity of the voluntary institutions should be extended. There must, however, be a routine check on their activities and performance, and they should be

made accountable for the effective and regular utilisation of the grant money.

9. URBAN LEPROSY PROBLEM

Leprosy has been a public health problem in the city slum areas for quite sometime. Due to better scope of employment, charity and medical service, many patients have migrated from rural areas to urban areas. Some of them have active leprosy and reside with their families, most of whom are unemployed. In the early days, leprosy was considered to be essentially a rural problem and hence only rural leprosy control units and SET centres were established in the field. Of late, however, it is realised that though mainly a rural problem, leprosy is no longer restricted to the rural areas alone but has affected some urban situations also, particularly in towns like Bombay, Calcutta, Madras, Delhi and others. It is necessary to develop an operational methodology for urban leprosy control work which can provide facility for case detection, health education, treatment and rehabilitation, through specialised workers as well as through the existing general health and hospital workers. A good number of industrial establishments and institutions have already taken up the cause for the benefit of their labourers who could also be included within the campaign and their help and cooperation utilised in the field. Operational methodology for mass campaign of multidrug treatment in urban situations also needs to be developed.

10. POPULATION SURVEILLANCE

The rate of population for surveillance under each category of workers needs to be defined for operational facilities. The basic worker in the rural as well as urban situation is a leprosy paramedical worker who should cover about 15 to 20 thousand population in high endemic areas in a rural situation where the communication is normal and in moderately endemic areas, the population coverage can be 20 to 25 thousand population per worker, and where the communication is poor, it should be 5 to 10 thousand per worker. In an urban situation, where a house-to-house survey is possible, particularly in slum areas, the population coverage per urban leprosy

worker should be about 30 to 50 thousand per worker. But where the slums are scattered and the endemicity of the disease is also not of enough magnitude to call for a house-to-house survey, the population coverage should be about 50 thousand to one lakh per worker who should be attached to an existing general or special leprosy outdoor clinic and work under the care of the Medical Officer-in-charge of that clinic. He will also have to work in the field, in addition to helping the Medical Officer to maintain the follow up records of treatment in case cards. Health education, contact tracing and slum surveys will be his main mode of case detection.

10.1 Non-medical Supervisor and Medical Officer

A Non-medical Supervisor should supervise the work of a maximum of 5 leprosy paramedical workers either in a rural or urban situation. A Medical Officer should supervise two to three such non-medical supervisors and 10 to 20 such para-medical workers, under them. But in a district, under multi-drug regimen of treatment, where an intensive campaign of case detection and treatment is to be completed within a year or two to cover the whole population of the district through a speedy operation, one paramedical worker will be necessary for every 10,0000 population and a non-medical supervisor for every 3 to 4 paramedical workers and a doctor for every 3 to 4 non-medical supervisors or for every 2 to 3 lakh population.

11. ESSENTIALITY OF A VERTICAL LEPROSY PROGRAMME

The National Leprosy Control Programme was launched as a vertical programme in 1954-55 in the First Five Year Plan. Subsequently, the programme continued, as such, till the middle of the 5th Plan Period when there was an effort to integrate the programme in some states. The experience, however, has not been very satisfactory because of lack of motivation of the general health workers and doctors to undertake leprosy work along with general health work and due to their lack of training and interest for leprosy work. This has caused considerable loss to the programme by dropouts from the list without

treatment and cure. This subject has been deeply gone into. The most important prerequisite—if we are to seriously plan and, control eradication of leprosy—is continuing and strengthening of the existing vertical control programme on the lines recommended, for the coming two decades. It may, however, be possible to integrate leprosy with general health services in districts or states, for the coming two decades. The dual system of vertical and horizontal programme has to continue both in the interest of the leprosy eradication strategy as well as for other programmes. It might, however, be possible to partly integrate some of the leprosy control workers with the general health services after a district has passed through the intensive multi-drug regimen of treatment and the endemicity of the disease has gone down in the district to a controllable level manageable by the general health workers. This should be assessed by an impartial body and the cut-off point decided thereon. When the prevalence of a high endemic district has declined below 2.5 per thousand, the general health service should be able to maintain the downward trend of the disease in that district thereafter. In the meanwhile, the general health workers of the district should also be prepared during the campaign for multi-drug regimen of treatment, by means of training as well as by their own active participation, to shoulder such new responsibilities. This constitutes a practical means of smooth transferring of duties and responsibilities after adequate preparation and without any loss of benefits to the patient.

12. PHYSICAL REQUIREMENTS OF THE PROGRAMME

The leprosy eradication programme will require supplies of drugs, vehicles and other physical requirements. Only very rough estimates of these requirements can be made at this stage as ultimately they will have to be worked out on the basis of the actual estimates of the number of patients to be put on treatment within specified periods, and the treatment schedules recommended for use. In addition, as new drugs become available and prove to be more useful than the currently available ones, these new drugs would replace the ones being currently used.

The three principal drugs required at present are Dapsone, Rifampicin and Clofazimine. The actual estimate of these drugs will depend upon the number of patients on particular schedules and the duration for which the schedules are proposed. Thus, out of 3.2 million leprosy patients in this country, about 1.2 million are expected to be in the category of 'multi-bacillary' and the remaining 2 million fall under the category of 'pauci-bacillary' cases. A severe or multi-bacillary case will require upto 22 grams of Rifampicin for treatment extending over two years, whereas a mild or pauci-bacillary case will require upto 3.6 for a 6 months period of treatment. These figures will form the basis for the actual calculation of rifampicin requirements for specific periods of time and for dealing with specific number of patients. The actual details will have to be calculated depending upon the manner in which the programme progresses, and also keeping in view that rifampicin has a shelf life of only two years. Regarding Clofazimine, the drug is only proposed to be used for multi-bacillary cases, and each such case will require about 30 grams for two years' treatment that is proposed. Here again, the actual quantity of Clofazimine required at any particular time will have to be calculated on the basis of the actual progress of the programme and what is proposed in the immediate future. Clofazimine does not have any shelf life, unlike rifampicin. Regarding the requirements of DDS, the optimum dose is 100 mg. per day, for an adult and correspondingly smaller doses for individuals of lesser weight and for children. The current availability of dapsone is not adequate and if an intensive programme of treatment is instituted, about double the quantity available at present will be needed. Some quantity of DDS + INH + Thiacetazone combination tablets which are being used for follow up treatment will also be required. Dapsone also does not have any shelf life. Variable quantities of other drugs which can be used for treatment of leprosy or complications, including thioamides, corticosteroids and thalidomide will have to be obtained. In addition, drugs for supportive therapy such as mineral and vitamin supplements, protein replacements etc. will be required. Microscopes, other laboratory equipment, health

educational materials and communication instruments will be required both for the campaign and follow up works. Other physical requirements for the implementation of the programme will include orthopaedic and orthotic devices and footwear for persons with deformities of the feet.

Suitable number of vehicles such as jeeps, motor vehicles, cycles and others must also be provided in order to enable the supervisory officers and those actually implementing the programme to move about easily within their areas of work and to ensure proper drug administration. Details regarding the actual number of vehicles can only be worked out by the District Project Officer for the district, State Programme Officer for the states and the central office for the country, as a whole.

13. FINANCIAL REQUIREMENTS

1. Costs involved in carrying out field trials: These will include the establishment of mouse footpad laboratories and provision for recurrent expenditure for these laboratories. At current estimates, about Rs. 2 to 3 lakhs are expected to be required for establishing the laboratory, and about Rs. 15 to 2 lakhs per year for maintenance.

2. Training: The programme envisages training of various categories of personnel in campaign work including health education and health instruction activities. These will have to be provided for.

3. Costs: Petrol, oil lubrication and repairs are one of the greatest handicaps for the ongoing programme and will be more so in the eradication phase of the programme. This is to be guarded.

4. Certain amount of funds for providing incentives to the workers in the form of per diem allowance at higher rates and fare for journey will be inevitable for special campaigns.

5. Some incentives to patients and voluntary or social workers and organisations will be necessary to compensate for their wage loss while waiting for diagnosis and treatment for long hours or for search of cases and absentees, respectively. Starving patients will also have to be given dietary supplements along with drugs.

6. Logistic supports and operation costs in all or an average per district basis will be about Rs. 40 lakhs in drugs and equipments and Rs. 20 lakhs in operation costs for 2 years.

For 30 districts for 3 years including 10 trial districts and drugs for selective indoor trial use, the cost of drugs will be about Rs. 20.64 crores and the operational cost will be about Rs. 7.0 crores.

In summary, following are the items for which funds are required:

1. Drugs, hospital charges, requirements for rehabilitation.
2. Trial of test regimens.
3. Survey groups for intensive case-detection activity.
4. Survey groups for intensive case-holding activity.
5. Health education, training and mass communication.
6. Logistic support - vehicles etc.
7. Payment of honoraria, incentives and travel expenses.
8. Miscellaneous costs not provided for in the above.
9. Support to voluntary organisations.
10. Additional administrative costs.

14. TIME TABLE

The strategy of the leprosy eradication programme consists essentially of the administration of multi-drug regimens of treatment to all patients, and simultaneously carrying out test studies under different conditions of leprosy endemicity. In implementing the multi-drug schedules, difficulties may be faced in certain districts where the leprosy control activity has not yet reached its optimum level of efficiency. Therefore, these trial regimens could initially be introduced in those districts where control activities are already efficient. In the meanwhile, efforts should be made for equipping the other districts with the necessary wherewithal for the new strategy. This will include appointment and training of personnel, and the use of intensive measures for case-detection and health education. A mid-term appraisal could be undertaken between 1988 and 1990 to review the efficiency of the programme, based on results from these district-

wise projects and indoor trials in some institutions. This appraisal would be useful in enabling us to decide whether the strategy can be continued or whether any changes are needed. If, in the meanwhile, radical new developments occur - as for example, a vaccine is found - the strategy could be modified to accommodate these developments. All this information can be then put to use as a continuation of the strategy for the period 1990-1999. Whatever might be the method to ensure implementation of the strategy, earmarked trained staff will be required.

At the end of this period, it will be useful for surveillance to be maintained for a further period of 5-10 years, to observe the long term effects of the implementation of the strategy and also to deal with the problem, should it reappear in a stray fashion.

A summary of the time-frame for the leprosy eradication programme is given below:

1. 1982-83: Acceptance of the strategy, and approval of administrative, financial and operative recommendations and earmarking of trained and experienced leprologists for undertaking district-wise campaigns.
2. 1983-88: (a) Implementation of the eradication programme in states ready for such activity; (b) Setting up and carrying out test studies using scientific methodology; and (c) Assessment of the operational infrastructure and existing facilities for leprosy control in states not yet ready for the programme, taking suitable measures of strengthening the infrastructure in these states, and commencement of implementation of the eradication programme, during the period, wherever possible.
3. 1988-90: Mid-term appraisal.
4. 1990-99: Completion of implementation of the strategy in areas not covered so far and assessment of the long term effects in the states covered earlier.
5. 2000-10: Vigilance and follow-up.

PACKAGE OF PUBLIC POLICIES NEEDED FOR LEPROSY CONTROL

This chapter deals with the following topics relevant to public policies on leprosy in India:

1. Legislation
2. Service Rules
3. Voluntary Institutions
4. Rehabilitation
5. Welfare of Patients
6. International Participation

1. LEGISLATION

The various clauses in the Lepers Act 1898 were framed on the basis of the knowledge available at that time. These provisions are no longer valid in the light of the present day knowledge of the disease. It is no longer desirable to deal with the disease under these special Acts. The reasons are that 80-85 per cent of leprosy patients belong to the non-infectious variety. 95 per cent of the population have adequate resistance and do not develop the disease. There is no evidence to prove that leprosy spreads through food or water. These Acts only perpetuate the social stigma attached to leprosy. The Government of India should initiate measures to repeal the Lepers Act 1898. They should also send definite instructions to the Chief Ministers of States to take immediate measures to repeal the following Acts which are no longer valid:

- (i) Hindu Marriage Act of 1956, Section 10
Judicial Separation, Section 13 Divorce;
- (ii) Hindu Special Marriage Act 1954, Section 27;
- (iii) Moslem Marriage Act 1939, Section 2(VI);
and
- (iv) Indian Christian Marriage Act 1872,
Section 13 (IV)

All these Acts should be amended suitably without delay. The Central Government should initiate measures to amend these Acts both at the Central level and the State level.

