Report of the Working Group on Disease Burden for the 12th Five Year Plan
OFFICE MEMORANDUM

Subject: Constitution of working group on Disease Burden (Communicable and non-communicable diseases) for the formulation of the Twelfth Five Year Plan (2012-2017)

With a view to formulate the Twelfth Five Year Plan (2012-2017) for the Health Sector, it has been decided to constitute a Working Group on Disease Burden with sub groups on Communicable Diseases and Non-communicable Diseases for the formulation of the Twelfth Five Year Plan (2012-2017) under the Chairmanship of Dr. R. K. Srivastava, DGHS, Ministry of Health and Family welfare, Government of India. The composition and the terms of reference of the Working group would be as follows:

Subgroup I: Communicable Diseases

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dr. R. K. Srivastava, DGHS, MoHFW</td>
<td>Chairperson</td>
</tr>
<tr>
<td>2.</td>
<td>Dr. Yogesh Jain, Jan Swasthya Sahyoj</td>
<td>Co-Chairperson</td>
</tr>
<tr>
<td>3.</td>
<td>Dr. Shiv Lal, Adviser, DGHS, MoHFW</td>
<td>Member</td>
</tr>
<tr>
<td>4.</td>
<td>Joint Secretary (Public Health), MoHFW</td>
<td>Member</td>
</tr>
<tr>
<td>5.</td>
<td>Dr. Lalit Kant, Scientist ‘G’ and Head (Epidemiology and Communicable Diseases Division), ICMR, New Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>6.</td>
<td>Director, Patel Chest Institute, Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>7.</td>
<td>Director, All India Institute of Hygiene and Public Health (AIHH &amp; PH), Kolkata</td>
<td>Member</td>
</tr>
<tr>
<td>8.</td>
<td>Director, National Vector Borne Disease Control Programme (NVBDCP), New Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>9.</td>
<td>Director, National Institute of Epidemiology, Chennai</td>
<td>Member</td>
</tr>
<tr>
<td>10.</td>
<td>Director, Voluntary Health Association of India, New Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>11.</td>
<td>Dr. J.C. Suri, Head Dept. of Pulmonary Medicine, Vardhman Mahavir Medical College &amp; Safdarjung Hospital Hospital (VMCC &amp; SJ ), New Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>12.</td>
<td>Dr. C.S. Pandav, Dept. of Community Medicine, AIIMS, New Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>13.</td>
<td>Prof. Jay Prakash Muliyal, Head of Dept. of Community Medicine, Christian Medical College, Vellore</td>
<td>Member</td>
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<tr>
<td>14.</td>
<td>Dr. John C Oommen, Krushi Hospital, Cuttack, Orissa</td>
<td>Member</td>
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<tr>
<td>15.</td>
<td>Dr. Biswaroop Chatterjee, Microbiologist, West Bengal</td>
<td>Member</td>
</tr>
<tr>
<td>16.</td>
<td>Dr. S Sridhar, BASIX (Bhartiya Samrudhi Investments and Consulting Services), Gujarat</td>
<td>Member</td>
</tr>
</tbody>
</table>
Terms of Reference

I. To document the burden and trend of communicable diseases including emerging and re-emerging infectious diseases in India

II. To review the achievement of ongoing major communicable disease control programmes their target and suggests corrective measures to improve their implementation in the 12th Plan.

III. To suggest introduction of new programmes/ continuation of existing programmes for control of communicable diseases and modifications required, if any, in the 12th Five Year Plan on the basis of 1 & 2 above along with detailed budget for each programme.

IV. To review the current system of monitoring and evaluation of the existing communicable disease control programmes and suggest measures to make the system more effective

V. To suggest mechanisms of partnership with mother NGOs/private sector/community/local self government in implementation and monitoring of the health programmes proposed in the 12th Plan.

VI. To review the current status of HMIS in terms of its quality and utilization and propose to develop it into an effective system during the 12th Plan for providing reliable and updated data base for communicable diseases.

VII. To review the functioning Integrated Disease Surveillance Programme in terms of its effectiveness in strengthening surveillance for picking up early warning signals of outbreaks and institution of appropriate control measures in a timely manner, identify gaps and suggest measures to strengthen the surveillance system for prevention and control of communicable diseases during the 12th Plan.

VIII. To review the status of implementation of International Health Regulations 2005 in the country with special reference to public health response to various types of public health emergencies of international concern and suggest measures to comply with requirements under IHR.
IX. To deliberate and give recommendations on any other matter relevant to prevention and control of communicable diseases.

Subgroup 2: Non-Communicable Diseases

<table>
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<tr>
<th>No.</th>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>1</td>
<td>Dr. R. K. Srivastava, DGHS, MoHFW</td>
<td>Chairperson</td>
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<tr>
<td>2</td>
<td>Dr. H.C. Goyal, Adviser, DGHS, MoHFW</td>
<td>Member</td>
</tr>
<tr>
<td>3</td>
<td>Sh. B. K. Prasad, Joint Secretary MoHFW New Delhi</td>
<td>Member</td>
</tr>
<tr>
<td>4</td>
<td>Dr. Bela Shah, Scientist ‘G’ and Head (NCD Division), ICMR, New Delhi</td>
<td>Member</td>
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<tr>
<td>5</td>
<td>Dr. Rajender A Badwe, Director, Tata Memorial Hospital, Mumbai</td>
<td>Member</td>
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<td>6</td>
<td>Prof. Ashok Seth, Chairman, Max Heart Hospital, Saket, New Delhi</td>
<td>Member</td>
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<td>7</td>
<td>Dr. B.K. Rao, Chairman, Sir Ganga Ram Hospital, New Delhi</td>
<td>Member</td>
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<tr>
<td>8</td>
<td>Dr. Sanjay Aggarwal, HOD, Dept. of Nephrology, AIIMS</td>
<td>Member</td>
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<td>9</td>
<td>Dr. Sanjay Wadhwa, Addl. Professor, PMR, AIIMS</td>
<td>Member</td>
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<tr>
<td>10</td>
<td>Dr. G. N. Rao, L. V. Prasad Eye Institute, Hyderabad</td>
<td>Member</td>
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<tr>
<td>11</td>
<td>Mr. Tulsiraj, Arvind Eye Care, Tamil Nadu</td>
<td>Member</td>
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<tr>
<td>12</td>
<td>Ms. Shobha John, Leading Anti Tobacco Activist</td>
<td>Member</td>
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<tr>
<td>13</td>
<td>Dr. R. Krishna Kumar, NIMHANS, Bangalore</td>
<td>Member</td>
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<tr>
<td>14</td>
<td>Dr. Suresh Kumar, Director, Institute of Palliative Medicine, Calicut</td>
<td>Member</td>
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<tr>
<td>15</td>
<td>Dr. Raman Kataria, Pediatric Surgeon, Jan Swasthya Sahyog, Chhattisgarh</td>
<td>Member</td>
</tr>
<tr>
<td>16</td>
<td>Dr. Krishna Kumar, Amrita Institute of Medical Sciences, Kochi</td>
<td>Member</td>
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<tr>
<td>17</td>
<td>Dr. Sara Bhattacharji, MD Professor CMC, Vellore</td>
<td>Member</td>
</tr>
<tr>
<td>18</td>
<td>Principal Secretary (H&amp;FW), Jammu and Kashmir</td>
<td>Member</td>
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<tr>
<td>19</td>
<td>Principal Secretary (H&amp;FW), Goa</td>
<td>Member</td>
</tr>
<tr>
<td>20</td>
<td>Mr. Ambrish Kumar, Adviser (Health) Planning Commission</td>
<td>Member</td>
</tr>
<tr>
<td>21</td>
<td>Dr. D. Bachani, DDG (NCD), Dte. General of Health Services, MoHFW</td>
<td>Member Secretary</td>
</tr>
</tbody>
</table>

Joint Member Secretary for Subgroup I & II

Dr. Jagdish Kaur, Chief Medical Officer, Ministry of Health & Family Welfare

Terms of Reference

I. To document burden and trend of non-communicable diseases in India.

II. To review status of ongoing Central Sector/Centrally Sponsored Disease Control Programme for non-communicable diseases.

III. To suggest introduction of new programmes/continuation of existing programmes for control of non-communicable diseases and modifications required, if any, in the 12th Five Year Plan on the basis of 1 & 2 above along with detailed budget for each programme. This shall include initiating a Programme for any non-communicable disease of public health importance not yet covered under any Programme.

IV. To assess the need for developing a National Institute for Health Promotion and Control of Chronic Diseases to play leadership role in prevention and control of NCDs and suggest its broad set up and fund requirement.
V. To study and work out comparative effectiveness of interventions at different levels of health care such as health promotion, prevention, community based services, screening/ early diagnosis, treatment and rehabilitative care taking into account short term and long term needs for prevention and management of non-communicable diseases.

VI. Based on the assessment made as at 5 above, suggest proportionate expenditure on preventive, promotive, curative and rehabilitative health care for non-communicable diseases for maximizing impact of these interventions and optimizing resources available.

VII. To develop a scheme for building up a platform for Emergency Medical System (EMS) by modifying and up-scaling the on-going trauma care programme.

VIII. To review ongoing schemes for Emergency Medical Relief, and intensify ATLS training programmes and expand mobile hospital and CBRN Centre for disaster management.

IX. To deliberate and give recommendations on any other matter relevant to prevention and control of non-communicable diseases.

1. The Chairman may constitute various Specialists Group / Working Groups / Sub-groups/task forces etc. as considered necessary and co-opt other members to the Working Group for specific inputs.

2. Working Group will keep in focus the Approach paper to the 12th Five Year Plan and monitorable goals, while making recommendations.

3. Efforts must be made to co-opt members from weaker section especially SCs, Scheduled Tribes and minorities working at the field level.

4. The expenditure towards TA/DA in connection with the meetings of the Working group in respect of the official members will be borne by their respective Ministry / Department. The expenditure towards TA/DA of the Working group Members would be met by the Planning Commission as admissible to the class 1 officers of the Government of India.


(Shashi Kiran Baijal)
Director (Health)

Copy to:

1. Chairman, all Members, Member Secretary of the Working Group
2. PS to Deputy Chairman, Planning Commission
3. PS to Minister of State (Planning)
4. PS to all Members, Planning Commission
5. PS to Member Secretary, Planning Commission
6. All Principal Advisers / Sr. Advisers / Advisers / HODs, Planning Commission
7. Director (PC), Planning Commission
8. Administration (General I) and (General II), Planning Commission
9. Accounts I Branch, Planning Commission
10. Information Officer, Planning Commission
11. Library, Planning Commission

(Shashi Kiran Baijal)
Director (Health)
Working Group

on

Communicable Diseases

For

12th Five Year Plan

Report

(30-07-2011)
# Table of Contents

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Contents</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Office Memorandum on Constitution of Working Group on Disease Burden (Communicable &amp; Non-Communicable Diseases) for the formulation of 12th FY Plan</td>
<td>1 - 2</td>
</tr>
<tr>
<td>2.</td>
<td>Sub-Groups on Communicable Diseases</td>
<td>3 - 5</td>
</tr>
<tr>
<td>3.</td>
<td>Vision</td>
<td>6 - 7</td>
</tr>
<tr>
<td>4.</td>
<td>Communicable Disease Burden</td>
<td>8 - 16</td>
</tr>
<tr>
<td>5.</td>
<td>Executive Summary</td>
<td>17 - 26</td>
</tr>
<tr>
<td>6.</td>
<td>Proposals for 12th Five Year Plan</td>
<td>27 - 241</td>
</tr>
<tr>
<td></td>
<td>A. National Vector Borne Disease Control Programme (NVBDCP)</td>
<td>27 - 126</td>
</tr>
<tr>
<td></td>
<td>B. Revised National Tuberculosis Control Programme (RNTCP)</td>
<td>127 - 142</td>
</tr>
<tr>
<td></td>
<td>C. National Leprosy Eradication Programme (NLEP)</td>
<td>143 - 185</td>
</tr>
<tr>
<td></td>
<td>D. National Center for Disease Control (NCDC)</td>
<td>186 - 233</td>
</tr>
<tr>
<td>7.</td>
<td>Brief of the proposals of 12th Five Year Plan</td>
<td>234 - 239</td>
</tr>
<tr>
<td>8.</td>
<td>Summary of the total budget proposed for Communicable Diseases in the 12th Plan</td>
<td>240 - 242</td>
</tr>
</tbody>
</table>
## Composition of the Sub-Groups on Communicable Diseases

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Theme</th>
<th>Sub-Group</th>
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</thead>
</table>
| 1.      | **Malaria**                                                          | 1. Dr. Shiv Lal, Former Spl. DG (PH) & Director, NCDC & Adviser, NCD  
2. Dr. R. S. Shukla, JS (PH), MoH&FW  
3. Dr. Rashmi Arora, Sr. DDG, ICMR  
4. Dr. P. L. Joshi, Former Director, NVBDCP  
5. Mrs. Anu Garg, Principal Secretary, Govt. of Orissa  
6. Dr. G. S. Sonal, Additional Director, NVBDCP  
7. Dr. R. S. Sharma, Joint Director, NVBDCP  
8. Dr. K. S. Gill, Joint Director, NVBDCP  
9. Dr. L. A. Singh, RD, Imphal  
10. Dr. G. C. Sahu, RO, RD Office, Ahmedabad  
11. Dr. Ravi Kumar, CMO, R.D. Office, Bengaluru  
12. Dr. Neeru Singh, Dir., RMRCT, Jabalpur  
13. Director, NIMR, New Delhi  
14. Dr. A. C. Dharaiwal, Director, NVBDCP | Co-ordinator  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Convener  |
| 2.      | **AES/JE**                                                           | 1. Dr. Shiv Lal, Former Spl. DG (PH) & Director, NCDC & Adviser, NCD  
2. Dr. R. S. Shukla, JS (PH), MoH&FW  
3. Dr. Rashmi Arora, Sr. DDG, ICMR  
4. Dr. P. L. Joshi, Former Director, NVBDCP  
5. Dr. D. K. Srivastava, Prof. & HOD, PSM, BRD Medical College, Gorakhpur  
6. Dr. K. K. Khound, Prog. Officer (JE), Assam  
7. Dr. A. K. Dhaon, Joint Director, AES Nodal Center, UP  
8. Dr. M. M. Gore, Scientist ‘F’, NIV Field Station, BRD Medical College campus, Gorakhpur  
9. Dr. Sanjay Wadhwa, Addl. Prof., AIIMS, New Delhi  
10. Dr. A. C. Dharaiwal, Director, NVBDCP | Co-ordinator  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Convener  |
| 3.      | **Other Vector Borne Diseases (Filariasis, Kala-azar, Dengue & Chikungunya etc)** | 1. Prof. C. S. Pandav, Deptt. Of Community Medicine, AIIMS  
2. Dr. Yogesh Jain, Jan Swasthya Sahyog, Bilaspur  
3. Dr. Madhulekha Bhattacharya, Head Community & Health Admin., NIH&FW, New Delhi  
4. Dr. Suman Lata Wadwal, Asstt. Director (Filaria), NCDC  
5. Dr. Jambu Lingam, Director, VCRC, Puducherry  
6. Dr. Ram Singh, Officer-in-charge, NCDC Branch, Patna  
7. Dr. Thomas Mathew, Prof. PSM, Trivandrum Medical College, Kerala  
8. Dr. Omkar Nath Chattopadhyaya, Additional  |
                                           | Co-ordinator  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
                                           | Member  
| 4. | Revised National TB Control Programme (RNTCP) | 1. Dr. J. C. Suri, HOD, Pulmonary Medicine, Vardhan Medical College, New Delhi | Co-ordinator |
|    |                                             | 2. Dr. K. S. Sachdeva, CMO (SAG), TB | Member |
|    |                                             | 3. Director, Voluntary Health Association of India, New Delhi | Member |
|    |                                             | 4. Dr. G. R. Khatri, Former DDG (TB) | Member |
|    |                                             | 5. Dr. L. S. Chauhan, Director, NCDC | Member |
|    |                                             | 6. Dr. P. Kumar, Director, NTI, Bengaluru | Member |
|    |                                             | 7. Dr. D. Behera, Director, LRS Instt., New Delhi | Member |
|    |                                             | 8. Dr. Ranjana Ramachandaran, Microbiologist, SEARO, WHO, New Delhi | Member |
|    |                                             | 9. Dr. Ashok Kumar, DDG (TB) | Convener |

| 5. | National Leprosy Eradication Programme (NLEP) | 1. Director AIIH&PH, Kolkata | Co-ordinator |
|    |                                             | 2. Dr. Anoop Puri, ADG (Lep.) | Member |
|    |                                             | 3. Dr. Kiran Katoch, Director, JALMA, Agra | Member |
|    |                                             | 4. Dr. M. A. Arif, ILEP Coordinator, India | Member |
|    |                                             | 5. Prof. Atul Shah (Plastic Surgeon), Director, Novartis CLC Associate, Mumbai | Member |
|    |                                             | 6. Dr. Ranganath Rao, Lepra India | Member |
|    |                                             | 7. Dr. K. M. Kamble, Joint Director (Orthopedics), RLTRI, Raipur | Member |
|    |                                             | 8. Dr. C. M. Agarwal, DDG (L) | Convener |

| 6. | Disease Surveillance & Response | 1. Prof. Jay Prakash Muliyil, Head of Deptt. Of Community Medicine, CMC, Vellore | Co-ordinator |
|    |                                             | 2. Dr. R. S. Shukla, JS (PH), MoH&FW | Member |
|    |                                             | 3. Dr. Jagvir Singh, Additional Director & NPO (IDSP) | Member |
|    |                                             | 4. Dr. Anil Kumar, HOD (Epid), NCDC | Member |
|    |                                             | 5. Dr. Pradeep Khasnobis, CMO (IDSP), NCDC | Member |
|    |                                             | 6. Dr. S. K. Jain, Joint Director, NCDC | Member |
|    |                                             | 7. Dr. Vishwajit Ringe, Sr. Technical Director (Health), NIC, Nirman Bhawan, New Delhi | Member |
|    |                                             | 8. Dr. V. S. Dhruvey, State Surveillance Officer, IDSP, Gujarat | Member |
|    |                                             | 9. Dr. R. P. Vashisht, State Surveillance Officer, IDSP, Delhi | Member |
|    |                                             | 10. Consultant (IT), IDSP, NCDC, Delhi | Member |
|    |                                             | 11. Dr. L. S. Chauhan, Director, NCDC | Convener |
### Strengthening of NCDC & its branches

| 1. | Director, NIE, Chennai |
| 2. | Dr. Shashi Khare, Additional Director (Micro), NCDC |
| 3. | Dr. D. Chattopadhyya, Additional Director (Micro), NCDC |
| 4. | Dr. Anil Kumar, HOD (Epid), NCDC |
| 5. | Dr. R. S. Gupta, Additional Director & In-charge NCDC Branch, Alwar |
| 6. | Dr. Arvind Rai, HOD(Biotech), NCDC |
| 7. | Dr. L. S. Chauhan, Director, NCDC |

**Co-ordinator: Dr. L. S. Chauhan, Director, NCDC**
**Member: Dr. D. Chattopadhyya, Additional Director (Micro), NCDC**
**Member: Dr. Arvind Rai, HOD(Biotech), NCDC**
**Member: Dr. Shashi Khare, Additional Director (Micro), NCDC**
**Member: Dr. Anil Kumar, HOD (Epid), NCDC**
**Member: Dr. R. S. Gupta, Additional Director & In-charge NCDC Branch, Alwar**
**Convener: Dr. L. S. Chauhan, Director, NCDC**

### Zoonotic infection/diseases

| 1. | Dr. Rashmi Arora, Sr. DDG, ICMR |
| 2. | Dr. R. L. Ichhpujani, Additional Director (Micro), NCDC |
| 3. | Dr. Veena Mittal, Additional Director (Micro), NCDC |
| 4. | Dr. U. V. S. Rana, Joint Director, NCDC |
| 5. | Dr. Mala Chhabra, Joint Director (Micro), NCDC |
| 6. | Dr. A. B. Negi, Joint Commissioner, Deptt. Of Animal husbandary, New Delhi |
| 7. | Dr. Arvind Nath, Scientist ‘C’, ICMR HQ, New Delhi |
| 8. | Dr. Bambal, Asstt. Commissioner, Live Stock Health, Min. of Agriculture |
| 9. | Dr. L. S. Chauhan, Director, NCDC |

**Co-ordinator: Dr. L. S. Chauhan, Director, NCDC**
**Member: Dr. R. L. Ichhpujani, Additional Director (Micro), NCDC**
**Member: Dr. Veena Mittal, Additional Director (Micro), NCDC**
**Member: Dr. Mala Chhabra, Joint Director (Micro), NCDC**
**Member: Dr. A. B. Negi, Joint Commissioner, Deptt. Of Animal husbandary, New Delhi**
**Member: Dr. Arvind Nath, Scientist ‘C’, ICMR HQ, New Delhi**
**Member: Dr. Bambal, Asstt. Commissioner, Live Stock Health, Min. of Agriculture**
**Convener: Dr. L. S. Chauhan, Director, NCDC**

### Containment of Anti-Microbial Resistance

| 1. | Dr. Biswaroop Chatterjee, Microbiologist, West Bengal |
| 2. | Dr. Shashi Khare, Additional Director (Micro), NCDC |
| 3. | Dr. Sunil Gupta, Additional Director (Micro), NCDC |
| 4. | Dr. Renu Datta, HOD (Microbiology), LHMC, New Delhi |
| 5. | Dr. C. Wattal, Sr. Microbiologist, Sir Ganga Ram Hospital, New Delhi |
| 6. | Dr. Anita Kotwani, Pharmacologist, Patel Chest Instt., Delhi |
| 7. | Dr. Arvind Rai, HOD (Biotech), NCDC |
| 8. | Dr. R. L. Ichhpujani, Additional Director (Micro), NCDC |

**Co-ordinator: Dr. R. L. Ichhpujani, Additional Director (Micro), NCDC**
**Member: Dr. Sunil Gupta, Additional Director (Micro), NCDC**
**Member: Dr. Renu Datta, HOD (Microbiology), LHMC, New Delhi**
**Member: Dr. C. Wattal, Sr. Microbiologist, Sir Ganga Ram Hospital, New Delhi**
**Member: Dr. Anita Kotwani, Pharmacologist, Patel Chest Instt., Delhi**
**Member: Dr. Arvind Rai, HOD (Biotech), NCDC**
**Member: Dr. Biswaroop Chatterjee, Microbiologist, West Bengal**
**Convener: Dr. R. L. Ichhpujani, Additional Director (Micro), NCDC**

### Viral Hepatitis (Surveillance, Prevention & Control)

| 1. | Dr. John C. Oommen, Krushi Hospital, Cuttak, Orissa |
| 2. | Dr. S. K. Sarin, Director, Inst. of Liver & Biliary Sciences, New Delhi |
| 3. | Dr. Sunil Gupta, Additional Director (Micro), NCDC |
| 4. | Dr. Charu Prakash, Additional Director (Micro), NCDC |
| 5. | Dr. P. Kar (Gastroenterology), G. B. Pant Hospital, New Delhi |
| 6. | Dr. Haldar, A.C. (Immun.), MoH&FW |
| 7. | Dr. Shashi Khare, Additional Director (Micro), NCDC |

**Co-ordinator: Dr. S. K. Sarin, Director, Inst. of Liver & Biliary Sciences, New Delhi**
**Member: Dr. John C. Oommen, Krushi Hospital, Cuttak, Orissa**
**Member: Dr. Sunil Gupta, Additional Director (Micro), NCDC**
**Member: Dr. Charu Prakash, Additional Director (Micro), NCDC**
**Member: Dr. P. Kar (Gastroenterology), G. B. Pant Hospital, New Delhi**
**Member: Dr. Shashi Khare, Additional Director (Micro), NCDC**
**Convener: Dr. S. K. Sarin, Director, Inst. of Liver & Biliary Sciences, New Delhi**
Communicable Diseases - Proposal for 12th Five-Year Plan

Vision

Although non-communicable diseases like cancers, diabetes, cardiovascular diseases, chronic obstructive pulmonary diseases, etc are on the rise due to change in life style, communicable diseases, like tuberculosis, malaria, kala-azar, dengue fever, chikungunya and other vector borne diseases, and water-borne diseases like cholera, diarrhoeal diseases, leptospirosis etc, continue to be a major public health problem in India. In fact, diarrhoeal diseases, respiratory infections, tuberculosis and malaria cause about one-quarter of all deaths in the country (Report on causes of death in India, 2001-2003).

Well defined strategies have been identified to control communicable diseases. These inter alia include (i) risk reduction, (ii) adequate health care infrastructure, (iii) availability of adequately trained health manpower, (iv) an efficient disease surveillance and response system for early detection and treatment of cases and for early detection and control of outbreaks of epidemic prone disease and (v) risk communication.

Based on these strategies, national disease control programmes are making efforts to control communicable diseases. Early identification and adequate treatment of cases is the key strategy for control of tuberculosis under Revised National Tuberculosis Control Programme (RNTCP). The same strategy along with risk reduction by using anti-vector measures has been adopted by the National Vector Borne Disease Control Programme (NVBDCP) to control malaria, kala-azar and other vector borne diseases. Important killers during the childhood period namely acute diarrhoeal diseases, acute respiratory infections, especially pneumonia, and vaccine preventable diseases such as measles, diphtheria, pertussis etc are taken care of under the Reproductive and Child Health Programme (RCH). While availability and use of Oral Rehydration Therapy (ORT) is important to reduce mortality due to acute diarrhoeal diseases, administration of vaccines under Universal Immunization Programme (UIP) has greatly reduced the mortality due to vaccine preventable diseases.

An effective disease surveillance and response system helps in early detection and control of outbreaks of epidemic-prone diseases. Epidemics are public health emergencies which disrupt routine health services and are a major drain on resources. Besides direct costs in epidemic control measures and treatment of patients, the indirect costs due to negative impact on domestic and international tourism and trade can be significant. For example, plague which was not reported from any part of India for almost a quarter of century, caused a major outbreak in Beed district in Maharashtra and Surat in Gujarat in 1994 and resulted in an estimated loss of almost US$ 1.7 billion.

Based on the lessons learnt during implementation of these national disease control programmes in 11th Five-Year Plan, considerable strengthening has been proposed during 12th Five-Year Plan.

Universal access to quality DOTS services is proposed under RNTCP to improve the case detection and cure rate. This could be ensured by extending DOTS services to patients
diagnosed and treated in private sector. This will help in reducing the prevalence of disease to such an extent that elimination could be possible by year 2050.

All efforts would be made in 12th Five Year Plan to empower grass-root workers in diagnosing and treating malaria cases even in remote and accessible areas by scaling-up the availability of bivalent Rapid Diagnostic Kits (RDK) and Artemisinin-based combination therapy (ACT). These efforts coupled with integrated vector control strategies including distribution of Long Lasting Insecticide Treated Nets (LLIN) in endemic areas will greatly reduce the malaria morbidity and mortality and a proposal for elimination of malaria in the 13th Five Year Plan may become a reality.

Zoonotic diseases, which account for a substantial burden of morbidity and mortality due to endemic as well as emerging diseases, are a major concern. While 61% (868/1415) of all identified infectious organisms are zoonotic, about 75% (132/175) of pathogens associated with emerging diseases are zoonotic. A strong coordination is needed between human health and animal health sectors to control the zoonotic diseases like avian influenza, plague, rabies, leptospirosis etc. This will be addressed by posting a veterinary consultant under the Disease Surveillance and Response Programme in all states/UTs.

We expect that gains in control of communicable diseases in the 12th Five Year Plan will be substantial. While poliomyelitis and yaws will be eradicated, filaria, kala-azar and leprosy will be eliminated as public health problems. There would be substantial reduction in morbidity and mortality due to malaria, tuberculosis, dengue fever, Japanese encephalitis, rabies, leptospirosis etc.

National Centre for Disease Control (NCDC) will be strengthened considerably and will have presence in all States/UTs to help them in control of diseases and in implementation of International Health Regulations (2005). Integrated Disease Surveillance Project will be further strengthened and continue as “Disease Surveillance and Response Programme” under the NCDC to generate early warning signals to detect and respond to outbreaks of epidemic prone diseases in early rising phase. A network of 500 district public health labs will be established and linked to about 200 medical colleges/referral labs under Disease Surveillance and Response Programme.
Burden of Communicable Diseases

The communicable diseases like Tuberculosis, Leprosy, Vector borne diseases (Malaria, Kala-Azar, Dengue, Chikungunya, Filaria, Japanese Encephalitis, etc.), Water-borne diseases (Cholera, Diarrhoeal Diseases, Viral Hepatitis A & E, Typhoid Fever etc.), Zoonotic diseases (Rabies, Plague, Leptospirosis, Anthrax, Brucellosis, etc), and Vaccine preventable diseases (Measles, Diphtheria, Tetanus, Pertussis, Poliomyelitis, Viral Hepatitis B etc) are endemic in many parts of the world and continue to be a major public health problem.

The non-communicable diseases like cancers, diabetes, cardiovascular diseases, chronic obstructive pulmonary diseases etc are on the rise due to urbanization and changes in lifestyle.

In addition, there is always a threat of new emerging and re-emerging infectious diseases like Nipah virus, Ebola virus, Avian Influenza, SARS, novel H1N1 Influenza, Hanta virus etc.

Thus, due to industrialization and the persisting inequality in health status between and within States/UTs (due to varying economic, social and political causes), the developing countries like India currently face a “Triple burden of diseases”, which are as follows:

1. Unfinished agenda of Communicable Diseases,
2. Emerging Non-Communicable Diseases related to lifestyles and
3. Emerging Infectious Diseases

Impact of Infectious Diseases

- Infectious diseases caused by pathogens such as bacteria, viruses, fungi and parasites are major causes of morbidity and mortality all over the world. Epidemics due to these diseases disrupt routine health services and cause public health emergencies.

- The lost productivity, the missed educational opportunities and the high health care costs caused by infectious diseases thus directly impact growth of society. Also, the indirect costs due to negative impact on domestic and international tourism and trade can be significant.

- Children are particularly vulnerable to infectious diseases. Pneumonia, diarrhea and malaria are leading causes of death among children under five years of age.

- Impact of emerging, re-emerging and novel infections:
  - 37 new pathogens with epidemic potential identified globally during last 3 decades
  - Besides huge morbidity and mortality the emerging & re-emerging infectious disease outbreaks have huge economic impact on national economy. The plague outbreak of 1994 in Surat caused an economic loss to the tune of $ 1.7 billion. Some recent outbreaks are of Influenza A – H1N1, H5N1 and Crimean Congo Hemorrhagic Fever (CCHF).
  - Emerging and re-emerging infections increase awareness of our global vulnerability, highlight the borderless impact of diseases and underscore the need for strong health care systems.
Strategies to control communicable diseases

Many Expert Committees, dating back to the Bhore Committee in 1946, reviewed the existing health infrastructure/situation in the country and made recommendations needed to control diseases including communicable, non-communicable and emerging diseases. More recently, the Expert Committee on Public Health System (1996) and the National Commission on Macroeconomics and Health (2005) examined these issues. National Five Year Plans, National Health Policy (1983, 2002) and many international initiatives such as Health for All by 2000, Calcutta Declaration on Public Health in South-East Asia (1999), U.N. Millennium Development Goals (2000), Global Commission on Macroeconomics and Health (2001), Revised International Health Regulations (2005), Asia Pacific Strategy for Emerging Diseases (2005, 2010) have also provided strong policy directives for the development of health care delivery system to control/prevent diseases.

As a result of these efforts, health infrastructure was strengthened and several national disease programmes were initiated to eradicate, eliminate or control communicable diseases.

Well defined strategies have been identified to control communicable diseases. Based on these strategies, the national disease control programmes are making efforts to control communicable diseases. The strategies include (i) risk reduction, (ii) adequate health care infrastructure, (iii) availability of adequately trained health manpower, (iv) an efficient disease surveillance and response system for early detection and treatment of cases and for early detection and control of outbreaks of epidemic prone disease, and (v) risk communication.

Recent advances against infectious diseases include

- Efforts to achieve the sixth Millennium Development Goal (MDG), which focuses on stopping and reversing the spread of infectious diseases by 2015.

- Regional accomplishments, such as:


  - In Southeast Asia, an increase in successfully treated tuberculosis cases from 33 percent to 88 percent between 1995 and 2007.

  - The near eradication of polio and guinea worm diseases, and lower prevalence of several other tropical diseases over the past few decades.

  - A renewed interest in the research and development of new diagnostics, vaccines and drug treatments.
Global Burden of Infectious Diseases

CHOLERA

- Worldwide, there are an estimated 3–5 million cholera cases and 100,000 – 120,000 deaths due to cholera every year.
- For 2008 alone, a total of 190,130 cases were notified from 56 countries, including 5143 deaths.
- *V. cholerae* O1 causes the majority of outbreaks, while O139 – first identified in Bangladesh in 1992 – is confined to South-East Asia.
- Recently, new variant strains have been detected in several parts of Asia and Africa. Observations suggest that these strains cause more severe cholera with higher case fatality rates.

CHIKUNGUNYA

- Chikungunya occurs in Africa, Asia and the Indian subcontinent. Human infections in Africa have been at relatively low levels for a number of years.
- Starting in February 2005, a major outbreak of Chikungunya occurred in islands of the Indian Ocean. In 2007, transmission was reported for the first time in Europe, in a localized outbreak in north-eastern Italy. A large outbreak of Chikungunya in India occurred in 2006 and 2007.

DENGUE

- Dengue has been identified as one of the 17 neglected tropical diseases by WHO and current estimates show that there may be 50 million Dengue infections worldwide every year.
- About 2.5 billion people (as in 2009) – two fifths of the world's population – are now at risk from Dengue.
- The disease is now endemic in more than 100 countries in Africa, the Americas, the Eastern Mediterranean, South-east Asia and the Western Pacific.

DIARRHOEAL DISEASE

- Diarrhoecal disease is the second leading cause of death in children under five years old. It is both preventable and treatable.
- Diarrhoecal disease kills 1.5 million children every year.
- Globally, there are about two billion cases of diarrhoeal disease every year.

JAPANESE ENCEPHALITIS

- Japanese Encephalitis is reported under umbrella of Acute Encephalitis Syndrome cases.
- Around the world, the incidence has gone up from 44,000 in 2004 to 58,000 in 2009; with deaths ranging from 14,000 -16,000 in the last five years.
KALA-AZAR

- It is estimated that 350 million people in 88 countries are at the risk of developing the disease. About 500,000 people suffer from it.
- In the South East Asia Region, about 200 million people are estimated to be at risk from the disease. In India, Bangladesh and Nepal alone, the estimated number of cases is about 100,000.

LYMPHATIC FILARIASIS

- Over 120 million people are currently infected, with about 40 million disfigured and incapacitated by the disease.
- Currently, more than 1.3 billion people in 81 countries are at risk. Approximately 65% of those infected live in the WHO South-East Asia Region, 30% in the African Region, and the remainder in other tropical areas.
- One third of the people infected live in India, one third in Africa and the rest in South Asia, the Western Pacific and parts of Central and South America.
- India accounts for 32% of the total cases.

LEPROSY

- More than 244,000 new cases of Leprosy were reported in 2009; most of them belonged to Asia and Africa.
- The global registered prevalence of leprosy at the end of 2008 was 213,036 cases. The number of new cases detected globally has fallen gradually in the last five years.
- Leprosy has been eliminated from 119 countries out of 122 countries where the disease was considered as a public health problem in 1985.

**LEPROSY SITUATION**

![Graph showing new leprosy cases from 2005-06 to 2009-10](image-url)
MALARIA

- In 2008, there were 247 million cases of malaria and nearly one million deaths – mostly among children living in Africa.
- Malaria is prevalent in 108 countries of tropical and sub-tropical world, as a perennial problem. Every year, malaria is reported to cause more than 250-660 million infections and more than a million deaths.
- The World Malaria Report estimates a total of 225 million cases and 781,000 deaths due to malaria in 2009.
- SEAR contributes to 11-12% of the total global burden.
- India contributes to 70% of total malaria cases in SEAR, and has a total of about 1.5 million cases of malaria. Of these, 50% are due to *P. falciparum*. The reported annual incidence is 1.3 cases per 1000 population.

MEASLES

- During 2000-2008, global mortality attributed to measles declined by 78%, from an estimated 733,000 deaths in 2000 to 164,000 in 2008. In 2008, there were 164,000 measles deaths globally – nearly 450 deaths every day or 18 deaths every hour. More than 95% of measles deaths occur in low-income countries with weak health infrastructures.
- Measles vaccination resulted in a 78% drop in measles deaths between 2000 and 2008 worldwide.
- Worldwide, the number of reported measles cases declined 67%, from 852,937 in 2000 to 278,358 in 2008.

PNEUMONIA

- Pneumonia is the leading cause of death in children worldwide.
- Every year, it kills an estimated 1.6 million children under the age of five years, accounting for 18% of all deaths of children under five years old worldwide.

RABIES

- Rabies occurs in more than 150 countries and territories.
- Worldwide, more than 55,000 people die of rabies every year. Rabies is present on all continents with the exception of Antarctica, but more than 95% of human deaths occur in Asia and Africa.
- 40% of people who are bitten by suspect rabid animals are children under 15 years of age.
- Every year, more than 15 million people worldwide receive a post-exposure preventive regimen to avert the disease – this is estimated to prevent 327,000 rabies deaths annually.

TUBERCULOSIS

- Overall, one-third of the world's population is currently infected with the TB bacillus. WHO estimates that the largest number of new TB cases in 2008 occurred in the South-East Asia Region, which accounted for 35% of incident cases globally.
- According to the *Global tuberculosis control 2010*, WHO report,
  - In total, approximately 1.7 million people died of TB in 2009.
  - An estimated 1.3 million deaths (range 1.2 - 1.5 million) occurred among HIV-negative cases of TB. This includes 0.38 million deaths (range 0.3 - 0.5 million) among women.
- There were an estimated 0.4 million deaths (range: 0.32 million–0.45 million) among incident TB cases that were HIV-positive.
- The estimated number of TB deaths among both HIV-negative and HIV-positive people equates 26 deaths per 100,000 population.
- The TB death rate has fallen by 35% since 1990.
  - There were 9.4 million new TB cases (including 3.3 million women) in 2009, including 1.1 million cases among people with HIV.
  - The estimated global incidence rate fell to 137 cases per 100,000 population in 2009, after peaking in 2004 at 142 cases per 100,000. The rate is still falling but too slowly.

VIRAL HEPATITIS

- **Viral Hepatitis A**
  - An estimated 1.4 million cases of Viral Hepatitis A occur annually.

- **Viral Hepatitis B**
  - About 2 billion people worldwide have been infected with HBV and about 350 million live with the chronic infection.
  - An estimated 600,000 persons die each year due to the acute or chronic consequences of hepatitis B.
  - HBV is 50 to 100 times more infectious than HIV.