(v) Motor Vehicle Act of 1939, Second Schedule, Section (7) 5.

Under this Act a leprosy patient is disqualified to drive any vehicle. He is not given a driving licence. This needs rectification, as only a small proportion of leprosy patients suffer from sensory loss in the limbs.

(vi) Life Insurance Rules

Premium rates are higher for leprosy patients. This is again irrelevant as leprosy does not shorten the life span of a patient. The premium rate should be as for a normal person.

(vii) Election Rules

Under the present practice, there is a separate voters' booth for leprosy patients in their settlement. Further, leprosy patients are also not allowed to contest in the elections. The Election Officers in the voters' booth are also leprosy workers. Such discrimination can only strengthen the social stigma.

(viii) Inheritance

Leprosy patients are often debarred from inheriting paternal property and from utilising their paternal land or business for earning, which handicaps them socio-economically. The above list of legal acts and rules is not exhaustive but only illustrative of the legal discrimination existing, at present, against leprosy.

All such outmoded and derogatory Acts or prohibitions in Acts adversely affecting the

fundamental rights of a leprosy patient as a citizen of India, should be repealed or amended where needed, without any delay. *It must be ensured that in any subsequent legislation, this point is not lost sight of.* A patient of leprosy should be treated on par with a patient suffering from other infectious diseases. The Law Department at the Centre and in the states should be instructed to identify all derogatory and dehumanising laws, concerning leprosy patients and take immediate steps to have them repealed or amended.

2. SERVICE RULES

The existing rule about certification of leprosy patients for fitness to continue in jobs may be modified as follows:

(a) If a patient who is bacteriologically positive attends the clinic for the first time, he should be given special leave of 3 months with full pay,

(b) A patient who is bacteriologically positive but who is otherwise physically fit and has taken adequate and effective multidrug therapy for a period of at least 3 months, should be considered medically fit, provided he produces every six months thereafter, a certificate of continuing regular treatment, subject to this recommendation receiving the concurrence of bodies like the Indian Council of Medical Research.

If a bacteriologically positive patient fails to produce satisfactory proof of adequate and regular treatment for a continuous period of at least preceding 3 months, he should be made to proceed on leave for three months after which he should be taken back in service on the production of certificate, as mentioned above.

(c) In the case of a leprosy patient who develops complications during the course of the disease, he may be given additional leave with full pay on production of a certificate from a Medical Officer, covering the period of his treatment.

(d) Leprosy patients with physical handicaps or deformities should be considered as orthopaedically handicapped. They should be

entitled to get all reservations and facilities available for such orthopaedically handicapped persons, and these should include registration facilities in special employment exchanges. The above rules of certification should be made applicable to public undertakings, semi-government institutions, local health government bodies and other private undertakings.

3. VOLUNTARY INSTITUTIONS

Their role and contribution: In general, the voluntary institutions—both international and national—have done pioneering and outstanding work in the field of leprosy. Some of these institutions have been in leprosy service long before the National Leprosy Control Programme came into being. With the passage of time and consequent social, political and economic changes, many of these institutions are finding it increasingly difficult to raise funds and recruit workers with a spirit of dedication. At the moment, most workers in the voluntary sector are actually the educated, unemployed youth. In view of their performance and flexibility in their administrative management, it is preferable for the Government to help these institutions through a more liberal grant-in-aid scheme. This will help the voluntary institutions to augment the salary scales of their workers and facilitate diversification of their activities.

(i) The grant-in-aid scheme should be revised so that it covers every activity under the National Leprosy Control Programme. The voluntary organisations may be allowed to choose one or more of these programmes for their work.

(ii) It is recommended that Government may introduce a grant-in-aid scheme for vocational rehabilitation of leprosy patients.

(iii) The Government should remove all procedural delays in processing the application forms for grants and introduce the following method for periodical release of grants:

(a) 50 per cent of the grant to be released within the first month of the financial year.

(b) the remaining 50 per cent to be released after the submission of audited accounts of the previous year.

(iv) Voluntary leprosy institutions should get the advantage of the Income Tax Act 35 to give 150 per cent exemption to the donors;

(v) Public recognition should be given to eminent leprosy workers.

(vi) Drugs, equipment, and other monetary facilities in respect of patients admitted for complications should be on par with the grants provided for Governmental institutions.

4. REHABILITATION

The World Health Organisation has defined rehabilitation as follows: "By rehabilitation is meant the physical and mental restoration, as far as possible, of all treated patients to normal activity, so that they may be able to resume their place in the home, society and industry". To achieve this, treatment of the physical disability is obviously necessary, but it must be accompanied by the education of the patient, his family and the public, so that not only can he take his normal place but the society will also be willing to accept him and assist him in his complete rehabilitation.

The rehabilitation programme encompasses the following aspects:

(i) Social aspects; (ii) Physical and medical aspects; and (iii) Environmental (Occupational/employmentwise) aspect.

4.1 Rehabilitation of Leprosy Patients

Welfare and rehabilitation of leprosy patients is a great need because of the social stigma and ostracism as well as the physical deformities and mental depression, often caused by the disease, not only to the patient but also his family and children. Patients living in the community and outside the society in unauthorised leprosy colonies or in leprosy homes and hospitals and even in *Jhuggi-jhonpris*, by the side of cities, pilgrim centres and industrial areas, require help for eking out a living just for survival. If they are encouraged and helped, they can earn their living

by following different occupations through agriculture, horticulture, cottage industry, handicrafts or even as labourers or through self-employment as vendors, rickshaw-pullers, railway gangmen and gate-keepers. They need training facilities of employment and advancement of loan or capital money for starting to earn. Children of such patients or child-leprosy cases require educational facilities, dietary supplements and protection from the disease amidst their slum life. A co-ordinated action by the central organisations like ILO and DANIDA, is needed. Vocational training-cum-shelter work centres available for physically handicapped should also open their doors to leprosy patients. In addition, big leprosy homes, hospitals or colonies should have their own unit for vocational training and production. The leprosy rehabilitation promotion unit and the regional leprosy training and research institutes can act as a nodal point for establishment of such vocational training and production centres by the social welfare or labour department or by a voluntary organisation, to supplement the effort of rehabilitation at these medico-surgical centres. Important industrial houses or manufacturing firms can also extend facilities of training and employment to the leprosy patients and their children as part of their welfare activities. While integration of the patients in general community will be ideal, in a country like India where there is unemployment, special employment facilities will require to be created for job opportunities for this section.

4.2 Social and Vocational Rehabilitation

(a) A new component of the grant-in-aid scheme for voluntary institutions engaged in rehabilitation of leprosy patients should be introduced under the NLCP. In co-ordination with the Department of Social Welfare, adequate provision should be made for treatment, shelter, care of the old and crippled patients who can neither work nor be accepted by the family and society.

(b) Provision should also be made for rehabilitation and training-cum-production centres for patients who cannot compete with the health workers.

(c) Where voluntary institutions look after the child patients, or healthy children of leprosy patients, they should be given grants for their education and maintenance. The traditional practice of running homes for leprosy patients' children or children with non-leprosy and minimal lesions should be discouraged and gradually abolished; while a child with progressive leprosy should be treated as a leprosy patient, healthy children of leprous parents need to be looked after and should be accommodated in institutions, not within the traditional leprosy colonies.

4.3 Self-Settled Colonies

(a) There are a large number of self-settled colonies established by leprosy patients themselves. Some of these patients have organised themselves into registered colonies. Almost all these societies, however, are established on unauthorised land and these patients live under sub-human conditions. It is suggested that developmental programmes be undertaken to provide these inmates with profitable income generating projects. It is also recommended that such societies should be given a free right of ownership of the land on which they are located. All civic amenities like water, electricity, approach roads and proper shelter should be extended.

(b) A weekly out-patient clinic should be conducted in each colony by the leprosy workers for that area. All medical services including those for family planning should be made available to the inmates of the colony. While there must be no compulsory sterilization of leprosy patients, facilities for family planning should, however, be made available to them as is being done for others.

(c) In the case of child patients and healthy children of leprosy patients staying in these colonies, Government should extend grant-in-aid to such patients' organisations towards treatment and educational facilities. Such children should also get the benefit of integrated child development service (ICDS).

5. WELFARE OF PATIENTS

5.1 Incentives for regularity of treatment: It is suggested that some suitable compensation for loss of wages and travel expenses for attending leprosy clinics should be introduced. These patients are often the sole earning members of the family and cannot therefore afford to lose even a day's wages. It is also recommended that incentives in the form of free articles of food and/or nominal cash be given to such patients who are poor, in order to encourage regularity of treatment under a "cure from leprosy" programme.

5.2 To ensure uninterrupted intake of medicine and thus hasten the cure and prevent development of drug resistance, it is recommended that the services of a willing dedicated person should be utilized for giving the drugs on a fixed day every week to each patient in the village. Such a person should be paid an honorarium in cash or kind.

6. INTERNATIONAL PARTICIPATION

6.1 International organisations like WHO and UNICEF and bilateral agencies like SIDA, DANIDA, etc., should be approached for their increasing participation, particularly in the sphere of supply of medicines, operational costs, instruments and equipment as well as training and research.

6.2 International voluntary organisations like the Damien Foundation, German Leprosy Relief Association, Swiss Emmaus, the Leprosy Mission Foundation, etc., should be encouraged to actively participate and extend their activities in leprosy work within the framework of the National Leprosy Control Programme with the specific approval of the Government of India.

6.3 These foreign agencies and voluntary organisations, now actively participating in the programme through establishment of model leprosy control centres, leprosy hospitals and health education and rehabilitation of patients and supply of drugs, vehicles and equipment as well as augmenting training and research facilities through holding special training courses, seminars, workshops, etc., should not only be encouraged but requested to expand the scope of their participation in the programme.

MASS COMMUNICATION, HEALTH EDUCATION AND PEOPLE'S ACTION

The scientific and technical knowledge, delivery systems, public policies and environment in relation to leprosy need to be geared to meet the challenge of eradication of leprosy by mobilizing mass communication, health education and people's action. The main hurdle in achieving a breakthrough is to bring about a change in the knowledge, attitudes and practices of the society as a whole, and various target groups including the health personnel.

As leprosy is associated with social stigma arising out of fear, ignorance and superstitious beliefs handed down from generation to generation, for over 2000 years, and as our effort is to change the prejudices within a short span of 20 years, a mass communication and health education by saturated and sustained campaign should be launched. This should be done after a thorough preparation with adequate inputs including software and after setting up institutional bodies at the central, state and district levels.

Simultaneously with the launching of the programme, adequate infrastructure in terms of personnel, stockpiling, supply and delivery of drugs over the entire country should be set up. Any failure in meeting the demand generated by public awareness as a result of launching of the campaign will be counter-productive, leading to an adverse effect on the campaign as a whole.

The following objectives are to be kept in mind while launching the campaign:

1. To create awareness and interest among the people.

2. To develop positive attitudes and practices towards effective action to control and prevent leprosy with available resources and technology.
3. To enlist participation of all sections of the population, especially leadership, youth and women, school and university students (Medical/Nursing/Social Work), teachers and "out-of-school youth" in the National Leprosy Control Programme (NLCP).
4. To develop and initiate local voluntary organisations to sustain and promote NLCP by undertaking specific responsibilities.