HIV INFECTION

- Worldwide, an estimated 33 million people are living with HIV.
- Since the beginning of the HIV epidemic in 1981, 25 million people have died of AIDS globally. Every day, there are 7,400 new HIV infections, 96% of which are in the low-and middle-income countries.
- Sub-Saharan Africa remains the region most heavily affected by HIV, accounting for 67% of all people living with HIV and for 75% of AIDS deaths in 2007. Recently, there is evidence that HIV is decreasing in some of the heavily affected countries such as Kenya, Rwanda, Uganda and Zimbabwe, resulting in a stabilization of the global epidemic.
- **South-East Asia Region**
  - SEAR is the second-most affected region in the world, with an estimated 3.6 million people living with HIV (PLHIV); of these, 37% are women.
  - Five countries – India, Thailand, Myanmar, Indonesia and Nepal – account for majority of the Regional burden.
  - HIV incidence is the highest among sex workers and their clients, men who have sex with men and injecting drug users.
  - The overall adult HIV prevalence in SEAR (0.35% in 2007) has changed little in the past five years but there are important country-wise variations. In India, Myanmar, Thailand, Nepal and Sri Lanka, HIV epidemics have declined or stabilized.
Infectious Disease Burden in India

MALARIA

- Malaria in India accounts for about 1.5 million cases with 50% due to *P. falciparum* annually under public health system reporting where nearly 100 million fever cases are examined annually. Due to underreporting and treatment seeking behavior from private sector, this appears to be an under estimate of the true burden of Malaria in the country. There is no precise estimate of Malaria burden in the country.
- The annual reported incidence of 1.3 cases per 1000 population at country level indicates that elimination is achievable; however, a few states are persistently with more than 2 cases per 1000 population, which pose challenge to the country.
- About 80% of malaria burden is in Northeastern states, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Andhra Pradesh, Maharashtra, Gujarat, Rajasthan, West Bengal and Karnataka. However, other states are also vulnerable and have local and focal outbreaks.

![Malaria in India](image)

**TUBERCULOSIS**

- One-fifth of the global incidence of TB is contributed by India, which amounts to about two million new T.B. cases each year.
- Annual risk of TB infection (ARTI) has reduced from 1.5% (during 2002-03) to 1.1% (during 2007-10).
- Estimated prevalence of TB as per WHO 2010 report is 266 cases per lakh population.
- 23 persons per lakh population are dyeing because of TB in India each year as per the WHO report 2010.

**CHIKUNGUNYA**

- Chikungunya reemerged in country during 2006 with about 1.39 million cases occurring in 16 States/UTs.
- In 2010, 18 states reported 48,176 clinically suspected cases of Chikungunya.
DENGUE

- Dengue is endemic in 31 States/UTs.
- In 2006, the country witnessed an outbreak of DF/DHF with 12,317 cases and 184 deaths reported from 18 States/UTs (270 districts).
- In 2010, a total of 28,292 cases and 110 deaths were reported from 27 States/UTs (403 districts) which is highest in the country in last two decades.

![Dengue in India](image)

JAPANESE ENCEPHALITIS

- In India Japanese Encephalitis (JE) is reported under the umbrella of Acute Encephalitis Syndrome (AES).
- During 2010, 5149 cases and 677 deaths due to AES/JE were reported from 15 states.
- The case fatality rate has been reduced from 25% in 2005 to 12% in 2010.

KALA-AZAR

- About 129 million population is at risk of Kala-azar in endemic districts.
- Kala-azar is endemic in total of 52 districts of States of Bihar, Jharkhand, West Bengal and UP.
- The annual incidence of disease has come down from 77,099 cases in 1992 to 28,941 cases in 2010; and deaths have declined from 1419 to 105 during this period.
- Tripartite Memorandum of Understanding has been signed between India, Bangladesh and Nepal in 2005 for elimination of Kala-azar by 2015.

LYMPHATIC FILARIASIS

- In India, Lymphatic Filariasis is endemic in 15 states and 5 UTs with approximately 600 million populations at risk.
- There are 8 lakh lymphoedema and 4 lakh hydrocele cases line listed in these states/UTs.
- Lymphatic Filariasis has been targeted for elimination by 2015. The microfilaria prevalence has been reduced from 1.24% in 2004 to 0.34% in 2010.

LEPROSY

- During 2009-10, 133,717 new cases of Leprosy have been reported in India.
- Of these, 4117 cases have been detected with Gr-II disability; and 13,331 new cases are children.
LEPTOSPIROSIS

- The outbreaks of Leptospirosis, an emerging zoonotic disease, are increasingly been reported from many States/UTs such as A& N Islands, Kerala, Gujarat, Tamil Nadu, Karnataka, Maharashtra and Orissa. In addition, sporadic cases have also been reported from Goa, Andhra Pradesh and Assam.

RABIES

- The number of human deaths is 20,000 every year of the total of 55,000 global deaths.
- Estimated number of animal bites : 17.5 million/year

HIV INFECTION

- 2.5 million persons have HIV infection (7.6% of the global burden of 33 million cases).

INFLUENZA

Influenza A H1N1 Pandemic in India (data upto 3 July 2011):

- First positive case confirmed on 16 May 2009.
- Till 3rd July, a total of 207,671 samples sent for laboratory testing for Influenza A H1N1; of which 46,575 (23%) samples tested positive.
- No. of deaths of lab confirmed Influenza A H1N1 cases – 2762.

H5N1 outbreaks in Poultry in India:

- First outbreak in Jan/Feb 2006.
- Last outbreak occurred in February 2011 in Tripura.
- No human case in India so far (15 countries reported human cases).
Executive Summary

Introduction

Communicable diseases continue to be a major public health problem in India. Many communicable diseases like tuberculosis, leprosy, vector borne diseases (malaria, kala-azar, dengue fever, chikungunya, filaria, Japanese encephalitis), water-borne diseases (cholera, diarrhoeal diseases, viral hepatitis A & E, typhoid fever etc), zoonotic diseases (rabies, plague, leptospirosis, anthrax, brucellosis, salmonellosis etc), and vaccine preventable diseases (measles, diphtheria, tetanus, pertussis, poliomyelitis, viral hepatitis B etc) are endemic in the country. In addition to these endemic diseases, there is always a threat of new emerging and re-emerging infectious diseases like nipah virus, avian influenza, SARS, novel H1N1 influenza, hanta virus etc. Local or widespread outbreaks of these diseases result in high morbidity, mortality and adverse socio-economic impact. Community surveys have revealed that about one-quarter of all deaths in the country are due to diarrhoeal diseases, respiratory infections, tuberculosis and malaria.

Many Expert Committees, dating back to the Bhore Committee in 1946, reviewed the existing health infrastructure/situation in the country and made recommendations needed to control diseases including communicable, non-communicable and emerging diseases. More recently, the Expert Committee on Public Health System (1996) and the National Commission on Macroeconomics and Health (2005) examined these issues. National Five Year Plans, National Health Policy (1983, 2002) and many international initiatives such as Health for All by 2000, Calcutta Declaration on Public Health in South-East Asia (1999), U.N. Millennium Development Goals (2000), Global Commission on Macroeconomics and Health (2001), revised International Health Regulations (2005), Asia Pacific Strategy for Emerging Diseases (2005, 2010) have also provided strong policy directives for the development of health care delivery system to control/prevent diseases.

As a result of these efforts, health infrastructure was strengthened and several national disease programmes were initiated to eradicate, eliminate or control communicable diseases. Malaria, which used to cause 75 million cases in early 1950s, has been reduced to about 1.5 million cases every year. Revised National Tuberculosis Control Programme, launched in 1996, presently covers the entire country, detects over 70% of new sputum cases with treatment success rate of 87%. TB mortality has decreased from over 5 lac deaths every year at the beginning of the programme to about 2.8 lac deaths presently despite growth in population. Leprosy has been eliminated as a public health problem from many states. Life expectancy has increased from 36.5 in 1951 to more than 64.2. While crude death rate declined from 25.1 in 1951 to 7.3 in 2009, the Infant Mortality Rate (IMR) declined from 146 per 1000 live births in 1951 to 50 per 1000 live births in 2009. However, because of the existing environmental, socio-economic and demographic situation, the population continues to be vulnerable to infectious diseases, especially the rapidly evolving micro-organisms. Therefore, the control of communicable diseases continued to remain the focus in all Five-Year Plans.

To further control communicable diseases, the 12th Five Year Plan needs to address several public health challenges, such as ensuring primary health care to all including urban slum population, strengthening of health care infrastructure as per Indian Public Health Standards, increasing public health workforce, strengthening disease surveillance and response system, strengthening and networking of public health laboratories, optimizing use of modern information technology for disease control, formulation and enforcement of appropriate Public Health Laws, enhancement of public private partnership in disease prevention and
control, increasing public health allocation and spending and decentralizing and communitizing planning and response.

It is important to develop an adequate number of public health professionals in the country with appropriate competencies and skills to make proper use of large health infrastructure developed with focus on core public health functions and competencies. Public health should address the demographic and epidemiologic transition needs. Time has come to increase allocation for public health to deliver the services efficiently.

Keeping in view the above, sub-group on communicable diseases is recommending the strengthening of existing programmes and proposing several initiatives with enhanced financial requirement in the 12th Plan.

**A. National Vector Borne Disease Control Programme (NVBDCP)**

The National Vector Borne Disease Control Programme (NVBDCP) is an umbrella programme for prevention and control of six vector borne diseases namely Malaria, Dengue, Chikungunya, Japanese Encephalitis (JE) Lymphatic Filariasis and Kala-azar. The strategy employed to prevent/control these diseases include disease management including early case detection and prompt treatment, strengthening of referral services; integrated vector management including indoor residual spraying, use of insecticide treated bed nets/ Long Lasting Insecticidal Nets (LLIN), larvivorous fish and supportive interventions like human resource development, behaviour change communication, public private partnership, monitoring and evaluation, and operational research. Presently, about 1.5 million cases of malaria and less than 1000 deaths are reported every year. About 80% of malaria burden is in Northeastern (NE) states, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Andhra Pradesh, Maharashtra, Gujarat, Rajasthan, West Bengal and Karnataka. However, other states are also vulnerable and have local and focal outbreaks. In the 12th Plan, the focus would be on empowering grass-root workers in diagnosing and treating malaria cases even in remote and accessible areas by scaling-up the availability of bivalent Rapid Diagnostic Kits (RDK) and Artemisinin-based combination therapy (ACT). Nevertheless, thrust would also be given to prevention/control of malaria (and other VBD also) in urban areas under the Urban Malaria Scheme which is presently implemented in only 131 towns/cities. These efforts coupled with integrated vector control strategies including distribution of Long Lasting Insecticide Treated Nets (LLIN) in endemic areas will greatly reduce the malaria morbidity and mortality and a proposal for elimination of malaria in the 13th Five Year Plan may become a reality.

To tackle increasing dengue and chikungunya cases in urban, peri-urban and rural areas because of expanding urbanization, deficient water and solid waste management, the emphasis is on avoidance of mosquito breeding conditions in homes, workplaces and minimizing the man-mosquito contact. 27 states reported 28,292 cases of dengue and 110 deaths and 18 states reported 48,176 clinically suspected cases of chikungunya in 2010. Improved surveillance, case management and community participation, inter-sectoral collaboration, enactment and enforcement of civic by laws and building bye laws are emphasized for both these vector borne diseases.

Japanese encephalitis is a major problem in Uttar Pradesh, Assam, Andhra Pradesh, Goa, Karnataka, Kerala, Manipur, Tamilnadu, Maharashtra, Bihar and West Bengal. The disease is presently reported as Acute Encephalitis Syndrome (AES). During 2010, 5149 AES cases and 677 deaths were reported in 15 states. In addition to various JE control measures like strengthening of surveillance, availability of case management facilities, vector control and other supportive interventions, vaccination of 1 to 15 year old children with a single dose of live attenuated SA-14-14-2 vaccine was initiated in 2006 under the Universal Immunization Programme. 111 districts have been covered till 2010.
Lymphatic Filariasis (LF) has been targeted for elimination by 2015. The strategy of annual Mass Drug Administration (MDA) with annual single recommended dose of DEC + Albendazole tablets is being implemented in the country since 2004. In addition, scaling up of home-based foot care and hydrocele operation have been initiated for disability alleviation. The coverage of population during MDA is more than 80% and about 150 districts have achieved the target of less than 1% microfilaria prevalence.

Kala-azar is endemic in 52 districts of Bihar, Jharkhand, West Bengal and UP. The Kala-azar Control Programme was launched in 1990-91. The annual incidence of disease has come down from 77,099 cases in 1992 to 28,941 cases in 2010 and deaths have declined from 1419 to 105 during this period. Important recent initiatives taken include case detection through rapid diagnostic kits and improved treatment compliance by using oral drug Miltefosine. In addition, compensation to the patients for loss of wages and incentive to ASHAs/volunteers for case detection and ensuring complete treatment have also been provided.

The existing activities for prevention and control of malaria and other vector borne diseases would continue in 12th Plan. There would also be emphasis on identified thrust areas. The initiatives and additional inputs, presently being supported by externally aided projects will also be continued and expanded through domestic budget support. This would result in moving towards pre-elimination stage of malaria, and control of dengue, chikungunya and Japanese Encephalitis. In addition, the elimination of Kala-azar and Lymphatic Filariasis by 2015 is being envisaged.

An amount of Rs. 10693 crore is proposed for NVBDCP in 12th Plan.

**B. Revised National Tuberculosis Control Programme (RNTCP)**

Since its inception, the Revised National TB Control Programme (RNTCP) has evaluated over 44 million persons for TB and initiated treatment for over 12.8 million TB patients and has saved more than 2.3 million lives. The Annual Risk of TB Infection (ARTI) has reduced from 1.5% to 1.1% and prevalence has also reduced from 316 per lakh population in 2007 to 266 per lakh population in 2010. These achievements need to be further consolidated in 12th Plan.

The objectives for 12th Plan include (i) early detection and treatment of at least 90% of estimated TB cases in the community (all types) including TB associated with HIV, (ii) successful treatment of at least 90% of new TB patients, and at least 85% of previously-treated TB patients, (iii) reduction in default rate of new TB cases to less than 5% and re-treatment TB cases to less than 10%, (iv) initial screening of all re-treatment smear-positive cases till 2015 and all smear positive TB cases by year 2017 for drug-resistant TB and provision of treatment services for MDR-TB patients, (v) offer of HIV counselling and testing for all TB patients and linking HIV-infected TB patients to HIV care and support and (vi) extension of RNTCP services to patients diagnosed and treated in the private sector.

To achieve the objective of universal access to TB care and complete coverage of MDR services, key strategies and innovative approaches proposed under RNTCP include (i) intensified case finding activities in high risk groups like – smokers, diabetics, malnourished, HIV, urban slums & difficult to reach areas etc, (ii) development of a dedicated sputum collection and transport system across the country to all health facilities (including PHCs without DMCs), (iii) improved surveillance by case-based electronic notification systems & data quality assurance, (iv) evidence-based re-alignment of TB Unit (presently at 1 per 5 lakh population) to Block level, (v) promoting rational use of anti-TB drugs to reduce drug resistance levels, (vi) establishing referral linkages between Primary Health Centres with secondary and tertiary hospitals for diagnosis of extra-pulmonary TB cases and paediatric TB cases, (vii) conducting prescription audits in private and public sectors, (viii) regular drug resistance surveillance, (ix) use of telecommunication in demand generation, service delivery & patients tracking, (x) designing & implementing innovative Advocacy, Communication and
Social Mobilization (ACSM) tools, Non Government Organization- Public-Private Mix (NGO-PPM) approaches and evaluating their impact, (xi) establishing a network of 73 Culture and Drug susceptibility testing (C&DST) laboratories, (xii) priority deployment of newer rapid diagnostics in HIV care settings, (xiv) nationwide provision of TB preventive therapy among HIV-infected individuals after pilot, (xv) notification of cases diagnosed and treated in the private sector through interface agency, (xvi) expansion of performance-based incentive strategies, (xvii) promoting need based operational research, and (xviii) conducting impact evaluation studies.

An amount of Rs. 5825 crore is proposed for RNTCP under 12th Plan.

C. National Leprosy Eradication Programme (NLEP)

The objective during the 12th plan period is to provide quality leprosy services to all sections of population and achieve the target of less than 1 case per 10,000 population (Elimination) in all the districts of the country and reduce the burden of disability due to leprosy.

The NLEP programme strategy under 11th Plan included (i) provision of high quality leprosy services for all persons affected by leprosy, through general health care system including referral services for complications and chronic care, (ii) involvement of ASHA under NRHM for leprosy work, (iii) enhanced Disability Prevention and Medical Rehabilitation (DPMR) services for deformity in leprosy affected persons, (iv) enhanced advocacy to reduce stigma and to stop discrimination against leprosy affected persons and their families, (v) capacity building among health personnel in integrated setting both for rural and urban areas and (vi) strengthening of monitoring and supervision.

There is significant impact on disease burden in 11th Plan. (i) Six states/UTs achieved Leprosy Elimination status, (ii) Annual New Case Detection Rate (ANCDR) decreased from 14.27/100,000 in 2005-06 to 10.48/100,000 in 2010-11, (iii) Prevalence Rate decreased from 1.34/10,000 in 2005-06 to 0.69/10,000 in 2010-11, (iv) Treatment Completion rate improved from 90.34 in 2006-07 to 92.26 in 2009-10, (v) Reconstructive Surgery (RCS) was conducted in 11825 persons affected by leprosy in 4 years to reduce disability, (vi) No. of high endemic districts (ANCDR >10/100,000 population) reduced from 275 in 2005-06 to 209 where special activities are now proposed in the 12th Plan period.

Key lessons learnt from the implementation of programme in 11th Plan include (i) slow achievement in reduction of cases, (ii) detection of new cases from various pockets, mostly from 209 districts in 16 States, (iii) poor quality of services through integrated service delivery, (iv) inadequate referral services at the District Hospital level, (v) role of ASHA at village level for early case detection and for completion of treatment is very encouraging, (vi) poor performance of RCS in Govt. Institutions though their number has gone up from 20 to 44, (vii) keeping the clause of BPL families for receipt of incentives for undergoing RCS operation is counter productive as BPL Cards are not easily available, (viii) delay in release of funds from State NRHM to districts resulting in non execution of planned activities.

The proposed strategy for 12th Plan includes (i) focus attention to 209 already identified districts and other districts to be identified future, (ii) backlog for RCS to be cleared, (iii) promotion of self care, (iv) capacity building especially in Prevention of disability (POD), (v) to improve referrals at district level, and (vi) improved monitoring & supervision.

Policy changes to be made in implementation during the 12th Plan are (i) Reassess the burden of leprosy in the country by shifting from prevalence as the main indicator to Annual New Case Detection Rate (ANCDR) and burden of disability in new cases of leprosy (ii) Improving the quality of services to all patients with easy accessibility without discrimination, (iii) Provide integrated leprosy services with primary health care system for

It is expected that in 12th Plan Prevalence Rate (PR) will reduce to <1/10,000 population and ANCDR will reduce to <10/100,000 population in all districts. Cure rate for Multi-Bacillary (MB) leprosy would be >95% and cure rate for Pauci-Bacillary (PB) leprosy would be >97%. Thus, the thrust under 12th Plan would be on achieving elimination of leprosy in all the districts of the country and reduction in Gr. II disability through prevention of disability (POD) and reconstructive surgery.

An amount of Rs. 787.00 crore is proposed for NLEP under the 12th Plan.

D1. National Centre for Disease Control – Ongoing Activities

(a) Upgradation of National Centre for Disease Control (NCDC)

National Centre for Disease Control (formerly National Institute of Communicable Diseases) is an apex public health institute for control of communicable diseases. With headquarters in Delhi, it has 8 out-station branches located in different states. CCEA approved the upgradation of NCDC (headquarters only) in December 2010 for Rs. 382.41 crore. The upgradation includes construction of new buildings, provision of new technical posts and establishment of several technical centres and new diagnostic and lab services. The accepted outcomes from proposed upgradation, amongst others would include (i) enhanced scope of referral diagnostic support services for disease outbreak investigators and networking of public health laboratories, (ii) enhanced data management capacity under Disease Surveillance and Response Programme, (iii) enhanced capacity for development of trained manpower in public health, (iv) trained, dedicated central rapid response teams available for disease outbreak control, (v) enhanced quality operational research for better disease control and (vi) preparedness against probable threats of bioterrorism. An amount of Rs. 350 crore is proposed for the 12th Plan for upgradation of NCDC. An additional amount of Rs. 6.10 crore is proposed for 24X7 Outbreak Monitoring Cell and an amount of Rs. 14.0 crore is proposed for operational research in the 12th Plan.

(b) Continuation of Integrated Disease Surveillance Project (IDSP) as Disease Surveillance and Response Programme

IDSP was launched with World Bank assistance in November 2004. The project has been extended for two years up to March 2012 but the World Bank is funding Central Surveillance Unit (CSU) at NCDC & 9 identified states and the rest 26 states/UTs are being funded from domestic budget. Further World Bank assistance will not be available after March 2012 and the programme will need to be implemented with GOI domestic budget. It may be mentioned that IDSP has already been merged with NCDC administratively & financially in June 2006.

Under the project, surveillance units have been established at all state and district headquarters and training of state/district surveillance teams has been completed for 34 States/UTs and partially completed for Uttar Pradesh. Presently, 85% districts in the country report weekly surveillance data through e-mail and more than 67% districts report through portal. The weekly data gives information on the disease trends and seasonality of diseases. Whenever there is rising trend of illnesses in any area, it is investigated by the Rapid Response Team to diagnose and control the outbreak. Accordingly, on an average, 20 outbreaks are reported every week by the states to CSU. A total of 553 outbreaks were reported and responded to by states in 2008, 799 outbreaks in 2009 and 990 outbreaks in 2010. In 2011, 538 outbreaks have been reported till 29th May. Earlier, only a few outbreaks...
were reported in the country by the States/UTs. This is an important public health achievement.

Since disease surveillance and response is a core public health activity which has to be undertaken on a continuous basis, all activities being undertaken presently under IDSP are proposed to continue in the 12th Plan as Disease Surveillance and Response Programme under NCDC as a Central Sector Scheme. Central Surveillance Unit will be merged into “Centre for Integrated Disease Surveillance” under NCDC. All support to states/districts health societies including additional contractual staff given under IDSP will continue in the 12th Plan. The funds will be released to the state health societies for implementation of disease surveillance and response programme within their health system. A network of 500 district public health labs will be established and linked to about 200 medical colleges/referral labs to improve the quality of data and outbreak investigations. An outlay of Rs. 851.81 Crore is proposed for Disease Surveillance and Response Programme for 5 years in 12th Plan.

(c) Implementation of IHR (2005)

The International Health Regulations (IHR) are an international legal instrument that is binding on 194 countries across the globe including India. The purpose and scope of IHR (2005) is to prevent, protect against, control and provide a public health response to the international spread of disease in ways commensurate with and restricted to public health risks which avoid unnecessary interference with international traffic and trade. IHR (2005) came into force in 2007.

Under the International Health Regulations (2005), it is mandatory for the country to develop, strengthen and maintain core capacities for disease surveillance and response and at points of entry to detect, assess, report, notify and control all events irrespective of origin and source which may constitute a public health emergency of international concern. As the country has committed to implement IHR (2005) and has nominated the Director, NCDC, Delhi as the National Focal Point for IHR (2005), NCDC needs strengthening under 12th Plan to fulfill the obligations under IHR (2005). An amount of Rs. 12.53 Crore is proposed for strengthening of National Focal Point (NCDC) and strengthening of core capacities at points of entry. Core capacities for surveillance and response will be strengthened under the “Disease Surveillance and Response Programme”.

(d) Prevention and control of Rabies

Rabies is a major public health problem in India. An estimated 20,000 deaths occur annually which is about one-third of total global mortality. While an estimated 17.5 million animal bites occur annually, only 3 million receive Post Exposure Prophylaxis (PEP) Treatment. Dogs inflict more than 95% of bites. Rabies is invariably fatal; however, it can always be prevented by timely and appropriate post exposure prophylaxis. As a “New Initiative” under 11th Plan, a pilot project on Prevention and Control of Rabies is being carried out in five cities viz Ahmedabad, Bangalore, Delhi, Pune and Madurai with the main objective to prevent human deaths due to rabies.

Based on the success of the pilot project in 11th Plan, National Rabies Control Programme is proposed in 12th plan which will focus on (i) strengthening of PEP to prevent human deaths in all states/UTs, (ii) vaccination of stray dogs at 30 selected sites initially, (iii) operationalization of cost effective and efficacious intradermal route for vaccination, (iv) extension of rabies treatment facilities to peri-urban/rural areas, (v) active involvement of NGOs and community, and (vi) strengthening of inter-sectoral coordination. An amount of Rs. 384.59 crore is proposed in 12th Plan to carry out these activities.
(e) Prevention and Control of Leptospirosis

The outbreaks of leptospirosis, an emerging zoonotic disease, are increasingly been reported from many states/UTs such as A& N Islands, Kerala, Gujarat, Tamil Nadu and Karnataka. In addition, cases have also been reported from Goa, Andhra Pradesh and Assam.

A pilot project on Control of Leptospirosis was approved as a “New Initiative” in the 11th Plan in 5 endemic states with the objective to reduce the morbidity and mortality in pilot project areas. The proposal is to expand and implement the strategy developed during 11th Plan in all the endemic states during the 12th Plan period. The strategy evolved and guidelines formulated will be shared and distributed to all endemic states. The suspected cases of leptospirosis will get timely and appropriate treatment and awareness in community will help in reducing mortality and morbidity due to leptospirosis. An amount of Rs. 3.69 crore is proposed in 12th Plan to carry out this activity.

(f) Surveillance of Yaws and Guinea Worm

Guinea Worm Disease has already been eradicated from the country. However, its continuous monitoring is required till the disease is eradicated globally. Its budget shall be reflected in the regular budget of NCDC.

Yaws has been declared eliminated from the country since 2006. However, for eradication of the disease, activities like sero-surveillance, active search, awareness generation in the community and independent appraisals etc. will be carried out and the results will be placed before WHO Commission for declaring eradication of Yaws from the country. It is an ongoing activity of NCDC and budget shall be reflected in the regular budget of the NCDC.

D2. National Centre for Disease Control – New Activities

(a) Up-gradation of existing branches and establishment of 27 new branches of NCDC

Currently, there are eight branches of National Centre for Disease Control located at Alwar (Rajasthan), Varanasi (UP), Patna (Bihar), Rajahmundry (Andhra Pradesh), Jagadalpur (Chhatisgarh), Bangalore (Karnataka), Coonoor (Tamil Nadu) and Kozhikode (Kerala). These branches provide some support to the states in control of communicable diseases. However, over the years need has been felt to strengthen these branches so that they function as complete units for decentralized presence of NCDC. There is also a need to strengthen laboratory capacity and entomology facility in these branches for early diagnosis of epidemic prone diseases and to undertake entomological surveillance for vector borne diseases. Need has also been felt that NCDC has branches in all states/UTs rather than in only 8 states.

Keeping above in view, NCDC is proposing up-gradation of 8 existing branches and establishment of 27 new branches. The location of the new branches shall be finalized in consultation with the states. The norms of construction, equipment, manpower and other logistics shall be as applicable to the existing branches (upgraded) and shall conform to the administrative and financial norms. The State government officials shall be regularly and actively involved in all the activities of the branches.

NCDC branches will help in carrying out the disease surveillance effectively, meet the needs of the IHR (2005), enhance the efficiency of disease control activities and additionally help in better implementation of the new proposed programmes such as National Rabies Control Programme, National Anti-Microbial Resistance Containment Programme and Prevention and Control of Viral Hepatitis etc. An amount of Rs. 288.50 crore is proposed for upgradation of existing branches and Rs. 854.80 crore for establishment of 27 new branches of NCDC. (Total Rs. 1143.30 crore).
(b) National Programme for Containment of Antimicrobial Resistance (AMR)

Development of Antimicrobial Resistance in pathogens of public health importance is a major public health problem which can lead to serious health, social, economic and disease transmission problems, if not tackled timely. There is no organized Antimicrobial Resistance Containment Programme in the country despite increasing antibiotic resistance developing in pathogens causing diseases of public health importance. A national Task Force was constituted by MoH&FW in August 2010, under the chairpersonship of DGHS, to frame national policy for containment of AMR in the country. Based on the strategy spelt out by the Task Force, the National Programme for Containment of Antimicrobial Resistance (AMR) is proposed in 12th Plan with an outlay of Rs. 112.25 crore. The activities would inter alia include (i) surveillance of antimicrobial resistance, (ii) surveillance of antimicrobial use, (iii) development and implementation of National Infection Control Guidelines and Standard Treatment Guidelines, (iv) operational research on antimicrobial usage, environmental surveillance and AST methodology and (v) creating awareness among the health care workers and community about rational use of antibiotics.

(c) Prevention & Control of Viral Hepatitis

There are at least five viruses which can cause viral hepatitis. These viruses are hepatitis virus A, B, C, D and E. HAV and HEV are transmitted by faeco-oral route through contamination of water and food. HAV affects most of the people during childhood when the disease is mild. Outbreaks of viral hepatitis are usually caused by hepatitis E virus. Important mechanisms of transmission of HBV are mother to infant in perinatal period, parenteral (through infected needles and syringes, blood transfusion) and sexual routes. HCV is usually transmitted by parenteral route; the risk of transmission by household contact and sexual activity appears to be very low. HDV which needs the presence of HBV for its multiplication is transmitted like HBV. Hepatitis B, C and D can lead to persistent infection (chronic carriers). The sequelae of persistent infection include chronic active hepatitis, liver cirrhosis and liver carcinoma. Around 3 to 5% of our population is estimated to be chronic carrier of hepatitis B.

Currently, there is no program for viral hepatitis in the country. The proposed programme in 12th Plan with an outlay of Rs. 120 crore will include (i) setting up of 25 labs having facilities for all markers of hepatitis viruses, (ii) preparation and circulation of guidelines for prevention, anti-viral and interferon therapy, repeat testing & quantitative analysis, (iii) provision of vaccine for high risk groups, and (iv) assessment of role of interferon and antiviral therapy for management of hepatitis B & C in selected patients through medical colleges in a project mode. NCDC will coordinate all the activities and there will be central supply of kits and reagents for each lab.
(d) **Establishment of inter-sectoral coordination and control of selected Priority Zoonotic Diseases**

Zoonotic diseases account for a substantial burden of morbidity and mortality due to endemic as well as emerging diseases. While 61% (868/1415) of all identified infectious organisms are zoonotic, about 75% (132/175) of pathogens associated with emerging diseases are zoonotic.

A strong coordination is needed between human health, animal health and other sectors at all levels to control the zoonotic diseases like avian influenza, plague, rabies, leptospirosis etc. Existing Committees and Groups (for example, Standing Committee on Zoonoses, Joint Monitoring Group) at central level and existing disease surveillance committees at state level will be responsible for inter-sectoral coordination. A zoonosis coordination cell will be established at NCDC, Delhi to monitor the activities. One additional contractual position for a veterinary (consultant) is proposed under the Disease Surveillance and Response Programme at state level to improve intersectoral coordination and to support the State Surveillance Officer in tackling the zoonotic diseases. At the district and the block levels, District Surveillance Officer would coordinate the activities between veterinary, municipal corporation/committees and other local bodies and voluntary agencies involved in the subject. Activities would also include lab strengthening for identified target diseases, manpower development and IEC. An amount of Rs. 51.08 crore is proposed in the 12th Plan for these activities.

**Total Budget for NCDC including Disease Surveillance and Response is proposed as Rs. 3049.35 Crore.**

**E. Communicable Disease Division at Central Directorate General of Health Services**

```
  Director General of Health Services*
    Spl DGHS (PH)*
    Addl DG (CD)**
  Director (NCDC)*
    DDG (PH)*
    Director (NVBDCP)*
    DDG (TB)*
  DDG (Leprosy)*
  State Branches of NCDC**

  Director (CRI)*
  Director (BCGI)*
  Director (AIJHPH)*
  Director (RHTC)*
  ADG (PH)*
  ADG (PH)*
  Central Directors (PH) in place of RDs**
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*Existing
**Proposed
Under the overall supervision of DGHS, supported by Special DGHS (PH), the division will be headed by Addl. DG (CD) who would be assisted by Director, NCDC and Project Director, IDSP; Director, NVBDCP; DDG (TB) and DDG (Leprosy), DDG (PH), Directors, CRI, Kasauni; BCG Vaccine Institute, Guindy; All India Institute of Hygiene and Public Health, Kolkata and RHTC, Najafgarh. DDG (PH) would be supported by ADG (PH). Each state will have one Central Director (PH) who will have a National Programme implementation cell, M&E Cell and health intelligence cell. This will be the new face of RD office, wherever they exist and a new office in States where RD office do not exist. This will take care of State Level programme implementation, monitoring and evaluation and health intelligence (surveillance). The division will be assisted by a Technical Advisory Committee (TAC) consisting of various health experts.

One Additional post of Addl. DG, 16 additional posts of Central Directors (PH) (presently 19 posts of Regional Directors are available) & 27 officer-in-charges of NCDC state branches in addition to existing 8 NCDC branches would be required along with supporting staff to strengthen the prevention and control of communicable diseases. The RHTC is proposed to be placed back with Dte. GHS as the functioning of the organization is technical in nature.

### Summary of the total budget proposed for Communicable Diseases in the 12th Plan (Rs. In crore)

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26
Proposals for 12th Five Year Plan
National Vector Borne Disease Control Programme (NVBDCP)
INDEX

1. Background Note on National Vector Borne Disease Control Programme (NVBDCP)

2. Status of NVBDCP during 11th Plan
   a. Malaria
   b. Dengue and Chikungunya
   c. Japanese Encephalitis
   d. Lymphatic Filariasis
   e. Kala-azar

Part II – Proposed 12th Five Year Plan

3. Introduction & Vision of vector borne diseases

4. Proposed activities for prevention & control of VBDs during 12th Five Year Plan
   a. Malaria
   b. Dengue and Chikungunya
   c. Japanese Encephalitis
   d. Lymphatic Filariasis
   e. Kala-azar

5. Cross cutting Vector Borne Diseases Issues

6. Restructuring Directorate of NVBDCP

7. Total proposed budget
NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME (NVBDCP)

1. Background

The National Vector Borne Disease Control Programme (NVBDCP) is an umbrella programme for prevention and control of vector borne diseases (VBD), viz., Malaria, Lymphatic Filariasis, Kala-azar, Dengue, Chikungunya and Japanese Encephalitis (JE). These diseases pose major public health problems and hamper socio-economic development. Generally the rural, tribal and urban slum areas are inhabited mostly by low socio-economic groups which are more prone to VBDs and are considered as high risk groups.

1.1 National Vector Borne Disease Control Programme (NVBDCP)

About 75 million malaria cases and 0.8 million deaths were estimated annually during pre-Independence era. Malaria morbidity and mortality had affected agriculture, industrial development and national economy. Repeated attacks of malaria were responsible for deterioration in mental and physical capabilities resulting into enormous loss of productive man days. Global experience in malaria control and availability of the cost-effective intervention measures for malaria control with use of insecticides in fifties indicated that with their effective and efficient use, malaria could be controlled or even eradicated within a short period. Considering this concept, a centrally sponsored National Malaria Control Programme (NMCP) was launched in 1953 for malaria control in high endemic areas which was modified in 1958 to a countywide National Malaria Eradication Programme (NMEP) in view of spectacular success of NMCP. The success achieved in preventing deaths due to malaria and also reducing annual malaria incidence to an all time low of 0.1 million cases by 1965 could not be sustained for various technical, administrative and financial constraints. Resurgence of malaria became noticeable in 1976 with 6.47 million cases that necessitated launching of the Modified Plan of Operation (MPO) in 1977 with the immediate objectives to prevent deaths and to reduce morbidity due to malaria. Modified Plan of Operation successfully brought down annual incidence of malaria from 6.47 million (0.85 million \( P. falciparum \)) in 1976 to 2.18 million cases (0.65 million \( P. falciparum \)) by 1984. The developmental activities like rapid unplanned urbanization, construction, river valley projects, mega-industry, irrigation projects, etc. with deficient water management and inadequate mosquito control provisions again led to increased malaria incidence. Migration of population from endemic to other areas on account of such developmental projects also increased malaria transmission.

The country-wide resurgence of malaria was again experienced in 1994 which led to high level review by the Prime Minister on 5th December, 1994. In pursuance with the review of programme, an Expert Committee was constituted which submitted its report on 27th January, 1995. Based on the recommendations of the Expert Committee, a Malaria Action Programme (MAP) 1995 was drawn up and sent to the states and UTs for prioritizing the high risk areas and implementation of strategy accordingly. As a result, the cases were reduced to around 2.5 to 3 million annually.

To tackle malaria problem in high risk areas other than North-Eastern (NE) states, an ‘Enhanced Malaria Control Project (EMCP)’ with the assistance of World Bank was implemented during 1997-2005 with additional inputs of human resource, effective insecticidal spraying, Information, Education & Communication (IEC)/ Behavioural Change Communication (BCC) activities, and capacity building. The malaria
incidence reduced in the project areas significantly. The strategies were focused on control of malaria, hence, the programme was changed from NMEP to National Anti Malaria Programme (NAMP) during the year 1998. To sustain the impact of this project, 93 high-endemic districts in 8 states have been identified for additional inputs through World Bank assisted Project in 2008 for a period of five years which is being implemented from March 2009.

In North Eastern states, malaria control activities were intensified with additional inputs provided under Global Fund supported Intensified Malaria Control Projects from July 2005 to June 2010. These initiatives have been extended by another Global Fund supported project for a period of five years to cover all the districts of seven North-Eastern States.

The prevention and control of other vector borne diseases namely Lymphatic Filariasis, Kala-azar was also being dealt by the Directorate of NAMP in addition to need based support for Japanese Encephalitis and Dengue. In view of synergies in prevention & control of vector borne diseases including Japanese Encephalitis and Dengue, the programme was renamed as National Vector Borne Disease Control Programme in 2003 with the integration of three ongoing centrally sponsored schemes viz., NAMP, NFCP and Kala-Azar Control Programme and converging prevention and control of JE and Dengue. In 2006, Chikungunya re-emerged in country and was also brought under purview of this Directorate.

1.2. The Urban Malaria Scheme (UMS)

The implementation of control measures under erstwhile ‘NMEP’ showed reducing malaria incidence in rural areas in the country till 1965, but at the same time increasing trend of malaria was observed in some towns/cities as a result of which, Madhok Committee (1969) reviewed the problem and found that 10 urban areas in Andhra Pradesh and Tamil Nadu contributed 11.2% of the total malaria cases in the two states during 1963. The Committee felt that if effective antilarval measures were not undertaken in urban areas, the proliferation of malaria cases from urban to rural areas might spread in a bigger way in many states and recommended adequate central assistance for tackling the programme. Accordingly the ‘Urban Malaria Scheme’ was approved in 1971 as a 100% centrally sponsored scheme which from 1979-80 was changed to on 50:50 sharing basis between centre and state governments. The UMS scheme was scaled up in a phased manner by including 23 towns in 1971-72, 5 in 1972-73, 87 in 1977-78, 38 in 1978-79, 12 in 1979-80 and 17 in 1980-81 making a total of 182 towns. Since states have the responsibility of providing human resources and infrastructure, the scheme could be implemented only in 131 towns for which GoI is supplying anti-larval. The drugs are made available through states. At present, Urban Malaria Scheme is protecting about 116 million population from malaria and other mosquito borne diseases in 131 towns.

1.3 The National Filaria Control Programme (NFCP)

The programme was launched in 1955 to delimit the problem and implement the treatment of microfilaria carriers and disease cases with Diethylcarbamazine tablets along with anti-larval measures in urban areas. Filaria is endemic in 20 States/UTs except Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Sikkim, Jammu & Kashmir, Himachal Pradesh, Haryana, Punjab, Chandigarh, Rajasthan, Uttarakhand and Delhi. NFCP activities are implemented through 206 control Units, 199 Filaria Clinics and 27 Filaria Survey Units located in urban areas of endemic states. The programme has undergone various paradigm shifts and has revised the strategy. Currently the disease has been targeted for elimination which is
defined as “Elimination is achieved when Lymphatic Filariasis (LF) ceases to be a public health problem, when the number of microfilaria carriers is less than 1% and the children born after initiation of elimination activities are free from circulating antigenemia (presence of adult filaria worm in human body)”. The strategy of elimination is interruption of transmission by annual Mass Drug Administration (MDA) with anti-filarial drugs to entire population at risk of LF. It is being implemented in 250 LF endemic districts since 2004. The anti-larval operations in 206 towns covered under NFCP is continued and the budget of NFCP merged with UMS for this support.

1.4. Kala-azar

Kala-azar was highly endemic in India during pre-DDT era and had affected economic growth of country due to high morbidity and mortality rates. Cyclic epidemics used to occur with an inter-epidemic period of about 10 years or more. With the launching of extensive insecticidal spraying under National Malaria Control Programme/National Malaria Eradication Programme since 1953 and 1958 respectively, the disease declined to negligible proportion due to collateral benefit of insecticidal pressure on the vector, Phlebotomus argentipes, with consequent interruption of transmission. However, there was resurgence in the 1960s and by seventies the disease established itself in endemic form in Bihar and then in West Bengal. In the absence of any organized control activity, the disease slowly spread to several areas in these states. Considering the seriousness of the problem, centrally sponsored Kala-azar Control Programme was launched in 1990-91. The disease has also been targeted for elimination by 2015 as per tripartite agreement between India, Nepal and Bangladesh. Various initiatives have been taken towards elimination of the disease.

1.5. Dengue, Chikungunya and JE

For prevention and control of these viral diseases, there were no separate programmes but need based assistance and technical supports were being provided by the Directorate of NVBDCP. However, during 11th Plan period, separate budgeting was planned and various initiatives were taken to control outbreaks and contain the disease by strengthening surveillance, diagnosis, case management and awareness etc.

1.6. Entomological surveillance

The three important components of disease transmission are causative organism (parasite or pathogen), human being as host and the vector as transmitting agent. Not all the mosquitoes transmit the disease, hence the knowledge about capacity to transmit disease and their predominance in terms of time and space are very crucial to facilitate the decision about their control strategies. Entomological surveillance covers all these aspects and for such entomological surveillance, 72 zonal malaria offices were established in the country with support of entomologists, insect collectors and support staff. The expenditure on this infrastructure is met by the States from state resources. In addition, 16 Regional Offices for Health & FW, GoI were also equipped with entomologists for carrying out entomological activities in addition to other public health activities. Gradually, due to non-adherence of due importance to the entomological work, the progress on entomological surveillance has suffered, though some states like Tamil Nadu, Andhra Pradesh, Gujarat and Maharashtra etc. have attached more importance on zonal teams and strengthened them with entomologists and infrastructure. Presently out of 72 zones, only 50% are functional. To generate latest information about various entomological parameters in the country for revising prevention and control activities against vectors at national, state and local level, the
entomological zones need to be strengthened with additional human resources and infrastructure with basic minimum facilities like mobility support for field visits etc.

1.7 Objectives under NVBDC

During XI Plan, the following objectives were enlisted:

- To prevent mortality due to Vector Borne Diseases namely Malaria, Kala-azar, Dengue/DHF and Japanese Encephalitis
- To reduce morbidity due to Malaria, Dengue/DHF, Chikungunya and Japanese Encephalitis
- Elimination of Kala-azar and Lymphatic Filariasis.

Towards reducing the burden of vector borne diseases and paving the way for healthy and socio-economically developed nation, the Government of India (GoI) in its National Health Policy (2002) has envisaged the goal to reduce mortality on account of malaria, dengue and Japanese encephalitis by 50% by 2010, elimination of Kala-azar by 2010 and elimination of lymphatic filariasis by 2015. Reducing morbidity and mortality on account of malaria is also Millennium Development Goal. The programme has also been subsumed under National Rural Health Mission (NRHM) to improve the availability of services and access to health care to people, especially for those residing in rural areas, the poor, women and children.
2. Status of National Vector Borne Disease Control Programme during XI Plan

2.1 Malaria

2.1.1 Objectives

- To reduce malaria morbidity & mortality by 50% by 2012 (Base line 2006).

2.1.2. Targets and indicators

Targets

- ABER over 10%.
- API 1.3 or less.
- 25 per cent reduction in morbidity and mortality due to malaria by 2010 and 50 per cent by 2012.

Indicators

- Percentage of blood smears examined from population under surveillance during the year.
- Number of laboratory confirmed malaria cases per 1000 population (API).
- Number of malaria deaths per 100,000 population.

2.1.3 Strategy to achieve the objectives of XI Plan Period was as follows:

The basic approach for vector borne disease control involves a strategy directed against the parasite and vector, and to enlist involvement of community in practising various preventive measures. Based on this concept following major strategies were adopted under the National Vector Borne Disease Control Programme during the XI Plan Period.

- Disease Management
  - Early case detection and complete treatment
  - Strengthening of referral services
  - Epidemic preparedness and rapid response

- Integrated Vector Management (For Transmission Risk Reduction)
  - Indoor Residual Spraying in selected high risk areas
  - Use of Insecticide treated bed nets and upscaling of long lasting insecticidal nets in last two years of XI plan
  - Use of larvivorous fish
  - Anti larval measures in urban areas including biolarvicides
  - Minor environmental engineering

- Supportive Interventions
  - Behaviour Change Communication (BCC) and IEC activities
  - Public private partnership & inter-sectoral convergence
  - Human resource development and capacity building
  - Operational research including studies on drug resistance and insecticide susceptibility
• Monitoring and Evaluation
The Government of India provides antimalaria drugs, insecticides and larvicides under the National Vector Borne Disease Control Programme. The programme is implemented and monitored by the state health authorities. The operational cost including the wages for contractual labour for spraying are borne by the state governments except in North-Eastern states and UTs. Certain commodities are to be met out of state resources. Recently the procurement of drugs and larvicides have been decentralized for which Govt. of India provides cash assistance. DDT procurement & supply still remains with GoI. In addition, the commodities to be supplied under externally assisted projects are also procured and supplied by GoI to the identified states/districts. Cash grant is also provided by GoI to the states/UTs for various preparatory activities and towards the salary of contractual human resources.

2.1.4 Initiatives and achievements

• Human Resource: To intensify the programme activities, the efforts were made to bridge the gaps especially to strengthen surveillance diagnosis and treatment. Additional human resources of various categories were provided to high malaria endemic states on contractual basis. These categories were state and district level consultants, Malaria Technical Supervisors (MTS), Kala-azar Technical Supervisors (KTS), Lab. Technicians (LTs) and male Multipurpose Workers (MPWs). The externally aided projects also supported such endeavors and therefore in the states supported under World Bank and Global Fund Projects, the above mentioned categories except male MPWs were provided. The male MPWs were provided out of Govt. of India funds to high malaria endemic states. To handle the project activities and its monitoring. National Consultants with support staff were also provided at central level. The expertise of these consultants was also utilized for activities supported under domestic funding as an ad-hoc arrangement. However, the real need of programme in the whole country needs to be addressed from domestic funding.

• ASHAs were involved for diagnosis and treatment for which they have been trained. So far about 3.5 lakhs ASHAs have been trained and involved in malaria diagnosis and treatment, especially in Pf predominant areas.

Such newly engaged personnel were given orientation on programme activities and specific to their job for which they were engaged. Their capacity building was taken up in addition to regular training programmes for various categories of staff in the States.

• Surveillance & Diagnosis: The surveillance for malaria is carried out through active agencies where health workers approach patients and through passive agencies where patients approach health facilities. Active surveillance has been affected due to shortage of male health workers (state’s responsibility), however, in high malaria risk areas contractual male multipurpose health workers were provided during 11th plan period by GOI. Many public health facilities (PHCs, Block PHCs & CHCs) in rural areas through inputs under NRHM in last few years have undergone major changes to provide certain minimum health facilities, thereby attracting the community comparatively more. The passive surveillance therefore has also increased due to a large number of people approaching to these peripheral health institutions where doctors and LTs are present. The involvement of ASHAs in surveillance, diagnosis and treatment of Pf
malaria cases in high risk areas was found a feasible solution to overcome the shortage of male MPWs. Initially for the involvement of ASHAs, 61 districts were identified during XI plan but later based on the field experience ASHA’s involvement was expanded to 257 districts after recommendation of Empowered Programme Committee (EPC) of NRHM and approval by Mission Steering Group (MSG) in 2010.

• With these initiatives, the number of persons screened for malaria through blood slide (microscopy) and through RDT has been around 95 million, thereby maintaining the annual blood examination rate around 9.2% against the target of 10%. The RDT was scaled up in last two years of 11th plan and about 14 million out of 95 million fever cases are screened per year through RDT. Presently the RDTs used in the programme is for detection of only Pf cases which if not detected and treated timely, may become fatal.

To strengthen the surveillance further, additional sentinel sites at district hospitals/medical colleges are being established in districts covered under externally assisted projects.

Malaria clinics, dispensaries and hospitals are also involved in passive surveillance in urban areas the reports of which are collected and compiled in the respective districts. In addition, certain private hospitals, medical colleges and malaria clinics at Regional Offices for Health & FW, GoI also screen the suspected fever cases visiting these institutions and provide the treatment after diagnosis. These records are also collected by the States and incorporated in their report. Efforts have been made to intensify it by training lab. technicians of these institutions.

• **Treatment:** The conventional treatment protocol of vivax and falciparum malaria has been revised. During 11th plan, revised treatment protocol with 14 days radical treatment of vivax malaria and treatment with artemisinin based combination therapy (ACT) against falciparum malaria has been implemented. The use of ACT was upscaled due to emergence of chloroquine resistance in P. falciparum cases. The drug resistance is being monitored regularly by 13 existing teams located at different Regional offices for Health &FW (GoI). However, since these teams were formed out of project staff and were merged in 1995 in pursuance to the order of Supreme Court with the condition that these posts will not be created after the retirement of project staff, hence these posts can not be filled up. The support of National Institute of Malaria Research Centre (NIMR) of ICMR was obtained to generate more data.

• **Vector Control:** Under integrated vector control initiative, Indoor Residual Spraying (IRS) is implemented selectively in high risk areas taking sub-centres as a unit. Over the years, targeted population for IRS has been reduced in view of paradigm shift to alternative vector control measures like use of insecticide treated nets/long lasting insecticidal nets. During 2006, 65.11 million population was covered with IRS; population covered during 11th plan period ranged between 50-70 million population. Initiatives have been taken to strengthen the supervision of IRS by deputing central officers to the field during the spray season.

During initial years of 11th plan, Insecticide Treated Nets (ITNs) were promoted but in the later phase of XI plan period, use of long lasting insecticidal nets (LLINs) have been upscaled. Till date, 4.51 million bed nets and 4.81 million LLINs have been supplied. In 2011 additional 6.58 million LLIN would be supplied.
• **Legislative Measures:** The strict implementation of civic bye-laws and building bye-laws by the enforcement agencies were taken up to prevent the development of mosquitogenic potential in urban areas. States have been emphasized to initiate the implementation of such acts wherever available and other states to start the process of formulation and enactment of such bye-laws.

• **World Bank Supported Enhanced Malaria Control Project** was implemented in 1045 PHCs in 100 districts of 8 states (Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh Maharashtra, Rajasthan and Orissa) predominantly inhabited by tribal population and were provided 100 per cent support towards operational expenses from 1997 to 2005. The World Bank Mission 2005 had rated programme of EMCP as satisfactory although much more improvements were still desirable especially in States like Orissa & Jharkhand. In the EMCP areas, reported cases have shown a decline from 1.19 million in 1997 to 0.65 million in 2004 (45% decline); deaths due to malaria have declined from 539 to 226 (58%). The Pf cases reduced from 0.72 million to 0.41 million (43%). Out of 100 Districts, 48 have shown Annual Parasite Incidence (API) of 2 or less.

The World Bank is again assisting the programme through the **National Vector Borne Disease Control Project (2008–2013) for malaria control activities** to cover a population of about 185 million in 93 districts of 8 states i.e. Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Orissa and Karnataka. Under the project following additional inputs are being provided to states:

- Human Resources including State level M&E, Finance, Training, IEC/PPP, Logistic & Procurement consultants; at district level one VBD consultant for each project district; at sub-district level Malaria Technical Supervisor (MTS) and Laboratory technicians for Sentinel site hospitals.
- Logistic support including RDT, ACT, Artether injections, LLIN and mobility support for monitoring and supervision. In addition, support for training, BCC and Vulnerable Community Plan (VCP) to ensure service delivery has also been extended through different agencies.

• **Global Fund supported Intensified Malaria Control Project (IMCP)** in 10 states (7 NE States & selected high risk areas of Orissa, Jharkhand and West Bengal) has been implemented since 1st July 2005 with the objective to increase access to rapid diagnosis and treatment in remote and inaccessible areas, reduce malaria transmission risk by use of insecticide treated bed nets (ITNs) and enhance community awareness about malaria control and promote community, NGO and private sector participation. The goal set in the project has been achieved in the project areas.

To intensify anti-malarial activities in the high endemic districts, Global Fund (GF) supported another project for 5 years has been approved for 86 districts of N.E states except Sikkim. Under Global Fund supported project, following inputs are being provided:

a. Human resource including State level Project Coordinator, M&E, Finance and IEC consultants; District VBD consultants, Malaria Technical Supervisors (MTS) and Laboratory technicians.
b. Logistic support including commodities like RDT, ACT, Artether injections, Insecticide treated nets with insecticide for treatment, LLINs and support for monitoring and evaluation.

- **Monitoring** has been strengthened with the support of additional human resource made available under external assistance.
  
  a. The involvement of ASHAs necessitated data recording from village level on RDT and blood slide collection. The monitoring formats were accordingly revised.
  
  b. During XI plan period, external evaluation of programme was done in World Bank and GF supported projects during 2008 and 2010.
  
  c. Monitoring of disease trend through sentinel sites has been strengthened which is being intensified in many states.
  
  d. Monitoring of implementation of project and programme activities has been further strengthened by introducing Lot Quality Assurance Sampling Survey methodology for selected activities like use of LLINs etc.
  
  e. Monitoring of financial management in World Bank project has been strengthened through agencies for fiduciary review. Similarly, monitoring of logistics has been undertaken by another agency, especially for supply chain management.

- **Operational Research:** To monitor the drug resistance, pharmaco-vigilance, quality assurance and insecticide resistance the operational research studies were initiated in 2008 with the help of NIMR under the funding by World Bank. More than 15 sites have been selected throughout the country for these studies in association with NIMR.

- **Involvement of NGO/Private Sector/Community/Local Self Government:** In addition to involvement of local NGOs in bednet distribution, social mobilization, CARITAS – a consortium of NGOs has been involved in implementation of the programme activities under GF supported IMCP-II in NE States.

- **Quality Assurance for Laboratory Diagnosis:** Microscopy and newer rapid diagnostic are being used across the country for diagnosis of malaria. Guidelines for Quality Assurance on Microscopy and RDT were prepared during the XIth Five Year Plan which are being followed.

- **Behaviour Change Communication (BCC):** Community based approach and strategies were developed to facilitate changes in behaviour and life style of people related to prevention and control of malaria. NGOs in high-risk areas were also involved to enhance the BCC activities. Every year, June is observed as Anti-Malaria Month during which the IEC and BCC activities are intensified.

### 2.1.5. Current situation of Malaria in the country

The malaria situation in India has steadily improved during the past decade with the number of reported cases being around 1.5 million with about thousand deaths annually at present. The countrywide malaria situation from 2001-2010 is given in Table 1.
Table 1, Countrywide Epidemiological Situation (2001 – 2010)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Malaria Cases (million)</th>
<th>P. falciparum cases (million)</th>
<th>Pf %</th>
<th>API</th>
<th>Deaths due to malaria</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>2.09</td>
<td>1.01</td>
<td>48.20</td>
<td>2.12</td>
<td>1005</td>
</tr>
<tr>
<td>2002</td>
<td>1.84</td>
<td>0.90</td>
<td>48.74</td>
<td>1.82</td>
<td>973</td>
</tr>
<tr>
<td>2003</td>
<td>1.87</td>
<td>0.86</td>
<td>45.85</td>
<td>1.82</td>
<td>1006</td>
</tr>
<tr>
<td>2004</td>
<td>1.92</td>
<td>0.89</td>
<td>46.47</td>
<td>1.84</td>
<td>949</td>
</tr>
<tr>
<td>2005</td>
<td>1.82</td>
<td>0.81</td>
<td>44.32</td>
<td>1.68</td>
<td>963</td>
</tr>
<tr>
<td>2006</td>
<td>1.79</td>
<td>0.84</td>
<td>47.08</td>
<td>1.66</td>
<td>1707</td>
</tr>
<tr>
<td>2007</td>
<td>1.51</td>
<td>0.74</td>
<td>49.11</td>
<td>1.39</td>
<td>1311</td>
</tr>
<tr>
<td>2008</td>
<td>1.53</td>
<td>0.77</td>
<td>50.81</td>
<td>1.36</td>
<td>1055</td>
</tr>
<tr>
<td>2009</td>
<td>1.56</td>
<td>0.84</td>
<td>53.72</td>
<td>1.36</td>
<td>1144</td>
</tr>
<tr>
<td>2010*</td>
<td>1.50</td>
<td>0.78</td>
<td>52.12</td>
<td>1.30</td>
<td>767</td>
</tr>
</tbody>
</table>

*Provisional

API: Annual Parasite Incidence (cases per thousand population per year), Pf: Plasmodium falciparum

Comparative status (2010 Vs 2006) of distribution of districts based on API

The API wise distribution of districts in 2006 and 2010 given in Table 2, shows that the number of districts with API >10 has decreased from 52 in 2006 to 46 in 2010 and the number of districts with API <1 has increased from 374 in 2006 to 444 in 2010.
### Table 2, API wise distribution of Districts in 2006 and 2010

<table>
<thead>
<tr>
<th>SN</th>
<th>Name of the State</th>
<th>2006</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&gt;10</td>
<td>5 – 10</td>
</tr>
<tr>
<td>1</td>
<td>Andhra Pradesh</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Arunachal Pradesh</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Assam</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Bihar</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Chhattisgarh</td>
<td>5</td>
<td>3</td>
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<td>6</td>
<td>Goa</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Gujarat</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>Haryana</td>
<td>1</td>
<td>2</td>
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<td>9</td>
<td>Himachal Pradesh</td>
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<td>0</td>
</tr>
<tr>
<td>10</td>
<td>J &amp; K</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>Jharkhand</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>Karnataka</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>Kerala</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>Madhya Pradesh</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>Maharashtra</td>
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<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Manipur</td>
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<td>1</td>
</tr>
<tr>
<td>17</td>
<td>Meghalaya</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>Mizoram</td>
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<td>0</td>
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<td>19</td>
<td>Nagaland</td>
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<td>0</td>
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<tr>
<td>20</td>
<td>Orissa</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>21</td>
<td>Punjab</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>Rajasthan</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>23</td>
<td>Sikkim</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>24</td>
<td>Tamilnadu</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25</td>
<td>Tripura</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>26</td>
<td>Uttarakhand</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>27</td>
<td>Uttar Pradesh</td>
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<td>0</td>
</tr>
<tr>
<td>28</td>
<td>West Bengal</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>29</td>
<td>A &amp; N Islands</td>
<td>1</td>
<td>0</td>
</tr>
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<td>30</td>
<td>Chandigarh</td>
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<td>0</td>
</tr>
<tr>
<td>31</td>
<td>D &amp; N Haveli</td>
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<td>32</td>
<td>Daman &amp; Diu</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>33</td>
<td>Delhi</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>34</td>
<td>Lakshdweep</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>35</td>
<td>Puducherry</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>All India</strong></td>
<td><strong>52</strong></td>
<td><strong>27</strong></td>
<td><strong>80</strong></td>
</tr>
</tbody>
</table>
Table 3, Epidemiological Indicators for Malaria in India (2001-10)

<table>
<thead>
<tr>
<th>Year</th>
<th>Blood Smear Examined</th>
<th>Positive cases</th>
<th>Pf Cases</th>
<th>ABER</th>
<th>API</th>
<th>SPR</th>
<th>SFR</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>90,389,019</td>
<td>2,085,484</td>
<td>1,005,236</td>
<td>9.18</td>
<td>2.12</td>
<td>2.31</td>
<td>1.11</td>
<td>1005</td>
</tr>
<tr>
<td>2002</td>
<td>91,617,725</td>
<td>1,841,229</td>
<td>897,446</td>
<td>9.04</td>
<td>1.82</td>
<td>2.01</td>
<td>0.98</td>
<td>973</td>
</tr>
<tr>
<td>2003</td>
<td>99,136,143</td>
<td>1,869,403</td>
<td>857,101</td>
<td>9.65</td>
<td>1.82</td>
<td>1.89</td>
<td>0.86</td>
<td>1006</td>
</tr>
<tr>
<td>2004</td>
<td>97,111,526</td>
<td>1,915,363</td>
<td>890,152</td>
<td>9.33</td>
<td>1.84</td>
<td>1.97</td>
<td>0.92</td>
<td>949</td>
</tr>
<tr>
<td>2005</td>
<td>104,143,806</td>
<td>1,816,569</td>
<td>805,077</td>
<td>9.62</td>
<td>1.68</td>
<td>1.74</td>
<td>0.77</td>
<td>963</td>
</tr>
<tr>
<td>2006</td>
<td>106,725,851</td>
<td>1,785,129</td>
<td>840,360</td>
<td>9.95</td>
<td>1.66</td>
<td>1.67</td>
<td>0.79</td>
<td>1707</td>
</tr>
<tr>
<td>2007</td>
<td>94,928,090</td>
<td>1,508,927</td>
<td>741,076</td>
<td>8.73</td>
<td>1.39</td>
<td>1.59</td>
<td>0.78</td>
<td>1311</td>
</tr>
<tr>
<td>2008</td>
<td>97,316,158</td>
<td>1,526,210</td>
<td>775,523</td>
<td>8.69</td>
<td>1.36</td>
<td>1.57</td>
<td>0.80</td>
<td>1055</td>
</tr>
<tr>
<td>2009</td>
<td>103396076</td>
<td>1,563,574</td>
<td>839,877</td>
<td>8.99</td>
<td>1.36</td>
<td>1.51</td>
<td>0.81</td>
<td>1144</td>
</tr>
<tr>
<td>2010*</td>
<td>106040223</td>
<td>1,495,817</td>
<td>779,549</td>
<td>9.21</td>
<td>1.30</td>
<td>1.41</td>
<td>0.74</td>
<td>767</td>
</tr>
</tbody>
</table>

*Provisional
ABER: Annual Blood Smear Examination Rate (percentage of blood smears examined in a year of total population)
SPR: Slide positivity Rate (includes confirmed by RDT)
SFR: Slide falciparum Rate (includes confirmed by RDT)

Fig. 3, Trend of Malaria cases, Pf cases and Deaths due to malaria from 2000 to 2010.

The data in Table 3 shows that Annual Parasite Incidence rate has consistently decreased from 2.12 per thousand in 2001 to 1.30 per thousand in 2010 but confirmed deaths due to malaria have been fluctuating during this period between 1707 and 767. The Table 3 shows the information on indicators by which malaria prevention/control activity in India are monitored and evaluated. Slide Positivity Rate (SPR) and
Slide Falciparum Rate (SFR) have reduced over the years from 2001 to 2010. It is also observed that ABER has ranged between 9.95% and 8.73% during that period.

**Fig 3** shows that the cases have consistently declined from 2.08 million to 1.50 million during 2001 to 2010. Similarly Pf cases have declined from 1.0 to 0.78 million cases during the same period. Less than 2000 deaths were reported during all the years within this period with a peak in 2006 when an epidemic was reported in NE States. The country SPR has declined from 2.31 to 1.41 and SFR has declined from 1.11 in 2001 to 0.74 in 2010. This indicates declining trend of malaria in the country however, the actual burden may be more because a large number of cases may be reporting to private health providers who do not report the cases to the programme. The Government of India recently has started rapid scale up of newer malaria control interventions, namely Rapid Diagnostic Test (RDT), Artimisinin based Combination Therapy (ACT) and Long Lasting Insecticidal Net (LLIN). The scaling up of these interventions is one of the biggest opportunities to have a significant impact on malaria mortality and morbidity.

The programme is being implemented throughout the country by the states and union territories under the technical guidance of the Directorate of National Vector Borne Disease Control Programme (NVBDCP). Over the past decades the problem of malaria has been effectively controlled in many parts of the country. At present, 80% of burden of disease in the country is confined to the most remote and inaccessible areas spread across the North Eastern States, Orissa, Jharkhand, Chhattisgarh and some districts of West Bengal, Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, and Andhra Pradesh. The most potent malaria vectors are prevalent in these areas warranting intensive inputs.

The Govt. of India is providing 100% central assistance to the North Eastern States for malaria control activities including provision of bed nets and spray wages. The Enhanced Malaria Control Project (EMCP) with World Bank assistance was implemented during 1997 – 2005 in 100 districts of eight high malaria incidence states. The World Bank is assisting the programme again through the National Vector Borne Disease Control Project (2008 – 2013) for malaria control activities to cover a population of about 185 million in 93 districts of 8 states i.e. Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Orissa and Karnataka. The Intensified Malaria Control Project (IMCP) - I funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) was in operation during 2005–10 in 106 districts covering the entire 7 North Eastern states, and some districts of Orissa, West Bengal and Jharkhand. The IMCP – II (2010 – 2015) funded by GFATM Round 9 has been initiated to provide intensive coverage with malaria control interventions in 7 North Eastern states.

There are many constraints for malaria control but there are ample opportunities too. Prevention with vector control interventions aims to reduce transmission and thus decrease the incidence and prevalence of infection and disease. Early and effective case management of malaria shortens disease duration and prevents complications and deaths from malaria. In addition, interruption of transmission will also result.
2.1.6 Urban Malaria Scheme (UMS)

2.1.6.1 Objectives

- To control urban malaria

2.1.6.2 Targets and Indicators

- Under UMS, anti-larval operations are aimed at elimination of breeding of vectors which are monitored, therefore the target was elimination of breeding at its source and indicator was measurement of density of aquatic stages of vector mosquitoes and epidemiological impact.

2.1.6.3 Strategies

The following components for vector control strategy under Urban Malaria Scheme have been implemented:

- Recurrent application of larvicides for polluted and non polluted water
- Use of larvivorous fish, *Gambusia affinis* and *Poecilia reticulata* in ornamental tanks, ponds and other seasonal and permanent water bodies
- Filling up of unused wells and water pools, disilting and deweeding of the margins of the drains and water channels
- Use of legislative measures and prosecution of defaulters for creating mosquitogenic conditions in domestic places by implementation of civic byelaws.
- Indoor space Spray with 2% Pyrethrum extract diluted to 0.1% in and around 50 houses of positive cases
- Use of fogging of insecticide in case of very high densities of *Aedes aegypti* and *An.stephensi*.

2.1.6.4 Current Disease Burden in urban areas

- The Urban Malaria Scheme (UMS) was launched in 1971 with the objective to control malaria by reducing the vector population in the urban areas through recurrent anti-larval measures, and detection and complete treatment of malaria cases through the existing health services. Population migration to urban and peri-urban areas is increasing leading to unplanned urbanization, large scale urban conglomerations prone to vector borne diseases and mega construction activities with vertical growth of cities and led to increase in urban malaria from 7.79% (1996) to 13.8% (2010). The following Tables indicate the malaria situation in urban towns under Urban Malaria Scheme:

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Total cases</th>
<th>P.f. cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>95814228</td>
<td>150917</td>
<td>19659</td>
<td>62</td>
</tr>
<tr>
<td>2005</td>
<td>102423064</td>
<td>135249</td>
<td>14905</td>
<td>96</td>
</tr>
<tr>
<td>2006</td>
<td>105782505</td>
<td>129531</td>
<td>17278</td>
<td>145</td>
</tr>
<tr>
<td>2007</td>
<td>112448027</td>
<td>102829</td>
<td>18038</td>
<td>125</td>
</tr>
<tr>
<td>2008</td>
<td>113334073</td>
<td>113810</td>
<td>18963</td>
<td>102</td>
</tr>
<tr>
<td>2009</td>
<td>114699850</td>
<td>166065</td>
<td>31134</td>
<td>213</td>
</tr>
<tr>
<td>2010</td>
<td>115999944</td>
<td>207165</td>
<td>32656</td>
<td>149</td>
</tr>
</tbody>
</table>
• The epidemiological situation for the year 2010 revealed that the urban towns contribute 13.8% of total cases, 4.19% of *P. falciparum* cases and 19.42 % deaths of the country.

<table>
<thead>
<tr>
<th>Country level</th>
<th>Population (in million)</th>
<th>Total cases</th>
<th>Pf. Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country total</td>
<td>1210.0</td>
<td>1495817</td>
<td>779549</td>
<td>767</td>
</tr>
<tr>
<td>Total cases in urban towns (131)</td>
<td>116.0</td>
<td>207165</td>
<td>32656</td>
<td>149 (19.42 %)</td>
</tr>
</tbody>
</table>

• Certain cities contribute large proportion of Malaria in the state like Chennai in Tamil Nadu and cities like Mumbai had shown an increase. The comparative picture of these town vs the state is indicated below.

<table>
<thead>
<tr>
<th>State level</th>
<th>Population (in million)</th>
<th>Total cases</th>
<th>Pf. Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil Nadu</td>
<td>67.20</td>
<td>15271</td>
<td>506</td>
<td>2</td>
</tr>
<tr>
<td>Chennai Corp.</td>
<td>4.81 (7.15%)</td>
<td>9789 (64.10 %)</td>
<td>64 (12.6%)</td>
<td>0 (0.00%)</td>
</tr>
<tr>
<td>Maharastra</td>
<td>111.65</td>
<td>138506</td>
<td>32383</td>
<td>190</td>
</tr>
<tr>
<td>Mumbai Corp.</td>
<td>13.6 (12.18%)</td>
<td>76755 (55.41%)</td>
<td>13363 (41.26%)</td>
<td>145 (76.31%)</td>
</tr>
</tbody>
</table>

• In urban areas, large number of people avail Medicare services from the private sector. The reporting system from the private sector is practically nil. Therefore actual malaria disease burden may be much more than the reported cases. The hospitals in the cities/towns also provide referral services to malaria cases including the severe and complicated forms of malaria from the catchments areas of the cities/ towns. Therefore there is a need to strengthen the referral facilities and capacity of the hospitals for management of malaria cases.
2.1.6.5 Constraints

- **Increasing urbanization:** The proportion of urban population has increased in the last few decades which is mainly by migration of population from rural to urban areas for earning and also attraction for availing both medical care and education opportunities etc.

- **Unplanned Urbanization:** Haphazard and unplanned growth of towns has resulted in creation of “urban slum” with poor housing and sanitary conditions promoting vector mosquito breeding potential for malaria, filaria and dengue fever/ Dengue haemorrhagic fever.

- **Supply of drinking water:** Deficient/restricted water supply has led to water storage practices in artificial containers which have generated breeding potential of *An.stephensi* vectors of urban malaria and *Aedes aegypti*, the vector of DF/DHF

- **Development project with Health Impact Assessment (HIA):** Development project activities without health impact assessment have resulted in malaria outbreaks in short terms and endemic malaria with foci of *P.falciparum* resistance strains in long term. The outbreaks of malaria and increase in malaria cases in Mumbai are examples of this kind.

- **Inadequate health infrastructure:** With rapid growth of population in urban towns, existing staff strength has not increased correspondingly and is therefore inadequate for service delivery.

2.1.6.6 UMS Budget

The allocation in approved Budget estimates during 11th Plan period is as under:

<table>
<thead>
<tr>
<th>Table 5, Budget under UMS</th>
<th>Rs. in crores</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year</strong></td>
<td><strong>Total B.E.</strong></td>
</tr>
<tr>
<td>2007-08</td>
<td>399.50</td>
</tr>
<tr>
<td>2008-09</td>
<td>472.25</td>
</tr>
<tr>
<td>2009-10</td>
<td>442.00</td>
</tr>
<tr>
<td>2010-11</td>
<td>478.00</td>
</tr>
<tr>
<td>2011-12</td>
<td>520.00</td>
</tr>
</tbody>
</table>
2.2 Dengue and Chikungunya

2.2.1 Objectives

- To prevent mortality due to dengue/DHF.
- To reduce morbidity due to dengue and chikungunya.

2.2.2 Target

- To reduce morbidity due to dengue & mortality due to DHF/DSS
- To reduce morbidity due to chikungunya.

2.2.3 Indicators

- Case Fatality Rate (CFR) associated with dengue/DHF.
- Frequency of outbreaks

2.2.4 Strategies for Dengue and Chikungunya control

Dengue and chikungunya are two different viral diseases transmitted by same vector Aedes mosquito. Therefore, the strategies are also same for prevention and control of both the diseases, which were three-pronged as under:

- Early Case reporting and management
  - Establishment of sentinel surveillance sites with laboratory support
  - Case management
  - Strengthening of referral services
  - Epidemic preparedness and rapid response

- Integrated vector management for transmission risk reduction
  - Entomological surveillance including larval surveys
  - Anti-larval measures
    - Source reduction
    - Chemical larvicide / biocide
    - Larvivorous fish
    - Environmental management
  - Anti-adult measures
    - Indoor space spraying with pyrethrum extract (2%)
    - Fogging during outbreaks
  - Personal protection measures
    - Protective clothing
    - Insecticide treated bed nets and repellents

- Supporting Interventions
  - Behaviour Change Communication
  - Inter-sectoral convergence
  - Human resource development through capacity building
  - Operational research
  - Supervision and monitoring
2.2.5 Initiatives

Prepared a long term action plan for prevention and control of chikungunya and dengue in the country and disseminated to the states in January 2007 for adoption. The main components of the long term action plan are as under:

- **Early case detection and reporting**
  - Sentinel Surveillance Hospitals (SSHs) were identified in endemic states for carrying out proactive surveillance during the inter-epidemic period and to augment diagnostic facilities in endemic states. For this purpose in 2007 to begin with, 110 Sentinel Surveillance Hospitals have been identified in consultation with the State Governments. Subsequently the numbers had been increased to 137 in 2008, to 171 in 2009, to 182 in 2010 and to 311 in 2011.