A massive 'swing' has to be generated conducive to people's participation. The communication strategy must be so conceived and implemented as to enliven public enthusiasm and sustain the swing over a long period.

1. HEALTH EDUCATION

Health education includes the Information, Communication and Educational (ICE) efforts which bring about the desired changes in the knowledge, attitudes, beliefs, values and practices related to leprosy, its causation, mode of transmission, methods of treatment and rehabilitation. The basic principle of health education is the belief that every individual, group and community can be educated, if they are provided with learning opportunities and encouraged to participate actively in identifying and assessing the problems, in planning remedial measures and providing facilities to implement these measures. A sound health education programme should be able to generate among the

programme personnel and people, self-confidence in their mission and programmes.

Health education involves mass, group or individual media. It includes all institutions and organisations where teaching and learning activities could take place. Therefore, its scope is wide, encompassing all situations and all sections of the population, although the educational efforts are directed to specific target groups according to the nature of the problem and the type of task to be undertaken by the specific groups. Incentives and motivations are identified in the communities according to their sociocultural base.

In a traditional community with age-long beliefs, customs, taboos and superstitions, it has been found by research that the expected changes could be facilitated by inter-personal communication, group discussion and decision, and social support of specific communities. These individual, group and community education efforts, undertaken at the grassroot level by the communication volunteer with adequate supervision and support from higher levels and continued support from mass media efforts will have a greater chance to succeed than isolated, disjointed, fragmented information, communication and education (ICE) activities. These efforts will have to be channelled through various media including those of programme personnel who come in contact with the patients, their families and the community.

The District Mobile Training team with a Health Educator, Leprosy Technician and an audio-visual mobile van, will provide, on a continuing basis, the required training, education and technical support in the community.

The total health education efforts which include all ICE activities will be assessed periodically at least once a year, and mid-course corrections will be made to meet the new challenges. For this purpose, experts in communication, health education and social science will have to be provided at the state and national levels. These teams will undertake

operational research and evaluation studies, assess the efficacy of different mixtures of media and methods and give guidance to refine and develop appropriate methods, community organisation, leadership pattern and traditional media.

2. PUBLIC PARTICIPATION IN LEPROSY ERADICATION

People have to be closely associated with public health programmes as the health measures are meant for their benefit and that of their families and communities. People have their own beliefs and attitudes about the disease and these beliefs are passed on from generation to generation and consequently become second nature to them. Only education can help to drive away such beliefs.

The Government will also have to create an infrastructure for launching the communication campaign on a vertical basis from the national, state, and district to the block level as a component of the programme.

The campaign should be a sustained programme for a fairly long period to bring about the desired change on a permanent basis. It should be continued even after 2000 AD. Therefore, all available media may be exploited to convey this message and promote a national discussion on leprosy.

The communication strategy will be dealt with in this chapter under the following four heads: (1) Containment and prevention, (2) Early diagnosis and warning, (3) Curative aspects, and (4) Rehabilitation.

3. CONTAINMENT AND PREVENTION

Containment includes the following steps:

- (i) Detection of all existing cases;
- (ii) Initiation of treatment to all identified cases; and
- (iii) Ensuring timely, regular and adequate treatment as long as the doctor advises.

Containment is achieved by detection of all cases in the community and bringing them under

regular treatment. Ultimate prevention is achieved by breaking the chain of transmission.

The communication strategy should be so evolved as to educate the patients against dropping out or taking insufficient dosage of drugs. The patient's family and contacts need to be educated to ensure regular drug intake.

The communications and messages for various target groups are framed in this chapter after considering the following common questions posed in the society about leprosy:

- What is leprosy?
- Is it curable?
- Is it an infectious disease?
- Is it hereditary?
- Are drugs available to cure leprosy?
- What are the early signs and symptoms of leprosy?
- How is leprosy caused?
- Do beggar patients transmit the disease?
- Does every leprosy patient get deformity?

4. TARGET GROUPS

While the main theme of the message remains the same, people react to these messages differently depending on their cultural, educational and socio-economic levels. Therefore, the message has to be conveyed with different appeals to suit different groups. Motivation is best started with organised target groups to be followed by others. Thus, there will be two main levels, i.e. (i) patient level and (ii) non-patient level.

The second group (non-patient level) can be further divided as under:

1. Health personnel including medical and para-medical;
2. Patient's family and friends;
3. Community in general;
4. Teachers and students;
5. Community leaders/opinion formers/religious leaders;
6. Employers;
7. Employees;
8. Administrative leaders;
9. Formal leaders; and

10. Professional organisations/training institutions.

5. MESSAGE CONTENT

There should be a general message which is applicable to all the above target groups. In addition to this general message, special messages should be given to each target group. Leprosy is a disease like any other disease and it is caused by a microorganism and is completely curable. It is an infectious disease which is transmitted from one person to another. *However, it is the least communicable of all infectious diseases.* It is not hereditary and there are available, at present, very effective drugs to cure leprosy. The common signs and symptoms of leprosy are discoloured patch and an area of numbness with or without patch. Most of the beggar patients on the streets are non-infectious and do not transmit the disease. Only a certain percentage of leprosy patients develop deformities. Regular treatment in adequate doses can prevent deformity. In case of suspicion, one should get oneself examined by a qualified doctor. *All patches are not due to leprosy.*

Message (content) to specific target groups will be worked out by a special committee to be set up for this purpose.

5.1 Early Diagnosis and Warning

For early diagnosis, both the medical and non-medical persons should be made aware of the early signs and symptoms of leprosy so that they can easily diagnose a case at the initial stage itself.

GENERAL MESSAGE

A discoloured, non-itching, non-sweating and non-healing (with general medication) patch with or without numbness, or numbness with or without a patch on the skin could be an early sign of leprosy. *However, all patches are not due to leprosy.*

Target Groups

1. Health personnel (including medical and paramedical).
2. Non-medical personnel (in schools and colleges, industrial establishments etc.)
3. Community in general.

The following communication strategy is to be undertaken if the programme has to be put on a sound basis:

- (a) Educate the community on early signs and symptoms of leprosy.
- (b) Alert the community and the patients about the risks of negligence, without at the same time causing a scare.

Curative Aspects

The main problem here is in ensuring that the patient takes the treatment regularly and in adequate doses; and that he does not drop out in the middle of the treatment. The patients should be educated regarding the side effects of the drugs, if any. They should also be taught about the risks of discontinuing the treatment.

GENERAL MESSAGE

Leprosy is a disease which has a long incubation period. The drugs have to be taken for a prolonged period. It is possible to get fresh patches even after starting the treatment because of the changes in the body prior to the starting of treatment.

Target Groups

1. Patients
2. Health personnel
3. Community in general (including the patient's family).

Rehabilitation

Target groups

1. Patient
2. Health Personnel
3. Patient's family
4. Community
5. Employer
6. Employee

Patient

The patient should be made to understand and accept the physical limitations leprosy has brought into his life. Thus, he must be taught the need for protecting and caring for his anaesthetic hands and feet; how to protect himself against ulcers and developing deformities. He must be

instilled with a genuine interest in getting well and the possibility of leading a normal life.

Messages for other groups will be framed by a committee to be set up.

THE MEDIA MIX

Though the media mix lies within the media-planners' professional area, updated research-data are dealt with in this chapter which may be gone into before finally deciding on the content. For illustrative purpose, some data are presented to show how proper media mix can ensure better focussing of the message to target groups and earn better mileage for every rupee of expenditure on our national effort.

Cinema as the key medium

Creative communication through the cinema medium has the maximum potential for education on leprosy in India. With the literacy rates very low at 36.17 per cent (1971 census), cinema will continue to serve as the key medium. The following data are presented to support this fact:

Exposure to cinema

The percentage of urban population exposed to various media is: Cinema, 58.6; Press, 52.8; Radio (Vividh Bharati), 50.5; and Television, 12.2.

Reach in income categories

Cinema has the highest reach in lower income categories (up to Rs. 500/- p.m.), while the Press has the highest penetration in the income category over Rs. 500/- p.m.

Media	Up to Rs. 250	251-500	501-1000	over 1000
Press	27.9	47.4	66.8	78.8
Cinema	47.1	57.2	64.0	69.9
Radio	29.5	48.3	62.2	67.0
Television	3.1	7.3	16.5	31.2

Reach in age-group

Cinema has substantially higher penetration in the younger age groups (up to 35 years).

Media	15-24 yrs	25-34 yrs	35-44 yrs	45 yrs +
Press	66.3	37.2	48.3	37.9
Cinema	78.5	71.9	55.9	28.7
Radio	62.6	56.2	47.3	36.6
Television	16.6	12.6	10.5	8.7

Zone wise

Cinema has the highest penetration in all the zones except the North.

Zone	Press %	Cinema %	Radio % (Vividh Bharati)	Television %
North	45.6	48.5	50.6	20.1
East	51.4	53.2	44.3	13.2
West	57.0	59.2	51.6	11.2
South	55.8	69.6	54.5	3.6
All India	52.8	58.6	55.5	12.2

The total number of cinema theatres is around 10,400 and the four southern states have around 4000 theatres. The cinema-going habit in the south is found to be very strong, with a reach of almost 70 per cent.

It is relevant to add here that the total number of cinema tickets sold annually is over 300 million and 4 to 5 theatres are coming up every week.

Exposure to basic media by States*

State/Metro.	Press	Cinema	Radio (Vividh Bharati)	Television
Andhra Pradesh	47.3	70.8	55.7	—
Bihar	42.8	44.5	32.5	—
Karnataka	50.2	70.9	56.0	—
Kerala	74.1	61.3	48.5	—
Maharashtra/Goa	61.2	58.3	59.5	25.2
Tamil Nadu	59.3	70.6	54.8	9.2
West Bengal	54.2	54.1	49.7	23.8
Calcutta Metro	59.2	54.9	57.8	33.4
Bombay Metro	69.9	60.0	64.8	49.6
Madras Metro	67.1	71.9	85.5	24.3

(*Source: NRS 1978 and allied data).

The Press

The relative strength of press media is brought out in the comparative tables given above. The printed word has its own strength, attention value, recall value and persuasion value. There are 15,814 newspapers and periodicals in India.

Population exposed to Press in the endemic states are as follows:

Andhra Pradesh	33.10 lakhs
Bihar	19.12 "
Karnataka	31.60 "
Kerala	23.00 "
Maharashtra & Goa	79.00 "
Tamil Nadu	62.08 "
West Bengal	52.36 "
Bombay Metro	36.23 "
Calcutta Metro	35.20 "
Madras Metro	22.03 "
All India	476.20 "

The leader section of the society, the innovators, the elite and the middle class are within the reach of newspapers. Once the idea gets acceptance from this primary group, it is quite likely to penetrate into the secondary group of lower socio-economic group. Press is, therefore, an important pace-setter.

Steps

National dailies, regional dailies, medium and small scale papers: Top leaders of the Government/Ministry of Information and Broadcasting and top State Government leaders may enlist the active support of the editors to write editorially and through articles and stories to give positive accent to leprosy news and views. Prominent writers may be included in this. Papers may carry special articles/stories in Sunday editions. They may be requested to carry a special free panel on leprosy. Similar slogans can be carried daily/weekly.

Magazines and periodicals

Government owned papers, magazines/periodicals, House journals of public sector units: Accent can be easily arranged by a directive.

House journals of private companies, club journals, religious journals: Given a suitable lead and momentum, it is easy to use these media. Comic strips, letters, engagement columns etc. can be used with advantage.

Journals in Leprosy should be given every encouragement. *They should be exempted from postage charges.*

Radio

As this is a Government controlled medium which is a powerful tool, it is easy for the Government to use this medium. Spots, jingles, sponsored programmes, etc. can be carried. Spots may be carried about six times a day at peak listening hours, with creative ideas. Radio can be used advantageously to cover areas inaccessible to other media throughout the country. Special bulletins may be carried periodically. Programmes for villagers should carry a health education component.

Television

This Government owned medium can also be used to advantage. Spots, news, events, stories, etc. can be carried to a large audience. Television has a special significance in metropolitan and urban areas where slums multiply. Similarly health education can be carried through satellite programmes to cover rural population. As this is an audio-visual medium, the results obtained can be beyond normal expectation. Folk-art can be employed through television to influence the rural population.

Outdoor (Posters/Transfers/Banners)

All Government transport may be asked to carry, free of charge, posters, transfers, etc.; for example, suburban trains, mail, and passenger trains, buses, bus and train terminals, railways and bus stations, waiting rooms in hospitals, revenue offices, panchayat offices, ration offices, fair price shops, electric poles/kiosks, may be used at vantage points. Hoardings at vantage points may also be used. Labels for match-boxes, students' exercise books, stickers for cars and vehicles, taxis etc.

Inland letters/postcards can carry the message as this is Government owned. Boards wall paintings in villages, slums, housing colonies etc. can also be very effective.

Exhibitions (Religious, Jatras, Melas, Festivals etc.)

There are several melas and festivals in our country, throughout the year in which the lower and middle class groups of individuals mainly take part. The State Government, public bodies, social groups and others can be encouraged to instal public information booths, display stalls, banners, slide-shows, film shows, etc. to the public with leprosy as the central theme. Examples are Sabari malai Festival in Kerala, Velankanni Festival in Tamil Nadu, Dussera in Karnataka, Tirupati Temple Festivals, Pandharpur Ashad Ekadasi Festival in Maharashtra, Ajmer Congregation for Muslims, Kumbh Mela, Puja Festivals in Bengal.

Others

Lessons may be introduced on leprosy in schools/colleges where these may be counted for qualifying marks. There has to be greater stress on leprosy in medical education at graduate/postgraduate levels as also greater stress on medical education/social education of PMWs. Pamphlets, circulars etc. can play their part. Booklets, hand-outs on leprosy to suit different standards of reading public etc. and facilities for orientation courses for social workers may be made use of.

Industries (Large and Small)

There are between 7.5 lakhs to 10 lakhs of medium and small scale industries. If properly motivated, they can act as supporters in the schemes. Large and small companies can adopt villages/areas/communities for health education. Tax incentives can boost their effort.

Industrial workers and workers' unions will need special education for participation, since they are not only organised but also have resources. It is necessary to enlist their collaboration in this national effort for a variety of reasons. For rehabilitation of cured persons industrial workers would be the key people.

Social bodies

Rotary and Lions Clubs, Progressive Groups, Giants, Jaycees and others all over the country have considerable resources at their command and they are service-oriented. We must, therefore, enlist their support.

Group discussions must be encouraged. Women's Associations, Student Bodies and others can help the cause in a big way.

Word of mouth

This medium has the greatest potential as it carries credibility. If the mood and the style of people are generated in a positive frame, word of mouth communication can be very effective. Student bodies, NSS, social activities, retired persons, and ex-servicemen may be given such projects, assignments etc. on a regular basis. Similarly, we may use services of the teachers, lecturers and professors, village officials, revenue officials etc. to carry the message.

Symbol

A suitably attractive and meaningful symbol should be designed, on priority basis, to identify leprosy.

STRATEGY

The total strategy of communication and education should include mass communication, inter-personal communication, group education and community organisation. All these four lead to people's active participation in the whole programme. There should be a judicious mix of all the components—social, cultural, environmental and organisational, that are available.

The strategy should have a crash survey programme involving people from different areas to find out the attitudes of the people, how they can be motivated, and solve problems of rehabilitation etc.

There should also be a survey of educational and communicational activities to know the existing facilities that are available for our use.

Types of media that are acceptable in particular areas should be assessed.

The crash survey should be undertaken in selected areas in the country, consisting of metropolitan cities, urban towns and rural endemic areas.

Areas should be chosen in different states of the country to prepare prototypes for the campaign to be launched. These campaigns will have a different media mix depending upon the socio-cultural pattern in that area and the target groups that are required to be reached.

While prototypes are developed, the campaign may be launched in selected areas to protect their effectiveness. This is a process which should be a continuous one and it should be ensured that the programme does not get stalled due to lack of services to the specific needs for the next 20 years.

All media of mass communication need to be harnessed simultaneously:

1. Newspapers, radio, television and cinema.
2. Outdoor publicity like hoardings, wall paintings, bus/train panels, exhibitions, posters etc.
3. Inter-personal communication which would ultimately achieve the objective of people's participation, like group discussions etc. It would be necessary to introduce health education for the medical and para-medical workers and also the whole community. This can be done in schools and colleges in the country.

The ultimate objective would be to achieve the active participation of all sections of the community in the whole programme.

While every worker involved in the work of leprosy eradication is to be a communicator, in a sense, professional communication and health education will have to be given exclusive attention if the programme is to succeed. For this purpose, there should be a committee at the national level.

There should be a National Board for taking care of all the programmes on leprosy. For this purpose, the creation of a communication cell at the national level would be necessary which would assign tasks to different organisations in the country, both public and voluntary sectors so that all available talent in the country is harnessed for the achievement of our objectives.

This Task Force feels that setting up of a National Board is essential to co-ordinate all the activities of leprosy programme and under this Board, a sub-committee on communication and health education should be set up to advise on health education and communication.

Information, Communication and Educational (ICE) activities have to be planned, implemented and periodically evaluated at different levels of execution. Such a planned programme will pay rich dividends and also help reach our goals. In order to do this, there must be appropriate organisation at different levels to give a thrust to the activities and coordinate such work with that of various agencies. It is proposed that a small communication and education cell be created at the national, state and district levels with appropriate technical and supporting secretarial staff.

At the district level, the ICE Cell will work with the District Leprosy Officer of the National Leprosy Control Programme. Its primary responsibility is to organise communication and educational activities in the community. The proposal is to have a Health Education Officer and a Media Officer who are assisted by the Leprosy Technician. The Media Officer will be in charge of the educational activities while the Health Education Officer and the Leprosy Technician will concentrate on the training of different categories of health personnel at their place of work. There will be a driver-cum-projectionist who will assist the media officer and the health education officer.

At the state level, the staff proposed are Health Education-cum-Communication Officer, Social

Scientist, Management Officer, Programme Officer and a Training Officer, with secretarial staff. The responsibility of this Cell will be assisting in the policy developments, formulation of programme strategy, evaluation, manpower development and supplies, coordination of activities with other agencies and training of personnel. The full component of 5 staff members is necessary for the endemic states, while the non-endemic states will have about half the strength of the staff of the endemic states.

Since there is a health educator at the SET Centre level, no staff is proposed for the block level. However, the health educator at the SET level will be trained in the Information, Communication and Education activities. At the gross-root level, it is proposed to have a voluntary communicator whose responsibility will be organising the health education in the community. He will be one of the community, selected for his positive attitude towards leprosy and his ability to work with people. This individual will be given training, supervision and support. He will not be paid any salary but his work will be recognised either by giving small awards or by public recognition.

Ten to 20 voluntary village communicators will be supervised by a voluntary leprosy guide who will be a part-time voluntary worker at the sub-centre level. His educational qualification will be about 8th standard or above. His selection will be based on his inclination to work in the field of leprosy like the voluntary village communicators.

CONCLUSION

In conclusion, mass communication holds the master key for leprosy eradication, if used creatively and judiciously in conjunction with other disciplines, viz. medical, social and cultural. Mass communication and health education can tilt the scale of prejudices against leprosy towards one of enthusiastic participation. Now that India will soon have its own communication satellite, the software development for health education should receive high priority.

INTEGRATED ACTION PLAN

The Working Group has been asked to recommend measures which would help the country to achieve freedom from the scourge of leprosy by the end of this century. In terms of the planned development of action programmes, this would imply that leprosy control measures should have had a marked impact by the end of the Ninth Plan period (1995-2000 AD). Since financial allocations for programmes are largely made on the basis of Five-year Plans, the Working Group would like to offer its recommendations in the form of a milestone chart covering the remaining 3 years of the Sixth Plan and ending with the Ninth Plan. Before we make our concrete recommendations, it would be useful to recapitulate the current position of this disease in India.

1. CURRENT POSITION OF THE DISEASE

(i) In quantitative terms, we have about 3.2 million (1971) leprosy patients in the country. Surveys should be carried out to ascertain the actual prevalence of leprosy in the country.

(ii) The bacterium responsible for leprosy is widely prevalent in the country. Fortunately, however, only a few out of the many who are exposed to infection develop the disease. Even among these few, about 80 per cent suffer from a non-infectious form of the disease. Therefore, the public health problems from the point of view of the spread of infection are caused by about 15 to 20 per cent of the patients who are unable to fight the disease due to an innate deficiency in the defence mechanisms of the body.

(iii) Most of the affected patients belong to the poorer sections of the community. Crowding in slums is an important cause of spread, since transmission of leprosy takes place from person-

to-person contact. Children from the poorer classes tend to get the disease easily because such families, both parents and children, live huddled together in tiny huts. The linkage between poverty and leprosy, therefore, should not be overlooked.

(iv) It is possible today to detect leprosy at a very early stage and administer an effective cure through a multi-drug regimen. Even those who have developed physical defects as a result of the disease could be helped to lead a normal life through suitable surgical and physiotherapeutic measures. Fortunately, leprosy does not do any harm to the brain and hence many leprosy patients have a very sound mind and intellectual capability, in spite of physical deformities.

(v) There is widespread ignorance of the causal mechanism, nature of spread and methods of cure, among the general public including the educated persons. Consequently, leprosy has become a much dreaded disease and the knowledge that it is just like any other communicable disease for which an effective cure is available, is restricted to a few specialists and those in the voluntary sector who are attending to the affected persons. Because of the widespread ignorance, there is great fear of the disease and consequently those affected suffer from severe social stigma and isolation. They become rejects of the society and have often to live by begging and resorting to activities like illicit liquor distillation.

(vi) The National leprosy Control Programme initiated in 1955 has now completed 25 years of operation. This programme based largely on the use of chemotherapy has been useful in providing

relief to a large number of affected persons. The fact remains, however, that this programme has not been able to bring down, in any significant manner, the growth in the population of leprosy patients. This is mainly due to the slow pace of development and implementation of the programme during the First to the Fourth Plan periods. By that time, only one-third of the total magnitude of the problem in relation to the endemic population and the estimated number of cases in the country, had actually been covered, two-thirds of the problem remaining not covered. In addition, the humanitarian and the rehabilitative aspects have not found their rightful place in the programme. It is, therefore, obvious that a "more of the same" approach may not take us to the desired goal. *We hence suggest an integrated programme of leprosy control which can help to achieve a synthesis between the preventive, curative and rehabilitative aspects of disease control and the human and socio-economic aspects of the problem.* The importance of the human aspect has been underlined by the Prime Minister at her meeting with leading leprologists on 20th November 1981 (Appendix III) as well as by some of the doyens of the leprosy control programme like Baba Amte and Shivajirao Patwardhan. The Working Group is confident that if the human and socio-economic aspects of the disease are integrated with the recent medical advances on control methods and the programme is implemented rapidly through a campaign of multi-drug regimen of treatment, covering the entire country, we can make, within the next 20 years, this dreaded disease a problem of the past, as has already happened in the affluent countries. This will require a national will and determined action.