  - Each SSH has necessary equipment (ELISA reader & washer) for conducting serological tests. Wherever, equipment was not available with any SSH, the State Programme Officer had been requested to make the facility available by utilizing NRHM funds in consultation with the Dte of NVBDCP.
  - Total 13 Apex Referral Laboratories (ARLs) have been identified across the country with advanced diagnostic facility in 2007 for capacity building and backup support to the Sentinel Surveillance Hospitals and one more added in 2011 totaling to 14.
  - A sum of Rs 25.0 Lakhs (Rupees Twenty five lakhs only) as one time grant had been provided to ARLs to strengthen the participating institutions wherever necessary. Recurring grant of Rs 1.0 lakh per year to meet the contingency expenditure has also been provided.
  - To make the Sentinel Surveillance Hospitals functional Rs 0.50 lakh provided every year to each to meet the contingency expenditure.
  - National Institute of Virology (NIV), Pune has been entrusted for supply of dengue and chikungunya IgM MAC ELISA test kits to all SSHs and ARLs as per technical requirements of the states under the guidance of Dte of NVBDCP. The cost of these kits is being reimbursed by Govt of India. Kit production capacity of NIV, Pune was also up-scaled.
  - Newer diagnostic tool, ELISA based dengue NS1 test, introduced in the programme in 2010.
  - For early capture of any outbreak through health workers and grassroots level functionaries such as ASHA, Anganwadi worker and Fever Treatment Depots guidelines on fever alert surveillance have been prepared and circulated to the states in Feb 2007

- **Epidemic preparedness and rapid response**
  - Endemic states were advised to prepare a contingency plan dealing with emergency hospitalization for most effective use of hospital and treatment facilities in case dengue or chikungunya outbreak occurs, based on the previous year’s epidemiological data.
As soon as a suspected case is reported, the district vector borne disease control Officer/ District Chief Medical Officer or Municipal Health Officer is being intimated by telephone, fax or e-mail so that he/she can immediately initiate remedial measures in the affected area(s) in order to effectively interrupt the transmission before infection spreads further.

**Case management**

- National guidelines for clinical management of Dengue Fever, Dengue Haemorrhagic Fever, and Dengue Shock Syndrome have been sent to the States in March 2007 for circulation in all hospitals.
- States were suggested to ensure availability of minimum diagnostic materials and therapeutics in the hospitals for outpatient department as well as for indoor patient’s management.

**Integrated Vector Management for transmission risk reduction**

- As *Aedes aegypti* mosquito, the vector of Dengue/Chikungunya, breeds in man made containers in and around houses, community based vector control has been envisaged.
- A targeted source reduction programme has been undertaken that emphasizes removing larval habitats that are most productive (tyre dumps, scraps, water storage tanks, cisterns, air coolers, solid waste, coconut shells, etc) and treating those that cannot be removed with Temephos.
- Periodic household spray with Pyrethrum 2% extract (0.2% ready to spray solution with kerosene oil) where the case was detected. In addition, Ultra Low Volume (ULV) spraying of the entire ward/village, may be carried out in case of clustering of cases involving a large area.

**Behaviour Change Communication**

- As most transmission occurs at home, therefore, ultimate success of the programme depends on community participation and co-operation. For awareness of the community, Government of India advocates inter-sectoral convergence and communication for behavioural impact for involvement of the non-health sector stakeholders and the community for implementing appropriate prevention and control interventions.
- A comprehensive communication plan with media mix has been developed and activities are being initiated for dissemination of message through television, radio and print media and inter-personal forum with intensification during the transmission season.
- Month of July has been declared as anti-dengue month all over the country. Messages on chikungunya have also been added up in the campaign.

**Capacity Building**

- Training of national trainers on Dengue/ Chikungunya treatment is carried out every year in All India Institute of Medical Sciences, New Delhi, who in turn impart trainings at state level.
- For capacity building of state/district level health functionaries, trainings were imparted on rapid response at NCDC, Delhi.
- One laboratory team (one Microbiologist and one Technician) from the Sentinel Surveillance Hospitals has been trained in the Apex Referral Laboratories on diagnosis.
Inter-sectoral collaboration

- For Inter-ministerial convergence for prevention and control of dengue and chikungunya involving the Ministries of Urban Development, Rural Development, Panchayati Raj efforts have been made and circulars have been sent to the concerned departments in the States requesting to take necessary measures to control the spread of vector borne diseases including chikungunya.

- The Village Health and Sanitation Committees (VHSC) under NRHM have been requested to carrying out weekly cleanliness drive in the respective villages by making use of the flexi-pool.

Logistic support

- In addition to the supply of logistics, Govt. of India had released emergency package to the affected states to the tune of Rs. 2.21 Crores in 2006-07 and subsequently Rs. 1.78 Crores in 2007-08 to sustain the activities for prevention and control of chikungunya outbreak.

Monitoring and evaluation

- Periodic reviews are carried out to determine the progress of work and actual inputs received by the programme.
- Situations in the States are being monitored regularly through reports and feedbacks are provided as and when required. Field visits are made for situational analyses of the programme implementation in the states and for technical guidance.

Achievements

- States are implementing strategies of long term action plan for prevention and control of Dengue and Chikungunya since 2007.
- Established 311 Sentinel Surveillance Hospitals with laboratory support for augmentation of diagnostic facility for dengue in endemic States and linked with 14 Apex Referral Laboratories with advanced diagnostic facilities for back up support.
- To ensure the quality of diagnostics, IgM test kits to these institutes have been supplied by National Institute of Virology, Pune since 2007.
- Following national guidelines, clinical management of dengue cases has been improved and dengue case fatality rate reduced by 69.2% in 2010 as compared to 2006.
- Better and improved case detection. Dengue cases increased by 129.7% in 2010 (28292) as compared to 2006 (12317) but chikungunya cases decreased from 13,90,322 in 2006 to 48,176 in 2010.
- Early diagnosis through ELISA based dengue NS1 test which can detect a case from 1st day onwards of onset of the disease in addition to IgM MAC ELISA which can detect a case after 5th day of onset of the disease.
• Monitoring through the daily reports received during transmission period and weekly in low/no transmission period from State Health Authorities and reviewing the preparedness of the State Governments for prevention and control of dengue and chikungunya.

• Committee of Secretaries under the Chairmanship of Cabinet Secretary reviewed the Dengue & Chikungunya situation and programme strategies on 24th August, 9th September, 12th November in 2010 and 26th May 2011.

• Effective IEC campaign to make programme interventions at grassroot level and initiate community empowerment and mobilization.

• Trainings of various health functionaries are being conducted by states/districts by involving regional offices.

2.2.6 Disease burden and trend

2.2.6.1 Dengue

• Dengue Fever is an outbreak prone viral disease and is the fastest-growing arbovirus infection with a rapidly evolving epidemiology. It is listed among the 40 emerging diseases of global importance. Dengue has been identified as one of the 17 neglected tropical disease by WHO (First WHO report on neglected tropical diseases: working to overcome the global impact of neglected tropical diseases. 2010).

• In India, in recent years the occurrence of dengue fever was reported during 1956 from Vellore district in Tamil Nadu. Since than, out of 35 States/Union Territories in the country, 31 have dengue cases during last two decades from 1991 to 2010. Recurring outbreaks of DF/DHF have been reported from Andhra Pradesh, Delhi, Goa, Haryana, Gujarat, Karnataka, Kerala, Maharashtra, Rajasthan, Uttar Pradesh, Puducherry, Punjab, Tamil Nadu and West Bengal. In 2006, the country witnessed an outbreak of DF/DHF with 12,317 cases and 184 deaths reported from 18 States/UTs (270 districts). In 2010, 28292 cases and 110 deaths were reported from 27 States/UTs (403 districts) which is highest in the country in last two decades. A state wise situation from 2006 to 2010 is given at Table-6.

• The case fatality rate (deaths per 100 cases) due to dengue which was 1.5 % in 2006 has declined to 0.4% in 2010 after the National guidelines on clinical management of DF/DHF/DSS were developed and circulated in 2007.

• All the four virus
serotypes DENV 1-4 have been isolated in India. *Aedes aegypti* is the most efficient vector of dengue in India. *Ae. albopictus* is also involved as secondary vector in some parts of the country.

- The risk of dengue has shown an increase in the recent years due to rapid urbanization, lifestyle changes and improper water storage practices in urban, peri-urban and rural areas, leading to proliferation of mosquito breeding sites. Due to the manmade environmental and lifestyle changes DF/DHF has now spread to rural areas as well. Dengue is an ecological disease and the transmission is related to rainfall and temperature. Every year during the period of July-Nov there is an upsurge in the cases of Dengue/DHF. However, in the peninsular states and western parts of the country the disease has become perennial.

- Based on the dengue transmission potential at macro and micro levels, WHO has categorized the countries in SEARO. Till 2009, India was in Category B, grouped with Bangladesh and Maldives where cyclical epidemics are becoming more frequent, multiple virus serotypes circulating and expanding geographically within countries. However, in view of increasing endemicity, WHO in 2010 grouped India in Category A countries with Indonesia, Myanmar, Sri Lanka, Thailand and Timor-Leste where dengue is a major public health problem, leading cause of hospitalization and death among children, hyperendemicity in urban centres, spreading to rural areas and multiple virus serotypes circulating (Comprehensive Guidelines for Prevention and Control of DHF – Draft 2010 (in press), WHO SEARO).

### 2.2.6.2 Chikungunya

- In India a major epidemic of chikungunya fever was reported during the last millennium viz.; in 1963 (Kolkata), 1965 (Puducherry and Chennai in Tamil Nadu, Rajahmundry, Vishakapatnam and Kakinada in Andhra Pradesh; Sagar in Madhya Pradesh; and Nagpur in Maharashtra) and in 1973 (Barsi in Maharashtra). Thereafter, sporadic cases also continued to be recorded especially in Maharashtra state during 1983 and 2000. After quiescence of three decades in 2006, chikungunya outbreak occurred again in India. Though Andhra Pradesh and Karnataka had reported clinically suspected chikungunya cases in November and December 2005, chikungunya infection was serologically confirmed in January, 2006. Reports of large scale outbreaks of fever caused by chikungunya virus infection in several parts of southern India have confirmed the re-emergence of this virus after a quiescence of three decades. A total of 13,90,322 clinically suspected cases have been reported by 16 states/UTs (190 districts) in 2006. All the peninsular states were affected. Maximum cases were reported by Karnataka, followed by Maharashtra. In 2007 again, 14 states reported 59,535 clinically suspected cases. Kerala reported highest number of cases followed by West Bengal. In 2008, 95,091 cases were reported, of which 49% cases were reported by Karnataka alone, followed by Kerala (26%) and West Bengal (19%). In 2009, 73,288 cases were reported; again maximum cases were reported by Karnataka followed by Kerala. In 2010, 0.48 million clinically suspected cases were reported from 18 States/UTs (135 districts). A state wise situation is given at Table-6.

- Chikungunya cases start appearing in post monsoon period that is May onwards with a in July, August and September as during this period vector density is very high and decline thereafter. *Aedes aegypti* plays the major role in transmitting the disease in all the states except Kerala, where *Ae. albopictus* plays the major role. In northern part of the country the most favoured breeding habitats of *Ae. aegypti* are desert coolers, overhead tanks, water storage vessels, animal water troughs, flower pots and discarded junks like discarded tyres, disposable food containers etc. In southern India, over head
tanks, water storage vessels, coconut shells, refrigerator tray, flower pots and discarded junk materials are most favoured. *Ae. albopictus* breeding is detected in latex collecting cups of rubber plantations, fruit shells, leaf axils, tree holes etc. The areas reporting chikungunya, mostly overlapping with Dengue affected areas, are as under:

![Dengue affected areas](image1)

![Chikungunya affected areas](image2)

2.2.7 M & E system including status of MIS, disease surveillance, its quality & utilization

- Functioning of all identified Sentinel Surveillance Hospitals
- Data on number of cases and deaths not received timely from all the States.
- Private sectors not reporting the number of cases and deaths
- Proper monitoring & analysis of data at district/state level lacking
- Nil or poor entomological monitoring at the municipality/district/state level
- State/district level rapid response teams for timely action on report of cases
- Endemic states are regularly monitored through reports received daily during transmission period and weekly in remaining period from the states
- Monitoring situations in the periphery through visiting the field by officers and staff from the Directorate of NVBDCP, Regional Offices.

2.2.8 Constraints

- **Administrative**
  - Dengue is not a Notifiable Disease in all the States.
  - Prevention and control of Dengue and Chikungunya is not a priority for urban local bodies and panchayats

- **Technical**
  - No drug is available to treat or any vaccine available to prevent dengue and chikungunya infection.
  - Geographical spread of both dengue and chikungunya has shown an increase in the recent years due to various factors in urban, peri-urban and rural areas, leading to proliferation of mosquito breeding sites which are:
    - Demographic and societal changes:
      - Demographic and societal changes leading to unplanned and uncontrolled urbanization and concurrent population growth has put severe constraints on civic amenities, particularly water supply and solid waste disposal, thereby increasing the breeding potential of the vector species.
Solid waste management: There have been significant increases in the use of consumerism and introduction of non-biodegradable plastics, paper cups, used tyres, etc. compounded by nonexistent or insufficient waste collection and management which facilitate increased vector breeding.

Booming automobile industry leading to large-scale storage, import, export and dumping of used tires infested with Ae. aegypti larvae resulting passive spread of the disease to new areas (movement of incubating eggs).

Increased population movement (work, travel, tourism or pilgrimage) has resulted in a constant exchange of viruses (dengue serotypes and CHK virus)

Significant increase in plantations: Increased demand of rubber and being a profit making cash crop banana, pineapple, coconut, arecanut etc are increasing and simultaneously favourite breeding habitats of Ae albopictus also increasing in plantations.

Operational

- Operationalizing all identified Sentinel Surveillance Hospitals with equipment, tests kits and trained manpower
- Timely sending the linelists to the district VBD officer and/or municipality health officer for implementation of effective vector control measures to interrupt the transmission before spreading further
- Quite a large number of patients receive treatment through private sector which goes unreported or under-reported.
- A good vector surveillance and control is the mainstay for reducing incidence of dengue and chikungunya.
- Sustaining social mobilization for Behaviour Change Communication and community involvement in source reduction activities.
- Absence of civic byelaws or building byelaws to prevent mosquitogenic conditions in all municipal and corporation areas. Though a few urban areas have adopted legislation for the prevention of “nuisance mosquitoes”, however, lack in implementation at the ground level.

Financial

- Non-receipt of adequate funds on time by the districts due to non-release by states due to administrative delays.
- Non availability of funds in municipality/ local bodies for source reduction activities adversely affecting the programme.
- Inadequate budget for dengue and chikungunya control programme. Only 3.3% of the total NVBDCP budget dedicated for dengue and chikungunya. However, during XI plan due to financial constraints only 40% was made available for programme activities.
2.2.9 Mid Course Correction

- The intensity of dengue transmission has shown substantial increase over the years, therefore a need has arisen to revisit the current strategies of Long Term Action Plan and develop a programmatic and comprehensive Mid Term Plan.

- The conceptual framework of Mid Term Plan which has been approved by Committee of Secretaries in a meeting held under the Chairmanship of Cabinet Secretary on 26th May 2011 is a comprehensive and integrated approach that places equal weight, including fiscal and human resources, on all elements of the programme for prevention and control of dengue and chikungunya in the country.

2.2.10 Outlays & Expenditure

- Until Xth plan no specific funds were provided for dengue control and the assistance was provided out of National Anti Malaria Programme provision on as and when required basis. After the re-emergence of chikungunya in 2006, it was included under the umbrella of NVBDCP as the 6th VBD in May 2007, following which in XIth plan for both dengue and chikungunya dedicated funds have been approved for the first time. Since then Govt. of India provides cash assistance (Grant-in-Aid) to the endemic states for strengthening surveillance, epidemic preparedness, monitoring & evaluation, capacity building and IEC. Cost of the IgM test kits are released to NIV, Pune. Insecticides are provided under urban malaria scheme. The allocation in approved budget estimates during 11th Plan period is as under:

<table>
<thead>
<tr>
<th>State</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pd.</td>
<td>197</td>
<td>587</td>
<td>313</td>
<td>1190</td>
<td>776</td>
</tr>
<tr>
<td>Assam</td>
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<td>237</td>
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<tr>
<td>Bihar</td>
<td>4</td>
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<td>1</td>
<td>1</td>
<td>510</td>
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<tr>
<td>Chhattisgarh</td>
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<td>0</td>
<td>0</td>
<td>26</td>
<td>4</td>
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<td>1</td>
<td>36</td>
<td>43</td>
<td>277</td>
<td>242</td>
</tr>
<tr>
<td>Gujarat</td>
<td>545</td>
<td>5</td>
<td>1065</td>
<td>2461</td>
<td>2568</td>
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<tr>
<td>Haryana</td>
<td>838</td>
<td>4</td>
<td>1137</td>
<td>125</td>
<td>866</td>
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<tr>
<td>Himachal Pd.</td>
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<td>0</td>
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<td>0</td>
<td>3</td>
</tr>
<tr>
<td>J &amp; K</td>
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<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>27</td>
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<tr>
<td>Karnataka</td>
<td>109</td>
<td>7</td>
<td>339</td>
<td>1764</td>
<td>2285</td>
</tr>
<tr>
<td>Kerala</td>
<td>981</td>
<td>4</td>
<td>733</td>
<td>1425</td>
<td>2597</td>
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<tr>
<td>Madhya Pd.</td>
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<td>175</td>
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<td>Meghalaya</td>
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<td>1</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>736</td>
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<td>743</td>
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<td>1489</td>
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<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Nagaland</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table 7, Budget allocation for Dengue & chikungunya control

<table>
<thead>
<tr>
<th>Year</th>
<th>Total B.E. for NVBDCP</th>
<th>Allocation for Dengue &amp; Chikungunya</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>399.50</td>
<td>11.30*</td>
</tr>
<tr>
<td>2008-09</td>
<td>472.25</td>
<td>27.00</td>
</tr>
<tr>
<td>2009-10</td>
<td>442.00</td>
<td>26.00</td>
</tr>
<tr>
<td>2010-11</td>
<td>478.00</td>
<td>23.00</td>
</tr>
<tr>
<td>2011-12</td>
<td>520.00</td>
<td>17.44</td>
</tr>
</tbody>
</table>

*includes Rs 1.78 Crores emergency package released to chikungunya effected states
2.3 Japanese Encephalitis (JE)

After approving an Umbrella Programme under National Vector Borne Disease Control Programme for control of Vector Borne Diseases including Malaria, Kala-azar, Filariasis, Japanese Encephalitis and Dengue/Dengue Hemorrhagic Fever (DF/DHF) since December 2000. Directorate of National Vector Borne Disease Control Programme is the nodal agency responsible for the control programme of these diseases including JE.

2.3.1 Objectives during XI five year plan
- To reduce morbidity and Case Fatality Rate
- To reduce frequency of outbreaks

2.3.2 Targets for XI Plan, indicators and mean of verification
- Reduction in mortality by 50% by the year 2010 (as per National Health Policy Goal - 2002)
- 50% Reduction in morbidity
- Reduction in frequency of outbreaks
- Facilitation of institutional strengthening for diagnostic facilities in all 133 JE endemic districts.
- Vaccination in JE endemic districts

2.3.3 Strategies during XI five year plan for prevention and control of JE include

2.3.3.1 Early diagnosis and prompt treatment of JE cases
- Proper case management: Strengthening of referral services: Referral support must be available at district level.
- Management of Sequelae: Sequelae management by drugs, orthopedic and rehabilitation procedures in all District/Medical College Hospitals/specialist Hospitals in JE endemic areas.
- Epidemic preparedness and rapid response: A rapid response team should be constituted in all JE endemic districts to monitor the JE situation and outbreak in vulnerable areas.

2.3.3.2 Integrated vector control method
Vector Control is limited in JE due to outdoor resting habits of the vector. Vector control by fogging with technical Malathion/Pyrethrum for immediate killing of infected mosquitoes is recommended during an outbreak.

2.3.3.3 Capacity building
Capacity building & manpower development through training for Clinicians/Nurses in JE case management in all JE endemic districts and for Laboratory Technicians and Laboratory In-charge/microbiologist in diagnosis of JE cases by MAC ELISA method in all sentinel laboratories in a phased manner.

2.3.3.4 Behaviour Change Communication
For promoting early case reporting and early referral of patients, increasing awareness of clinical signs, personal protection including segregation/improved habitation of pigs away from human population/mosquito proofing of pigsties etc.
2.3.3.5 Supervision and monitoring

Supervision and monitoring through periodic reviews/reports and field visits for proper monitoring for Japanese Encephalitis.

2.3.3.6 Vaccination

JE vaccination programme has been made an integral component of Universal Immunization Programme (UIP) of MOH & FW, Govt. of India in a phased manner using single dose live attenuated SA-14-14-2 vaccine. Children between 1 and 15 years of age are presently covered. Till 25.5.2011, 111 districts have been covered under vaccination campaign.

Table 8, JE Vaccination Coverage 2006 - 2010

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Year</th>
<th>Number of District</th>
<th>Targeted Children</th>
<th>Total Vaccination</th>
<th>% Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2006</td>
<td>11</td>
<td>10531554</td>
<td>9308698</td>
<td>88.39</td>
</tr>
<tr>
<td>2</td>
<td>2007</td>
<td>28</td>
<td>21008249</td>
<td>18431087</td>
<td>87.73</td>
</tr>
<tr>
<td>3</td>
<td>2008</td>
<td>22</td>
<td>20040262</td>
<td>16881941</td>
<td>84.24</td>
</tr>
<tr>
<td>4</td>
<td>2009</td>
<td>29</td>
<td>27170604</td>
<td>18097182</td>
<td>66.61</td>
</tr>
<tr>
<td>5</td>
<td>2010</td>
<td>21</td>
<td>16996546</td>
<td>14648130</td>
<td>86.18</td>
</tr>
</tbody>
</table>

2.3.4 Current Status and Achievements

Japanese Encephalitis (JE) is caused by a virus and is transmitted through mosquitoes. The main reservoirs of the JE virus are pigs and water birds and in its natural cycle, virus is maintained in these animals. Man is an accidental host and does not play role in JE transmission. Children below 15 years are mostly affected. JE is an outbreak prone viral infection having cyclic trend with seasonal phenomenon. Outbreaks of JE usually coincide with the monsoon and post monsoon period when the density of mosquitoes increase. The Case Fatality Rate (CFR) ranges from 20% to 52%.

Fig. 7, New states that reported cases during 2010

* Currently the disease is being reported from the states of Andhra Pradesh, Assam, Bihar, Goa, Haryana, Karnataka, Kerala, Maharashtra, Manipur, Nagaland Tamil Nadu, Uttrakhand, Uttar Pradesh and West Bengal
From the graph below it is clear that the strategies to control JE deaths in endemic areas which are affected since 1978 have been useful in reducing the incidence with available preventive and control measures, however, being an outbreak prone disease it is not possible to bring any dramatic change in disease trend and cycles. There has been remarkable reduction in the incidence of JE positive cases in the endemic districts but the incidence of non-JE AES cases has marginally increased due to circulation of non-JE viruses.

Fig. 8

![Graphic Presentation of AES/JE Cases & Deaths in Country Since 2005](image)

Fig. 9

![Case Fatality Rate (CFR) of JE since 2005](image)

The input provided during XI year plan has led to significant decrease in the mortality of JE cases in recent past because of better case management in the endemic states and functioning of sentinel sites. CFR which was reported to be around 25% during 2005 has now been brought down to approximately 12% during 2010.
The incidence of JE in the country during the last five years (during XI five year plan) as per the reports received from the states/UTs is given below:

**Table 9, Year wise cases and deaths, 2005-2010**

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>6720</td>
<td>1684</td>
</tr>
<tr>
<td>2006</td>
<td>2871</td>
<td>663</td>
</tr>
<tr>
<td>2007</td>
<td>4110</td>
<td>995</td>
</tr>
<tr>
<td>2008</td>
<td>3839</td>
<td>684</td>
</tr>
<tr>
<td>2009</td>
<td>4482</td>
<td>774</td>
</tr>
<tr>
<td>2010</td>
<td>5149</td>
<td>677</td>
</tr>
</tbody>
</table>

During 2009, altogether 4482 cases and 774 deaths due to AES/JE were reported from 12 states in the country. During 2010, 5149 AES/JE cases and 677 deaths have been reported from 15 states in the country. During 2011, till 19.5.2011, 522 AES/JE cases and 61 deaths have been reported from Andhra Pradesh, Goa, Karnataka and Uttar Pradesh. During 2010 cases were also reported from 7 new districts from the states of Arunachal Pradesh, Meghalaya and Uttarakhand.

**Table 10, Trend of Acute Encephalitis Syndrome/Japanese Encephalitis since 2005**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Affected States/UTs</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Andhra Pradesh</td>
<td>34</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Assam</td>
<td>145</td>
<td>52</td>
<td>392</td>
<td>119</td>
<td>424</td>
<td>133</td>
</tr>
<tr>
<td>3</td>
<td>Bihar</td>
<td>192</td>
<td>64</td>
<td>21</td>
<td>3</td>
<td>336</td>
<td>164</td>
</tr>
<tr>
<td>4</td>
<td>Goa</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>70</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Haryana</td>
<td>46</td>
<td>39</td>
<td>12</td>
<td>6</td>
<td>85</td>
<td>46</td>
</tr>
<tr>
<td>6</td>
<td>Karnataka</td>
<td>120</td>
<td>12</td>
<td>80</td>
<td>3</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Kerala</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>Maharashtra</td>
<td>51</td>
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<td>14</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>9</td>
<td>Manipur</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>65</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>Nagaland</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Punjab</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>Tamil Nadu</td>
<td>51</td>
<td>11</td>
<td>18</td>
<td>1</td>
<td>42</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>Uttar Pradesh</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>West Bengal</td>
<td>6061</td>
<td>1500</td>
<td>2320</td>
<td>528</td>
<td>3024</td>
<td>645</td>
</tr>
<tr>
<td>15</td>
<td>Total</td>
<td>6720</td>
<td>1684</td>
<td>2871</td>
<td>663</td>
<td>4110</td>
<td>995</td>
</tr>
</tbody>
</table>
2.3.5 Monitoring & Evaluation system including status of MIS, disease surveillance, its quality and utilization

- Monitoring was done through periodic reviews and monthly/weekly/daily reports and field visits etc. Web based MIS has been developed for proper monitoring of Japanese Encephalitis.

- Strengthening of JE surveillance as per the national guidelines that have been issued by NVBDCP. Surveillance of AES has been adopted during IX plan period.

- Overall evaluation of impact of vaccination by an independent agency.

2.3.6 Constraints during XI plan

- During recent past the incidence of Japanese Encephalitis (JE) was reduced remarkably throughout the country but the number of AES cases have increased because of circulation of non-JE viruses (entero viruses) in the rural endemic district.

- Poor coverage of routine immunisation in endemic districts.

- Lack of rehabilitation due to unavailability of sufficient rehabilitation centres in the endemic districts.

- Lack of priority to Japanese Encephalitis among states, as a result of which new states reported cases of AES/JE. There are gaps in surveillance case management and BCC/IEC measures.

- Inspite of providing ample resources to the endemic states, poor surveillance still persists.

- Lack of coordination between surveillance and laboratory personnel.

- Research and development in vector borne diseases particularly on Japanese Encephalitis has been lacking. There are major gaps in the present knowledge and available technology. Concerted efforts are required to be made for an effective Research and Development programme. Some of the critical areas related to JE prevention and control requiring operational research include:
  - Improved vector control interventions
  - Development of early warning signals for prediction of JE outbreaks
  - Vector Bionomics
  - Study on vaccine efficacy
  - Mosquito control in pigsties

2.3.7 Initiative and mid course correction

- GOI has established Vector Borne Disease Surveillance Unit (VBDSU) which is headed by Professor & Head of Department (SPM), BRD Medical College, Gorakhpur. This unit coordinates with the state on technical issues related to eco-epidemiology, prevention and control.

- In addition to this, major initiative has been taken by GOI by establishing 50 bedded JE endemic ward in BRD Medical College for better case management.

- Close monitoring of AES/JE cases by the DGHS & Addl. DGHS in the endemic states.

- Capacity building and manpower development through training of clinicians & nurses for better case management of JE in endemic districts.
and for laboratory technicians and laboratory in-charge for diagnosis of JE cases.

- Better diagnostic and laboratory facilities have been established by making most of the sentinel sites functional.
- Field unit of NIV Pune has been established for detection and isolation of non-JE viruses.
- JE Sub-office of ROH&FW has been set up for closely monitoring disease trends and coordinating with the UP state for effective control measures.

### 2.3.8 Outlays during XI five year Plan

During XI five year plan an amount of Rs. 1268.5 Lakhs was allocated for prevention and control of AES/JE in the country. In addition to above allocation Rs. 8.64 crores was made out of NRHM additionality for strengthening case management at BRD Medical College, Gorakhpur, Uttar Pradesh and for intensifying surveillance across 16 identified sentinel sites in the state.

With above allocation following programme components were strengthened.

1. Diagnosis and case management
2. Disease and vector surveillance
3. Vector control
4. BCC/IEC
5. Capacity building

### 2.3.9 Budget in 11th five year plan

Details of State-wise funds allocation under NVBDCP for prevention and control of JE during 2007-08 to 2011-12 are given in Table 11.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total B.E.</th>
<th>Allocation for JE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>399.50</td>
<td>1.00</td>
</tr>
<tr>
<td>2008-09</td>
<td>472.25</td>
<td>4.37</td>
</tr>
<tr>
<td>2009-10</td>
<td>442.00</td>
<td>2.50</td>
</tr>
<tr>
<td>2010-11</td>
<td>478.00</td>
<td>2.50</td>
</tr>
<tr>
<td>2011-12</td>
<td>520.00</td>
<td>3.00</td>
</tr>
</tbody>
</table>
2.4 Lymphatic Filariasis

2.4.1 Objectives

Elimination of lymphatic filariasis in the country by the year 2015 by:

- Progressively reducing and ultimately interrupting the transmission of lymphatic filariasis (LF).
- Preventing and reducing disability amongst affected persons through disability alleviation and morbidity management.

2.4.2 Targets

- The targets during 11th Plan document were as under
  - To cover all the eligible population living in LF endemic districts during Mass Drug Administration (MDA).
  - To line list the lymphoedema and hydrocele cases and augment home based morbidity management for lymphoedema and hydrocele operations for the hydrocele cases.

2.4.3 Strategies

The strategies for elimination of lymphatic filariasis adopted were as under:

- Annual Mass Drug Administration (MDA) of single dose of DEC (Diethylcarbamazine citrate) for 5 years or more to the eligible population (except pregnant women, children below 2 years of age and seriously ill persons) to interrupt transmission of the disease. Co-administration of DEC+Albendazole was upscaled since 2007 after approval of National Task Force on Lymphatic Filariasis.
- Home based management of lymphoedema cases and up-scaling of hydrocele operations in identified CHCs/ Distt hospitals /medical colleges.
- Capacity building for home-based management of cases with lymphodema.

2.4.4 Initiatives

Various initiatives were taken to achieve the target of covering the entire population in LF endemic districts during MDA which was launched in the year 2004 at national level. The major initiatives taken are as below:

- Dissemination of technical guidelines for Elimination of Lymphatic Filariasis (ELF).
- Conducting various sensitization workshops at national, regional, state, district and PHC levels.
- Capacity building for district & PHC level medical officers as well as for para medical staff.
- Massive IEC & social mobilization for improving the drug coverage during MDA.
- Involvement of Medical Colleges/ Research Institutions for conducting independent assessment to provide a feedback on actual drug compliance for its improvement.
- Release of cash grant to the States for all the preparatory activities and incentives to drug distributors including ASHAs.
- The strip packing of DEC was introduced in the programme. The acceptance and compliance of drug has been improved with strip packing of DEC. Co-administration of DEC with Albendazole was also introduced for MDA.
2.4.5 Status and achievement

- Lymphatic Filariasis (LF) is a seriously debilitating and incapacitating disease. During the early phase of Infection, the infected person remains apparently healthy but serves as a source of infection for transmission. This stage may continue for 5-7 years and can be treated with microfilaricidal drug (DEC) and or DEC+Albendazole, when detected. The transmission of filariasis is through mosquitoes namely *Culex quinquefasciatus*. Subsequently, the infected person may develop swellings of limbs and genitals which keep on increasing and making the person incapacitated and suffering from social stigma. The person also suffers from frequent attacks of lymphangitis, high fever, swelling and pain. There is no cure for this stage and person is forced to live with huge swellings exposed to secondary infections. Control of lymphatic filariasis is immensely important because of personal trauma to the affected persons and associated with social stigma, even though it is not fatal. International Task Force for Disease Eradication identified lymphatic filariasis as one of the six infectious diseases to be “eradicable” or “potentially eradicable”. The World Health Assembly in 1997 adopted resolution, WHA 50.29, for Elimination of Lymphatic Filariasis (ELF) as a global public health problem by 2020. National Health Policy (2002) of the country envisaged the goal of Elimination of Lymphatic Filariasis by the year 2015 in India.

- In pursuit to achieve the goal set by NHP (2002), the GoI launched nationwide annual Mass Drug Administration (MDA) with Diethylcarbamazine citrate (DEC) tablets in single recommended dosage for the population living at the risk of filariasis. The districts were selected as implementation unit based on historical evidence of filaria endemicity, presence of lymphoedema and hydrocele cases and also the presence of microfilaria carriers. The microfilaria rate reported from the States revealed an overall average of 1.24% at national level based on data of the endemic states, which was taken as baseline. The objective of Annual Mass Drug Administration was to bring down microfilaria rate in the community to less than 1% because the Elimination of Lymphatic Filariasis is defined by WHO as “Lymphatic Filariasis ceases to be a public health problem, when the number of microfilaria carriers is less than 1% and the children born after initiation of elimination activities are free from circulating antigenaemia (presence of adult filaria worm in human body)”.

- There are about 250 Lymphatic Filariasis endemic districts with approximately 600 million population at risk of LF in the country. The Mass Drug Administration was launched in 2004 covering 202 districts with coverage rage of 73% and was upscaled to all the 250 LF endemic districts in 2007. The coverage percentage reported in subsequent years was 76% in 2005, 81% in 2006, 83% in 2007, 86% in 2008, 86.7% in 2009 and about 87% in 2010.

- The strategy of MDA with DEC alone was changed to the co-administration of DEC + Albendazole since 2007. The co-administration was also upscaled and in 2007 two states (20 districts of Tamil Nadu & 11 districts of Kerela were...
covered); in 2008, 4 States (20 districts of Tamil Nadu & 11 districts of Kerala, 8 districts of Karnataka and 16 districts of Andhra Pradesh) were covered whereas since 2009, it is being implemented in all the LF endemic States of the country. The state wise data is given in Table 12.

- **Microfilaria survey:** The microfilaria survey in all the implementation units (districts) is being done through night blood survey before MDA. The survey is done in 4 sentinel and 4 random sites as per the guidelines. The analysis of overall reports reveals that during 2004 (baseline), the microfilaria rate was 1.24% which has been brought down to 0.65% in 2009 and 0.34% in 2010 respectively. The data of 2009 and 2010 revealed that out of 250 filaria endemic districts, 152 districts are with Mf rate less than 1%. The state wise data is shown at Table 13.

![Fig. 11, MDA Coverage vs Microfilaria Rate](image)

- **Social Mobilization:** Intensive social mobilization towards LF elimination was carried out by various states/UTs involving political/ opinion leaders, decision makers, local leaders and community. The intensified IEC campaigns have improved actual drug compliance which is revealed by reduction in gap between drug distribution coverage and actual drug compliance through independent assessment reports.

- **Monitoring and Evaluation:** For monitoring and evaluation of actual drug compliance, the medical college faculties/ Research Institutions and Regional offices for Health & FW have been involved. Directorate of NVBDCP has provided funds for this every year. The independent surveys have been done using pretested questionnaire formats after MDA in many districts.

- **Morbidity Management:** Line listing of Lymphoedema and Hydrocele cases were initiated since 2004 by door to door survey in the LF endemic districts. The cases are updated every year and till 2010, 8 lakh lymphoedema and 4 lakh hydrocele cases have been line listed from LF endemic districts. As per reports received from states, 72464 hydrocele cases have been operated. The state wise data is given in Table 14.

**Table 14.**
• Though the programme has been able to enhance drug delivery to more than 500 million people, the actual drug consumption has been the major issue. The supervised drug administration for better compliance is challenged by large population to be covered @ 250 persons per day per worker. Moreover, urban population is usually not convinced.
• Involvement of local leaders and volunteers for MDA as well as for quality IEC/BCC activities in local languages for interpersonal communication.
• Conducting microfilaria survey in night time is very important and adherence of time of survey from 8 p.m. to 12 mid night is very crucial.
• Availability of experts on lymphatic filariasis to match the programme requirement for training and monitoring etc.

2.4.7 Mid course correction

• DEC tablets were procured and supplied in strip packing to improve the acceptance of drug by the community.
• Global strategy of co-administration of DEC with Albendazole was introduced in the programme as per the recommendation of National Task Force under the chairmanship of DGHS.
• ASHAs were involved as volunteers during mass drug administration which has improved the confidence among people to accept the drug.
• Intensification of lymphoedema management and hydrocelectomy has increased the visibility of the programme at local level.

2.4.8 Financial Assistance

• The allocation in approved Budget estimates during 11th Plan period is as under:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total B.E.</th>
<th>Allocation for ELF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>399.50</td>
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<td>2008-09</td>
<td>472.25</td>
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<td>2009-10</td>
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<td>28.21</td>
</tr>
<tr>
<td>2011-12</td>
<td>520.00</td>
<td>42.90</td>
</tr>
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</table>
### Table 12, Population Coverage (%) during Mass Drug Administration (MDA)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>States/UTs</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Andhra Pradesh</td>
<td>84.78</td>
<td>81.05</td>
<td>89.66</td>
<td>89.13</td>
<td>91.96</td>
<td>91.85</td>
<td>92.50</td>
</tr>
<tr>
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<td>Assam</td>
<td>25.42</td>
<td>42.94</td>
<td>67.33</td>
<td>78.32</td>
<td>81.34</td>
<td>ND</td>
<td>76.08</td>
</tr>
<tr>
<td>3</td>
<td>Bihar</td>
<td>81.64</td>
<td>77.82</td>
<td>79.77</td>
<td>77.23</td>
<td>ND</td>
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</tr>
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<td>4</td>
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</tr>
<tr>
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<td>94.63</td>
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<td>98.33</td>
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<tr>
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<tr>
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<td>ND</td>
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<td>87.61</td>
<td>94.13</td>
<td>YD</td>
</tr>
<tr>
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<tr>
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<td>93.27</td>
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<td>ND</td>
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<td>97.01</td>
<td>96.02</td>
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<td>72.41</td>
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<td>82.75</td>
<td>86.03</td>
<td>86.71</td>
<td>86.96</td>
</tr>
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</table>

**ND:** MDA Not Done  
**YD:** Yet to Do
Table 13, Microfilaria rate (%) in the states

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>States/UTs</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
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<th>2010</th>
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</tr>
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<td>0.01</td>
</tr>
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<td>0.68</td>
<td>NR</td>
<td>1.07</td>
<td>NR</td>
</tr>
<tr>
<td>4</td>
<td>Chhattisgarh</td>
<td>ND</td>
<td>1.96</td>
<td>ND</td>
<td>0.61</td>
<td>0.45</td>
<td>0.54</td>
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<td>0.00</td>
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<td>Gujarat</td>
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<td>0.84</td>
<td>0.42</td>
<td>0.83</td>
<td>0.92</td>
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</tr>
<tr>
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<td>8</td>
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<td>1.87</td>
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<td>0.69</td>
<td>1.15</td>
<td>1.07</td>
<td>0.93</td>
<td>0.89</td>
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<tr>
<td>9</td>
<td>Kerala</td>
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<td>1.45</td>
<td>1.13</td>
<td>0.83</td>
<td>0.35</td>
<td>0.46</td>
<td>0.53</td>
</tr>
<tr>
<td>12</td>
<td>Orissa</td>
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<tr>
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<td>0.12</td>
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</tr>
<tr>
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<td>0.83</td>
<td>0.32</td>
<td>0.41</td>
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<td>0.19</td>
<td>0.46</td>
<td>0.10</td>
</tr>
<tr>
<td>17</td>
<td>D &amp; N Haveli</td>
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<td>1.82</td>
<td>1.23</td>
<td>0.95</td>
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<tr>
<td>18</td>
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<td>0.14</td>
<td>0.27</td>
<td>0.09</td>
<td>0.13</td>
<td>0.07</td>
<td>0.06</td>
</tr>
<tr>
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<td>0.09</td>
<td>0.07</td>
<td>0.02</td>
<td>0.27</td>
<td>0.00</td>
<td>0.00</td>
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<td>Puducherry</td>
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<td>0.15</td>
<td>0.06</td>
<td>0.03</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>National Average</td>
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<td>1.02</td>
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<td>0.53</td>
<td>0.65</td>
<td>0.34</td>
<td></td>
</tr>
</tbody>
</table>

ND: Mf survey not undertaken
NR: Not reported
Table 14, Updated Line Listing of Lymphoedema and Hydrocele Cases
(Figures in subsequent years includes previous year’s data)
(Hydrocele cases are reduced due to operations)

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<th>Sl. No.</th>
<th>State</th>
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<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
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<td>L</td>
<td>H</td>
<td>L</td>
<td>H</td>
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<td>164543</td>
</tr>
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<td>Goa</td>
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<td>191</td>
<td>100</td>
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<td>2049</td>
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<td>61784</td>
<td>30633</td>
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<td>40140</td>