2. MILESTONE CHART

The broad aims of programme thrusts and design could be on the following lines:

(a) *Mass Awareness and Participation in Sixth Plan (1982-85)—Getting leprosy accepted by the society as any other disease for which cure is available through mass education, will be the major programme thrust.* The steps necessary for this

purpose will include (i) the annulment of, and amendments to the Indian Lepers Act of 1898, the Bombay Prevention of Beggary Act of 1959 and the Hindu-Muslim-Christian Marriage Acts; and similarly all Acts as referred to in Chapter IV.1; (ii) leaders in Government and those of political parties should set an example by keeping on their personal staff those individuals who are cured of leprosy; (iii) effective use of mass media, particularly the cinema, radio and television, and incorporation of a lesson on leprosy in school manuals; (iv) mobilisation of NSS, NCC and other associations of both student and non-student youth and particularly of medical colleges for spreading scientific knowledge concerning leprosy; (v) training of existing staff of the programme; (vi) strengthening the infrastructure for leprosy detection, case retention, multi-drug administration, training and rehabilitation; (vii) collection, analysis of statistical data on the performance of the programme, unit-wise, district-wise and state-wise; and (viii) effective implementation of the programme with flexibility to meet the locational specificity to fulfil the objective of the programme of eradication of the disease. It will be helpful if the Lok Sabha and Rajya Sabha and State legislatures adopt a resolution on the national resolve for the eradication of leprosy through a blend of human, economic and medical action. Health education programmes including the syllabus for medical students should be suitably restructured for promoting a greater interest and understanding of leprosy among doctors and health workers. The multi-drug regimen as per guidelines given in Chapter II should be introduced particularly in districts where there is a high concentration of leprosy patients. A time-bound action programme with respect to the introduction of treatment schedules should be drawn up by the Union Ministry of Health and Family Welfare. Steps for the early detection of cases through mobile skin camps and other devices should be introduced. Steps should be taken to mobilise the necessary drugs through import, international assistance and through indigenous production. Every student of the MBBS course of Medical Colleges should be required to spend about 3 weeks of the internship

period in a suitable leprosy hospital and detection/rehabilitation centre operated either by Government or a voluntary agency. Non-formal employment procedures involving the use of former leprosy patients should be introduced. The existing arrangements for surgical reconstruction of deformed limbs and for rehabilitation measures need considerable expansion.

In addition to steps for early case detection and cure, there is need for additional steps which can help to induce the affected patients to take the full course of treatment. Since many of the patients are extremely poor and some make a living by begging or similar methods, it is necessary to provide some assistance which would enable them to take advantage of the facilities provided for chemotherapy. The World Food Programme (WFP) has indicated an interest in supporting a project for the control and eradication of leprosy. WFP had earlier supported a project in Guyana where food was used as an incentive to attract those afflicted by leprosy to take treatment regularly in the hospital. If the outpatients attended regularly, WFP rations were issued free of charge for the patient as well as the patient's dependents, particularly children. The effect was striking in as much as most of the outpatients came regularly for treatment. A similar "*Food for Leprosy Cure*" project could be taken up particularly in areas where there are a large number of very poor leprosy patients. Wheat or rice, pulses, vegetable oil and milk powder could be given to the patients who attend regularly, out of commodities supplied by WFP. Another method of using WFP assistance in the integrated leprosy control programme is the use of foodgrains for a special "*Food for Work*" programme in a few selected slum areas with a high concentration of patients. If it can be demonstrated to the leprosy patients that their micro-environment is largely responsible for the spread of the disease, then the eradication programme can proceed faster. Thus we recommend a twin strategy for the use of commodities made available by the Government of India and WFP, viz., for case holding and for environmental improvement in areas inhabited by leprosy patients.

(b) *Attack Phase, Intensified Chemotherapy Campaign: Seventh Plan (1985-90)*—If the foregoing steps are taken during 1982-85, there should be a much wider awareness of the cause of leprosy and of the fact that it is completely curable. Social discrimination trends will then weaken. With the favourable climate thus created, it should be possible to launch a massive programme for interrupting the transmission cycle and for bringing about a significant reduction in the number of persons affected by the disease through a multi-drug treatment programme in every block where there are patients. Self-reliance in the production of necessary drugs should be aimed at to the extent feasible. The existing Sixth plan Leprosy scheme should be implemented speedily with recruitment and training of the necessary manpower to build the infrastructure on the field and to have the population screened at least once to identify the cases in the community and to bring them under multi-drug treatment.

(c) *Consolidation Phase. Eighth and Ninth Plans (1990-2000)*—It may be possible to achieve a complete control of leprosy if an effective and safe vaccine becomes available by then. Even if a vaccine is not available, it will be possible for the few new cases developing every year to be immediately detected and treated. By the end of the century, we should then have only persons who had been affected by leprosy but who have become completely cured and rehabilitated.

3. INSTITUTIONAL STRUCTURE FOR POLICY, GUIDANCE, PROGRAMME IMPLEMENTATION AND MONITORING AND EVALUATION.

If the goal of eradicating leprosy from the country by the end of this century is to be accomplished, it will be essential that the various recommendations we have made in this Report are implemented with a sense of urgency, commitment and compassion. Considerable work on bringing about horizontal linkages among various governmental and non-governmental agencies through an effective coordination mechanism will also be necessary. We suggest the following institutional framework for ensuring the success of this programme:

(a) *National Level* : At the national level we recommend the setting up of a *National Commission for Eradication of Leprosy* with the Prime Minister as the Chairman and the Union Health Minister as the Vice-Chairman. The suggested composition of the Commission is as follows:

- | | |
|------------------|---|
| 1. Chairman | Prime Minister |
| 2. Vice-Chairman | Union Minister of Health & Family Welfare |

Members

3. Union Minister of Finance
4. Union Minister of Planning
5. Union Minister of Education & Social Welfare
6. Five Chief Ministers of States in rotation
7. Eight eminent leprologists, social workers and others engaged in leprosy control and "Health for All" programmes
8. Chairman of the proposed National Consortium of Voluntary Organisations engaged in leprosy control work.

The National Commission will be a policy guidance body and will keep the time-bound programme under surveillance. The Commission may meet once a year and consider a report summarising the progress made during that year in the implementation of the leprosy control and rehabilitation programmes. The Commission can also review the suggestions made by the National Leprosy Advisory Committee. The Commission may set up Task Forces for specific purposes from time to time, if needed. The Health Secretary will serve as the ex-officio Secretary of the Commission.

(b) *Executive Level*: At the executive level, we recommend the setting up a National Leprosy Eradication Board which is vested with the powers of Government from the administration and financial angles. This Board may be chaired by the Union Health Secretary. The other Members of the Board will be the following:

1. Expenditure Secretary
2. Director General of Health Services
3. Director General, Indian Council of Medical Research
4. Secretary, Social Welfare Department
5. Secretary, Information & Broadcasting Ministry

6. Adviser (Health), Planning Commission
7. Member for Research & Development (Whole-time)
8. Member for Implementation, Monitoring and Evaluation (Whole-time)
9. Member for Public Participation, Mass Media Mobilisation & Health Education (Whole-time)

The Director of the Integrated Programmes of Leprosy Eradication will serve as the ex-officio Member-Secretary of the Board.

The three whole-time members we have recommended may be appointed by Government on a tenurial basis by selecting the most appropriate person for the job to be done.

The National Leprosy Eradication Board (NLEB) will ensure the effective implementation of the policy decisions taken by the National Leprosy Eradication Commission (NLEC). It will keep the administrative, financial and implementation aspects of the Leprosy Control Programme under continuous review and suggest such mid-course corrections as may be necessary for maintaining the desired momentum of progress. The Board will also provide grants to voluntary and non-governmental organisations and will be the channel through which Government funds are made available to voluntary agencies.

(c) *State Level*: At the state level, similar state level committees should be set up, particularly to start within states with a high concentration of leprosy patients. The Policy Guidance Committee at the state level may be chaired by the Chief Minister with the Health Minister serving as Vice-Chairman. The Task Implementation Sub-Committee of the State Level Committee may be chaired by the State Health Secretary. Wherever programmes like Integrated Child Development Services are in operation, detection of leprosy should become an integrated part of the programme.

(d) *Voluntary and Non-governmental sector*: Along with the National and State level institutional set-ups, it will be desirable to promote the organisation of a *national consortium of voluntary agencies* involved in leprosy treatment and rehabilitation programmes. Such a

national consortium of organisations should periodically review the problems faced in making the leprosy control programme a people's movement. Government should give tax incentives which will enable voluntary agencies to receive financial support. In addition, a *National Fund for Leprosy Eradication* could be set up under the auspices of the national consortium of voluntary agencies. Contributions to this fund could be used in the manner of a revolving fund which will provide the needed assistance to voluntary organisations doing dedicated work. Contributions to this fund should be accorded tax exemption. The Chairman of such a consortium should be a member of the proposed National Commission for Eradication of Leprosy. The Health Ministry may convene a meeting of the voluntary organisations (national and international) to explore such a possibility and get the consensus.

Personnel Policies—Personnel policies both in the case of Government as well as public and private sector industries should be so designed that leprosy patients after cure are treated like other patients who have recovered from a communicable disease. Patients belonging to landless labour families should be given priority in the allotment of ceiling surplus land, so that they could take to farming as a profession. The integrated Rural Development Programme, National Rural Employment Programme and TRYSEM (Training Rural Youth for Self-Employment) should give priority to leprosy patients in their beneficiary-oriented programmes.

Urban Slum Improvement—The sub-human existence of millions of people in urban slums provides conditions congenial for the spread of leprosy and other communicable diseases. Therefore, slum improvement and providing housing to slum dwellers are exceedingly important for ultimate victory in the battle to eradicate leprosy. Government may consider additional steps for providing houses to slum dwellers. This will not only help to contain and ultimately eradicate leprosy but will also be essential for achieving the goal of "Health for All" by 2000 AD.

Introduction of an integrated strategy on the above lines may help to overcome the deficiencies in the on-going National Leprosy Control Programme. We are fortunate that modern medical research has provided valuable drugs and techniques to fight this disease. These tools, however powerful they are, will not be adequate by themselves. This is why we have laid considerable stress on the human, psychological, educational and economic aspects of this disease and not just only on its medical aspects. Concern for man himself has to be the basis of the action strategy.

Industrial Disputes Act and Charitable Leprosy Organisations

Voluntary organisations, depending on individual and government grants often find difficulty in running their institutes when their healthy staff form a union coming under the purview of the Industrial Disputes Act. Quite often such organisations cannot pay according to other industries and business establishments because of paucity of funds, lack of sufficient administrative and management manpower and the very philosophy of social service as the driving force of such institutes. On the other hand, the staff or workers in such institutions (healthy or patients) need a minimum wage comparable to government servants in similar institutions doing the same type of work, to maintain their livelihood and families. Government may consider whether non-profit charitable organisations providing free service to leprosy patients should preferably be kept out of the Industrial Disputes Act. Immediately, however, Government grants to such organisations should be suitably enhanced so that they are able to bear the additional burden. Since voluntary agencies work on the principles of selfless service and sacrifice, it is important that they are not forced to conform to regulations based on a money-based value system. The blind application of rules and regulations developed for preventing exploitation by greedy commercial and business interests to those who have chosen a life of social service and voluntary poverty will kill both voluntary action and the spirit of selfless service.

SUMMARY OF THE MAJOR RECOMMENDATIONS OF THE WORKING GROUP

1. Constitution of a National Leprosy Control Commission (NLCC), with the Prime Minister as its Chairman, for the guidance and surveillance of the leprosy eradication programme, is recommended. A National Leprosy Eradication Board vested with the powers of Government and with the Union Health Secretary as its Chairman, may be constituted to serve as the Executive Body responsible for the implementation of the plans and policies of NLCC. It is recommended that states where there is a high incidence of leprosy may also constitute such Policy Guidance and Implementation Bodies under the chairmanship of the Chief Minister and the State Health Secretary respectively (Chapter II and Chapter VI).

2. Continuation of the vertical structure of the leprosy control programme with administrative and technical strengthening and streamlining of the leprosy cells at the central, state and district levels is considered essential (Chapter II).

3. A systematic case detection campaign is recommended in the high endemic districts, to begin with, to bring all the cases under treatment within specified period of time in order to: (i) drastically interrupt disease transmission resulting in a rapid decline in the incidence of the disease, and (ii) prevent further emergence of drug resistant leprosy (Chapter II and Chapter III).

The existing single-drug therapy by dapsone (DDS) alone should be supplemented by one or more bactericidal drugs including rifampicin at least for the treatment of smear-positive or infectious type of cases, in the form of a campaign which is likely to achieve substantial control of the disease and constitute a step further towards

its eradication. In order to undertake such a campaign on a massive scale, the ongoing Sixth Plan Leprosy Control Scheme needs to be speedily implemented to lay the necessary infrastructure in the field and to prepare the ground. Health education, population survey, mass communication, training of staff and welfare services to the patients should be geared up for the success of the campaign (Chapter II and Chapter III).

4. To attract and retain doctors in leprosy control services, creation of a special sub-cadre for leprosy service in the State Health Services is recommended (Chapter III).

5. It is recommended that the Voluntary Institutions engaged in leprosy work be strengthened and their functioning made easier by timely release of grant money. Where appropriate the employees under the grant-in-aid schemes to voluntary institutions be paid salaries on par with their counterparts in Government service (Chapter III). Government should make the necessary funds available for this purpose to voluntary organisations.

6. Unless medical students are made to learn leprosy as a part of their curriculum, by including compulsory questions on leprosy in their examination, inadequate interest in leprosy work among doctors in service, and general medical practitioners, will continue. It is, therefore, recommended that the recommendations of the Mukhopadhyay Committee of the Medical Council of India on teaching of leprosy to undergraduate medical students be immediately implemented (Chapter II).

7. In order to ease the situation resulting from shortage or lack of a Medical Officer in many control units and for better supervision of control units, and also to provide incentives by way of promotion to meritorious paramedical field workers, it is recommended that senior PMWs with at least ten years' experience be given one year's intensive training in the basics of general and community medicine in a special training course, and on successful completion of such training, posted as officers in charge of leprosy control units (Chapter III).
8. Legislative measures at the central and state levels need to be initiated to repeal the Indian Lepers Act (1898) and amend suitably, legislation based on out-dated and unscientific premises. Some pieces of legislation enacted on the basis of old concepts are derogatory to the interests of the leprosy patients and their basic rights as human beings (Chapter IV).
9. To make the leprosy eradication campaign popular and acceptable to the people, a nationwide mass education campaign needs to be launched and pursued vigorously to educate people on the true facts about leprosy and remove superstitions and wrong beliefs and the social stigma associated with leprosy. Software development for health communication should receive high priority (Chapter V).
10. Research efforts in vital areas like development of methods for early diagnosis, identification of individuals with higher risk of developing leprosy, *in vitro* culture of the leprosy bacillus, development of newer drugs and immunomodulators, development and testing of anti-leprosy vaccine *etc.* deserve utmost priority. Existing research institutes and facilities should be strengthened to take these up (Chapter II).
11. During the eradication phase, it is recommended that the programme officer for leprosy in the Health Directorate be designated as Director of Leprosy Control with the rank of a Deputy Director General of Health Services. Similarly, the leprosy programme officers in the states should not hold ranks below that of a Deputy Director of Health Services. The leprosy control staff in the districts may be placed under the direct administrative control and discipline of the State Leprosy Officer (Chapter III).
12. While it is difficult to visualise the extent of additional financial requirement at this stage, since the layout and expansion of facilities to be created have to be done in phases, the National Leprosy Eradication Board should go into the details of funds needed, as the programme expands. The Working Group, however, recommends an interim budget (Appendix V) covering the remaining years of the Sixth Plan period providing for the execution of the action plan for this period as outlined in the Milestone Chart in Chapter VI.
13. A National Consortium to coordinate the activities of all the voluntary organisations may be constituted. The Government can help such a body to raise funds from donors with the benefit of tax exemption. A revolving fund created and controlled by the consortium may be utilised to help voluntary institutions in times of cash flow problems (Chapter VI).
14. It will be useful if the Lok Sabha, Rajya Sabha and the State Legislatures pass resolutions endorsing eradication of leprosy by the end of this century as a national goal (Chapter VI).
15. Intensive efforts need to be launched if India has to become self-sufficient in the requirement of anti-leprosy drugs. Till the indigenous production of these drugs reaches the required level, the additional quantities required will have to be obtained from external sources to meet the existing demand. The support of suitable bilateral and UN agencies could be enlisted for obtaining the needed drugs (Chapter II).
16. It is essential that rehabilitation becomes an integral part of leprosy control. For this purpose, coordinated efforts by the Departments of Health, Education and Social Welfare as well as Voluntary Organisations are necessary. The Ministry of Health and Family Welfare may function as the nodal point for this purpose.

Leprosy colonies should be provided with the minimum basic needs of food, water, housing and work opportunities (Chapter III).

17. Incentives by way of cash and other means should be given to patients for prompt and regular drug consumption and attendance. Special "Food for Cure" programmes may also be introduced in areas characterised by a high prevalence of the disease (Chapter VI).

18. Children of leprosy patients (and child patients of leprosy) should receive priority attention under the Integrated Child Development Service (Chapter IV).

19. Screening of pre-school children and youth for possible infection through "Skin Camps"

should become a regular activity. The help of NSS and NCC students may be enlisted in such a mass case detection programme, after they are given appropriate training for this purpose. With proper preparation, this programme may be initiated during summer, 1982 (Chapter VI).

20. "A more of the same approach" will not take us to the desired goal. What is needed is the integration of medical control methods with a human approach to the problem. Concern and compassion should permeate the control programme. The Milestone Chart suggested for the control programme indicates the order of priorities which may help us to reach the desired goal by the end of this century (Chapter VI).

ACKNOWLEDGEMENTS

The Working Group is deeply indebted to a very large number of persons ranging from grass-root level workers in the field of leprosy control to the Prime Minister for their advice and guidance. The Union Minister for Health & Family Welfare as well as State Chief Ministers and Ministers of Health & Family Welfare have been most generous in assisting the Working Group in its work. Inspiring leaders like Baba Amte of Anandavan, Shivaji Rao Patwardhan of Tapovan, Shri R.S. Ghavai, Chairman, Maharashtra Legislative Council as well as the Director and Staff of the National Leprosy Organisation and Gandhi Memorial Leprosy Foundation, Wardha, have all been exceedingly helpful.

The following joined the Working Group meetings as Special Invitees and our sincere thanks are due to them:

- | | |
|--------------------------------|----------------------------|
| 1. Pandit Harinath Misra, M.P. | 8. Dr. B.S. Verma |
| 2. Dr. M.S. Nilkantha Rao | 9. Shri S.P. Tare |
| 3. Shri Bhagwan Singh Dalwai | 10. Shri J.C. Jetli |
| 4. Shri A.R.K. Pillai | 11. Shri I.C. Bansal |
| 5. Dr. (Miss) Claire Vellut | 12. Dr. K.G. Krishnamurthy |
| 6. Dr. N.H. Antia | 13. Shri M.C. Narasimhan |
| 7. Dr. D.S. Chaudhury | 14. Shri K. Kumar |

Our sincere thanks are also due to the staff of several Central and State Government Departments, the Planning Commission, Department of Science & Technology, the Indian Council of Medical Research, the Medical Council of India, the Central Council of Research in Ayurveda and Siddha, the Central Drug Research Institute, Lucknow, the Central Leprosy Teaching and Research Institute, Chingleputtu, and numerous other official and voluntary organisations. We are grateful to the numerous eminent leprologists, social workers and government officials who joined us at the regional meetings. In fact, we have been overwhelmed by the cooperation and guidance we have received from such a variety of individuals and institutions. This augurs well for the successful implementation of this programme.

Special thanks are due to Dr. G.V. Satyavati, Deputy Director General, Indian Council of Medical Research, who very generously undertook the task of editing the material for publication.

APPENDIX I

(TO BE PUBLISHED IN PART I SECTION 1 OF THE GAZETTE OF INDIA)

No.T.11022/25/81-CCD
Government of India
Ministry of Health and Family Welfare
(Department of Health)

New Delhi, the 8th July, 1981.

RESOLUTION

The Government of India consider that a stage has arrived when it should be possible to evolve a strategy for undertaking an eradication programme for leprosy in the next 20 years. For this purpose, it has been decided to set up a Working Group to formulate an appropriate strategy for the purpose, taking advantage of the great advances in the chemotherapy of leprosy, the extended reach of mass media, the promise of recent medical research and other relevant factors.

2. The composition of the Working Group shall be as given in Annexure to this Resolution. The Chairman of the Working Group will have authority to co-opt other scientists/leprologists/social workers engaged in the field of leprosy relief and rehabilitation, as considered necessary.

3. The terms of reference of the Working Group shall be as under:

I. In working out the strategy and recommending a time-bound action programme, the Working Group will focus, among other things, on the following aspects:

- (a) Chemotherapy including indigenous production of anti-leprosy drugs;
- (b) Sociological dimensions;
- (c) Legal aspects;
- (d) Delivery system;
- (e) Role of the voluntary sector;
- (f) Health education;
- (g) Medical education and medical research; and
- (h) Rehabilitation.

II. The main thrust of the Action Programme should be to reduce the reservoir of infection in the community in the shortest possible time.

III. The Working Group will submit its Report to the Government in three months.

4. TA/DA to official Members of the Working Group will be admissible in accordance with their entitlement under the normal rules. TA/DA to non-official Members of the Working Group will be admissible in accordance with SR-190 and orders issued by the Government of India thereunder, as quoted in Appendix X to FR/SR, Parts I & II and the decision of the Government regarding mode of travel separately conveyed to the Chairman of the Working Group.

Sd/-
(I.C. Bansal)
Director (PH)

To
The General Manager
Government of India Press
Faridabad (Haryana).
No. T.11022/25/81-CCD

Dated 8th July, 1981

Ordered that a copy of the Resolution be communicated to all Ministries/Departments of the Government of India, all State Governments/Union Territories.

Ordered further that the Resolutions be published in the Gazette of India for information.

Sd/-
(I.C. Bansal)
Director (PH)

No. T.11022/25/81-CCD

Dated 8th July, 1981

Copy forwarded for information to:

- 1 All Members of the Working Group.
- 2 Secretary, Department of Science & Technology, New Delhi.
- 3 Secretary, CSIR.
- 4 Director-General, Indian Council of Medical Research, Medical Enclave, New Delhi.
- 5 Accountant General Central Revenues, New Delhi.
- 6 DGHS.
- 7 P & AO (Sect.), Department of Health.
- 8 All Officers/Sections in the Department of Health.
- 9 Bureau of Planning.
- 10 Deputy Press Information Officer/Director, CHEB, for giving publicity.
- 11 All Health Secretaries (States & U.Ts.)