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<td>37739</td>
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<td>15</td>
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<td>32190</td>
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<td>176</td>
<td>70</td>
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<td>107</td>
<td>0</td>
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<td>283</td>
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<td>184</td>
<td>1539</td>
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<td><strong>387389</strong></td>
<td><strong>754452</strong></td>
<td><strong>375515</strong></td>
</tr>
</tbody>
</table>

L- Lymphoedema
H - Hydrocele
2.5 KALA-azar

2.5.1 Objective

- Elimination of Kala-azar by 2015

2.5.2 Target and Indicators

- The target is to bring down kala-azar incidence to less than one case per 10,000 population at sub-district level (block level).

The Indicators are

- Reduction in the annual incidence and mortality due to kala-azar
- Full treatment compliance rate in the confirmed cases.
- Good quality coverage of Indoor Residual Spray (IRS) with DDT for vector control

2.5.3 Strategy

- Interruption of transmission through vector control by undertaking two rounds of DDT spraying annually in villages reporting kala-azar incidence. In addition, promotion of environmental and personal protection measures.
- Case detection and treatment through the existing primary health care system supplemented with periodic annual active searches (Kala-azar Fortnight) for case detection followed by free treatment of all Kala-azar cases. Treatment compliance to be ensured by a patient coding system, whereby all patients being treated in government institutions or non-government sector, can be tracked to village level.
- Health education for social mobilization through all probable approaches including NGOs, voluntary and private agencies to ensure community awareness of the disease prevention, treatment and availability of free diagnostic and treatment facilities. Social mobilization is an integral part of the programme.
- Capacity building at all echelons of programme implementation. All the personnel involved in programme implementation, various stakeholders, partners and community, the ultimate beneficiaries, are provided with appropriate support for awareness, skills and specific roles to be performed to achieve the expected outcome. Both institutional and individual capacity building is part of the strategy.
- Monitoring, Supervision and Evaluation within all programme implementation levels as well as through Kala-azar coordinators to be posted at district, state and national levels.

2.5.4 Initiatives and Achievements

- Incentives: Several Incentives have been introduced to improve upon the case reporting and treatment of the confirmed cases. A confirmed case of kala-azar is being paid Rs. 50/- per day towards loss of wages during the period of treatment. There is a provision of free diet for the patient and one attendant.
- ASHA is being actively involved at the grassroot level for detection of suspected cases of kala-azar and for ensuring complete treatment. There is a provision for Rs. 50/- to refer a suspected case of kala-azar to the nearest PHC and Rs. 150/- for ensuring treatment after its confirmation.
- Case Search and Effective Treatment: Currently, a lot of effort is going into active search of cases through campaigns i.e. camp approach instead of house to house visits. Simpler diagnostic procedure and availability of oral drug are likely
to substantially improve case detection output, as more and more cases will get diagnosed, and come forward for simpler treatment.

- **Programme Management**: The kala-azar elimination programme management is being strengthened with placement of consultants, VBD Consultants and KTS at the national and state levels, for more intensive monitoring of the programme activities.

- **BCC and Environmental Plans**: Two independent agencies have been hired for Behavioural Change Communication for community involvement and Environmental Management Planning to address the issues related with safe handling of insecticides to promote community involvement in the programme activities.

### 2.5.5 Kala Azar situation in the Country

- Kala-azar incidence is being recorded in 31 districts of Bihar, 11 districts of West Bengal, 4 each in UP and Jharkhand. An estimated 130 million population is living at risk of kala-azar. The annual incidence of disease in three states reveals an increase initially (1990-92) followed by decline (1993-95). There has been an overall decline of 75% in kala-azar cases in 2005 as compared to 1990, the year of commencement of kala-azar control programme. The state of Bihar contributes 70-80% of the total disease burden in the country. In the endemic state, the disease affects the poor and marginalized people.

#### 2.5.6 M & E system including status of MIS, Disease surveillance, its quality & utilization

- Data on number of cases & deaths delayed and underreported.
- State/districts requested to provide age & gender-wise information up to sub-centre level.
- Proper monitoring & analysis of data at sub-centre/PHC/district level lacking.
- Poor monitoring & reporting of spray completion reports.
- Information on number of PKDL cases inadequate.
- All endemic districts have reliable data on incidence of kala-azar.

#### 2.5.7 Constraints

- **2.5.7.1 Administrative**
• Kala-azar is the notifiable disease in Bihar. In other three affected states, similar step needs to be taken up.

2.5.7.2 Technical

• Active case search schedules not properly followed.
• Indiscriminate use of medicines and incomplete treatment by the private sector service providers.
• Drug unresponsiveness, particularly to first line drug Sodium Stibo Gluconate (SSG) has increased in some areas.
• Treatment protocols are not followed properly. Treatment cards recommended for use under the programme often not used.
• Detection of PKDL and its treatment are not at the optimum level. No networking with dermatologists.
• Coverage and quality of IRS unsatisfactory.
• Complete treatment compliance is a problem as presently used drugs, injectables /parenteral infusion with long duration regimen.

2.5.7.3 Operational

• Political commitment exists but insufficient monitoring of control interventions and resource utilization; variable absorption capacity of states in relation to utilization of funds/commodities.
• Limited sociatal mobilization. Behaviour Change Communication needs scaling up to increase the visibility and acceptability of Kala-azar Elimination programme.

2.5.7.4 Financial

• Non-receipt of funds by the Districts/PHCs due to non-release by states due to administrative delays.
• Non-submission of SOE & UCs by the states hampering release of funds by the GOI

2.5.8 Mid course Correction

• Active case search operations are being organized on a half yearly basis through the Kala-azar Fortnight in every endemic district.
• Field visits to the sprayed areas by teams from the Directorate NVBDCP/Coordinators, NCDC, RMRI/ICMR to ensure adequate supervision, monitoring of IRS in the endemic villages.
• To improve diagnosis of kala-azar at the peripheral level, rapid dipsticks coated with rK39 are being introduced into the programme. rK39, a rapid dip stick test, has been thoroughly investigated in India and elsewhere and is known to be highly sensitive and specific.
• Miltefosine, a safe and effective oral drug is being introduced, as the first line of treatment in the programme on a pilot basis in 10 districts of Bihar, Jharkhand and West Bengal. 0.86 million 50 mg capsules of miltefosine are being procured for supply to these districts. This drug has been registered for use in India. Necessary guidelines have been circulated for its use to the states.

2.5.9 Outlays & Expenditure

• Until 1989-90, no specific funds were provided for Kala-azar control and the assistance was provided out of National Anti Malaria Programme provision for insecticide. Planning Commission concurred enhanced Govt. of India assistance for Kala-azar control since 2001-02, so that Govt. of India could provide operational cost including spray wages to enable States to implement programme strategy effectively.
Since December 2003, Govt. of India provides 100% assistance in cash and kind to four endemic states namely, Bihar, Jharkhand, Uttar Pradesh and West Bengal under Kala-azar Control Programme for insecticides and anti-Kala-azar medicines as well as resource based IEC, capacity building and case search activities and operational wages for spray workers. Govt. also meets freight charge for DDT transportation up to consignee level. Details of assistance provided since 2006-07 by the Govt. of India and expenditure incurred by the four affected states are as under:

<table>
<thead>
<tr>
<th>Year</th>
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<th>Allocation for Kaka-azar Elimination</th>
</tr>
</thead>
<tbody>
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<td>2011-12</td>
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PART II – PROPOSED 12th FIVE-YEAR PLAN

3. INTRODUCTION

The existing activities for prevention and control of malaria and other vector borne diseases, as in 11th Plan would be continued in 12th plan period. In addition, there would be added emphasis on identified thrust areas. The initiatives and additional inputs presently being supported by externally aided projects will be continued and expanded through domestic budget support. This would result in moving towards pre-elimination stage of malaria, and control of Dengue, Chikungunya and JE. In addition, the elimination of Kala-azar and Lymphatic Filariasis by 2015 is being envisaged.

3.1 Vision for Vector Borne Disease Control

Vision
A well informed and self sustained, healthy India, free from vector borne diseases with equitable access to quality health care

Mission
Integrated and accelerated action towards reducing mortality on account of Malaria, Dengue and Japanese Encephalitis; reduction in morbidity due to Malaria, Dengue, Chikungunya and Japanese Encephalitis and elimination of Kala-azar & Lymphatic filariasis.

Priority for 12th plan period
In pursuit of achieving the above mentioned vision and mission, the programme priorities during 12th plan period would be:

1. Elimination of two diseases namely Kala-azar and Lymphatic filariasis by 2015.
2. Control and contain the outbreaks of Dengue, Chikungunya and Japanese Encephalitis.
3. Paving the way for pre-elimination phase of malaria.

Directorate of NVBDCP deals with six vector borne diseases namely, Malaria, Lymphatic Filariasis, Kala-Azar, Dengue/Chikungunya and Japanese Encephalitis. Out of these six diseases Kala-azar and Lymphatic Filariasis are targeted for elimination by 2015. Malaria, Dengue/Chikungunya and Japanese Encephalitis are outbreak prone diseases. The control and containment of these diseases require intense efforts and resources. For initiation of pre-elimination strategies for malaria huge resources are also required in terms of technical manpower and quality material. There by matching financial resources are essential.

During 11th Plan period various initiatives for prevention and control of malaria and other vector borne diseases like Kala-azar, Dengue, Chikungunya, Japanese Encephalitis and Elimination of Lymphatic Filariasis have been initiated which has shown the impact, however, various constraints were experienced and during 12th Plan those issues need to be addressed. The Sub-group of experts have found the plan document technically sound for implementation and operationalisation with a view to achieve the desired goal. The gaps identified have been addressed in the 12th Plan by proposing new initiatives and shift to certain strategy which will result in implementation and ultimately achieving the desired goal of physical and financial performance. It has been learnt that without strengthening the state component the objective and targets of the programme cannot be achieved. In view of it, the provisions to fill up all gaps at the centre and states have been considered and budget provisions have been made.
4. PROPOSED ACTIVITIES FOR PREVENTION AND CONTROL ACTIVITIES FOR VECTOR BORNE DISEASES DURING 12th FIVE-YEAR PLAN

4.1 MALARIA

4.1.1 Key lessons learnt from 11th Five Year Plan

- **Human Resource development**
  - The program has made available a pool of trained technical and administrative personnel to function at national, state, district and sub-district levels for better programme management in collaboration with PHFI, NCDC, NIHFW and NIMR. Additional human resources were provided under programme through domestic budget (MPWs) and through external assistance (state/district consultants and at sub-district level MTS/KTS and LTs).
  - Their recruitment, deployment and timely payment towards their salary, mobility and honorarium has been the issue.
  - Initiatives have been taken for building partnerships with public sector, private sector, NGOs and civil society.
  - Sustainable building of managerial capacity is another important challenge. Capacity building is required at the national, regional, state, district and sub-district levels. In addition, the rapid decentralization of malaria control has led to a greater need for skills (especially program management) at all levels. There is a dearth of technical experts (e.g. M&E specialists, entomologists, lab technicians and other health staff). Thus, there is a strong need to enhance the managerial and technical skills of all health personnel, especially in areas where there is a high demand.

- **Surveillance**
  - Strengthening of surveillance has been achieved at village level by involvement of ASHAs. Under NRHM, ASHAs have been deployed in villages. Dte. of NVBDCP has involved these ASHAs in identifying high endemic districts with provision of performance-based incentives for detection and treatment of cases at village level. The services rendered by ASHAs have been found to be very useful in timely diagnosis and treatment and improving the surveillance.
  - M&E information systems have been revised. The reporting formats have been updated to include newer interventions such as RDT, ACT and LLINs. Additional staff for M&E have been provided to track the essential indicators which are measured through regular surveys and strengthened the routine health information systems. These were put in place in project areas and the lesson has been learnt, that effective monitoring can be achieved through systematic intensified efforts. The revised M&E has been now extended to entire country.
  - Sentinel sites have been identified in each of the World Bank (WB) and Global Fund (GF) project districts for monitoring of management of severe malaria cases and mortality due to malaria. The data received from the sentinel sites have helped the states and the project districts to identify the problem both in geographical and functional areas and has helped them to take corrective actions at the local level.
  - Diverse eco-epidemiological paradigms are a challenge. A major challenge for malaria control programme in India is to ensure access to high-quality & affordable drugs according to updated national drug policies through all types of providers. Involvement of private providers in the treatment of malaria cases as per country specific drug policies is also a major challenge.
  - A significant part of the malaria burden is borne by isolated ethnic groups or new settlers who reside close to the forest and mobile/migrant forest workers (e.g. for
logging, mining, plantation work and field cultivation). It is a challenge to provide interventions to such populations in these areas because they are hard to reach and traditional vector control interventions (LLINs / ITNs, IRS) are not always effective in these settings.

- In some states, the minimum target of surveillance is not achieved even if in some, it is higher than the target. To achieve the minimum target is an issue to be addressed. Moreover the data on surveillance is captured under public health facilities hence excludes persons examined under private facilities; private facilities like private practitioners, RMPs, private hospitals and corporate hospitals in urban areas.

**Diagnostics**

- During the 11th Plan, in addition to parasitological diagnosis through microscopy, Rapid Diagnostic Tests (RDT) has been introduced for diagnosis of Pf cases. Under the programme, approximately 100 million tests are done annually by microscopy and RDTs. Approximately 12–14 million RDTs are being procured annually for use by community level health volunteers (ASHAs) and health workers (MPWs) in difficult to reach areas where microscopy facilities are not reachable. This has helped in improving the surveillance and early diagnosis thus facilitating timely treatment at the village level through ASHAs / Volunteers.

- The system for quality control of microscopy under programme is in place by cross-checking of all smears tested positive and 5% of negative slides. Standard Operating Procedures (SOP) have been developed for quality control of microscopy. Similarly, the guidelines have also been developed for the quality control and quality assurance of RDTs.

- Provision of diagnostic services through rapid diagnostic tests or microscopy and pre-packaged ACT to the entire population through public and private healthcare systems, including in remote / inaccessible rural villages is another important challenge. Functional microscopy services at PHC level as per the recommended norms of 30000 / 20000 population in plain / hilly & difficult areas respectively, have not been established till now by majority of States.

- Further, the RDTs used currently are monovalent (Pf specific), thus the delay in diagnosis of Pv cases and their subsequent treatment is delayed due to time lag of microscopy examination. The bivalent RDTs (for both Pf and Pv) will address this problem.

**Treatment**

- A paradigm shift has occurred in the treatment of Pf cases in high burden districts. Initially, ACT was provided to falciparum cases reported in chloroquine resistant PHCs and surrounding cluster of PHCs. Later ACT was rolled out for treatment of all Pf cases in the high burden districts. As per the National Malaria Drug Policy (2010), all uncomplicated falciparum cases in the country are being treated with ACT. Therapeutic efficacy studies are conducted on a regular basis in 15 sentinel sites across the country by Dte. of NVBDCP in collaboration with National Institute of Malaria Research (NIMR) for updating theNational Drug policy. Programme has also initiated the Pharmaco-vigilance studies to monitor the adverse effects of antimalarial drugs. It has shown that very few side effects are reported with the ACT.

- Irrational use of Artemisinine based compounds, especially by the unqualified private providers, is a major challenge. Monitoring, preventing, and containing anti-malarial drug resistance is a big challenge, especially in areas adjoining to international borders. The strengthening of monitoring systems for drug resistance is therefore essential in collaboration with research institutes like ICMR.
• **Interventions for vector control**
  - In addition to Indoor Residual Spray (IRS), other vector control measures like long-lasting insecticidal nets (LLINs), larviciding and environmental management are being upscaled appropriately. Non health sector networks are also being involved in distribution of LLINs enabling improved access in remote areas. Private organizations or consortia are also being contracted out for conducting IRS by the states where quality of spray is an issue as spraying is a skilled job.
  - To address the environmental issues related to safe use of insecticides, larvicides and non-degradable diagnostic equipment, an ’Environment Management Plan’ has been developed for ensuring proper transportation and storage, safe handling and usage of insecticides to minimize adverse impact on environment.
  - Poor community acceptance and low coverage of IRS are reported from the field. Low coverage of IRS is often due to non/inadequate funds with the states for procurement of decentralized insecticides as well as operational cost to meet the spray wages. Further, supply and usage of ITN /LLINs is restricted to a few high endemic districts. Scaling up of LLINs for achieving universal coverage is a major challenge.
  - Increased levels of resistance to insecticides in vector mosquitoes is an important technical challenge.
  - Entomological surveillance is affected due to poor manpower status both at States and Zones including Regional Offices of Health and Family Welfare. Out of 35 State entomologists, only 7 are in position. Similarly, against 72 Zonal Entomologist posts, 35 are in position. At the ROHFW (GoI), all the 16 sanctioned posts of Assistant Director (Entomologist) are lying vacant, Even at Dte. NVBDCP –HQ out of 9 posts, 5 are vacant. Because of this gap the latest data on various entomological parameters are lacking which is very crucial for facilitating the decision about appropriate vector control measures.
  - Further, due to lack of mobility support, large vacancies of insect collectors, shortage of entomological kits and insufficient support for capacity building, the existing entomological units could not be optimally utilized, which resulted in to lack of data generation.

• **Logistics management**
  - In the initial years of the 11th plan period, anti malarial drugs & other drugs for vector borne diseases, insecticides, larvicides, rapid diagnostic kits for malaria and Kala Azar, Long lasting Insecticide treated nets (LLINs) were being procured by GOI. Subsequently, Govt of India has decentralized the procurement of certain commodities to be procured by states out of cash assistance.
  - Delay in release of budget from state health societies for the purpose has resulted in untimely availability of required items.
  - A supply chain monitoring agency has been hired under WB supported project which need to be sustained.

• **Malaria in Urban areas**
  - The large number of developmental activities, especially construction activities, have resulted in aggregation of labour leading to mushrooming of slums. Most of local bodies are found lacking in financial resources to carry out malaria control measures and State Governments also could not supplement the resources to bear the extra burden to contain the emerging malaria problem. No corresponding additional infrastructure and budgetary provision have been made resulting in additional pressure on the existing staff though spatial spread of urban areas has occurred, which has resulted into poor disease surveillance and inadequate vector control measures. This necessitates intensification of vector control measures through the existing scheme and larger involvement of other sectors responsible for creating mosquitogenic conditions.
4.1.2 The 12th Plan - objectives, strategies, and activities.

Objective:

- To bring down annual incidence of malaria cases to less than 1 per 1000 population at national level by 2017 and its monitoring at district level.

Targets:

- ABER > 10 %
- API < 1 per 1000 Population

Indicators

- All fever cases suspected for malaria are to be screened (70% through quality microscopy and 30% by Rapid Diagnostic Test).
- All *P. falciparum* cases will be treated with full course of ACT and all *P. vivax* cases will be treated with chloroquine for 3 days and primaquine for 14 days.
- All health Institutions with indoor facilities will be equipped with microscopy facility and RDT for emergency use and injectable artemisinin derivatives.
- All district and Sub-district hospitals will be strengthened as per IPHS with facilities for management of severe malaria cases in malaria endemic areas.

Strategy

The strategy adopted during XI Plan period was for malaria control. Considering the feasibility of malaria elimination defined as no indigenous transmission, it is proposed to change the focus of strategies based on endemicity level. This will facilitate in achieving long term goal of elimination. This necessitates the stratification of states based on incidence so as to decide and execute area specific intervention. This would lead to reduction of incidence in high endemic areas and sustain it in low endemic areas which will pave the way to enter the country into “Pre- Elimination stage”. To reach “Pre- Elimination stage”, entire country would require adequate inputs in terms of technical, logistic and financial support. Accordingly the states have been stratified as under:

- **Category 1**: States with less than 1 API including all the districts in the state with less than 1 API
- **Category 2**: States with less than 1 API with few districts reporting more than 1 API
- **Category 3**: States with more than 1 API with either all the districts with more than 1 API or few districts with less than 1 API and many with more than 1 API

The broad strategies to be adopted are as under:

- **Epidemiological Surveillance and Disease Management**
  - Early case detection by further strengthening the existing surveillance system and involving private providers
  - Strengthening of referral services
  - Epidemic preparedness and rapid response
  - Involvement of private providers

- **Integrated Vector Management**
  - Effective entomological surveillance
Activities proposed for different strategies and strata of states are as follows:

➢ Epidemiological Surveillance and Disease Management

1. Early case detection by further strengthening the existing surveillance system and involving private providers
   • Strengthening of active, passive and sentinel surveillance by providing additional MPWs, LTs and involving more ASHAs, GPs, RMPs and Medical practitioners of other health partners
   • Strengthening diagnosis by providing additional microscopes and up-scaling use of RDTs.
   • Diagnostic and treatment facilities will be strengthened by increasing the number of microscopy centers and capacity building of technicians, up-scaling of RDTs and providing microscopes and by establishing malaria clinics @ 1 clinic per 20,000 population in urban slums.
   • Ensuring continued availability of diagnostics and anti-malarial drugs at all levels of treatment
   • Adopting evidence-based newer technologies for improving diagnosis and treatment services like introduction of bivalent RDT, fixed dose ACT etc.

2. Strengthening of referral services
   • For rapid transportation of severe malaria cases to the nearest health facility, transport facility under NRHM will be used. In case such facility is not available in certain areas, programme will support transportation.
   • Strengthening of referral centers by equipping them with requisite diagnostics, anti-malarials for management of severe malaria cases.
   • Optimal utilization of the available life saving support systems under NRHM.

3. Epidemic preparedness and rapid response
   • Use of Early Warning System for detection of epidemics in coordination with IDSP.
   • Strengthening of Rapid Response Team (RRT) in each district, with financial support from NVBDCP during outbreak situation.
   • For tackling outbreak, adequate antimalarials, diagnostics, insecticides etc. will be provided by earmarking 20% buffer stock
Integrated Vector Management

1. Effective entomological surveillance
   • Entomological surveillance would be carried out by the Zonal Entomologists in the country. The entomological teams will survey for entomological parameters viz., vector density (adult and larval), seasonal prevalence, susceptibility status to insecticides in vector mosquitoes, feeding behaviour, quality of IRS spray, residual effectiveness of insecticides through conducting Cone Bioassays test. These parameters would provide data on impact of the ongoing vector control interventions in the Zones to suggest for mid course corrections. These teams will also assess the effectiveness of ITNs and LLINs.

2. Source Reduction using minor engineering methods
   • Control of larval breeding would be done to limit the transmission of the VBDs. Clearing the margins of the water bodies, de-weeding to ensure proper flow of water, filling of small temporary water collections will be done to limit the breeding. However, for large excavations and water bodies, the technical guidance for prevention of mosquito breeding would be provided to the concerned agencies who are responsible to create mosquitogenic conditions.

3. Biological control using larvivorous fish
   • The larval control using larvivorous fish is feasible in certain ecotypes and settings. This method would be propagated in these areas as supportive intervention to control the breeding. The source for supply of larvivorous fish, its applications and monitoring would be put in place.

4. Larvicides
   • Presently Temephos - the chemical larvicide and bio-larvicides are used in programme. Their judicious use would be monitored.

5. Indoor Residual Spray in selected high risk areas
   • Depending on the API, different areas would be covered with appropriate insecticide. About 80 million population are covered with IRS annually. To ensure quality spray, supervision would be strengthened along with safety precautions.

6. Insecticide Treated Nets(ITN)/ Long Lasting Insecticidal Nets (LLIN)
   • LLINs have been introduced in the program as personal protection tool and to interrupt transmission. The upscaling of LLINs is on priority and about 29 million LLINs are expected to be procured and distributed in next five years.

7. Implementation of legislative measures
   • The civic by-laws for prevention and control of mosquitogenic conditions are existing in few states/towns. The state governments would be emphasized to extend these by-laws in other towns/cities and implement effectively.

Supportive Interventions

1. Behaviour Change Communication
   • Establishing IEC/BCC Cell at Dte. NVBDCP with regular communication expert supported with media assistants.
   • Development of strategy specific prototype materials and Healthy Public Policy through an hired agency.
   • IEC/BCC activities through print and electronic media at national, state and regional level
- Strengthening of IEC/BCC activities at grass root level through inter-personal communication, folk media etc. for social mobilization towards acceptability of services provided under programme.
- Special campaigns during spray, distribution of LLINs and anti-malaria month
- Strengthening of service delivery through vulnerable community plan for marginalized sectors.

2. Public Private Partnership (PPP) & Inter-sectoral convergence
- Improving outreach services through partnership with Non-Governmental Organizations (NGOs), Faith Based Organizations (FBOs), Community Based Organizations (CBOs) and Local self-government (Panchayat).
- Implementation of 6 existing PPP schemes of NVBDCP by earmarking separate budget.
- Flagging the issue of Inter-sectoral convergence through Planning Commission to various Ministries/agencies like Agriculture, Urban Development, Education, Information and Broadcasting, Tribal and Social Welfare, Railway, Surface Transport, Civil Aviation, Port Health Authorities and Textiles etc to ensure support and incorporation of Health Impact Assessment component in the projects under respective ministries.
- State level annual inter-sectoral meeting and districts level quarterly meeting for sensitization.

3. Human Resource Development through capacity building
- Providing additional HR like National, regional, state, zonal and district consultants, Malaria Technical supervisors/Kala azar technical supervisors at sub district level, LTs and MPWs at PHC and subcentre level respectively to bridge the gap so that implementation of programme activities are carried out efficiently.
- Emphasizing states for creation / filling up of required positions at various levels
- Continuation of performance based incentives to the programme personnel including ASHAs/village level volunteers
- Capacity building of trainers by involving medical colleges and apex institutions like NIHFW for further providing job-specific training to newly recruited personnels and reorientation of the existing programme personnel.

4. Operational research including studies on drug resistance and insecticide susceptibility
- To monitor the drug resistance, pharmaco-vigilance, quality assurance and insecticide resistance, the operational research studies would be undertaken with the help of NIMR.
- Studies on vector bionomics and changes in respect of their biting and resting behaviour.
- Research also would be conducted for the development of new tools and methods for vector control.

5. Logistic Management Information System (LMIS)
- Procurement Division would be strengthened by recruiting regular procurement specialist (Joint Director level officer) supported with consultants.
- Supply chain monitoring would be done through hired agency, to ensure the availability of programme commodities upto PHC level.

6. Monitoring and evaluation through periodic reviews/field visits and web based Management Information System
The existing NMMIS would be made fully functional by replacing all old computers and providing internet facility at district level.

Communication support would be provided i.e. computer/laptop/palmtop and communication systems like data-card, internet, mobile, telephone etc. would be provided to MIS staff as per their role.

Integration of reporting of core indicators with the NRHM–HMIS.

Establishing Sentinel Surveillance Sites (SSS) at the districts and prominent hospitals to monitor the trends of disease morbidity and mortality.

Periodic review at all levels and programme evaluation at periodic intervals.

Positioning of consultants at national, State and district level, VBD Technical supervisors at block level and data manager at district level.

Use of Lot Quality Assurance Sampling (LQAS) methodology at sub-district level for monitoring the implementation of programme and project activities.

Strategy for different categories of the states to be intensified

- **Category 1**: States with less than 1 API including all the districts in the state with less than 1 API.

  Keeping a vigil in these states is very crucial as low endemic areas are more prone to malaria outbreaks. Therefore, passive and sentinel surveillance will be strengthened.

  - **Epidemiological Surveillance and Disease Management**: Focus on passive & sentinel surveillance.
    - Involvement of Govt. Health system (State and central), Medical Colleges (Public and private), Railways, defense, paramilitary forces, ESIC, AYUSH, Mission Hospitals and private providers – enlisting, training, logistic support, reporting.
    - Laboratories – enlisting of private laboratories, training, logistic support, reporting.
  - Screening of migrants in project areas.
  - Referral system (if necessary).
  - Epidemic Preparedness and Response.

- **Integrated Vector Management (IVM)**

  Source reduction, biological control, insecticidal focal/space spray during outbreaks/epidemics and complex emergencies, effective entomological surveillance in sentinel and random sites at quarterly intervals by the designated teams.

- **Supportive interventions** including IEC and BCC activities with the involvement of village health and sanitation committees (meetings on monthly basis) and involvement of other sectors for social mobilization towards prevention and control of malaria.

- **Category 2**: States with less than 1 API with few districts reporting more than 1 API.

  Though the average API of these states are less than 1, few districts are having more than 1 API. More intensified surveillance and interventions would be required in these states. Therefore, active, passive & sentinel surveillance will be strengthened.

  - **Epidemiological Surveillance and Disease Management**
Strengthening of referral services – total support from NVBDCP for strengthening of district and sub-district hospitals under NRHM (high power committee under chairmanship of Dr. Shrinath Reddy)

Epidemic preparedness and rapid response

**Integrated Vector Management (IVM)**
- IVM will be implemented involving entomological surveillance at sentinel and random sites at quarterly interval, appropriate use of insecticides for supervised IRS with full support from NVBDCP, use of LLIN (if supported and feasible), intensified anti larval operation in urban and peri-urban areas within these states/districts along with supportive intervention components like use of fish, source reduction, minor engineering etc. and use of focal spray in case of any increase in cases or outbreak.

**Supportive interventions** including IEC and BCC activities using village health and sanitation committee meetings (monthly basis) and inter-sectoral collaboration meetings in district and blocks with API more than 1 and involvement of other sectors for social mobilization towards prevention and control with coordinated efforts by district programme managers.

- **Category 3**: States with more than 1 API with either all the districts with more than 1 API or few districts with less than 1 API and some with more than 1 API. This category needs maximum attention for all the activities with a view to reduce disease burden. Therefore, active, passive and sentinel surveillance will be strengthened institutions with all possible inputs for microscopy, RDT and quick collection of reporting of data.

**Epidemiological Surveillance and Disease Management**
- Early Case Detection and complete treatment.
- Active Passive and Sentinel surveillance.
- Management of severe malaria cases (strengthening of district and sub-district hospitals).
- Referral mechanism (NVBDCP funding for referral including transportation).

**Integrated Vector Management (IVM)**
- IVM will be implemented involving
  - entomological surveillance at sentinel and random sites at monthly interval,
  - appropriate use of insecticides for supervised IRS with full support (including spray wages) from NVBDCP,
  - use of LLIN
  - treatment of community owned bednets,
  - intensified anti larval operation in urban and peri-urban areas within the states/districts
  - Upscaling use of larvivorous fish, outsourcing of fish use through NGOs would be explored with PPP model,
  - Source reduction, minor engineering etc. would be achieved through involvement of panchayat raj at village level.

**Supportive interventions** including IEC and BCC activities using village health and sanitation committee meetings (monthly basis) and inter-sectoral collaboration meetings in district and blocks with API more than 1 and involvement of other sectors for social mobilization towards prevention and control with coordinated efforts of district programme managers. Monitoring and
supervision for the activities as well as monitoring towards timely performance of
the activities.

4.1.3. Modalities to improve efficiency and quality of services at primary, secondary and tertiary levels

Primary level

- ASHAs under NRHM, Aganwadi Workers of ICDS and Community Volunteers of NGOs would be trained for diagnosis (using RDT) and treatment services.
- The diagnostic capability of PHC in endemic areas would be improved by ensuring positioning of trained laboratory technicians with functional microscopes in all PHCs. All the CHCs would be equipped to provide in patient facility for management of Pf malaria cases.
- Laboratory surveillance from private sector would be enhanced by coordination with private practitioner and private laboratories.
- Logistic and supply chain management will be strengthened to ensure continuous supply and avoid expiry of drugs and diagnostics.

Secondary level

- Training of Medical Officers, Lab. Technicians and Community Volunteers of public and private sectors would be taken up to strengthen the quality of services at secondary level.
- District level hospitals would be equipped with case management facilities including laboratory services to manage the severe and complicated malaria cases.
- The investigation of each death due to malaria would be taken up, so that, corrective action for appropriate management would be in built in the system itself and it would serve as a public health tool also to measure the effectiveness of the programme. Sentinel sites will be established at the District and sub-district level hospitals especially in high-disease burden areas to monitor the trend of malaria morbidity and mortality.

Tertiary level

- The Medical College hospitals and other referral hospitals will manage all referral cases.
- The state health authorities will coordinate with Medical Colleges for malaria control activities.
- Medical Colleges will undertake operational research on use of effectiveness of rapid diagnostic kits, efficacy of combi pack and therapeutic efficacy studies etc.
- Medical colleges will also be involved in capacity building by creating district level resource pool for training.

Plan for improving reporting

- Upsurge in VBDs in recent years has led to general feeling that the VBDs’ surveillance activities need to be increased to keep eye on increase in number of cases so that preventive actions can be taken up immediately to contain the outbreaks /epidemics of these VBDs. The 12th plan proposes measures to overcome the bottlenecks to improve the reporting system. At the same time NVBDCP is planning to engage human resources at various levels to increase and improve the surveillance. The details of the proposals for the same are given below:
- States shall create 66120 and fill up 88483 positions (inclusive of existing vacancy against sanctioned) of MPWs as per the norms at the sub center level with 100% financial assistance from Government of India through NRHM.
- Create 10682 post and fill up 15244 positions (inclusive of existing vacancy against sanctioned) of one microscopist at PHC level covering 30 to 40 thousand population.
- Positioning 5924 VBD Technical supervisor (@ one VBD Technical Supervisor at block level) for effective supervision and monitoring.
- State shall be encouraged to fill up all posts of DMOs on priority basis
- 620 District VBD consultants (excluding high altitude districts) will be provided from GoI.
- Enlisting the support of IMA and ushering in public private partnership models in the programme to improve diagnosis and treatment.
- Up-scaling of use of RDT (including bivalent RDTs)
- Provision of 15,000 microscopes.
- Quality control of malaria microscopy by strengthening of Regional Offices (GOI), state /zonal laboratories.
- Quality control of RDT by identified institutions.
- Advocacy with private and other sectors.
- PPP schemes for case detection and treatment.

- Monitoring and Evaluation is important at National, State, district and local levels to track and guide the programme implementation and its impact. Robust and reliable data are critical for monitoring progress toward achieving the goals and disease specific targets. The country programme is having detailed Monitoring and Evaluation Plan which has been revised from time to time to include the monitoring of newer interventions. During the XI plan period the monitoring and evaluation activity was strengthened with the funding from World Bank. During this period, monitoring and evaluation system of country malaria programme was reviewed twice (in 2008 and 2010) using the Monitoring and Evaluation System Strengthening Tool (MESST) developed by the Global Fund.

- The reporting system of NVBDCP is being integrated with NRHM-HMIS portal. In NRHM-HMIS portal data entry is being done at district level for both data compilation (reporting) and recording in a consolidated form.

- **Monthly Epidemiological Surveillance:** Based on the monthly report received through M4 format in HMIS, epidemiological analysis would be strengthened at district, state and national levels to identify the trends of malaria cases and deaths to identify the areas for intervention.

- **Sentinel surveillance & Death Monitoring:** Data generated at the sentinel surveillance sites established at the two/three SS Hospitals in a district would be compiled at the DMO office.

- **M4: Fortnightly Report of Cases - Provider wise:** this provider wise M4 format is being compiled similar to the M4 (Health facility wise), based on the M1 reports from all reporting units. This would provide a fair estimate of the cases being diagnosed and treated by each category of health provider.
4.1.4 Urban Malaria Scheme (UMS)

Apart from malaria, other vector borne diseases like dengue, chikungunya, JE, filariasis and kala-azar are also increasingly becoming frequent in urban areas. Integrated control strategies are needed by meeting the requirement of additional staff and matching budgetary provision.

It is proposed to enhance the capacity of exiting 133 urban cities inclusive of 2 new towns to manage all VBDs prevalent in the urban areas. The vector control measures will focus to deal with all VBDs and special emphasis would be given for implementation of health impact assessment (HIA) component in all major developmental projects through enforcing appropriate legislature measures. The key lessons learnt during XI plan period and current challenges with respect to urban areas have already been outlined in the overall malaria component. Based on it the objectives, strategies and activities have been proposed under XII Plan for UMS.

Objectives

1. Prevention of malaria mortality and reduction of morbidity in identified urban areas.
2. Effective management and control of other VBDs

Targets

1. To improve vector surveillance and elimination of breeding at the source
2. To bring down cases of malaria and other VBDs in urban areas

Strategy

(i) Detection and management of malaria cases and other VBDs
(ii) Integrated Vector Management
(iii) Capacity building and BCC
(iv) Intersectional coordination

Activities

(i) Diagnosis and case management:
   - Diagnostic and treatment facilities will be strengthened by establishing malaria clinics @ 1 clinic per 20000 population with special focus to urban slums.
   - Involvement of other sectors/private providers for diagnosis, treatment and reporting
   - Sentinel sites will be equipped with necessary diagnostic kits for diagnosis of VBDs
(ii) Integrated Vector Management
   - Larval control through source reduction, chemical larviciding and use of larvivorous fish and minor engineering.
   - Space spray during the outbreaks/epidemics.
   - LLINs for targeted vulnerable population of identified wards/burroughs under Municipal Corporations of mega cities.
(iii) Capacity building and BCC
   - Training of personals involved in anti-malaria activities in urban areas including engineers and town planners
   - Focused BCC
   - Advocacy workshops for NGOs/ CBOs/ FBOs/ stakeholders for their involvement in VBD control activities
   - Social mobilization through inter-sectoral collaboration.
(iv) Inter-sectoral coordination

- Adoption of Model civic bye-laws for prevention and control of vector breeding
- Health Impact Assessment (HIA) of Developmental projects

4.1.5 Entomological Surveillance

To monitor the programme activity at zonal level (5 to 7 districts), the zonal offices were established with the responsibility of monitoring of entomological and entomological data and operational aspects pertaining to districts under their jurisdiction. The zonal officer since 1977 (after Modified Plan of Operation) had a special component of zonal entomological team to monitor the vector densities, susceptibility status of vector to the insecticides/larvicides, vector incrimination, bionomics, etc. and to correlate the entomological data with entomological parameters. The technical guidelines and monitoring formats for entomological parameters were made available from time to time to the states. However, the entomological surveillance by these zones have been affected as the priority to entomological work was not accorded in many of the states and many posts falling vacant have not been filled up. With a view to generate latest information, it is proposed to strengthen and intensify entomological surveillance in the country by providing additional technical human resource like entomologists, insect collectors and mobility support for field visits, especially during night times as the entomological surveillance are carried out whole night. The cost towards different components have been integrated into proposed budget for malaria and also under cross cutting issues separately.
### 4.1.6 Proposed Budget
The estimated budget for prevention and control of malaria including Urban malaria and strengthening entomological surveillance and issues is shown in Table 16.

#### Table 16, Proposed Budget for Malaria including Urban malaria & entomological surveillance

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4.2. Dengue & Chikungunya (proposed plan during 12th Five Year Plan)

4.2.1 Key Lessons Learnt during 11th Five year Plan

Case Surveillance

The surveillance for dengue and chikungunya should be proactive. Most states conduct reactive surveillance with health authorities waiting until medical community recognizes transmission. Passive surveillance is not sensitive enough for early detection of outbreaks, since all clinical cases are not correctly diagnosed, especially during the inter-epidemic period when physicians may not suspect dengue, and thus mild cases may not enter the health care system at all. Indeed, in most cases epidemics are near peak transmission before they are recognized and confirmed as due to dengue. By then, it is generally too late to implement effective preventive measures that could have an effective impact on transmission and thus on the course of the epidemic.

Functioning of Sentinel Surveillance Hospitals

Though the numbers of Sentinel Surveillance Hospitals (SSHs) was increased every year to augment diagnostic facilities in endemic States, their functioning had been a great concern.

Apex Referral Laboratories are not conducting regular Sero–surveillance, hence clinicians do not get any information on prevailing/circulating dengue virus serotype in a given time and place. Severity of dengue depends on type of virus serotype (s) prevalent in an area.

Reporting

A few states submit their data daily but some states submit their report very late. Besides, private sector is not submitting the data on cases and deaths which were treated by them as dengue is not a notifiable disease in some states. Hence, real disease burden could not be estimated.

Fever alert surveillance

For reporting of increase in fever cases in a village, the guidelines were developed and sent to the states in 2007. However, early capture of an incipient outbreak through health workers and grassroots level functionaries (ASHAs, Anganwadi workers and MPWs etc) is not effective in the states.

Rapid response

A trained rapid response team with all supportive logistics including mobility support in each endemic district has been envisaged. However, with the transfer or superannuation or multiple job responsibilities of any team member, the team becomes incomplete. Besides, the mobility support is often not made available for timely movement of the team. The reports of the Sentinel Surveillance Hospital are also received late. Due to these, many impending outbreaks could not be interrupted in incipient stage. Dengue and Chikungunya outbreaks evolve quickly and need immediate action to prevent further spread.
Case management

Though case fatality rate has declined, most of, deaths due to dengue (if not all) are potentially avoidable. One of the primary problems in management of dengue is misinterpretation and resultant confusion because of the term “haemorrhagic fever”. Hence a reorientation training as per National guidelines for clinical management of Dengue cases on assessment of the haemodynamic state, prompt but judicious fluid replacement in dengue management is necessary for all the treating physicians at tertiary, secondary and primary level hospitals including in private sector.

Vector surveillance and Management

In absence of any drug or vaccine against dengue and chikungunya infection, vector control is the main stay to prevent transmission. Due to vector bionomics, adult vector control is not easy. Larval control needs constant and concurrent monitoring of the vector breeding. Effective mosquito control primarily based on source reduction is virtually non-existent in most of the Dengue and Chikungunya endemic states/towns. Besides, emphasis has been placed on ultra-low volume (ULV) insecticide space sprays for control of adult mosquitos though it is relatively not very effective approach for controlling *Ae. Aegypti* which are very active during day time.

Lacking or poor infrastructure

The reality of limited financial and human resources has resulted in a "crisis mentality" with emphasis on implementing emergency control methods in response to outbreaks rather than on regular programme to prevent transmission. In fact, most of states have no staff or resources to implement the strategies for dengue/chikungunya prevention and control during inter-epidemic period. The vertical dengue/chikungunya programme based on vector control by field workers visiting every household in a specific area to eliminate breeding is practically getting setback due to increasing urbanization, budgetary constraints, lack of personnel, increasing numbers of “closed” households and householder’s rejection for the emptying and cleaning of domestic water-storage containers.

Monitoring and evaluation

Due to improper monitoring and evaluation programme implementation is hampered at State and district level as early warning signals are not captured on time. Entomological component is totally absent in most of the States/Municipalities and very weak or poor in other states/towns. Out of 72 Entomological Zones, posts of Entomologists are vacant in 34. Similarly, out of 35 state Entomologist only 10 are in position. Wherever present they do not have the facilities like mobility support or other logistics to carry out entomological surveillance especially in early morning, late evening and during night hours.

Enactment of Legislation

At the national level, all countries are signatories to the International Health Regulations which have a specific provision for the control of *Ae. aegypti* and other disease vectors around international seaports/airports. Dengue needs to be added in the list of diseases that require mandatory notification by each state. It was envisaged in the beginning of 11th Five Year Plan to develop civic byelaws by each state to prevent mosquitogenic conditions in households/premises. Building byelaws for health impact assessment in all development projects and building construction activities having inbuilt provisions of mosquito breeding free premises covering all aspects of environmental sanitation in order
to effectively prevent breeding of Dengue and Chikungunya vector. However, most of the States could not develop their byelaws. Though a few municipalities in the country, namely Mumbai Municipal Corporation, New Mumbai Municipal Corporation, Municipal Corporation of Delhi, Chandigarh, Goa and Chennai etc. have adopted legislation for the prevention of “nuisance mosquitoes”, they lack its implementation at the ground level. Legislative support is essential for the success of not only dengue control but also for all those diseases which are caused by mosquitoes like malaria, Chikungunya, filaria etc.

4.2.2 Objectives

- To reduce the Dengue case facility rate to below 1%
- To reduce the incidence of Dengue and Chikungunya
- To strengthen the nationwide surveillance mechanism for Dengue and Chikungunya

Targets

- Dengue case facility rate to below 1%
- Functional Sentinel Surveillance Hospital in all endemic districts/towns/cities
- Functional Rapid Response Team in all endemic districts/towns/cities

Indicators

- Dengue case fatality rate
- Dengue and Chikungunya incidence
- No. of functional Sentinel Surveillance Hospital
- No. of functional Rapid Response Team

2.2.3 Initiatives

To reduce the burden of Dengue and Chikungunya, a new approach to fully integrate disease and vector surveillance, vector control, clinical case management and capacity building of health personnel is needed. This is especially important as GOI has also health sector reform efforts for the forthcoming 12th Five year plan and the fact that most local health services, now responsible both politically and administratively for prevention programs, are not sufficiently equipped to take on these programmes.

In view of the above a need has arisen to revisit the ongoing strategies of Long Term Action Plan and develop a programmatic and comprehensive Mid Term Plan for prevention and control of Dengue and Chikungunya. The Committee of Secretaries under the Chairmanship of Cabinet Secretary on 26.05.11 approved the Mid Term Plan for prevention and control of Dengue and Chikungunya in the country. The thrust Areas of Mid Term Plan are:

- Focused monitoring and improved reporting by strengthening the Dengue control programme.
- Strengthening diagnostic facilities by establishing at least 1 Sentinel Surveillance Hospital in each endemic district/town
- Improved and effective case management to bring down dengue case fatality rate.
- Strengthening of infra-structure in local bodies for source reduction activities.
- Effective intersectoral collaboration of various health and non health sectors.
- Capacity building of medical and para medicals on Mid Term Plan strategies.
- Sensitization of the community on source reduction activities through media mix IEC/BCC strategies as per Media Plan.
• Availability of trained entomological teams and rapid response teams in states and districts
• Timely and effective utilization of funds.

4.2.4 Strategies

• Surveillance - Disease Surveillance and Entomological Surveillance
• Case management - Laboratory diagnosis and Clinical management
• Vector management - Environmental management for Source Reduction, Chemical control, Personal protection and Legislation
• Outbreak response - Epidemic preparedness and Media management
• Capacity building - Training, strengthening human resource and Operational research
• Behaviour Change Communication - Social mobilization and information Education and Communication (IEC)
• Inter-sectoral coordination - Health, Urban Development, Rural Development, Panchayati Raj, Surface Transport and Education sector
• Monitoring and Supervision - Analysis of reports, review, field visits and feedback

4.2.5 Mechanism of Involvement of NGOs/PPP/community/local self government

Non-Governmental Organizations (NGOs), Community Based Organisations (CBOs), Faith Based Organisations (FBOs) can play an important role in source reduction activities. Social mobilization campaign for community awareness on source reduction activities will be carried out through inter-personnel communication, focused group discussion, advocacy workshops, inter-sectoral meetings, with monitoring and evaluation at all levels.

4.2.6 Modalities to improve efficiency and quality of services at primary, secondary and territory levels

Intensive supervision, capacity building during process of programme implementation through involvement of Inter Sectoral partners like Ministries of Urban Development, Rural Development, Panchayati Raj, research institutions involved in VBD, medical colleges and schools will be initiated at state, district and PHC level. Besides, local leaders and NGOs will be involved.

2.2.7 Monitoring and Evaluation

Monitoring & Evaluation covers monitoring of all the activities for effective implementation of Mid Term Plan Strategies approved by Committee of Secretaries across the country, like functioning of all the identified Sentinel surveillance Hospitals, equipped with diagnostic kits and manpower, Functional entomological team in each district, Urban bodies & state level. All Hospitals having trained clinicians on National guidelines for case management, trained rapid response team (RRT) at district and municipality with mobility support & logistics, sustaining source reduction activities in each block/town/city and timely analyzing and interpreting all the reports and feedback.

The expected outcomes at the end of 12th plan are:

• Effective implementation of Mid Term Plan with focused monitoring at national, regional, state and district level,
• Case detection at early stages will improve case management leading to reduction in case fatality in Dengue and morbidity management in Chikungunya,
• Improved reporting, especially in outbreak situation,
• Regular source reduction activities in all local bodies,
• Awareness amongst community towards prevention and control of Dengue and Chikungunya
• Enactment of bye-laws in all urban areas to prevent mosquitogenic conditions

2.2.8 Sustainability
In order to achieve the proposed objectives of 12th Plan by implementing the approved strategies, adequate funds/resources need to be provided to endemic states/UTs to sustain the activities effectively. Hence it is proposed to make a policy for separate budget head for Dengue and Chikungunya like Malaria, Kala-azar, and Externally Assisted Components. The release of funds from district to PHC & VHSC needs to be ensured under NRHM mechanism of financial release. During outbreak, the funds from NRHM can be supported proactively as has been done in past during Chikungunya outbreak in 2006.

The capacity of state programme officer needs to be developed on financial aspects to process the funds released from NRHM quickly and implement programme activity in a time bound manner.

2.2.9 Overlapping/Duplication within or across Health Programmes; convergence issues
The Dengue and Chikungunya control programme is already integrated within umbrella of NVBDCP. The strategies mainly focus on inter-sectoral convergence with other National Health Programmes, non-health sector departments, civil society organizations (Non-Governmental Organizations/Faith Based Organizations/ Community Based Organizations/ Panchayati Raj Institutions/Self-Help Groups), corporate sector, medical academia, professional bodies etc. Following the instructions of CoS, Ministries of Urban Developoment, Rural Development and Panchayati Raj have already issued instructions to their counterparts in the states for implementation of guidelines to prevent mosquitogenic conditions and community sensitization.

2.2.10 Estimated budget (Activity and year wise)

The budget proposed has been worked out separately for various activities included in Mid Term Plan which is as under:

Surveillance

Establishing Sentinel Surveillance Hospitals with laboratory facility in each endemic district/town/cities. Currently 311 Sentinel Surveillance Hospitals and 14 Apex Referral Laboratories have been identified.

Strengthening of Sentinel laboratories under NVBDCP for diagnosis of dengue and Chikungunya would be done to establish a network of laboratories with high level of intra & inter laboratory comparability of results for correctly identifying the true positives and true negatives through trainings in premier laboratories like NIV, Pune; NCDC, Delhi. ELISA facility in Sentinel Centres would be ensured.

Recurring grant of Rs 50,000 paid to Sentinel Surveillance Hospitals per year to meet the contingency expenditure has been proposed to be increased to Rs 1.0 lakh per year to meet the operational cost as per NVBDCP guidelines. Similarly for Apex Referral Laboratories, Rs 1.0 lakh is increased to Rs 2.0 lakhs to strengthen the training facilities, quality control of sentinel labs through cross-checking of tests and Serotyping of virus.
Funds will be provided to states for making ELISA readers or washers available in the Sentinel Surveillance Hospitals wherever necessary.

**Costs of test kits**

NIV would manufacture dengue and Chikungunya kits to be supplied to all the sentinel labs in the country. NIV would be provided financial assistance to produce and supply test kits IgM (dengue & Chikungunya) and NS1 (dengue).

**Case management**

Strengthening District Hospitals for dengue case management & Rehabilitation of post CHK sequel: Medical rehabilitation including physiotherapy would be strengthened in the district hospitals by providing Rs.1 lakh to each district hospital.

It is proposed to improve the capacity of doctors working in sentinel hospitals, community health centers, primary health centers in clinical management of dengue and Chikungunya. Trainings of the trainers (clinicians) would be conducted in premier institutes like AIIMS, New Delhi involving national/ international faculties (Clinical experts from dengue endemic countries in SEA/WP regions). Further in each state about 20 training batches of 30 medical officers each (2 days duration) would be taken up.

Appropriate clinical guidelines would be developed at the National level for management of dengue in view of the recent guidelines of WHO and would be circulated to states for replication and supply to the training institutes.

**Vector control and environmental management**

- Source reduction activities to eliminate the vector breeding are the only effective tool for preventing Dengue and Chikungunya transmission. Community volunteers will be engaged to sensitize the households for reducing the productive breeding sources by making house to house visit. Dengue transmission is related to monsoon which facilitate vector proliferation. Hence it is very essential to carry out this activities at least for 5 months (depending on local transmission and period). Due to the fund constraint the states and urban bodies are unable to carry out this most important activity.
- For cities having population above 40 lakhs, 200 volunteers; cities with 10 to 40 lakh population, 100 lakh volunteers and cities with less than 10 lakhs population 50 volunteers have been proposed and funds are provisioned, for which urban area/towns have been categorized at 3 levels.
- Similarly for rural areas also, funds to the tune of Rs.5 lakh will be provided to carry out source reduction activities in the blocks/panchayats.
- Funds are provisioned for hand operated Fogging machines, which would be procured, if required.
- Outbreak response and Epidemic preparedness would be strengthened in all endemic and non-endemic districts. To strengthen the epidemic containment, Rapid Response Teams would be activated at state and district level. Operational cost would be provided to all the units.
Capacity building

- **Strengthening human resource**

No additional infrastructure in terms of manpower has been provided after the integration of dengue and Chikungunya under the NVBDCP. Since both Dengue and Chikungunya are viral diseases and transmitted by the same vector mosquito and are being looked after by one division, it is proposed to strengthen the division of Dengue and Chikungunya by providing two Consultants for Monitoring & Evaluation, two Consultants for vector control, one Data Manager, two Office Assistants and one Office attendant to monitor the implementation of the strategies of **Mid Term Action Plan for Prevention and Control of Dengue and Chikungunya** by states and other stakeholders, coordinate with the States; provide technical guidance by reviewing the data and by field visits. Besides, monitoring the functioning of SSH & ARLs and supply of test kits also needs to be strengthened. It is proposed to budget for their salary, travel, office equipment etc.

*Strengthening human resource at National HQ for Dengue & Chikungunya division has already been approved by CoS on 26-05-2011.*

 Training

At the state and peripheral level, Medical Officer, Prog Manager, Entomologist, MPW, ASHA/USHA trainings would be taken up.

- Capacity building of microbiologists and technicians would be taken up through training. In each state 9 batches of 25 participants each (5 days duration) would be taken up.
- Capacity building of entomologist/assistant entomologist, insect collector etc would be taken up. In each state, training of total 9 batches of 25 each (5 days duration) would be conducted.
- Printing of guidelines/manuals/ formats would be taken up.

 Operational research

It is desirable to prioritize its research areas and develop new strategy by undertaking operational research with a view to improving its effectiveness and efficiency of the existing tools for giving greater scientific credibility to Dengue and Chikungunya control in India. At national level and state level, a number of research projects are planned.

 Monitoring, Evaluation and Supervision - Analysis of reports, review, field visit and feedback

- Online (electronic) reporting will be introduced for improving weekly reporting from 300 districts in 23 endemic States/UTs in the first phase. The remaining 321 districts in 12 States/UTs will also be included in online reporting so that any area in the country will be alerted for any reported or indigenous case.
- It is proposed to develop a dedicated software for GIS Mapping for the entire country and to develop risk maps at appropriate levels and conduct periodic re-mapping (to be linked to periodic surveillance)
- To facilitate online reporting, data card and telephone call charges (mobile) would be provided. Contingencies for stationary, computer consumables, report writing, local meetings, statistical analysis, unforeseen expenses would be provided at different levels.
- Mid term evaluation of Mid Term Plan strategies in 2013 and 2015 would be taken up to assess the improvement in control programme and to make any correction if required by involving experts.
- M&E cost would be provided to Regional Office for Health and FWs which are 19 in number and are functioning as eyes and ears of the central health ministry.
• M&E cost would be provided to states and districts for reviews, feedback, mobility support for field visit etc.

**Behaviour Change Communication** - Social mobilization and information Education and Communication (IEC)

• An extensive advocacy cum action campaign would be taken up in all endemic urban and rural areas. A team called “Aedes breeding survey and control team” would be constituted in the urban wards / village panchayats. The team would comprise of ASHA, Anganwadi worker, village panchayat members, VHSC members, social workers, NGOs etc. In each urban ward / village panchayat about 12000 households would be surveyed for identifying Aedes breeding sites in and around houses. This activity would be guided by the entomologists. Trained health workers will take ASHA / Anganwadi worker and some members of the team to every house. A format would be used to collect and tabulate the potential and actual breeding sites of aedes. The output from this survey would be used in the advocacy session arranged on the same day in the ward / village telling the people about the actual situation among their households. Live larvae collected from their own households would be shown to the people. Ways of dealing with the breeding sites would be told to the people. Actual demonstration would also be done. A repeat survey would be conducted after about one or two months in the same ward / village / panchayat to find out any change. Reports received from a number of sites would be monitored to see any significant improvement in terms of reduced number of breeding sites.

• At the national level, designing/developing prototype IEC material & tool kit, video spots etc would be taken up.

• Sensitization workshops are planned at different levels.

**Inter-sectoral coordination**

• Health, Urban Development, Rural Development, Panchayati Raj, Surface Transport and Education sectors would be involved.

• Task force meetings are planned at National level, State & district levels.
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Table 18, Abstract of Budget proposed for prevention & control of Dengue & Chikungunya

(Rs. in crores)

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4.3 Japanese encephalitis (Proposed Plan during 12th Five Year Period)

4.3.1 Key lessons learnt from 11th five year Plan

- Despite setting up of 51 sentinel sites hospital based surveillance centres, the actual disease burden has not been fully assessed. Though some of the states like Assam, Karnataka, Tamil Nadu, Goa and Uttar Pradesh have made efforts to make sentinel sites functional but additional inputs are required to be provided to reach close to actual disease burden.
- The case management facilities are poor in many states due to lack of infrastructural facilities and modern equipment.
- Though 111 districts have already been covered under JE vaccination, 10-14% JE sero positivity is still being reported due to poor coverage of new cohorts under Routine Immunisation.
- Persistence of AES case in the state of Uttar Pradesh due to lack of developmental activities in Gorakhpur and Basti districts. Though NIV Field Station has been setup at BRD Medical College, Gorakhpur since July 2008 however, not more than 2-4% of entero virus has been detected in the states.
- Entomological surveillance is poor due to dismantling of entomological zones in the states.

4.3.2 Objectives during 12th five year plan

- Prevention of outbreak
- Reduction in number of JE cases and mortality by 50% till 2017

Target for 12th five year Plan, Indicators, Mean of verification

- Improved disease and vector surveillance by increasing sentinel sites from 51 to 75 during XII five year plan.
- Enhanced case management at district and sub district hospitals through improved facilities like setting up of ICU in high endemic districts.
- Rehabilitation of the disabled patients by setting up Rehabilitation Centres at state/district levels.
- Effective and timely vector control through improved vector surveillance by providing the requisite equipment and operational cost.
- Intensified IEC & BCC activities at field level for quick referrals to the sub district/district hospitals.
- Enhanced capacity building at state/district /block level for improved surveillance & case management.
- Inter sectoral convergence for exploring the possibility of mosquito proofing of pig sites in priority areas.

Indicators

- Incentivization of ASHAs for helping in early referrals
- Training of Clinicians/Nurses in management of JE cases in CHCs and District Hospitals in endemic areas.
- Availability of necessary infrastructure for management of JE cases in CHC and District Hospitals in endemic areas and upgradation of ICU facilities and rehabilitation centers at district levels.
- Increasing number of JE diagnostic facilities across the country.
- Analysis of entomological and epidemiological data for epidemic outbreak prediction and timely remedial measures.
- Focus on early referrals and source reduction/personal protection through IEC/BCC activities.
- Assess the impact of vaccination and guide the future strategies.
- Developing nationwide surveillance networking with data management.

**Means of verification**

- CFR over the next 5 years.
- Number of outbreaks being reported
- Increased number of sentinel sites.
- Overall evaluation of impact of vaccination by an independent agency.
- Improved case management facilities in district hospitals.
- Review of training reports, pre, & post training assessments
- Review of reporting through MIS/surveillance data for prediction of epidemic outbreaks.
- Data management of JE cases on regular basis.

### 4.3.3 Strategies during 12th five year Plan

**Early Diagnosis and Prompt treatment of JE cases**: Early Diagnosis and Prompt treatment of JE case through existing health care infrastructure/ hospitals etc. helps in reducing case fatality rate and would increase the credibility of improved health system in the country. It includes:

- **Proper case management at district/sub district level**: Prompt and effective case management would need more improved inputs and care from health care providers (medical and paramedical) and sufficient availability of drugs and equipment in treatment centres. Infrastructure of clinical Management with Standard Operating Procedure/guidelines for management of cases will be available at District/sub district level.
- **Strengthening of referral services**: Referral support will be made available by the state at District/sub district level to transport the seriously sick patients to the referral hospitals.
- **Facility for diagnosis in all endemic districts**: Surveillance and sentinel laboratories for diagnosis of JE cases will be strengthened at peripheral level (in JE endemic districts) in a phased manner.
- **Management of Sequelae**: Sequelae management will be done by drugs, orthopedic and rehabilitation procedures in all District/Medical College Hospitals/specialist Hospitals in JE endemic areas. The rehabilitation centre will be setup at state/district level.
- **Epidemic preparedness and rapid response**: A rapid response team will be constituted in all JE endemic districts to monitor the JE situation and outbreak in their areas.

**Strengthening of JE surveillance**

While implementing the surveillance plan during 11th Five Year Plan which focused on the reporting of all suspected JE cases under AES, it has been realized that in the absence of adequate infrastructure for detection and isolation of viruses other than JE, this aspect of detection and isolation should rest with NCDC and other regional apex laboratories so that NVBDCP focuses on reporting system of suspected JE cases and strengthens the sentinel laboratories for confirmation of JE cases. R and D aspects as mentioned above would be taken up by NCDC.
Surveillance will be strengthened to detect all suspected JE and Laboratory confirmed JE cases. Private Practitioners will also be involved to report JE cases as per guidelines. For effective disease surveillance, the data collection will be uniform and regular through standard proformae. For this national guidelines will be provided to states. Following components of the surveillance need to be strengthened:

(a) **Serological surveillance:**

For effective serological surveillance, following activities will be carried out:

- Strengthening of laboratory for sero–diagnosis by providing JE kits/ELISA Reader.
- Collection of samples and analysis in serology laboratory.
- Training of Technicians/Microbiologist for MAC ELISA for diagnosis of suspected cases
- Establishment of 25 additional sentinel site laboratories in high endemic areas.

(b) **Entomological Surveillance**

- In the states where entomological zones are intact or under urban malaria schemes, identification and mapping of breeding sites of JE vectors will be done during transmission and non transmission season with the manpower available in NFCP units/UMS.
- Regular monitoring of vector density will be done at fixed as well as randomly selected sites.
- Screening/isolation of JE virus will be done from suspected JE vector mosquitoes and possible reservoirs.
- Entomological investigation will be carried out through trained manpower available in the district/state.

**Integrated vector control method**

- The main tool in vector control is fogging using technical malathion/pyrethrum for immediate killing of mosquitoes during an outbreak and anti-larval operations wherever feasible.
- Promoting personal protection method by using insecticides treated bed nets and curtains, wearing full sleeve clothes during evening hours etc.
- Biological control with approved biolarvicides in limited breeding areas.

**Capacity building**

- Capacity building & manpower development through training of Clinicians/Nurses on JE case management in all JE endemic districts and for Laboratory Technicians and Laboratory In-charge/microbiologist on diagnosis of JE cases by MAC ELISA method in all sentinel laboratories in a phased manner. Integrated training on vector borne diseases including JE will also be conducted.

**Behaviour change communication (BCC)**

- Involvement of Sarpanch and Gram Pradhans in rural endemic areas.
- Increasing awareness of clinical signs and symptoms amongst rural community thereby encouraging early referral of patients.
- Enhancing activities regarding safe drinking water practices.
- Insentivization of ASHA workers in the endemic village on early referral of suspected AES/JE case.
• Involvement of local prominent people for mass mobilization.
• Personal protection including segregation of pigs away from human population/mosquito proofing of pigsties etc.
• Early reporting of cases.
• Dissemination of knowledge on environmental sanitation and proper hygiene.
• Activities for prevention of JE will be included as integral part of BCC on vector borne diseases control.

Vaccination
• Vaccination in high risk areas and high risk population wherever feasible. Live attenuated JE vaccine has been imported during the year 2006 (X plan) and Govt. of India launched a JE vaccination programme for children between 1 and 15 years of age in 11 districts of 4 states (Uttar Pradesh, Karnataka, West Bengal and Assam) in 2006. In 2007, 2008, 2009 & 2010 28, 22, 29 and 21 new districts have been added under campaign mode as well as Routine Immunisation against JE. On the basis of availability of vaccine, plan for the other districts is being developed by UIP along with the budget.

Supervision and monitoring
• Supervision and Monitoring would be done through periodic reviews/reports, field visits and Web based MIS for proper monitoring for Japanese Encephalitis.

• Monitoring plan would be prepared by the state in order to ensure that activities envisaged by the states are implemented at the field level. Directorate of NVBDCP routinely monitors monthly incidence of JE and during epidemics, daily monitoring is carried out. Weekly monitoring will also be done during transmission season. Surveillance data will be collected from the states and will be analyzed to detect early warning signals (EWS) for JE outbreak. Sero-surveillance centers and vector surveillance centers existing in the state will provide the information regularly to the Directorate of NVBDCP through State Health authorities. The team of state, centre and ROH&FW will carry out supervising activities.

4.3.4 Policy initiatives during 12th Plan
• Provisions of ICU facilities at district level for better case management.
• Incentivization of ASHA for disseminating information on causation and prevention of AES/JE as well as for encouraging community for early referral of sick patients.
• Setting up of rehabilitation centres at state/district level for the patients affected from JE.
• Provision of vector control equipment like fogging machines.
• Increased coverage of routine immunisation in campaign districts throughout the country.
• Regular communications with State Programme Officer for improved actions towards prevention and control of Japanese Encephalitis.
• For strengthening the case management facility at BRD Medical College, Gorakhpur, Government of India released an amount of Rs.5.88 crores during 2009-10 for further strengthening the JE epidemic ward which was already constructed by the State Government and the funds provided by Government of India helped in providing additional manpower and the
important equipment for making the JE epidemic ward functional. The state Govt. will be requested to sustain this case management facility.

- Continuation of JE sub-office of Regional Office for Health & Family Welfare (ROH&FW) which is manned by Public Health Specialist (II) has been established in Gorakhpur in April, 2007 to coordinate with the state/districts regarding prevention & control measures.
- Continuation of Vector Borne Disease Surveillance Unit (VBDSU) with Professor of Preventive and Social Medicine as its head at BRD Medical College, Gorakhpur for carrying out sero-epidemiological and entomological studies in the field, and for maintaining a close coordination with the district authorities for taking timely preventive measures.
- Continuation of NIV field Unit at Gorakhpur that was established on 11/7/08 with a senior level officer from NIV, Pune as its in-charge for detection and isolation of non JE viruses because Gorakhpur is located in between the centre of 7 endemic districts which has been highly affected from AES/JE cases from recent past.

4.3.5 Research and Development

Research & development in vector borne diseases particularly on Japanese Encephalitis has been rather inadequate so far. There are major gaps in the present knowledge and available technology. Concerted efforts are required to be made for an effective Research and Development programme. Some of the critical areas related to JE control requiring operational research include:

1. Operational Research on various JE control interventions and their implementation such as use of neem coated urea in the rice field, use of insecticides treated Bed Nets/curtains.
2. Use of impregnated bednets at pig sites.
3. Vaccine coverage assessment.
5. Coordination with referral apex laboratories for identifying other etiological agents.
6. Differential diagnosis of other AES agents.
8. JE Vector bionomics for planning of intervention methods.- Bionomics of JE vectors including seasonal prevalence and estimation of vector density in indoor sites such as human dwelling/cattle sheds/mixed dwelling and outdoor situations such as bushes, plantations, standing crops, sugarcane fields in standard prescribed formats to be studied.
9. Study on the efficacy of JE vaccines in the vaccinated areas and overall evaluation of impact of vaccination by an independent agency.

It is desirable that above mentioned activities would be continued on a regular basis and specific funds be earmarked for sponsored research coordinated by the programme directly for addressing key issues related to operational research. Nodal officer of NVBDCP will coordinate these activities.

4.3.6 M & E system including status of MIS, disease surveillance, its quality and utilization

Monitoring would be done through periodic reviews and monthly/weekly/daily reports and field visits etc. Web based MIS is to be developed for proper monitoring for Japanese Encephalitis.
• Strengthening of JE surveillance as per the national guidelines to be issued by NVBDCP. Surveillance of AES needs to be adopted.
• Overall evaluation of impact of vaccination by an independent agency.

4.3.7 Sustainability

• If the funds proposed during XII five year plan are made available, all out efforts will be made to sustain and maintain progress of the programme implementation.

4.3.8 Overlapping/Duplication

• Overlapping/duplication will be avoided by taking all the necessary measures and with close coordination of the states.

4.3.9 Estimated Budget

Funding Pattern for Japanese Encephalitis Control

National Vector Borne Disease Control Programme will have following pattern of funding:

• Grant in Aid to be provided to the states for covering components under JE Control Programme.
• Cost sharing between Centre and States.
• One time non-recurring central assistance in terms of ELISA Reader, Ventilator, Fogging machines and other equipment etc.
• Drugs and Malathion technical (insecticides) to be provided by the centre during outbreak.
• Fund for diagnostic kits, training and IEC to be provided by the centre on regular basis.
• JE vaccination programme has been made an integral component of Universal Immunization Programme in a phased manner using single dose live attenuated SA-14-14-2 JE vaccine.
• Rehabilitation units funded by Central Government for the first 5 years may be established in Government Medical College / district and other hospitals.
• Incentivization of ASHAs for early referrals of suspected JE cases and for sensitizing community regarding Japanese Encephalitis.
• Establishment of ICU units in the endemic districts for better case management with central funds.
### Table 19, Proposed Budget of JE for XII five year Plan (Rs. in crores)

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4.4 ELIMINATION OF LYMPHATIC FILARIASIS

4.4.1 Key Lessons Learnt during 11th Plan

- The strategy of Annual Mass Drug Administration with single dose of DEC was revised to co-administration of single dose of DEC with Albendazole based on the recommendation of ICMR study. Massive efforts through social mobilization were made to improve the coverage of population during Mass Drug Administration which has resulted into overall coverage of more than 85%. However, there are variation in actual compliance and reported coverage though the actual compliance has also improved in comparison to that in 2004 & 2005.
- It has been observed that the reason for low drug compliance is mainly because the community living at the risk of Lymphatic filariasis is apparently healthy without any signs & symptoms. Secondly, one worker allotted to cover 250 persons has to devote a lot of time to convince people and therefore is not able to complete the target in one day. Thirdly, the honorarium of Rs. 50/- per day for drug distribution which is less and needs to be increased.
- About 8 lakhs Lymphoedema patients and about 4 lakhs hydrocele cases have been line-listed. In addition, there may be some more cases as people do not reveal these manifestations at early stages because of social stigma. The affected people need continuous persuasion for lymphoedema management at home and for surgical operations of hydrocele.
- Involvement of medical professionals from all sectors including private medical practitioners, elected representatives and civil society organizations in the programme need to be strengthened. The media sensitization at local level is of utmost importance which needs to be geared up through advocacy workshops and repeated meetings.
- A software on Filaria Management Information System was developed by VCRC (ICMR), Puducherry but there is a need to test it for data entry of few states and do necessary amendments, if required. Simultaneously, the HMIS of MOH&FW has also incorporated the minimum data required on Lymphatic filariasis. The major constraint is data entry into the system to make it functional and sustain its functionality.
- Timely availability of DEC and Albendazole tablets has always been the issue for the programme implementation. Since 2010-11, these drugs have been decentralized. It means the states will have to procure these drugs as per the assessed technical requirement for which cash grant will be made available by GoI. DEC will have to be procured by all the LF endemic States/UTs whereas Albendazole will have to be procured by few states whose requirement cannot be met out of WHO free supply which is limited to only 300 million tablets against the requirement of 600 million tablets.

4.4.2 Objectives, Targets and Indicators

During 12th plan period, the objective of Elimination of Lymphatic filariasis will be as below:

- To progressively reduce and ultimately interrupt the transmission of lymphatic filariasis.
- To augment the disability alleviation programme to reduce the sufferings of affected persons through appropriate home based morbidity management and hydrocelectomy.

Targets, Indicators and expected outcomes

Targets to achieve the above objectives, the targets will be:
To cover all eligible population living in all (presently 250) Lymphatic filariasis endemic districts during MDA.

To line list the cases of lymphoedema in all the districts and augment home based morbidity management and hydrocele operations in identified district hospitals/CHCs.

The indicators will be

- % of target population that actually consumed Drug.
- Microfilaria rate in sentinel and random sites of the districts.
- Number of LF endemic districts with microfilaria rate less than 1%.
- Number of Hydrocele operations conducted out of total enlisted.
- % of Lymphoedema cases practising Home based management.

The expected outcome of the above indicator would be

- Drug compliance of more than 80% among eligible population.
- All LF endemic districts achieving MF rate less than 1%.
- MDA will be stopped in 250 LF endemic districts and process of elimination certification will be initiated.
- More than 80% of line-listed hydrocele cases will be operated in 12\textsuperscript{th} FYP.
- More than 80% of line-listed lymphedema cases will adopt home based management of maintaining simple limb hygiene.

4.4.3 Means of Verification

The verification of the performance will be done through assessment of drug compliance, microfilaria survey, monitoring of side reaction due to DEC, if any.

- **Coverage and Compliance**: will be verified by independent assessment by involving medical colleges and research institutions through questionnaire. In rural areas, three clusters each having 30 households (about 150 inhabitants) and one cluster of 30 households in urban area in each district will be surveyed. Thus, a total of 120 households having about 600 inmates would be covered through interrogation including physical verification of tablets using a pre-designed and pre-tested Proforma.

- **Microfilaria Survey**: The minimum number of slides to be collected need to be ensured and selection of sentinel and spot-check sites will be done under the guidance of medical college faculty and District in-charge for prevention and control of vector borne diseases. The time of night blood survey i.e between 8.30 pm and 11.30 pm will be cross-checked by concurrent and consecutive visits. In the consecutive visits the community will be interrogated about the time of survey. All the microfilaria positive blood smears and 10% of the negative blood smears will be cross-checked by Regional offices and State Head quarter.

- **Side Reactions due to DEC**: DEC is known to cause mild side reactions such as headache, nausea, vomiting, dizziness etc. however these symptoms are self limiting and usually subside within few hours. The side reactions are usually seen in those people who harbour microfilariae. In case, these symptoms persist, they require medical attention or hospitalization which is very rare. However, such serious adverse experiences of DEC, if any, will be monitored and immediately attended by Mobile teams (Rapid Response Teams).

- **Validation for MDA stoppage**: As the target for elimination of Lymphatic filariasis is by the year 2015, the assessment of districts will be done as per WHO guidelines for MDA stoppage. These assessments will include additional round of microfilaria survey in atleast 10 additional sites in each LF endemic districts. In case of
confirmation of microfilaria prevalence less than 1%, the prevalence of new infection in children born after initiation of MDA (6 years age) will be assessed through Immunochromatographic test (ICT). MDA will be stopped in qualifying districts.

4.4.4 Strategy

The strategy for elimination of lymphatic filariasis will continue as below:

- Annual Mass Drug Administration (MDA) of single dose of DEC (Diethylcarbamazine citrate) and Albendazole for atleast 5-7 years (usual life span of adult worm) to the eligible population (except pregnant women, children below 2 years of age and seriously ill persons) to interrupt transmission of the disease.
- Home based management of lymphoedema cases and up-scaling of hydrocele operations in identified CHCs/ Distt. hospitals /medical colleges.
- Capacity building for home-based management of cases with Lymphedema.
- Strategy for MDA stoppage as per WHO guidelines will be undertaken.

4.4.5 Initiatives proposed

- Improvement in drug compliance during MDA by States is the issue for which intensive social mobilization has been emphasized.
- Morbidity management services (foot hygiene for lymphedema and operations for hydrocele cases) need to be intensified.
- Monitoring & Evaluation (assessment by involving medical colleges and research institutions) have been emphasised.
- Verification of microfilaria survey prevalence and antigaenamia test for MDA stoppage.
- Post MDA surveillance through microfilaria survey in the districts where MDA will be stopped have been included.
- Certification for elimination will be initiated as per WHO guidelines.

4.4.6 Priority

- Social Mobilization for improved drug compliance and morbidity management.
- Supporting mass drug administration and management of adverse reactions.
- Involvement of faculties from medical colleges, research institutions and Regional Directors (GoI) for monitoring and independent assessment
- Morbidity surveys and morbidity management for all patients individually and also at community level.
- Motivating people suffering from Hydrocele to go for surgical intervention.

4.4.7 Mechanism of Involvement of NGOs/PPP/community/local self government

The BCC campaign will be implemented through four-pronged activities: advocacy workshops, inter-sectoral meetings, programme communication and monitoring and evaluation at all levels (national/state/district/urban areas/blocks/sub-centres/villages) with the objectives of:

- Enhancing awareness on lymphatic filariasis and its elimination aspects,
- Promoting attitudinal and value changes among target audiences leading to informed decisions, modified behaviour, desirable practices regarding drug consumption and home based morbidity management,
• Building support for the programme across inter-sectoral partner organizations, influential sectors of society and health care service providers (public/private) and eliciting commitment for action,
• Stimulating increased and sustained demand for quality prevention and care services,
• Ensuring availability of services

Non-Governmental Organizations (NGOs), Community Based Organisations (CBOs), Faith Based Organisations (FBOs) can play an important role in LF elimination. Therefore, these will be involved in the programme by building their capacity on various aspects of ELF programme eg. local monitoring of distribution of drug, mopping up operations for improvement in coverage and compliance. This would be achieved through their participation in intensive social mobilization and BCC campaign.

4.4.8 Modalities to improve efficiency and quality of services at primary, secondary and territory levels

Intensive supervision, capacity building during process of programme implementation through involvement of research institutions and medical colleges will be initiated at state, district and PHC level. Besides, local leaders and NGOs will be involved.

4.4.9 Monitoring and Evaluation