Sd/-
(I.C. Bansal)
Director (PH)

ANNEXURE TO APPENDIX I

WORKING GROUP ON LEPROSY ERADICATION

- 1 Dr. M.S. Swaminathan
Member
Planning Commission
New Delhi (*Chairman*)
- 2 Dr. V. Ramalingaswamy
Director-General
Indian Council of Medical Research
New Delhi
- 3 Dr. R.H. Thangaraj
Secretary General
Leprosy Mission
New Delhi
- 4 Mrs Anoo Bhagwat
President
Vidarbha Maharogi Sewa Mandal
Shree Jagadamba Kushta Niwas
Tapowan
Amaravati (Maharashtra)
- 5 Dr. Vikas Amte
Maharogi Sewa Samiti
Anandavan
Wardha
- 6 Mrs. Leela Moolgaonkar
Vice President
Society for the Eradication of Leprosy
24, Homi Mody Street
Bombay 400 023
- 7 Dr. C.G.S. Iyer
Emeritus Medical Scientist
Central Leprosy Teaching and
Research Institute
Chingleputtu
- 8 Dr. B.R. Chatterjee
Director
Coordinated ILEP Project
Field Research Station
Jhalda, Dist. Purulia
West Bengal
- 9 Dr. Gangadhar Sharma
State Leprosy Officer
79/81, Annasalai
Madras
- 10 Dr. Nityanand
Director
Central Drug Research Institut.
Lucknow
- 11 Dr. K.V. Desikan
Director
Central Jalma Institute for Leprosy
Agra
- 12 Dr. K.C. Das
Assistant Director-General (Leprosy)
Directorate General of Health Services
New Delhi (*Member Secretary*)

APPENDIX II

The Working Group on Leprosy constituted four Task Forces to assist the Group formulating recommendations on (1) package of technology, (2) package of delivery system, (3) package of public policy and (4) people's action on mass communication.

TASK FORCE A ON PACKAGE OF TECHNOLOGY

(Covering existing scientific knowledge on leprosy, development of vaccine, chemotherapy and drug

production, immunisation, identification of high risk groups, prevention and management of deformities)

Convener

Dr. Nityanand
Director
Central Drug Research Institute
Lucknow

Members

- 1 Dr. K.V. Desikan
Director
Central Jalma Institute for Leprosy (ICMR)
Agra
- 2 Dr. S. Sriramachari
Director
Institute of Pathology (ICMR)
Safdarjung Hospital
New Delhi
- 3 Dr. B.R. Chatterjee
Director
Leprosy Mission
Field Research Centre
Jalda, Purulia
West Bengal
- 4 Dr. G.P. Talwar
Professor of Biochemistry
All India Institute of Medical Sciences
New Delhi

5 Dr. Indira Nath
Assistant Professor
Department of Pathology
All India Institute of Medical Sciences
New Delhi

6 Dr. N.H. Antia
Director
Medical Research Centre
Worli
Bombay

7 Dr. C.V. Bapat
Deputy Director
Tata Cancer Research Institute
Bombay

TASK FORCE B ON PACKAGE OF SERVICES AND DELIVERY SYSTEM

(Including the methodology of control and eradication programme and their actual delivery in case detection, treatment and rehabilitation along with training and development of suitable manpower, the structure and pattern of service units at State, District, Unit and peripheral levels, the extent and pattern of interested, horizontal and special or vertical services, health education and rehabilitation)

Convener

Dr. C.G.S. Iyer
Emeritus Scientist (ICMR)
Central Leprosy Training and
Research Institute (CLTRI)
Chingleputtu (Tamil Nadu)

Members

- 1 Dr. C.S. Gangadhar Sharma
Deputy Director of Health Services (Leprosy)
Madras.
- 2 Dr. M.S. Nilkantha Rao
WHO Consultant in Leprosy and
Ex-Director, Gandhi Memorial Leprosy Centre
Wardha.

- 3 Dr. R. Ganapati
Director
Greater Bombay Leprosy Control Project
Sion East
Bombay.
- 4 Dr. G. Ramu
Deputy Director
Central Jalma Institute for Leprosy
Agra
- 5 Dr. M. Christian
Deputy Director
Schieffelin Leprosy Research and Training Centre
Karigiri.
- 6 Dr. D. Anandaraj
Assistant Director of Health Services (Leprosy)
Hyderabad
Andhra Pradesh.
- 7 Dr. V. Ekambaram
Secretary
Damien Foundation (India Unit)
Venkateshapuram
Madras.
- 8 Shri R.S. Mani
Technical Adviser
German Leprosy Relief Association
Gajapati Naidu
Madras.
- 9 Dr. E.P. Fritschi
Director
Schieffelin Leprosy Research and Training Centre
Karigiri.
- 10 Dr. A.J. Selvapandian
Professor of Orthopaedic Surgery
Christian Medical College
Vellore
Tamil Nadu.
- 11 Dr. P. Kapoor
Technical Adviser
Damien Foundation (India Unit)
Bhubaneswar
Orissa and Ex-State Leprosy Officer
Maharashtra

12 Dr. H. Srinivasan
Deputy Director (Reconstructive Surgery)
Central Leprosy Training and
Research Institute
Chingleputtu (Tamil Nadu).

13 Shri J.C. Jaitli
Joint Secretary
Department of Social Welfare
Ministry of Education and Social
Welfare, Shastri Bhavan
New Delhi.

TASK FORCE C ON PACKAGE OF PUBLIC POLICIES

(Including the Acts covering leprosy patients and workers, e.g. Indian Lepers Act 1898, the Local Self Government Act, Beggars Act, Marriage and Divorce Act and Medical Certification for fitness for joining the service; certificate of infectivity and non-infectivity, leave rules (Medical), extra premium for insurance, Labour Dispute Act for Leprosy institutes and the right to form unions and strikes as well as extra incentives necessary for attracting doctors and others for leprosy work in Government and voluntary institutes, the voluntary grants-in-aid schemes etc.).

Convener

Smt. Leela Moolgaokar
Vice President
Society for Eradication of Leprosy
Homi Modi Street
Bombay.

Members

1 Smt. Anoo Bhagawat
Vidarbha Maharogi Sewa Mandal
Tapowan, Amaravati
Maharashtra.

2 Dr. R.S. Sharma
Director
Dattapur Leprosy Colony
Wardha.

3 Dr. J.M. Mehta
Director
Bandarwalla Leprosy Hospital
and, Chairman
Poona Antileprosy Association
Kondwa, Pune.

4 Shri Devendra Kumar
Acting Director
Gandhi Memorial Leprosy Association
Wardha.

5 Shri S.P. Tare
Assistant Director
Gandhi Memorial Leprosy Foundation
and Secretary, National Leprosy Organisation
Wardha.

6 Shri B.S. Dalwari
Voluntary Social Worker
Vidarbha Maharogi Sewa Mandal
Tapowan, Amaravati
Maharashtra.

**TASK FORCE D ON PEOPLE'S ACTION
AND MASS COMMUNICATION**

(Covering community participation, health education, publicity and mass communication through mass media like newspapers, journals, radio, television, satellite communication, school health service media etc. for different groups along with a systematic and planned programme of action)

Convener

Dr. R.H. Thangaraj
Secretary-General
Leprosy Mission, New Delhi,
and Member, Governing Body
Hind Kusht Nivaran Sangh.

Members

1 Dr. Vikas Amte
Incharge
Maharogi Sewa Samithi
Anandawan, Dist. Chanda
Maharashtra.

2 Shri A.R.K. Pillai
Public Relations Adviser
German Leprosy Relief Association
Bombay.

3 Shri I.R. Rao
Chief Medical Officer
Ministry of Health
New Delhi.

4 Shri G. Parthasarathy
Editor
Central Health Education Bureau (CHEB)
Kotla Road
New Delhi.

5 Dr. (Smt) Philips
All India Institute of Hygiene
and Public Health
Calcutta.

6 Shri V.K. Tyagi
Press Information Officer
Ministry of Health
New Delhi.

7 Shri M.S. Mehendale
Health Education and Publicity Officer
Poona Anti-Leprosy Association
Pune.

8 Dr. V.V. Dongre
Acworth Leprosy Hospital
Bombay.

9 Shri S.S. Naik
R.R.E. Society
Bombay.

APPENDIX III

MEMBER
PLANNING COMMISSION
YOJNA BHAVAN
NEW DELHI-1

D.O. No. (M(S)-PC/81-5763

21 November 1981

Dear Colleague,

While finalising our report, it would be useful to recapitulate some of the major points made by the Prime Minister when she met a group of leprologists and leprosy workers on 20th November, 1981. For the sake of convenience, I wish to highlight a few of the points :

1. Remove the stigma from childhood. For this purpose, attend to child education and care.
2. Current efforts are small in relation to the size of the problem. However, it is important that the programme is designed in such a way that it could have a meaningful impact within a specific time frame.
3. The fact that only 20 to 25 per cent of cases can transmit the infection is not widely known, general knowledge concerning leprosy is poor and there is need for a programme of mass education.
4. Voluntary agencies are playing a very important role and everything possible to improve their impact should be done.
5. We should have a policy of manufacturing the drugs needed within the country. We could also accept international assistance in the supply of drugs and other relevant assistance wherever it is forthcoming.
6. The programme should be drawn up both with the short term and long term perspective. Clear-cut priorities should be indicated, so that we can optimise the benefits from the available resources.

7. The whole programme of rehabilitation of cured leprosy patients needs to be carefully looked into. Rehabilitation measures should be strengthened.
8. The disease should not be allowed to spread. A suitable containment programme should be initiated.
9. Research on problems such as resistance to drugs should be strengthened. The work on vaccine production should also be suitably strengthened.
10. For deciding the criteria on which a patient can be declared to be free of infective capacity, it will be desirable to get the clear-cut recommendations of bodies such as the Indian Medical Council and the Indian Council of Medical Research. It will be for professional bodies to make an authoritative pronouncement on the subject. This will facilitate appropriate modifications in existing legislation.
11. Early detection and continuation of treatment until necessary are essential for the success of the programme. Steps should be taken to ensure that the drugs and other services reach the people for whom they are intended.
12. Youth involvement is essential for the success of the programme. Suitable measures should be taken in this respect.

I hope the conveners will be able to finalise their respective reports by the end of this month. We shall then develop a draft report and get it circulated among Members. We can hold our next meeting some time in the third week of December, 1981, so that our report could be utilised for making necessary financial provision in the Budget for 1982-83.

With my best regards,

Yours sincerely,

Sd/-
(M.S. Swaminathan)

APPENDIX IV

Telegram: 'MEDCO CIND', NEW DELHI

Telephone: 273184

No. MCI-26(2)/79-Med/2171

New Delhi, dated 16th April 1979

From

The Secretary
Medical Council of India
Temple Lane, Kotla Road
New Delhi

To

The Deans/Principals,
All the Medical Colleges in India.

Subject: *Report on 'Workshop on Training of Undergraduate Medical Students in Leprosy' sponsored jointly by Gandhi Memorial Leprosy Foundation and the Medical Council of India*

Sir,

I am to state that the Executive Committee of this Council at its meeting held on 20th March, 1979 considered the report on a Workshop on Training of Undergraduate Medical Students in Leprosy, sponsored jointly by Gandhi Memorial Leprosy Foundation and the Medical Council of India (held at Calcutta on 23rd and 24th February, 1979).

I am directed to forward herewith a copy of the report on a Workshop on Training of Undergraduate Medical Students in Leprosy for your guidance and implementation.

Kindly acknowledge receipt.

Encl: *As above*

Endst. No. MCI-26(2)/79-Med/2277

Dated the 16th April, 1979

Copy with a copy of the report mentioned above is forwarded for information and necessary action to:

1. The Acting Director, Gandhi Memorial Leprosy Foundation, Gandhinagar, Wardha-442103 (Maharashtra).
2. The Secretary to the Govt. of India, Ministry of Health & Family Welfare (Deptt. of Health), New Delhi.
3. The Director General of Health Services, New Delhi.
4. The Director General of Armed Forces Medical Services, New Delhi.