Monitoring & Evaluation of ELF programme covers process monitoring viz., assessment of timely implementation of activities as per calendar, assessment of coverage of drug distribution during MDA and compliance of drug (actual drug consumption) for enhancing the drug compliance, impact assessment through night blood survey for prevalence of microfilaria among community followed by assessment of prevalence of new infection in children and assessment of activities for Behaviour Change Communication.

- Formats for Data Capture: Planning and implementation of any disease control programme depend on information support. Information is derived from data and hence the quality of information depends on how the data are collected and the nature of the “instrument” employed in the collection procedure. Therefore, formats for data capturing have been circulated to the filaria endemic states/UTs so as to collect the data in a uniform pattern. The HMIS programme for Lymphatic Filariasis is integrated under NVBDCP and ultimately in MOH&FW HMIS. With the operationalization of HMIS, the reports on ELF activities will be received at the Directorate without much lapse of time.

- Compliance: The issues of coverage of distribution and consumption are ideally recorded as primary data at the time of drug administration, in which case, sampling design is not required. Since consolidation of compliance data based on drug providers’ records may not be authentic, a sample survey is carried out subsequently by involving medical college faculties/research institutions/ Regional Director’s offices (GoI) to assess and validate the data. These surveys also include components relating to compliance, adverse reactions if any, and efficacy of IEC tools employed. Questionnaire surveys are carried out within a limited period of time from the date of MDA considering the memory of individual respondents, which will influence the quality of data. The sampling units are individuals who are interviewed from selected households in the identified villages in rural areas and similar households from selected wards in towns and municipal areas.

- Impact evaluation: This evaluation is based on the parasitological surveys in human population before and after the intervention covering certain proportion of population
in selected villages / wards. Distribution of filariasis is known to be clustered and therefore selection of villages for impact assessment is done by taking representative samples from different clusters (such as low, medium and high) within a given district. Eight sites (fixed and random) are selected for each district and a minimum of 4000 persons (500 per site) are examined for microfilaria. The detailed guidelines have been provided to states/UTs.

4.4.10 Validation

- The districts reporting microfilaria less than 1% in sentinel and Random sites will be subjected to validation by conducting Microfilaria survey in additional 10 sites and after ensuring microfilaria rate <1%, the prevalence of current infection in children of 6 years ago will be assessed through ICT as per WHO guidelines. MDA will be stopped in those districts where observance of prevalence of current infection (i.e. the for circulating antigenemia) is evidenced.
- The districts where MDA will be stopped will be kept under post MDA surveillance for 5 years. During post MDA surveillance only microfilaria survey and antigenemia survey will be conducted as per WHO guidelines.
- Based on trend and success achieved in reducing microfilaria rate, it is expected that by 2014-15, 250 Lymphatic Filariasis endemic districts will be subjected for MDA stoppage and verification for elimination.
- The WHO revised guidelines 2010 will be circulated to all states/districts, research institutions, medical colleges, Regional offices (GoI) etc., involved in assessment and implementation.

4.4.11 Sustainability

In order to achieve the National Health Policy goal of ELF by the year 2015, adequate funds/resources need to be provided to endemic states/UTs to sustain the ELF programme. As a policy, the budget head for ELF is to be marked separately like Malaria, Kala-azar and Externally Assisted Component. The availability of allocated funds at state, district and PHC level need to be ensured as often the release of funds are dependent on availability of total balance funds under NVBDCP programme which, however, are earmarked for different activities like decentralized commodities, salary of contractual MPWs, ASHA’s incentives for malaria etc.

4.4.12 Overlapping/Duplication within or across Health Programmes; convergence issues

The programme is already integrated under umbrella of NVBDCP. The strategy of ELF includes partnership with other National Health Programmes, non-health sector departments, civil society organizations (Non-Governmental Organizations/Faith Based Organizations/ Community Based Organizations/ Panchayati Raj Institutions/Self-Help Groups), corporate sector, medical academia, professional bodies. Since, its strategy and monitoring and evaluation are different, there may not be any chance of overlapping or duplication in the field of either implementation or data capture.
4.4.13 Estimated budget (Activity and year wise)

The budget proposed has been worked out separately for various activities related to annual mass drug administration, its assessment, validation, post MDA surveillance and for disability alleviation including lymphoedema management and hydrocele operations. The details are indicated below with the year-wise and activity-wise budget break up is shown in Table 20.

- **Preparatory activities** for mass drug administration includes various sensitization meetings, trainings of various categories, intensive IEC/BCC activities, monitoring and evaluation including mobility support for field supervision and movement of rapid response team. The budget for various sensitization meetings at national, state and district level has been provisioned @ Rs.3.95 crores per year amounting to total requirement of Rs.19.75 crore for 12th FYP.

- **IEC/BCC activities** are the most crucial in improving the acceptance of the drug during MDA as most of the people apparently look healthy even if they are infected. The fund of Rs.10 lakh per district per year has been provisioned with 10% of it to be allocated for the state level activities. This amounts to be Rs.27.50 crore per annum (Rs.137.50 crores for 12th FYP). This is about 19% of total ELF budget proposed during the plan period.

- **Capacity Building** – Specific orientation and training are required for medical, paramedics, Lab.Technician for microfilaria survey and drug distributors at various levels. Accordingly the funds have been provisioned at state, district and PHC levels. The required funds per annum will be Rs. 27 crore and total for 12th FYP will be Rs. 135 crore.

- **Lymphoedema management** – The persons showing manifestations of different grades are required to maintain hygiene for which they need to be demonstrated the simple foot hygiene method. Rs. 150/- per patient per year has been provisioned which will include one morbidity management kit comprising of one mug or small bucket, one soap, small towel and anti-bacterial or anti-fungal cream. Budget has been provisioned @ Rs.11.80 crores per year amounting to total requirement of Rs.59 crore for 12th FYP.

- **Hydrocele operations** – The listed hydrocele cases are to be motivated for surgical operation for which Rs. 1250/ per person (incentive of Rs.500 to surgeon, Rs.100 to staff nurse, Rs.50 to  ward-boy, Rs.50 to attendant, Rs.400 for medicines etc. and Rs.150 towards transport charges to patient) have been provisioned. In 5 year plan period, all hydrocele have been targeted @ 20% operation per year. Budget has been provisioned @ Rs.9.80 crores per year amounting to total requirement of Rs.49 crore for 12th FYP.

- **Impact of MDA on Microfilaria prevalence** - To analyse the impact of annual Mass Drug Administration towards interruption of transmission, the prevalence of microfilaria in sampled population as per guidelines is assessed through night blood survey in 8 sites of every MDA covered district as an inbuilt mechanism of monitoring the performance. This activity is most crucial and is being done since 2004 and will be continued till the MDA is stopped. The funds earmarked for this activity is Rs.6.5 crore for 12th FYP.

- **Honorarium rates** – The drug distributors including ASHAs involved during Mass Drug Administration are to cover 250 persons or 50 houses during MDA on single day with mopping up for 2 subsequent days. The rate of honorarium per day is Rs.100 per person. This works out to be Rs.48 crore in first year, Rs. 27 crore in second year, Rs.16 crore in third crore, Rs.14 crore in fourth year and Rs.13 crore in fifth year (Total Rs.118 Crore). The MDA is expected to be stopped in phased manner on yearly basis, therefore the funds provisioned for honorarium has also been reduced. In addition to these volunteers, the honorarium for supervisory staff (1 per 10 drug distributors) has also been provisioned at the
rate of Rs. 4.82 crore per annum which works out to be Rs. 24.10 crore for plan period.

- **Contingency** – to meet the contingent expenditure at different level, it is proposed to provide Rs.2 lakhs per district for 250 LF endemic districts which amounts to be Rs. 5 crore per annum (total Rs.25 crores for 12th FYP).

- **Mobility** – the fund for mobility support is being provided at the rate of Rs.80,000 per district to facilitate the movement of local officials, transportation of drugs, movement of rapid response team in case of emergent situation and monitoring and supervision of the programme during the Mass Drug Administration. 10% of the total amount allocated in this Head is earmarked for state headquarter to facilitate their movement to the districts for supervision during MDA. Budget has been provisioned @ Rs.2.20 crores per year amounting to total requirement of Rs.11 crore for 12th FYP.

- **Independent assessment** through experts from ICMR, ROHFW, Medical Colleges on coverage and compliance - To carry out these activities by Research institutions/ medical colleges/ Regional offices, funds have been provisioned @ Rs. 15000/- per district (TA for 2 persons @ Rs. 2000 each; Honorarium for 2 persons @ Rs. 1000/- per person per day for 4 days); contingency Rs. 1000/- and POL Rs. 2000/-). Budget has been provisioned @ Rs.9 crores per year amounting to total requirement of Rs.45 crore from 12th FYP. Rs. 45000 per districts is kept for outside experts from Research Institute and Rs.3 lakhs for undertaking training, sensitization of PHC Medical Officers of districts and compilation of report etc.

- **Verification and validation for stoppage of MDA in LF endemic districts by conducting mf survey/ICT survey through experts from ICMR, ROHFW, Medical Colleges and University** –
  
  - This activity is very crucial to verify and validate the data on prevalence of microfilaria. The additional mf survey through night blood survey in 10 sites of identified districts will be done and Rs. 70000/- per district has been provisioned to meet the travel cost of 3-4 local technicians/ assistants/health workers, their honorarium, cost of 5000 slides, pricking needles, cotton spirit etc. and honorarium for examination of 5000 slides. Budget has been provisioned in a phased manner amounting to total requirement of Rs.1.93 crore for XII FYP.
  
  - Further, districts are to be screened through ICT for presence of circulating antigenemia in children (presence of adult worm as evidence of current infection) to initiate MDA stoppage. For this activity, funds have been provisioned @ Rs. 1.5 Lakhs per district in a phased manner which amounts to a total of Rs. 4.57 crore for XII FYP.
  
  - The cost of ICT Cards have also been considered to be procured through WHO for the above mentioned activity which works out to be Rs.11.49 crore.

The total budget worked out for the verification and validation for stoppage of MDA is Rs.17.99 crore for 12th FYP.

- **Verification of LF endemicity in non-endemic districts** - As during 12th Plan period, the WHO will be requested for initiating process of certification of elimination, the districts reported to be non-endemic for Lymphatic Filariasis (other than 250 districts covered under MDA) will have to be surveyed for infection of Lymphatic Filariasis through microfilaria and antigenemia survey by involving ICMR, NCDC, ROH&FW and states. Such activity has been strongly recommended by experts of sub-group and accordingly budget has been provisioned.
Out of 640 districts, 250 districts are known LF endemic which are covered under MDA; 65 districts have already been surveyed and found to be very low endemic/ non-endemic. Remaining 325 districts will be surveyed first for presence of Lymphoedema & Hydrocele cases in the villages by involving ASHAs or health workers. Rs.100 has been provisioned per worker as incentive to enlist the persons having Lymphoedema or hydrocele manifestation in their village and send it to PHC. The fund provisioned for this activity is Rs.4.5 crore. This activity is to be completed within 3 years.

Though these districts are reportedly non-endemic but the presence of Lymphoedema & Hydrocele cases will necessitate the survey for prevalence of microfilaria through night blood survey for which Rs.195 crores has been provisioned. This activity is expected to be completed within 3-4 years.

The presence of infection in children is the indicator of current infection for which the test through ICT cards is to be done for which provision of Rs.9.8 crore at the rate of Rs.1.96 crore per year has been kept.

- **Post MDA Surveillance** - The districts covered under MDA will be subjected to the process validation and verification and MDA will be stopped in the districts fulfilling the criteria for MDA stoppage as per WHO guidelines. Such districts are to be kept under Post-MDA surveillance as per WHO guidelines through night blood survey for microfilaria and for presence of adult worm in children through ICT to ensure that no new cases occur so that process of certification of elimination is initiated. Funds of Rs.6.75 crore have also been provisioned for the activity.

- **DEC & Albendazole** - DEC and Albendazole requirement is expected be reduced in subsequent years as the districts march towards MDA stoppage. Albendazole is supplied partially by WHO. Based on present trend of Mf rate, it is expected that after 2 years, the requirement of Albendazole can be managed out of WHO supply. The funds have been provisioned accordingly. The total fund of Rs. 76.40 crore for DEC and Albendazole has been reflected during 12th FYP.
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<td>1.96</td>
<td>1.96</td>
<td>1.96</td>
<td>1.96</td>
<td>1.96</td>
<td>9.80</td>
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<td>13.</td>
<td>Post-MDA surveillance</td>
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</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>255.15</strong></td>
<td><strong>231.07</strong></td>
<td><strong>203.60</strong></td>
<td><strong>125.33</strong></td>
<td><strong>125.14</strong></td>
<td><strong>940.29</strong></td>
</tr>
</tbody>
</table>

**Table 21, Abstract of Budget proposed for Elimination of Lymphatic Filariasis (Rs. in crores)**

<table>
<thead>
<tr>
<th></th>
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<td>Drug</td>
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<td>39.10</td>
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<td>Honorarium for Drug Distribution</td>
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<td>18.82</td>
<td>17.82</td>
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<tr>
<td>Verification &amp; validation for MDA stoppage</td>
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<td>Survey of LF endemicity and verification in non endemic district</td>
<td>63.46</td>
<td>68.46</td>
<td>73.46</td>
<td>1.96</td>
<td>1.96</td>
<td>209.30</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>231.07</strong></td>
<td><strong>203.60</strong></td>
<td><strong>125.33</strong></td>
<td><strong>125.14</strong></td>
<td><strong>940.29</strong></td>
</tr>
</tbody>
</table>
4.5 KALA-AZAR ELIMINATION PROGRAMME

4.5.1 Key Lessons learnt during the 11th Five Year Plan

- Inadequate ownership and commitment by the states.
- Poor programme implementation at grassroot level.
- Ongoing efforts are not sustained and the kala-azar incidence is showing increasing trend.
- Poor quality and coverage of indoor insecticidal spray for vector control.
- Due to prolonged injection based treatment, some of the cases do not complete the full treatment.
- Absence of tracking mechanism to follow up defaulter patients.
- There remained some untraced or untreated cases which act as parasitic reservoir.
- Presence of Post Kala-azar Dermal Leishmaniasis (PKDL) cases which also act as active source of Kala-azar transmission.
- Inadequate monitoring & supervision.

4.5.2 Objectives

- To Achieve Elimination of Kala-azar from the country by 2015

Target

- To reduce the annual incidence of Kala-azar to less than one per 10,000 population at the block level by 2015.

Indicators

- No. of Kala-azar cases per 10,000 population at block level
- Kala Azar case fatality rate
- Treatment compliance rate

4.5.3 Strategy

- Parasite elimination and disease management
  - Early case detection and complete treatment.
  - strengthening of referral.

- Integrated vector control
  - Indoor Residual Spraying (IRS),
  - environmental management by maintenance of sanitation and hygiene,

- Supportive interventions
  - Behaviour Change Communication for social mobilization,
  - Inter-sectoral convergence,
  - Capacity building by training and Monitoring and Evaluation.

Initiatives

The following initiatives would be undertaken :

Surveillance and Case Management

- Strengthen case search for hot spots : Case search on quarterly basis shall be undertaken in all the sub-centres covering the hot spots.
- Upscaling of RDT & Oral drug for early detection and complete treatment : To improve treatment compliance, a new oral drug Miltefosine would be expanded to all the kala-azar endemic districts as the first line of treatment.
Mechanism for Directly Observed Treatment: The treatment with Miltefosine would be taken up on the DOTS pattern as a supervised treatment with patient coding system being followed for each patient registered at the treatment centre.

ASHA would be trained and fully involved to ensure complete treatment compliance.

The provision for the incentive to ASHA has been increased from Rs. 100/- to Rs. 200/- (Rs. 50/- to refer a suspected case to the nearest PHC and Rs. 150/- for ensuring the complete treatment)

Patient coding scheme will facilitate the tracking of all patients of kala-azar down to the village and individual household level with greatly improved default retrieval.

The use of Treatment Cards and Master Kala-azar Patient Register will be ensured for proper line listing of all cases and for proper follow up visits.

To allow a rapid and easy diagnosis of Kala-azar, rK39 rapid diagnostic test kits for use at the grassroots level.

The use of Miltefosine and rapid diagnostic test kits are expected to greatly improve case detection particularly the passive case detection. However, initiatives will be taken to improve active case detection by increasing the frequency of door to door visit by observing the Kala-azar fortnight every quarter i.e four times in a year and also through camp approach. Volunteers would be drawn from organizations like Nehru Yuva Kendra, NCC etc. to intensify the case searches including the PKDL cases. These volunteers would be provided necessary orientation.

Monitoring of diagnosis and treatment will be accelerated by frequent visits by programme personnel as well as by proposed coordinators.

Training & IEC/BCC.

Monitoring & Supervision.

Vector Management

Indoor residual spraying (IRS) for interruption of transmission will be taken up in all the 52 endemic districts of the country to ensure good quality spray and coverage above 80%.

Monitoring of the process and impact of indoor residual spraying would be improved through independent studies on the effect of spraying on vector populations and susceptibility studies.

Environment sanitation will be given considerable importance in a BCC campaign to eliminate the breeding sites of the vector species.

Initiatives are underway for the provision of alternative housing sites to the poor and marginalized population in the Kala-azar villages, who are the most common victims of disease, under the Indira Vikas Yojna.

Necessary modules will also be developed for capacity building at various levels to strengthen skills for programme implementation.

4.5.4 Mechanisms of involvement of NGO/Private sector/community/local self government in implementation and monitoring programme

Networking with NGOs and Private Sector will be taken up more thoroughly during the plan period.

Reporting formats will be communicated to all the major private practitioners and NGOs who are treating Kala-azar cases.

Linkages will also be established with all the NGOs and Faith Based Organisations.

The media plans and media kits will be developed for vigorous BCC campaigns to involve community in treatment and vector control.

4.5.5 Priority areas for basic, clinical, applied and operational research

The following areas are priority areas for applied and operational research.
Pharmaco-vigilance on the use of Miltefosine as the first line of treatment.
- The operational use of RDK for kala-azar and its quality assurance.
- The use of alternative methods of rapid diagnosis.
- The operational research on the treatment of PKDL.
- The development of guidelines on the treatment of PKDL.
- Intensive studies on vector bionomics and the impact of insecticide spraying and susceptibility of Kala-azar vectors.

4.5.6 Modalities to improve efficiency & quality of services

Effective strategy implementation

- Strengthened passive surveillance
- Intensification of Active case detection in hot spots.
- Declaring Kala-azar a notifiable disease
- Standard treatment protocol compliance and follow up through treatment cards and DOTs
- Effective DDT spray under close supervision
- Effective IEC campaign for community mobilization
- Efficient manpower development through trainings
- Networking with other health care service providers in public/private sector
- Linkages with other national health programmes like NLEP/NACP/RNTCP etc. for case search & IEC.
- In addition to the above, the coordinator will be engaged at the rate of one coordinator per district for all the 52 Kala-azar endemic districts on contractual basis.
- This provision has been made for mobility support of these district coordinators for supervision and monitoring of the programme.

4.5.7 M & E system including status of MIS, Disease surveillance, its quality & utilization

- Data on number of cases & deaths to be received timely.
- State/districts asked to provide age & gender wise information up to sub-centre wise.
- For line listing of kala-azar cases, new coding scheme is being introduced to avoid duplication and overlapping.
- Proper monitoring & analysis of data at sub-centre/PHC/district level envisaged.
- Ensure regular monitoring & reporting of spray completion reports.

4.5.8 Programme Sustainability depends upon

- Priority to the Kala-azar problem at all levels of programme implementation.
- Strengthening of infrastructure.
- Required funds in place in time.
- Availability of drugs, insecticides, equipment, vehicles, etc.
- Ensure timely and effective spray coverage.
- Regular monitoring and evaluation.

2.5.9 Overlapping/duplication within or across health programme; convergence issues

- Presence of different institutes for same cause i.e. ICMR, NCDC, Medical College, RD office.
- There is no coordination among these on their functioning on kala-azar implementation.
- Functioning of state heath directorate and state health society (NHRM).
- Functioning of MPHW, ANM, ASHA & Anganwadi Worker, NGOs.
- Functioning of private & public practitioners.
### Table 22, Estimated Budgetary Outlay for Kala-azar for 12th Five Year Plan

(Rs. in crores)

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<td>IRS DDT</td>
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<td>64.50</td>
<td>64.50</td>
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<td>Case search / Camp Approach</td>
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<td>Spray pumps &amp; accessories</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>149.07</strong></td>
<td><strong>144.74</strong></td>
<td><strong>133.77</strong></td>
<td><strong>128.71</strong></td>
<td><strong>700.66</strong></td>
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5. Cross cutting Issues (inclusive of special focus and additional inputs during 12th Plan)

In view of lessons learnt during 11th Five Year Plan and challenges encountered, it has been felt that special focus has to be given to some of the vital components and additional inputs for supporting engagement of key technical manpower need to be provided for effective implementation, supervision, improving monitoring and evaluation and reporting. Further, it has also been observed that due to inadequate /non- availability of funds for procurement of decentralized insecticides and operational cost for IRS, the coverage of IRS which is a key vector control measure, has not been achieved at the desired level. This necessitates that during 12th Plan period, this component should be fully supported by the Central Government. The component wise details are as follows:

5.1 Human resource

ASHAs

- ASHAs are important for implementation of national programmes at field level. This is especially true for NVBDCP where in the field surveillance is an important component of Early detection and complete treatment (EDCT). Presently ASHAs are involved in the diagnosis and treatment of malaria cases and bringing the Kala Azar cases to the health facilities. ASHAs perform rapid diagnostics test, prepare slides and give treatment to malaria positive cases. ASHAs are given incentive for each of these activities like Rs. 5 per RDT and slide preparation, Rs. 20 per complete treatment for Pf cases and Rs. 50 for radical treatment of Pv malaria. Presently, NVBDCP is giving such incentive to ASHAs in 257 identified high risk districts which mainly comprise of the World Bank and Global Fund supported project areas. The programme proposes in the 12th plan to extend the incentive to all ASHA in all the districts for catering services for all the six VBDs depending upon their endemicity in the area served by the ASHAs. More than 6 lakh existing ASHAs will be involved throughout the country. The programme has earmarked Rs. 250 per ASHA per month with an overall ceiling of Rs. 3000 annually for this. It is expected that this incentive will greatly help in increased surveillance of all the six VBDs under the programme for taking timely corrective actions.

MPW (M)

- As against the requirement of 145894 MPWs (as per NRHM data 2009 RHS) are 79774 and in place are 57439. Thus there is a vacancy of 26208 MPWs. But considering the total requirement as per the population norms, there is an actual shortfall of 88483 MPWs. Recently, the union government has proposed to revitalize MPW training centers in the states, so as to make available adequate number of MPWs for the field work. NRHM may initiate steps to recruit and train such numbers in the 12th plan period. MPWs are essential for NVBDCP as they are the health workers (besides ASHA) who are responsible for field surveillance and constitute an integral part of EDCT. Success of the programme depends heavily on them. Effective field workforce will greatly help the programme in achieving the desired outcomes. NVBDCP has recruited 9956 MPWs contractual in the XIth Plan period in the high endemic states supported by World Bank and Global Fund and proposes to continue with these contractual MPWs till regular appointees join the programme or the existing contractual workers are absorbed in the health services of the respective states.

Laboratory Technicians
• There are presently 12904 LTs in place as against the sanctioned strength of 17219 leaving a vacancy of 5591 (NRHM data 2009, RHS). However NRHM has calculated the LT requirement as 27901, based on the provision for one LT each for PHC/CHC taking into account the shortfall in existing PHCs/CHCs. Therefore, the actual shortfall is of 15244 LTs (@ one LT for a population of 40,000). Out of this shortfall, nearly 20% has been filled by contractual LTs recruited under RNTCP, NACP III etc.; thus having a present vacancy of nearly 12,195 LTs. As microscopy is still gold standard for malaria diagnosis and crucial for EDCT, the programme proposes to recruit these 12,000 LTs with a provision for binocular microscope for quality diagnosis and treatment.

VBD Technical Supervisors (Like MTS/KTS)

• NVBDCP has started an innovation for effective monitoring and evaluation of the malaria and Kala-azar in the form of Malaria and KA technical supervisors in the high endemic areas in the project states. This has paid rich dividends as these TSs have proved very effective for supervision and M&E of programme implementation, and management of logistics and drug supply as well as tracking of cases at block /field level. Encouraged by the outcomes, NVBDCP plans to expand this and proposes to recruit one Vector Borne diseases Technical Supervisor in all the blocks of the country (one for each block) for looking after the VB disease(s) in their area.

District VBD Consultants

• Like the MTS/KTS in the high endemic blocks, NVBDCP has recruited District VBD Consultants in the high endemic districts of the WB/GF project states. This has improved M&E and the programme implementation aspects. Therefore, NVBDCP has planned to expand the DVBDC network to all the 640 districts in the country (one for each district). They will be assisting the District Programme Officers who, at times, are over burdened with various other duties and are not able to devote adequate time to VBDs. They will be provided with support for mobility and operational expenses. In addition, it is planned that each district will have one Data Entry Operator to facilitate the recording and reporting under the programme.

State Level Consultants

• In order to strengthen M&E activities and supervision of implementation aspect of the programme at the state level, additional support is required in the form of contractual consultants for various functional areas and they will be qualified experts in their field. They will be provided mobility and operational support. Like the District VBDC, they will assist the state programme officers at the state level. Each state will have one M&E consultant (Medical graduates with Public Health qualification), one VBD consultant (preferably entomologist) and one Finance and logistics consultant. The project states already have such consultants working and the plan is to further extend them at each State. In addition to this, one Data entry operator shall also be provided at each state HQ to facilitate the recording and reporting under the programme.
Strengthening of ROHFW

- At present, there are 19 Regional offices (RDs office) in the country, many of which are facing acute shortage of skilled manpower. RD offices perform the function of monitoring the programme and act as liaison between the Directorate and State Programme Offices besides training and other activities. NVBDCP is of the opinion that RD offices need strengthening and accordingly, it is proposed to have one entomologist and one epidemiologist (with medical background) at each of these regional offices with mobility and operational support.

Strengthening of Zonal Entomology Units

- During the 12th five Plan, the NVBDCP proposes to revive and reactivate the 72 zonal entomological units currently spread all over the country with an adequate budget provision. It is proposed that support for filling up 37 vacant posts of entomologist and 65 vacant posts of insect collectors will be provided by the Central Government Assistance will also be provided for mobility, equipments etc., so that adequate data on various entomological aspects are generated on a regular basis. Provision of training of newly recruited entomologists will be made. It is projected that Rs. 93.3 crore will be required for this component during 12th Five Year Plan.

5.2 Capacity building

Capacity building is an ongoing activity undertaken by NVBDCP regularly to build the technical and managerial capacity to improve overall programme implementation.

For cascading on training Medical Colleges will be involved through NIHFW for preparing of training resource pool up to district level. This resource pool will be shared with NRHM, so that during imparting of integrated training, appropriate faculties for VBD can be drawn from this resource pool.

During 12th Plan large numbers of technical manpower are to be engaged, therefore, adequate budget provision for training and reorientation of these manpower has been kept.

The categories of manpower to be trained are Community volunteers (ASHAs, AWW, FBOs, NGO, CBOs), MPWs (Male and Female), Lab technician, MO (PHC), Physicians, Dist. VBD Consultants, VBD technical supervisors, etc. Special training programmes i.e. malarialogy and entomology trainings will also be conducted for State Programme Officers and District Programme Officers.

5.3 BCC and Social Mobilization

- IEC/ BCC is one of the core activities of the programme. The support for these activities has been provided through Domestic Budget Support (DBS) as well as from EAC. For effective development of IEC and BCC tools and implementation activities agencies have been hired under WB supported project which mainly focus in the project areas. Under GF supported project, the IEC/BCC activities are being carried out with the partner Civil Society/ NGOs. Under the WB project there is no cash provision to the States which hampers execution of IEC activities at grassroot level. Under DBS, a meager amount is provisioned for IEC/BCC. Under the WB project, a greater chunk of IEC budget is allocated to the agencies for execution of task.
- There is no IEC/BCC support unit at the Directorate for taking up these important tasks. Under the 12th Plan, the programme proposes to establish an
IEC/BCC division with communication experts and support media staff. This has been reflected under restructuring of NVBDCP.

- Adequate funds have been provisioned for the states to carry out approved and on-going IEC/BCC activities under the programme.

### 5.4 Public Private Partnerships (PPP)

- For promoting partnerships with private sectors, NGOs, FBOs, CBOs and local self Governments, the NVBDCP has developed six schemes on PPP during the 11th Plan period. These schemes have been reviewed, revised and already hosted at the website of NVBDCP. However, a separate budget has not been provisioned in 11th Plan period due to cut in budget of NVBDCP at the time for final allocation. Therefore, the states have not been able to get the fund for implementation of these schemes.

- During 12th Plan period, a separate budget is proposed for its implementation to facilitate building partnerships.

- Establishing IEC/BCC Cell at Dte. NVBDCP with regular communication expert supported with media assistants.

- Development of strategy specific prototype materials and Healthy Public Policy through hiring an agency.

- IEC/BCC activities through print and electronic media at national, state and regional levels.

- Strengthening of IEC/BCC activities at grass root level through inter-personal communication, folk media etc. for social mobilization towards acceptability of services provided under programme.

- Special campaigns during spray, distribution of LLINs and anti-malaria month.

- Strengthening of service delivery through vulnerable community plan for marginalized sectors

### Public Private Partnership (PPP) & Inter-sectoral convergence

- Improving outreach services through partnership with Non-Governmental Organizations (NGOs), Faith Based Organizations (FBOs), Community Based Organizations (CBOs) and Local self-government (Panchayat).

- Implementation of existing 6 PPP Schemes of NVBDCP by earmarking separate budget.

- Flagging the issue of Inter-sectoral convergence through Planning Commission to various Ministries/agencies like Agriculture, Urban Development, Education, Information and broadcasting, Tribal and Social welfare, Railway, Surface transport, civil aviation, Port Health Authorities and Textiles etc to ensure support and incorporation of Health Impact Assessment component in the projects under respective ministries.

- State level Annual Inter-sectoral meeting and districts level quarterly meeting for sensitization.

### 5.5 Monitoring & Evaluation

#### Monitoring and Evaluation for Prevention and control of VBDs

A robust programme management and monitoring system will be implemented to monitor progress towards targets and objectives and provide continuous feedback to strengthen and improve delivery mechanisms at all level. To strengthen the monitoring and evaluation function for prevention and control of vector borne diseases, the
NVBDCP will continue and adopt the following strategic activities under the programme:

- Existing NAMMIS will be made fully functional by replacing all old computers, providing internet facility and positioning of data managers at District level.
- Further, a comprehensive web-based reporting system will be developed inclusive of all VBDs by up-grading NAMMIS to **NAMMIS Plus**.
- Monitoring of drug and insecticide resistance by involving NIMR, ICMR, ROHFW and Medical Colleges.
- Establishing Sentinel Surveillance Sites (SSS) at the districts and prominent hospitals to monitor the trends of disease morbidity and mortality.
- Periodic review and programme /project evaluation at various levels with appropriate periodic intervals and taking necessary corrective actions based on the review.
- Supervisory field visits by officers from NVBDCP, ROH&FW, State level officers and consultants hired under the programme /projects to supervise the implementation of programme /project activities at the field level.
- Improving the reporting system with the use of computer/laptop /palmtop and communication systems like data-card, internet, mobile, telephone etc.
- Making available monitoring consultants at national, State and district levels, VBD Technical supervisors at block level and data entry staff at various levels for ensuring timely recording and reporting system and improving the monitoring and supervision at various levels.
- Training of the staff for correct use of recording and reporting formats.
- Use of Lot Quality Assurance Sampling (LQAS) methodology at sub-district level for monitoring the implementation of programme and project activities.
- Periodic evaluation of the programme and project activities as defined, by hiring external agencies for doing external evaluation.
- Internal evaluation will be done by periodic review meetings held at State and national level.
- Hiring of independent agency for monitoring the logistic and supply chain management.
- Hiring of independent agency at national level for monitoring and supervision activities.

### 5.6 Logistics and supply

Large numbers of commodities i.e. anti-malarial drugs & other drugs for vector borne diseases, insecticides, larvicides, rapid diagnostic kits for Malaria and Kala Azar, long lasting Insecticide treated nets (LLINs) are being procured through agencies engaged EPW of MOHFW. However, there is no regular procurement specialist in the Directorate. At present procurement consultants hired under EAC are assisting. In view of intense and timely procurement and its supply up to the grassroot level user facilities for managing seasonal diseases is a challenge. Some of the diagnostics and drugs are having short expiry and their monitoring becomes extremely important through a mechanism of supply chain monitoring. At present a supply chain monitoring agency has been hired under WB supported project. This component has to be sustained through domestic budget.

The quality control of all commodities during pre and post supply are to be ensured to ascertain good quality of commodities.

During 12th FYP, the existing norms of commodity support will continue. The centralized and decentralized items are mentioned below:
• **Centralized procurement under NVBDCP:** ACT Combi Pack (Tab. Artesunate + Tab. Sulphadoxine Pyremethamine) (for different age group), Injections Arteether 150 mg, Rapid Diagnostic Test Kits for Malaria and Kala-Azar, Synthetic Pyrethroid (wp) for project areas, Long Lasting Insecticidal Bednets (LLIN), DDT for Malaria and Capsule Miltefosine.

• **Decentralized Procurement:** GoI is providing cash assistance in the form of Grant-in-aid for procurement of Tabs. Chloroquine, Primaquine, Quinine, DEC, Albendazole, Inj. Quinine, NS-1 Antigen kit for Dengue, larvicide (Temephos).

• **Decentralized items:** The items like malathion 25%, Synthetic Pyrethroid (wp), larvicide other than temephos, lab reagents, etc. are decentralized items to be procured by the State funds.

Due to lack of procurement capacity, many states could not take up the procurement process for the items under decentralized procurement and cash assistance has not been utilized. During XII plan the states will be urged to enhance their procurement capacity.

Under the 12th Five Year Plan, the NVBDCP proposes to continue the existing procurement policies. The inputs currently supported from the externally aided projects (WB and GF), will be supported from the domestic budget after the end of the projects for sustaining the gains and achievements beyond the project periods.
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<td>219.33</td>
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<td>87.39</td>
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<td>0.40</td>
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<tr>
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<td><strong>Sub Total</strong></td>
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<td>88.25</td>
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<td>20.00</td>
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<td>20.00</td>
<td>20.00</td>
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<td>Consultancy</td>
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<td>20.00</td>
<td>100.00</td>
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<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>100.00</td>
</tr>
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<td></td>
<td><strong>Grand Total(A+B+C)</strong></td>
<td>756.75</td>
<td>730.08</td>
<td>837.72</td>
<td>872.49</td>
<td>918.33</td>
<td>4,115.38</td>
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</tbody>
</table>
6. Restructuring Directorate of NVBDCP

The Directorate is the nodal agency for making policy, programme evaluation and technical advice on the vector borne diseases. Accordingly, it requires adequate manpower for effective functioning. The structure of Directorate of NVBDCP was conceived with the focus on malaria only. However, over the years, five more VBDs have been added without adequate support in terms of human resource. Out of these six diseases, four diseases are outbreak prone and warrant intensive regular monitoring and immediate technical support to the states for containment of outbreaks. Remaining two diseases are targeted for elimination which requires intense monitoring and evaluation. Over the years, the budget for the NVBDCP has been enhanced and large number of commodities and services are to be provided. Due to the increased programme activities and large volume of financial and procurement matters, the legal issues are also to be dealt. The volume of work towards monitoring and evaluation at Directorate NVBDCP has increased to a great extent which requires officials to visit the states, to examine, analyze the data and provide feedback to the states.

In view of these circumstances, a sustainable system strengthening on technical and other related matters (finance, procurement, legal etc.) has to be built up within the Directorate of NVBDCP which necessitates the restructuring of NVBDCP with additional human resource. The existing strength of NVBDCP includes 6 public health specialists including Director, 2 medical professionals of GDO cadre including Additional Director, 11 non-medical scientists including 10 entomologists 1 toxicologist, one administrative and accounts officer. Besides, there are 3 posts of statistical officers for assessment, on deputation from statistical services. The restructuring of Directorate would require additional Human Resource as detailed below.

- The existing posts of Director and Additional Director would continue.
- A total of 13 Public Health Specialists excluding the post of Director will be required of which 5 post are already sanctioned resulting into a gap of 8 posts which need to be bridged.
- A total of 2 Medical officers (GDO Cadre) excluding Additional Director would be required, of which one post is already sanctioned. One more post is required.
- A total of 19 entomologists would be required, of which 11 post are already sanctioned. Eight more post are required.
- At present there is only one post of Accounts officer (Group B) is sanctioned, it is proposed that a Joint Director level post for finance and budget along with 2 accounts officer (one already sanctioned) need to be deployed. Two more posts are required.
- At present there is no logistic specialist officer and it is proposed that a Joint Director level post for logistic specialist along with 1 officer need to be deployed.
- At present there is no IEC / BCC cell. It is proposed that an IEC / BCC cell is created with one Joint Director level communication specialist supported with 2 media officers.
- At present only one Administrative officer (Group B) is sanctioned. It is proposed that a Joint Director level Administrative officer supported with Administrative officer is deployed. One more post is required.
- All divisions need to be supported with appropriate number of consultants with specialization in their field. At present 27 consultant posts are sanctioned and 9 more consultants are required.
Accompanied by the details has been worked out and indicated in Table 23:

<table>
<thead>
<tr>
<th>SI No</th>
<th>Component</th>
<th>Disease Control Programme</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>Public Health</td>
</tr>
<tr>
<td>1</td>
<td>Director</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Additional Director</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Malaria</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Research &amp; Training Management</td>
<td>2</td>
</tr>
<tr>
<td>b</td>
<td>GFATM Project</td>
<td>1</td>
</tr>
<tr>
<td>c</td>
<td>World Bank Project</td>
<td>1</td>
</tr>
<tr>
<td>d</td>
<td>Urban Malaria</td>
<td>1</td>
</tr>
<tr>
<td>e</td>
<td>Central Coordinating Organization</td>
<td>2</td>
</tr>
<tr>
<td>f</td>
<td>Integrated Vector Control (IVM)</td>
<td>2</td>
</tr>
<tr>
<td>g</td>
<td>Entomological Division</td>
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<td></td>
<td>Sub Total (Malaria)</td>
<td>5</td>
</tr>
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<td>4</td>
<td>Monitoring and Evaluation</td>
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</tr>
<tr>
<td>5</td>
<td>Filaria</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>JE</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Dengue &amp; Chikungunya</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Kala-Azar</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Planning and Coordination</td>
<td>1</td>
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<tr>
<td>10</td>
<td>BCC/PPP/ IEC</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Procurement and Logistic</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>Administration &amp; HR</td>
<td>2</td>
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<tr>
<td>13</td>
<td>Finance and Budget Division</td>
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<tr>
<td>14</td>
<td>Total Requirement</td>
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Sanctioned Post: 6 2 11 3 2 27

GAP: 8 1 8 0 6 9
### 7. Proposed NVBDCP Budget for 12\textsuperscript{th} Plan

(Rs. in Crore)

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<th></th>
<th></th>
<th></th>
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<td>Malaria</td>
<td>944.60</td>
<td>682.81</td>
<td>628.14</td>
<td>790.34</td>
<td>930.34</td>
<td>3,976.24</td>
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<td>Dengue Chikungunya</td>
<td>148.48</td>
<td>161.27</td>
<td>161.63</td>
<td>167.08</td>
<td>172.15</td>
<td>810.61</td>
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<td>Japanese Encephalitis</td>
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<td>15.2</td>
<td>16.98</td>
<td>18.27</td>
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<td>Lymphatic Filariasis</td>
<td>255.15</td>
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<td>125.33</td>
<td>125.14</td>
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<td>133.77</td>
<td>128.71</td>
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<td>Cross cutting</td>