Sd/-
(U.B. Krishnan)
Secretary

Encl: *As above*

Yours faithfully,

Sd/
(U.B. Krishnan)
Secretary

REPORT ON WORKSHOP ON TRAINING OF UNDERGRADUATE MEDICAL STUDENTS IN LEPROSY

(Sponsored jointly by Gandhi Memorial Leprosy Foundation and the Medical Council of India, on 23rd & 24th February, 1979 at All India Institute of Hygiene and Public Health, Calcutta)

A Workshop sponsored jointly by the Medical Council of India and the Gandhi Memorial Leprosy Foundation, was held to draw up a detailed programme of curriculum and training requirements in leprosy for the undergraduate medical students, at the All India Institute of Hygiene and Public Health, Calcutta on 23rd and 24th February, 1979.

The Workshop began at 11.00 A.M. on 23rd February when following were present.

1. Dr. B. Mukhopadhaya
Vice-President
Medical Council of India
Saidpur Road
Patna. (*Chairman*)
2. Dr. D.B. Bisht
Dy. Director-General of Health Services
New Delhi.
3. Dr. M.D. Gupte
Acting Director
Gandhi Memorial Leprosy Foundation
Wardha.
4. Dr. N.S. Deodhar
Director
All India Institute of Hygiene & Public Health
Calcutta.
5. Dr. P.V. Sathe
Professor of Dermatology
Govt. Medical College
Aurangabad.
6. Dr. B.M.S. Bedi
Professor of Dermatology
Govt. Medical College
Panaji (Goa).
7. Dr. P. Kapoor
Joint Director of Health Services (Leprosy)
Poona.
8. Dr. R.N. Srivastava
Professor & Head of the Deptt. of
Social & Preventive Medicine
M.L.B. Medical College
Jhansi.
9. Dr. U.B. Krishnan
Secretary
Medical Council of India
New Delhi. (*Convener*)
10. Dr. A.S. Thambiah
Professor of Dermatology
Madras Medical College
Madras.
11. Dr. J.M. Boopalraj
Assistant Professor
Deptt. of Leprosy
Medical College, Madras.

Following two participants had conveyed their inability to attend on 23rd due to cancellation of Madras-Calcutta Flight. They joined the Workshop on 24th February.

The participants discussed all aspects of training of medical undergraduates, involvement of teachers of Medical Colleges in teaching of leprosy, refresher courses for general medical practitioners and other related matters and decided as follows:

I. SYLLABUS

It was generally recognised that there were lacunae in the teaching of leprosy in undergraduate curriculum and there was scope for strengthening the training programme.

1. FOR UNDERGRADUATE MEDICAL STUDENTS

Objectives: The participants felt that the undergraduate medical students at the end of 4½ years course—

- (i) should know the natural history and clinical manifestations so as to suspect and diagnose leprosy in all stages especially in the early stage;
- (ii) should be able to manage therapy of the disease and its complications comprehensively;
- (iii) be conversant with social pathology of the disease and have compassionate but scientific attitude towards leprosy patients; and

- (iv) should know the principles of prevention and control of leprosy.

Suggested syllabus for training

(a) *Clinical Aspects*: Clinical spectrum, diagnosis in all stages particularly in early stage; classification; demonstration of slit and scrape method; laboratory diagnosis; differential diagnosis, natural course; complications; care of feet, hands, etc. by patient; treatment with drugs; type of reactions and their management; lepromin test; social aspects of leprosy

(b) *Pathological and Microbiological Aspects*: Gross histopathology of leprosy, morphology and characteristics of *M. leprae*, demonstration of effects on various tissues and organs.

(c) *Pharmacological Aspects*: Anti-leprosy drugs

(d) *Surgical Aspects*: Aetiology and early detection of injuries and ulcers; management of ulcers; common deformities, their prevention and management including surgical correction; ophthalmic complications and their management; demonstration of physiotherapy in leprosy.

(e) *Preventive and Social Medicine Aspects*: Epidemiology of leprosy; problems in case detection and case holding; prevention and control; immunoprophylaxis and chemoprophylaxis; social factors in leprosy; health education of the patient, relatives and society in general; rehabilitation, National Leprosy Control Programme Organisation, role to be played by general medical practitioner and medical officer at primary health centre, field demonstration of leprosy control programme; visit to the home of a leprosy patient to study the patient and his family.

It was recommended that the existing department of dermatology should be coordinating department for implementing this programme on items (a) to (e).

(f) At the end of post-examination internship period a medical student—

(i) should know how to work with commonly available facilities at Primary Health Centres for prevention and total management of leprosy

(ii) should know role of a doctor in NLCP, and

(iii) should acquire skills and know application of health education techniques at individual, family and community level for prevention and control of leprosy.

Out of the period of six months' rural internship, the medical student should have participating experience in leprosy control programme for a period of 15 days.

The Medical Council of India was requested to circulate these recommendations as recommendations of the Medical Council of India to all the Medical Colleges in India.

II. INVOLVEMENT OF TEACHERS OF MEDICAL COLLEGES IN TEACHING OF LEPROSY

It was recommended that teachers from different disciplines of medical colleges be approached through various modalities to know their views and to stimulate them to make the teaching programme in leprosy more effective and implement the suggested programme. One such modality could be to bring together medical teachers from concerned disciplines of two or three medical colleges for one day symposium. Such a programme will be organised by a senior person with experience in leprosy work. Another modality would be to have a seminar discussion by a local active teacher supplemented and supported by a senior person from outside the institute.

It is recommended that Gandhi Memorial Leprosy Foundation be requested to devise, implement and evaluate such programmes by itself or in collaboration with Central or State Government, Medical Council of India, Universities, other voluntary agencies etc. After gaining experience of the effectiveness of different modalities and taking into consideration local conditions, suitable programmes could be developed.

III. CONTINUING EDUCATION

(a) The Workshop also reviewed the question of organising and conducting refresher/orientation courses for the general medical practitioners to bring them upto date on the modern concepts for the diagnosis and treatment of leprosy. The Workshop took note of the efforts made in this regard by the Gandhi Memorial Leprosy Foundation.

(b) *Orientation Training in Leprosy for Medical Officers of Primary Health Centres*: Experience of the six day programme of the Gandhi Memorial Leprosy Foundation in training medical officers of Primary Health Centres in Wardha District was presented by Dr. M.D. Gupte. Dr. Gupte was requested to send a detailed scheme on this subject to Dr. Bisht, Dy. Director General, Health Services.

The Workshop then ended with a vote of thanks to the Chair.

Dated 2nd March, 1979.

APPENDIX V

BUDGET DURING THE REMAINING
PART OF THE VI PLAN PERIOD

The Sixth Plan National Leprosy Control Programme has been framed with the object of reducing the problem of total number of active cases in the community by about 50 per cent by the end of the Plan period through consolidation of work of the already established units in detection, treatment of cases early in the disease, assessment of cases under treatment, training of staff and undertaking research and also by supplementing the programme by establishment of certain newer components for extension of the surveys in urban areas, tribal and backward areas, augmentation of the training programme and promotion of rehabilitation. The physical targets are:

(a) Leprosy Control Units-15, Survey, Education and Treatment Centres-200, Para-medical Supervisors-360, Urban Leprosy Centres-50, Reconstructive Survey Units-10, Leprosy Training Centres-3, Leprosy Wards-50, District Leprosy Units-50, Medical Units for Urban Centres-40, Upgradation of Leprosy Training Centres-20, Sample Survey-cum-Assessment Units-12, Grants to Voluntary Beds-10,000 beds, Leprosy Rehabilitation Promotion Units-15, Pilot Projects for Intensification of Leprosy Work in 15 districts, Epidemiological Surveillance Teams-15, Regional Leprosy Training-cum-Research and Referral Institutes-6, and Construction of buildings for different Leprosy Units and replacement of old vehicles and microscopes at a total estimated cost of Rs. 40 crores out of which about Rs. 8 crores have already been spent and about 32 crores will be available till 1984-85.

(b) In addition, there will be some components arising out of this Working Group recommendations.

The total requirement for both approved ongoing 6th Plan scheme targets as given under (a) above and for additional components arising out of the Working Group's recommendations as mentioned above under (b) will be as follows:

	Rs. in crores (for 3 years)
For establishment and maintenance of targets under the 6th Plan Scheme already approved by the Planning Commission and the Ministry of Health	32.00
Additional components:	
1 ICMR Research Projects already cleared by their Scientific Advisory Board (40 projects) and about 40-50 projects for 3 years	2.30
2 Development of four more mouse foot-pad centres in addition to the existing 4 such centres in phases	0.14
3 Development of one Armadillo Colony	0.14
4 Development of one Nude Mouse Colony	0.14
5 Creation of additional training facilities for medical and non-medical technical personnel through organisation of 6 more training centres for each group	0.47
6 Drugs:	
(i) Dapsone (DDS) @ 50 tonnes per year	5.00
(ii) Rifampicin—(300 mg capsules-27 million capsules)	8.86
(iii) Clofazimine—(100 mg capsules-57.5 million capsules)	11.28
(iv) Prothionamide—(250 mg capsules-6 million capsules)	0.50
7 Health education and public communication for staff, media making, vehicles, projection equipment and operational cost	8.00
8 Welfare of socio-economically dislocated patients-100 leprosy colonies for improvement of their sanitation, water supply, out-door dispensary, vocational unit, primary school and loans for self-employment @ Rs. 5 lakhs per colony (Rs. 4 lakhs-Rs. 1 lakh)	3.00
9 Incentives to leprosy patients, social workers etc.	4.00

10 Food for leprosy cure	1.80	Less: The following amount is already earmarked and available from existing Plan funds:	
11 Special Cadre Cost for 1000 doctors and cost for 100 Assistant Leprosy Unit Officers	6.00	—Existing Plan provision	32 crores
		—Dapsone (DDS) from foreign voluntary sector	2.00 crores
12 Multi-drug regimen through district wise campaigns covering 25 from high and hyper endemic districts (each district operating for 2 years) @Rs. 20 lakhs per district for operational cost on phased basis	7.00	—Rifampicin, Clofazimine and Prothionamide (SIDA)	20.65 crores
		—Multi-drug operational cost	7.00 crores
		—Health education and training for voluntary zone	1.00 crore
		—Voluntary SET groups	0.60 crores
			<hr/> 63.25 crores <hr/>
13 Grants to Voluntary Organisations for SET to support their existing institutions, honorarium to organisers and workers, construction of accommodations and purchase of vehicles and equipment etc. @ Rs. 1 lakh per SET/Institute- for 200 such institutes on a phased basis	3.00		
		Rs. 98.38 – 63.25 = Rs. 35.13 crores needed additionally for 3 years.	
14 Administrative expenses:			
(a) Central Leprosy Commission and Board	0.25		
(b) State Leprosy Boards @ Rs. 1 lakh per state	0.50		
(c) Strengthening of Central Leprosy Cell	0.05		
(d) Strengthening of 30 State Leprosy Cells @ Rs. 0.01 crore	0.50		
(e) 250 District Leprosy Units @ Rs. 0.25 lakhs	1.50	1982-83:	Rs. 8 crores
(f) 380 LCUs @ Rs. 0.001 crore	1.50	1983-84:	Rs. 12 crores
(g) Leprosy Institutes and Training Centres-50 @ Rs. 0.20 lakhs	0.45	1984-85:	Rs. 15 crores
	<hr/> 98.38 <hr/>	Total	<hr/> Rs. 35 crores <hr/>

PHASING

It is suggested that out of the total additional requirement of Rs. 35 crores, the allocation of funds may be done in the following manner.

1982-83:	Rs. 8 crores
1983-84:	Rs. 12 crores
1984-85:	Rs. 15 crores

Total

Rs. 35 crores