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<td>837.72</td>
<td>872.49</td>
<td>918.33</td>
<td>4,115.38</td>
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<td>Total</td>
<td>2,329.13</td>
<td>1,969.51</td>
<td>1,992.82</td>
<td>2,107.28</td>
<td>2,294.45</td>
<td>10,693.18</td>
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</tbody>
</table>
Revised National Tuberculosis Control Programme (RNTCP)
INDEX

1. Tuberculosis disease burden & Trend in India

2. Brief on RNTCP

3. Achievements of ongoing RNTCP

4. Major challenges

5. RNTCP Proposal for 12th Five Year Plan

6. Summary of the New/Innovative approaches of RNTCP in 12th Plan

7. RNTCP Budget requirements for 12th Plan

8. Annexure I - Goals and achievements of 11th Plan

9. Annexure II – Goals and targets of 12th Plan
1. Tuberculosis Disease Burden & Trend in India

1.1 Incident NSP (New Smear Positive) TB Cases (Target – 70% of estimated NSP cases to be detected)

<table>
<thead>
<tr>
<th>Year</th>
<th>Incidence rate (all NSP cases per lakh population)</th>
<th>Estimated no of NSP cases **</th>
<th>Total no of NSP cases notified under RNTCP</th>
<th>% of estimated NSP cases detected</th>
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<td>2000*</td>
<td>75</td>
<td>552791</td>
<td>93,359</td>
<td>17%</td>
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<td>2001*</td>
<td>75</td>
<td>601659</td>
<td>183,970</td>
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<td>2002*</td>
<td>75</td>
<td>650527</td>
<td>243,529</td>
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<td>2003*</td>
<td>75</td>
<td>699395</td>
<td>358,490</td>
<td>51%</td>
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<td>2004*</td>
<td>75</td>
<td>748264</td>
<td>465,616</td>
<td>62%</td>
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<tr>
<td>2005*</td>
<td>75</td>
<td>797132</td>
<td>507,089</td>
<td>64%</td>
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<tr>
<td>2006*</td>
<td>75</td>
<td>846000</td>
<td>554,914</td>
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<tr>
<td>2007</td>
<td>75</td>
<td>846000</td>
<td>592,262</td>
<td>70%</td>
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<tr>
<td>2008</td>
<td>75</td>
<td>861000</td>
<td>616,027</td>
<td>72%</td>
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<tr>
<td>2009</td>
<td>75</td>
<td>873000</td>
<td>624,617</td>
<td>72%</td>
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<td>2010</td>
<td>75</td>
<td>882750</td>
<td>630,165</td>
<td>72%</td>
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</table>

* DOTS expansion was done in phased manner with complete coverage by March 2006. Thus the total number of NSP cases notified under RNTCP till 2006 are lesser.

** Estimated by WHO based on ARTI (Annual Risk of TB Infection) survey in India, conducted by NTI / CTD in different zones of country.

1.2 Trends of NSP case detection rate and success rate in the country
1.3 Incident New TB (NSP + New Smear Neg + Extra Pulmonary) cases

<table>
<thead>
<tr>
<th>Year</th>
<th>Incidence rate (all NEW TB cases per lakh population)**</th>
<th>Estimated no of NEW TB cases</th>
<th>Total no of NEW TB cases notified under RNTCP</th>
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<td>1238251</td>
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<td>759,329</td>
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<td>168</td>
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<td>168</td>
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<td>1,227,667</td>
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</table>

* DOTS expansion was done in phased manner with complete coverage by March 2006. Thus the total number of cases notified under RNTCP till 2006 are lesser.

** Estimated by WHO based on ARTI and assumption of equal proportion of smear positive and smear negative cases amongst new cases while extrapulmonary cases occurring at the rate of 20% of new smear positive cases.

1.4 Prevalent All TB cases (NSP+NSN+NEP + All re-treatment cases)

<table>
<thead>
<tr>
<th>Year</th>
<th>Prevalence rate (all TB cases per lakh population)**</th>
<th>Estimated no of all TB cases in population</th>
<th>Total no of TB cases notified under RNTCP</th>
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<tbody>
<tr>
<td>2000*</td>
<td>434</td>
<td>3,201,394</td>
<td>240,835</td>
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<td>2001*</td>
<td>418</td>
<td>3,349,234</td>
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<td>2002*</td>
<td>401</td>
<td>3,475,115</td>
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<td>2003*</td>
<td>384</td>
<td>3,579,039</td>
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<td>2004*</td>
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<td>3,661,004</td>
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<td>2005*</td>
<td>350</td>
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<td>2006*</td>
<td>333</td>
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<td>2007</td>
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<td>3,568,992</td>
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<td>2008</td>
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<td>1,517,363</td>
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<td>2009</td>
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<td>3,290,628</td>
<td>1,533,309</td>
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<td>2010</td>
<td>266</td>
<td>3,129,055</td>
<td>1,522,147</td>
</tr>
</tbody>
</table>

* DOTS expansion was done in phased manner with complete coverage by March 2006. Thus the total number of cases notified under RNTCP till 2006 are lesser.

** Estimated by WHO based on series of prevalence Surveys, ARTI, notification data & expert opinion. Trend used based on 1990 estimation and last three years estimation for projecting the annual estimation of prevalence rate.
2. Brief on RNTCP in 11th Five Year Plan (2007-12)

National TB Programme (NTP) was being run from 1962 till 1992 for the control of Tuberculosis in the country which was jointly reviewed by Govt. of India and WHO in 1992 after which WHO recommended DOTS strategy which was piloted from 1993 till 1997 for its feasibility and effectiveness. In 1998, DOTS strategy was accepted and Revised National Tuberculosis control Programme (RNTCP) was launched in 1998 and expanded throughout the country achieving complete geographical coverage by year 2006.

The Revised National TB Control Programme (RNTCP) widely known as DOTS, which is WHO recommended strategy, is being implemented as a 100% Centrally Sponsored Scheme in the entire country. Under the programme, diagnosis and treatment facilities including a supply of anti TB drugs are provided free of cost to all TB patients. For quality diagnosis, designated microscopy centres have been established for every one lakh population in the general areas and for every 50,000 population in the tribal, hilly and difficult areas. Sputum microscopy, instead of X-ray avoids over diagnosis and identifies infectious cases. More than 13,000 microscopy centres have been established in the country. Drugs are provided to the TB patients in patient wise boxes to ensure that all drugs for full course of treatment are earmarked on the day one, a patient is registered for treatment under the programme. More than 4,00,000 Treatment centres (DOT centres) have been established near to residence of patients to the extent possible. All government hospitals, Community Health Centres (CHC), Primary Health Centres (PHCs), Sub-centres are DOT Centres, in addition, NGOs, Private Practitioners (PPs) involved under the RNTCP, Community Volunteers, Anganwadi workers, Women Self Groups etc. also function as Community DOT Providers/DOT Centres. Drugs are provided under direct observation and the patients are monitored so that they complete their treatment.

The programme has launched DOTS Plus for the management of multi-drug resistance tuberculosis (MDR-TB) since 2007. Till date these services are available in 18 States. The programme is presently in the process of scaling up DOTS Plus services and aims to make these services available in all States by end 2010 while achieving complete geographical coverage by 2012.

TB-HIV collaborative activities are being implemented in collaboration with NACP to provide TB treatment and care and support for TB-HIV patients.

To further extend reach of programme and involve non-programme providers and community, the programme has already revised its guidelines for involvement of Non Government Organizations and private practitioners with enhanced outlays. The programme has also enhanced provisions for contractual staff to prevent staff turnover. To further enhance the capacity of the programme staff in effective implementation of the programme and increase their capacity the programme continuously reviews the training needs of programme personnel and undertakes regular capacity building programmes. The programme is also actively advocating with Drug Controller General of India to consider enforcing appropriate legislation to stop misuse of anti-TB drugs in private sector. A consensus statement to promote rational use of anti-TB drugs is being widely disseminated in association of professional associations like Indian Medical Association, Indian Pediatrics Association, Association of Family Physicians and Indian Public Health Association.

Programme management is notable for decentralized financial control, management, and supervision to State and District health systems, supported by a small number of supervisory staffs. RNTCP diagnostic and treatment services are wholly integrated within the general health system and medical colleges. Now RNTCP is an integral part of the
National Rural Health Mission (NRHM). The Central level serves only for organizing and distributing financing for TB control activities within the NRHM, centralized drug procurement and distribution to States, development of comprehensive normative guidance, capacity building, and monitoring and evaluation of States and Districts programme management units.

Experience has shown that DOTS strategy can be well implemented for TB control in an integrated manner by the general health system under the umbrella of NRHM if additional support is given by RNTCP.

3. Achievements of Ongoing RNTCP

(1) Since inception, RNTCP has evaluated over 44 million persons for TB and initiated treatment for over 12.8 million TB patients.

(2) Prevention of mortality has been biggest achievement of RNTCP saving more than 2.3 million lives.

(3) Having achieved national coverage, with special emphasis to areas classified as Tribal and/or Backward, RNTCP is well on track to achieve the Millennium Development Goal (MDG) of halting and beginning to reverse the spread of the disease.

(4) The RNTCP and National AIDS Control Programme have significantly expanded joint TB/HIV services, which are currently available in 18 states with the aim to cover all states by 2012.

(5) A national lab scale-up plan with secured funding to establish a network of culture and DST laboratories is in place. By 2010, MDR-TB services were available in 132 districts in 12 states and the programme had diagnosed and provided treatment to almost 4217 MDR-TB patients till quarter ending March 2011, with a vision for nationwide coverage by 2012.

(6) Medical college involvement has been largely successful. Efforts to engage the private sector have revolved around outreach, directly via public-private mix (PPM) schemes and through intermediary groups such as the Indian Medical Association (professional organization) and Catholic Bishop Conference of India (CBCI, a faith based organization).

(7) A major initiative to expand the role of civil society and affected communities in TB care and control is currently underway for 2010 – 2014, supported by a grant from the Global Fund directly to civil society partners.

(8) Repeat ARTI surveys suggests the Annual Risk of TB Infection in the country has reduced from the national average of 1.5% to 1.1% since 2002-03 to 2007-10 showing a decline of 3.5% annually. With successful implementation of RNTCP the decline in ARTI is indicative of reduction in incidence of TB in India. If we apply this ARTI for incidence estimation, it suggests that the incidence of New Smear Positive TB cases has reduced from 75 per lakh population to 55 per lakh population. While the incidence of all types of TB cases is then estimated to be around 121 per lakh population.

(9) While the indirect estimate of prevalence of the disease by WHO suggest that around 30 lakh TB cases are prevalent in India currently, the trend in estimated prevalence of TB suggest >50% reduction from its 1990 level of 583 per lakh population to around 250 per lakh population.
(10) Key achievements during 11th Five Year Plan

<table>
<thead>
<tr>
<th>Indicator</th>
<th>11th FYP</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Planned *</td>
<td>Achieved *</td>
<td></td>
</tr>
<tr>
<td>No of TB suspects examined (millions)</td>
<td>23.72</td>
<td>27.5</td>
<td></td>
</tr>
<tr>
<td>Total number of patients to be put on treatment (millions)</td>
<td>5.04</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>New Smear Positive patients to be put on treatment (millions)</td>
<td>2.34</td>
<td>2.46</td>
<td></td>
</tr>
<tr>
<td>No of MDR TB patients to be put on treatment (000)</td>
<td>5</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>Success Rate in New Smear Positive patients in RNTCP (%)</td>
<td>≥85%</td>
<td>87%</td>
<td></td>
</tr>
<tr>
<td>Estimated Annual Prevalence per lakh population</td>
<td>Reduced from 299 to 250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Risk of TB Infection (%)</td>
<td>Reduced from 1.5% to 1.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* First 4 out of 5 Years

(11) Economic impact of RNTCP

A study on the economic impact of scaling up of RNTCP in India in 2009 shows that on an average each TB case incurs an economic burden of around US$ 12,235 and a health burden of around 4.1 DALYs. Similarly, a death from TB in India incurs an average burden of around US$ 67,305 and around 21.3 DALYs.

A total of 6.3 million patients have been treated under the RNTCP from 1997-2006. This has led to a total health benefit of 29.2 million DALYs gained including a total of 1.3 million deaths averted. In 2006, the health burden of TB in India would have risen to around 14.4 million DALYs or have been 1.8 times higher in the absence of the programme. The RNTCP has also led to a gain of US$ 88.1 billion in economic wellbeing over the scale-up period. In 2006, the gain in economic wellbeing is estimated at US$ 19.7 billion per annum – equivalent on a population basis to US$ 17.1 per capita. In terms of TB patients, each case treated under DOTS in India results in an average gain to patients of 4.6 DALYs and US$ 13,935 in economic wellbeing.

4. Achievements of Ongoing RNTCP

Reaching the un-reached is one of the important challenge as it necessitates innovative strategies for ensuring universal access to TB diagnostic and treatment facilities. Advocacy and communication strategies need to be inclusive of such efforts towards social mobilization for achieving universal access.

(1) DMCs are operational in less than third of the PHCs and developing sputum collection & transport mechanism has been neglected, thus forcing referral of TB suspects from such PHCs to nearest DMCs, which is a barrier in universal access.

(2) Diagnostic facilities for extra-pulmonary TB cases has not been well established and are under utilized due to lack of prioritization of EP-TB as well as inadequate coordination between primary, secondary & tertiary hospitals.

(3) Further, reducing treatment default of patients put on treatment under Programme is another challenge in order to prevent drug Resistant TB.
(4) Misuse of anti-TB drugs and interrupted treatment, largely in the private sector lead to development of drug resistance (MDR/XDR) and then can be spread in the community unless it is correctly diagnosed and treated. This misuse of anti-TB drugs continues to be largely in the private sector but also is observed in medical colleges which are not fully following DOTS strategy. Over the counter (OTC) sale of first line and second line anti-TB drugs exists in the country despite these drugs being schedule H drugs.

(5) Linking HIV-infected TB patients to HIV care and support and implementing measures to prevent TB in HIV care settings need further strengthening.

(6) PPM efforts though beneficial, remain a very small proportion, relative to the large numbers of private sector providers; hence the impact of these efforts has so far been relatively limited.

(7) Though Management information system of RNTCP is prompt and well organized, still it caters the data of TB patients in terms of numbers of patients and case based information is not transcribed or reported above the sub-district level. Thus no epidemiological information is lost and conclusions cannot be drawn at district, state or national level as case information is lost to disaggregated data.

(8) One of the most serious challenges to TB control is urban TB control. Urban areas still experience intense levels of TB transmission, where urban primary health care systems tend to be weaker and private health care predominates.

(9) Despite the progress in implementation of DOTS strategy, TB incidence and mortality are still high, and an estimated 280,000 people died of TB in 2009.
5. RNTCP Proposal for 12th Five Year Plan (2012-17)

5.1 Vision
The vision of the Government of India is a “TB-free India - through achieving Universal Access by provision of quality diagnosis and treatment for all TB patients in the community”.

5.2 Goal
The goal of TB Control Programme is to decrease the morbidity and mortality by early diagnosis and early treatment to all TB cases thereby cutting the chain of transmission.

5.3 Objectives
(1) Early detection and treatment of at least 90% of estimated all type of TB cases in the community, including TB associated with HIV.
(2) Successful treatment of at least 90% of new TB patients, and at least 85% of previously-treated TB patients.
(3) Reduction in default rate of new TB cases to less than 5% and re-treatment TB cases to less than 10%.
(4) Initial screening of all re-treatment smear-positive till 2015 and all Smear positive TB patients by year 2017 for drug-resistant TB and provision of treatment services for MDR-TB patients.
(5) Offer of HIV Counselling and testing for all TB patients and linking HIV-infected TB patients to HIV care and support.
(6) Extend RNTCP services to patients diagnosed and treated in the private sector.

5.4 Targets
1. Detection & treatment of about 87 lakh Tuberculosis patients during 12th FYP.
2. Detection & treatment of at least 2 lakh MDR-TB patients during 12th FYP.
3. Reduction in delay in diagnosis and treatment of all types of TB cases.
4. Increase in access to services to marginalized and hard to reach populations and high risk and vulnerable groups.

5.5 Key strategies & approaches under RNTCP for 12th Five Year Plan
In addition to the continuation of existing activities (as per 11th five year plan) following strategies are proposed for achieving the objectives of RNTCP including universal access:

(1) Evidence-based shift of operational units from Tuberculosis Units to Health Blocks: Pilot testing of re-organization of programme operational units from present Tuberculosis Units to Health Blocks. This will further strengthen and align with the General Health System and National Rural Health Mission (NRHM).
(2) Development of a dedicated Sputum collection and transport system across the country, all Health facilities (PHCs without DMCs) in order to increase access.
(3) Intensified case finding activities in high risk groups like – smokers, diabetics, Malnourished, HIV, urban slums & difficult to reach areas etc.

(4) Developing evidence-based diagnostic algorithms for Extra-Pulmonary TB cases in consultation with Professional Associations like IMA, IAP, FOGSI, IOP etc.

(5) Establishing referral linkages between Primary Health Centres and with secondary and tertiary hospitals for diagnosis of Extra-pulmonary TB cases and paediatric TB cases.

(6) Creating support mechanisms for establishing linkages with district level hospitals for management of seriously ill and drug resistant TB cases by strengthening the district hospitals.

(7) Promoting rational use of anti-TB drugs to reduce drug resistance levels
   - Prevention of emergence of Drug resistant TB by ensuring quality diagnosis, DOTS & default prevention as well as promoting rational use of first & second line anti-TB drugs.
   - Coordination with overall implementation of National Policy on anti-microbial which includes mandatory double (copy) prescription by any medical practitioner while prescribing the antibiotic.
   - Professional bodies like Indian Medical association (IMA) & Civil Society will play a major role in promoting this rational drug use.
   - Over The Counter (OTC) sale without proper prescription will thus be curtailed to a large extent which will reduce the occurrences of drug resistant TB.
   - Conducting prescription audits in private and public sectors including medical colleges
   - Regular Drug Resistance surveillance is inbuilt and will be further strengthened with complete coverage of the country. Two IRLs (Ahmedabad & Hyderabad) has been identified for developing capacity to conduct second-line Drug susceptibility testing which will aid the surveillance for XDR-TB.

(8) Case-based electronic notification systems for data quality improvement:
   - Development of TB register in EPI-CENTRE and auto-generation quarterly reporting by 2012.
   - Case-based web-based electronic notification by 2015 of all patients for individual case monitoring in real-time.
   - Extending this electronic notification system to all patients diagnosed and treated in the private sector.

(9) Re-evaluation of the existing diagnostic algorithm for Pulmonary TB cases to reduce provider delay and addressing the reasons for drop-out of suspects at health facilities for subsequent steps of diagnosis & treatment in cases of TB as well as non-TB amongst such TB suspects.

(10) Development & capacity Building of national TB Institutes like NTI, New Delhi TB Center, LRS Institute of TB & Chest diseases under RNTCP

(11) Enhancing access to services for tribal, vulnerable and at risk populations by fostering partnerships and promoting innovations like mobile diagnostic & treatment facilities, using technology etc.

(12) Focused Advocacy & communication efforts to reduce stigma and generate demand for quality services through social mobilization aiming to develop support mechanisms for empowerment of TB affected community. Sensitization and participation of Panchayati Raj Institutions (PRIs), private practitioners and Self Help Groups (SHGs) will be the activities that will reduce the gap between services and the need in the urban slums.

(13) Introduction and scale-up of new diagnostics.
• Evaluation and demonstration of cartridge-based automated nucleic-acid amplification systems (CB-NAAT) and manual nucleic acid amplification systems (NAAT) in rural and urban settings.
• Phased deployment of automated CB-NAAT for achieving universal DST for all re-treatment TB cases and as initial TB diagnostic in PLHIV.

(14) National scale-up for diagnosis and treatment of MDR and XDR TB:
• 43 Culture and Drug susceptibility testing (C&DST) laboratories to be established by 2013.
• Another 30 C&DST laboratories to be established in government and other sectors through public Private partnerships by 2015.
• Complete geographical coverage of MDR-TB treatment services up to district level by 2013.
• Establishment of 120 DOTS Plus sites (1/10 million population – indoor facility for MDR-TB) for initial management of MDR-TB treatment by 2013 while also involving secondary and tertiary level hospitals in patient management.
• Decentralization of second-line drug susceptibility testing to identified State reference laboratories, for routine application in diagnosed MDR TB cases.
• Procurement of anti-TB drugs for the management of patients with MDR TB and also additional second-line anti-TB drug resistance (e.g. XDR TB).
• Developing evidence-based treatment guidelines for TB cases resistant to drugs other than Rifampicin.

(15) Early diagnosis and improved management of HIV-infected TB patients:
• Priority deployment of newer rapid diagnostics in HIV care settings.
• Nationwide provision of TB preventive therapy among HIV-infected individuals after pilot.

(16) Scale-up of Public-private partnerships:
• Review of RNTCP guidelines to accommodate practices in the private health sector and Medical colleges if they are as per internationally approved standards of TB care (ISTC).
• Notification of cases diagnosed and treated in the private sector through interface agency.
• Pilot testing approaches to improve flexibility of patient treatment options involving social marketing of ATT drugs under programme supervision.
• Involvement of Private corporate sectors for Tuberculosis control in areas with persistently poor performance for lack of proper health infrastructure.
• Contracting-out of services like the necessary laboratory accreditation, contract management and quality-control systems.
• Review of NGO PP schemes according to the unit cost of activity and the quantum delivered.

(17) Expansion of performance-based incentive strategies: To improve the quality and effectiveness of services through performance-based incentive linked to case finding and holding for various community / rural health workers.

(18) Promoting need based Research:
• Support to basic research - New diagnostics, drugs, and vaccines for TB are in the development pipeline, and hold the possibility of greatly facilitating TB control efforts by the STOP TB Secretariat. However the programme will support to evaluate these improved tools or strategies, collect evidence for scale-up, and if indicated deploy them
quickly so that TB control advances may quickly save lives and benefit the country.

- Operational research - Programme will continue to focus on the operational research for improvement in quality and proficiency of services. The priority areas for research will be listed and regularly updated on annual basis. Capacity building for Operational research will be facilitated in addition to funding & guidance for researchers. Diagnostic & treatment delays both on part of patients and providers will be an area of research in addition to the TB risk perceptions, health seeking behaviour, KAP of patients and providers and reasons of opting of RNTCP.

(19) Urban TB Control:
Despite the successes of the programme, TB burden and transmission remains highest in the urban areas, which have the largest and most dense concentrations of vulnerable populations including the slum populations, migrant laborers etc. Improved TB control will be a key outcome in national efforts to strengthen urban health care infrastructure. Stopping TB transmission in cities will require early diagnosis, which necessitates large-scale engagement of private providers and deployment of improved diagnostics across all points of care.

(20) Impact evaluation - Improvement in surveillance, both by strengthening routine surveillance as well as planning large inventory studies. National, regional and state disease prevalence surveys. Impact evaluation studies for measuring TB incidence, prevalence and mortality

(21) Re-alignment & development of existing human resources:
- Analysis of human resource requirements for activities to achieve universal access, and deployment of required human resources in an phased manner
- Strengthening existing supervision and monitoring systems, improving and sustaining the quality of service delivery.
- Developing capacity of States and district in Managing Information For Action (MIFA)

### 6. Summary of the New / Innovative approaches of RNTCP in 12th Five Year Plan

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Key Programme Area</th>
<th>11th Five Year Plan</th>
<th>12th Five Year Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Objective</td>
<td>Key strategies</td>
<td>New / Innovative approaches</td>
</tr>
<tr>
<td>1</td>
<td>Case detection</td>
<td>70% of estimated New Smear Positive TB cases</td>
<td>Universal (90%) access to care for all types of estimated TB cases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Community empowerment for early self reporting for diagnosis and treatment</td>
<td>• Use of telecommunication in demand generation, service delivery &amp; patients tracking</td>
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<tr>
<td></td>
<td></td>
<td>• Mobilizing community based organizations</td>
<td>• Designing &amp; implementing innovative ACSM tools, NGO-PPM approaches and evaluating their impact</td>
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<td></td>
<td></td>
<td>• Intensifying appropriate involvement of formal and informal private health care providers</td>
<td>• Intensified case finding activities in high risk groups like –smokers, diabetics,</td>
</tr>
<tr>
<td>2</td>
<td>Treatment success</td>
<td>85% of all New Smear positive TB cases</td>
<td>90% amongst New &amp; 85% amongst re-treatment TB cases registered under RNTCP</td>
</tr>
</tbody>
</table>
|   | Prevention of drug resistant TB | Further reducing the default in TB patients on treatment | Reduction in default rate of new TB cases to less than 5% and re-treatment TB cases to less than 10% | - Ensuring quality diagnosis, DOTS & default prevention  
  - Strengthening the cross border referral & feedback system between districts / states with a focus on migratory population in urban areas  
  - Use of newer rapid diagnostic tools  
  - Conducting prescription audits in private and public sectors including medical colleges  
  - Exploring legislative options for regulating & promoting rational use of Anti-TB drugs and diagnostics  
  - Case-based electronic notification systems for data quality improvement  
  - Notification of cases diagnosed and treated in the private sector  
  - Developing diagnostic algorithms for Extra-pulmonary TB in consultation with professional bodies  
  - Establishing referral linkages between primary, secondary and tertiary hospitals |
|---|---|---|---|---|
| 3 | TB-HIV | Strengthen collaboration and cross-referral in 14 states | Offer of HIV Counselling and testing for all TB patients and linking HIV-infected TB patients to HIV care and support; | - Early diagnosis and improved management of HIV-infected TB patients  
  - Strengthening of TB-HIV intensified package implementation |
| 4 | Management of Drug resistant TB | Introduce diagnostic and treatment services for MDR-TB in phased manner | Initial screening of all re-treatment smear-positive till 2015 and all Smear positive TB patients by year 2017 for drug-resistant TB and provision of treatment services for | - 43 Culture and Drug susceptibility testing (C&DST) laboratories to be established by 2013  
  - Another 30 C&DST laboratories to be established in government and other sectors through public Private partnerships by |
| 5 |   |   |   | - Decentralization of second-line drug susceptibility testing to identified State reference laboratories, for routine application in diagnosed MDR TB cases  
  - Procurement of anti-TB drugs for the management of patients with MDR TB and also additional second-line anti-TB drug resistance (e.g. XDR TB)  
  - Developing evidence-based treatment guidelines for TB cases resistant to drugs other than Rifampicin |
<table>
<thead>
<tr>
<th></th>
<th>Addressing at risk and vulnerable population</th>
<th>MDR-TB patients</th>
<th>2015</th>
<th>Establishing drug resistance surveillance in the country Involving secondary and tertiary level hospitals in management of Drug resistant TB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Establishing of 120 DOTS Plus sites (1 per 10 million population – indoor facility for MDR-TB)</td>
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<td></td>
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<td></td>
<td>• Developing and implementation of Tribal Action Plan</td>
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<td>• Linking TB patients with existing social welfare schemes</td>
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<td></td>
<td></td>
<td>• Strengthening the contact tracing policy implementation</td>
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<tr>
<td>6</td>
<td>Addressing at risk and vulnerable population</td>
<td></td>
<td></td>
<td>• Developing guidelines for addressing TB care in special settings like, prisons, mines, alcoholics, beggars, homeless, migrant labourers etc</td>
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<td></td>
<td></td>
<td>• Developing gender sensitive approaches to facilitate access and utilization of TB control services by both men and women</td>
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<td></td>
<td></td>
<td>• Inter-sectoral coordination for increasing access and quality of TB care</td>
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<td></td>
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<td></td>
<td></td>
<td>• Initiating TB surveillance in health care workers</td>
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<td></td>
<td></td>
<td>• Promoting implementation of Airborne Infection control guidelines</td>
</tr>
<tr>
<td>7</td>
<td>HRD &amp; capacity building</td>
<td>Capacity building of state &amp; district programme managers</td>
<td></td>
<td>• Increased human resources commensurate to realignment of TUs to block level</td>
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<td></td>
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<td>• Performance appraisal system for contractual staff</td>
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<td></td>
<td></td>
<td></td>
<td>• Development &amp; capacity Building of national TB Institutes like NTI, N.D.T.B. center, LRS under RNTCP</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>• Continuation of existing contractual manpower</td>
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<td></td>
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<td></td>
<td>• Need based continued training</td>
</tr>
<tr>
<td>8</td>
<td>Research &amp; independent Evaluation</td>
<td>National level surveys to study the impact of the programme</td>
<td></td>
<td>• Operational research –</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>o Improvement in quality and proficiency of services.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>o Diagnostic &amp; treatment delays both on part of patients and providers</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>o TB risk perceptions, health seeking behaviour, KAP of patients and providers and reasons of opting of RNTCP.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Improvement in surveillance, both by strengthening routine surveillance as well as planning large inventory studies.</td>
</tr>
<tr>
<td>9</td>
<td>Health system strengthening</td>
<td>• Epidemiological studies for incidence, prevalence and mortality measurement.</td>
<td>• Coordinating with NRHM division for development of long-term policy on sustainable human resources in states for RNTCP. • Coordinating with NRHM division for clearly defining the roles and responsibilities of directorate of health services and mission directorates in the state; while empowering the STOs &amp; DTOs in financial and programmatic management and reporting within the framework of NRHM.</td>
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<tr>
<td>10</td>
<td>Monitoring and Evaluation of the Programme</td>
<td>Identifying poor performing units with intensified monitoring</td>
<td>• Continue to do the monitoring of performance of all states at national level. • Regular central &amp; state level internal evaluations of programmes in the districts. • Individual patient monitoring facilitated by electronic updating of patient treatment card. • Developing monitoring indicators in view of changes and updates to cover all areas. • Bar coding usage for tracking of patient wise boxes. • Regular measurements of the quality of the programme through indicators like delays in diagnosis and treatment.</td>
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</tbody>
</table>

**7. Budget – Requirement for 12th Five Year Plan**

As per the approval of CCEA (Cabinet Committee on Economic Affairs) the current phase of RNTCP is up to September 2011 with closing by March 2012. The total budgeted amount for the period 2012-17 is 582,528 lakh INR, of which there is committed funding from the Global Fund and UNITAID to the tune of 117,087 lakh INR. The Global Fund support is available till March 2015 under RCC mechanism (Rolling Continuous Channel) and till September 2015 under Round 9 of Global Fund. Of the estimated funding gap of 465,440 lakh INR, extension of RNTCP-II project by World Bank for the period April 2012 to March 2014 is envisaged to provide 82,800 lakh INR. The remaining amount of 382,640 lakh INR will be contributed by Government of India.
### Funding Requirements of the National Strategic Plan of RNTCP 2012-17 (Lakh INR)

<table>
<thead>
<tr>
<th>Sr</th>
<th>Key Assumptions</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Number of TB patients</td>
<td>1,630,988</td>
<td>1,651,855</td>
<td>1,796,348</td>
<td>1,818,194</td>
<td>1,839,861</td>
<td>8,737,245</td>
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<tr>
<td>1.2</td>
<td>Number of MDR-TB patients put on treatment</td>
<td>25,500</td>
<td>30,000</td>
<td>40,000</td>
<td>50,000</td>
<td>60,000</td>
<td>205,500</td>
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</table>

#### Budget Heads (All figures in lakhs INR)

<table>
<thead>
<tr>
<th>Sr</th>
<th>Key Assumptions</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Civil Works, Office</td>
<td>1,946</td>
<td>1,457</td>
<td>1,753</td>
<td>1,694</td>
<td>1,739</td>
<td>8,589</td>
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<td>2.2</td>
<td>Vehicle hiring and</td>
<td>7,441</td>
<td>4,950</td>
<td>6,299</td>
<td>6,385</td>
<td>6,552</td>
<td>31,628</td>
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<td>2.3</td>
<td>Human Resource</td>
<td>16,899</td>
<td>17,891</td>
<td>24,871</td>
<td>26,143</td>
<td>27,363</td>
<td>113,168</td>
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<td>2.4</td>
<td>Training</td>
<td>1,612</td>
<td>1,632</td>
<td>3,303</td>
<td>3,342</td>
<td>3,381</td>
<td>13,270</td>
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<tr>
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<td>Laboratory Services</td>
<td>12,367</td>
<td>10,992</td>
<td>10,496</td>
<td>14,288</td>
<td>17,236</td>
<td>65,379</td>
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<tr>
<td>2.6</td>
<td>Drugs (First Line)</td>
<td>12,179</td>
<td>12,388</td>
<td>13,459</td>
<td>13,688</td>
<td>13,924</td>
<td>65,638</td>
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<tr>
<td>2.7</td>
<td>Drugs (Second Line)</td>
<td>23,460</td>
<td>27,600</td>
<td>33,120</td>
<td>41,400</td>
<td>49,680</td>
<td>175,260</td>
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<td>2.8</td>
<td>Printing</td>
<td>1,359</td>
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<td>1,672</td>
<td>1,693</td>
<td>1,713</td>
<td>7,814</td>
</tr>
<tr>
<td>2.9</td>
<td>Outreach (PPM/ACSM)</td>
<td>10,639</td>
<td>10,798</td>
<td>14,177</td>
<td>15,308</td>
<td>15,571</td>
<td>66,493</td>
</tr>
<tr>
<td>2.1</td>
<td>Office operations</td>
<td>3,292</td>
<td>3,334</td>
<td>4,726</td>
<td>4,784</td>
<td>4,841</td>
<td>20,977</td>
</tr>
<tr>
<td>2.11</td>
<td>Consultancy and</td>
<td>1,654</td>
<td>1,770</td>
<td>2,607</td>
<td>2,016</td>
<td>2,038</td>
<td>10,085</td>
</tr>
<tr>
<td>2.12</td>
<td>Technical Assistance</td>
<td>765</td>
<td>803</td>
<td>843</td>
<td>886</td>
<td>930</td>
<td>4,228</td>
</tr>
<tr>
<td><strong>Total (2.1 to 2.12)</strong></td>
<td><strong>93,612</strong></td>
<td><strong>94,993</strong></td>
<td><strong>117,327</strong></td>
<td><strong>131,627</strong></td>
<td><strong>144,968</strong></td>
<td><strong>582,528</strong></td>
<td></td>
</tr>
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</table>

#### Confirmed sources of funding (Lakhs INR)

<table>
<thead>
<tr>
<th>Sr</th>
<th>Key Assumptions</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Global Fund Rolling Continuation Channel</td>
<td>16,761</td>
<td>18,569</td>
<td>20,800</td>
<td>-</td>
<td>-</td>
<td>56,130</td>
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<tr>
<td>3.2</td>
<td>UNITAID **</td>
<td>18,396</td>
<td>18,494</td>
<td>17,771</td>
<td>-</td>
<td>-</td>
<td>54,661</td>
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<tr>
<td>3.3</td>
<td>Global Fund Round 9**</td>
<td>3,657</td>
<td>2,640</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6,297</td>
</tr>
<tr>
<td><strong>Total Committed</strong></td>
<td><strong>38,814</strong></td>
<td><strong>39,702</strong></td>
<td><strong>38,571</strong></td>
<td>-</td>
<td>-</td>
<td><strong>117,087</strong></td>
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</table>

#### Funding Source to fill

<table>
<thead>
<tr>
<th>Sr</th>
<th>Key Assumptions</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Proposed World Bank</td>
<td>41,400</td>
<td>41,400</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>82,800</td>
</tr>
<tr>
<td>5.2</td>
<td>Contribution of</td>
<td>13,397</td>
<td>13,891</td>
<td>78,756</td>
<td>131,627</td>
<td>144,968</td>
<td>382,640</td>
</tr>
<tr>
<td><strong>Total (5.1+5.2)</strong></td>
<td><strong>54,797</strong></td>
<td><strong>55,291</strong></td>
<td><strong>78,756</strong></td>
<td><strong>131,627</strong></td>
<td><strong>144,968</strong></td>
<td><strong>465,440</strong></td>
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</tr>
</tbody>
</table>

*Excluding funds to CBCI and IMA projects

**Excluding additional financing provided directly to civil society partners for advocacy, communication, and social mobilization.

†Estimated grant-in-kind value of laboratory commodities

Opinions and inputs from – State Programme Officers and RNTCP Consultants from states, in house thematic groups at CTD, and eleven thematic sub-groups for National Strategic Planning were deliberated in RNTCP sub-group of working group of communicable diseases (CD) under chairmanship of DGHS. These groups at various levels critically examined and analyzed the situation of TB Control, its challenges in order to meet the challenges it strongly recommended new initiatives as detailed above. These new initiatives warrant the substantial enhancement of fund requirement as detailed above. This is the dire minimum funds required for RNTCP which should be considered in totality.
### 8. Goals and achievements of 11th Five Year Plan (2007-12)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Source</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients to be examined (millions)</td>
<td>National Programme Reporting System</td>
<td>5.93</td>
<td>6.5</td>
<td>5.93</td>
<td>6.8</td>
<td>5.93</td>
</tr>
<tr>
<td>Total number of patients to be put on treatment (millions)</td>
<td>National Programme Reporting System</td>
<td>1.26</td>
<td>1.47</td>
<td>1.26</td>
<td>1.51</td>
<td>1.26</td>
</tr>
<tr>
<td>New Smear Positive patients to be put on treatment (millions)</td>
<td>National Programme Reporting System</td>
<td>0.57</td>
<td>0.59</td>
<td>0.58</td>
<td>0.61</td>
<td>0.59</td>
</tr>
<tr>
<td>Success rate in New smear positive patients in RNTCP (%)</td>
<td>National Programme Reporting System</td>
<td>≥85%</td>
<td>87%</td>
<td>≥85%</td>
<td>87%</td>
<td>≥85%</td>
</tr>
</tbody>
</table>

* expected achievement - data will be available by March 2012
### 9. Goals and targets of 12th Five Year Plan (2012-17)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients to be examined (millions)</td>
<td>National Programme Reporting System</td>
<td>7.8</td>
<td>8</td>
<td>8.2</td>
<td>8.4</td>
<td>8.7</td>
</tr>
<tr>
<td>Total number of patients to be put on treatment (millions)</td>
<td>National Programme Reporting System</td>
<td>1.63</td>
<td>1.65</td>
<td>1.79</td>
<td>1.81</td>
<td>1.84</td>
</tr>
<tr>
<td>MDR-TB patients to be put on treatment (000)</td>
<td>National Programme Reporting System</td>
<td>25.5</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Success rate in New TB patients in RNTCP (%)</td>
<td>National Programme Reporting System</td>
<td>87%</td>
<td>87.5%</td>
<td>88%</td>
<td>89%</td>
<td>90%</td>
</tr>
<tr>
<td>Success rate in Re-treatment TB patients in RNTCP (%)</td>
<td>National Programme Reporting System</td>
<td>77%</td>
<td>79%</td>
<td>81%</td>
<td>83%</td>
<td>85%</td>
</tr>
</tbody>
</table>
National Leprosy Eradication Programme (NLEP)
INDEX

A. 11th FIVE YEAR PLAN AND ACHIEVEMENTS

1. Background
2. Objective
3. Targets and Indicators
4. Strategy
5. Programme Components
6. Impact of Programme Activities during 11th Plan
7. Constraints
8. Additional Support to in NLEP

B. PROPOSED 12th FIVE YEAR PLAN

1. Key Lessons learnt from 11th Plan
2. Objectives
3. Policy Changes in implementation
4. Targets and Indicators
5. Justification
6. Strategy
7. Result based strategy and Activities
8. Additional/New activities during the 12th Plan
9. Budget and source of funds
10. Additional Support to NLEP
11. Expected Outcome
12. Component wise proposed budget for 5 Years of 12th Plan
NATIONAL LEPROSY ERADICATION PROGRAMME

I – 11th FIVE YEAR PLAN AND ACHIEVEMENTS

1. Background
Govt. of India started National Leprosy Control Programme in 1955 based on Dapsone domiciliary treatment through vertical units implementing survey, education and treatment activities. It was only in 1970s that a definite cure was identified in the form of Multi Drug Therapy. The MDT came into wide use from 1982, following the recommendation by the WHO Study Group, Geneva in October 1981. Govt. of India established a high power committee under chairmanship of Dr. M.S. Swaminathan in 1981 for dealing with the problem of leprosy. Based on its recommendations the National Leprosy Eradication Programme (NLEP) was launched in 1983 with the objective to arrest the disease activity in all the known cases of leprosy. However coverage remained limited due to a range of organizational issues, fear of the disease and the associated stigma. At this stage in view of substantial progress achieved with MDT, in 1991 the World Health Assembly resolved to eliminate leprosy at a global level by the year 2000. In order to strengthen the process of elimination in the country, the first World Bank supported project was introduced in 1993. Subsequently the 2nd National Leprosy Elimination Project with World Bank support was started from 2001-02 which ended in December 2004. Thereafter, Govt. of India decided to continue the programme activities at the same level of intensity during the period January 2005 till March 2007 with Govt. funds alone. The programme has remained a 100% centrally sponsored scheme through the past five year plan.

During the last two decades (1983-2005) the National Leprosy Eradication Programme has made tremendous progress. The disease has come down to a level of elimination i.e. less than one case per 10,000 population at the national level by December 2005. This level is very important from public health point of view. However still the disease is prevalent with moderate endemicity in about 20% of the districts. The disease also has a long incubation period and therefore need a longer period of surveillance. Since the programme aims for eradication i.e. zero endemicity of leprosy, as the ultimate goal, sustained control measures need to continue even during the 11th plan period i.e. April 2007 till March 2012.

2. Objective
- Further reduce the leprosy burden in the country.
- Provision of high quality leprosy services for all persons affected by leprosy, through General Health Care System including referral services for complications and chronic care.
- Enhanced Disability Prevention and Medical Rehabilitation (DPMR) services for deformity in leprosy affected persons.
- Enhanced advocacy in order to reduce stigma and stop discrimination against leprosy affected persons and their families.
- Capacity building among Health Service personal in integrated setting both for Rural and Urban areas.
- Strengthen the monitoring and supervision component of the surveillance system.

3. Targets and Indicators

3.1. Physical Targets and achievements

Table - 1

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Outcome expected by March 2012</th>
<th>Achievement till March 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence Rate (PR) &lt; 1/10,000 in States/UTs</td>
<td>100%</td>
<td>91.4%</td>
</tr>
<tr>
<td>Prevalence Rate (PR) &lt; 1/10,000 in Districts</td>
<td>100%</td>
<td>82.8%</td>
</tr>
<tr>
<td>Annual New Case Detection Rate (ANCDR)</td>
<td>&lt; 10/100,000</td>
<td>10.48</td>
</tr>
<tr>
<td>Cure rate for MB</td>
<td>&gt;95%</td>
<td>89.87%</td>
</tr>
<tr>
<td>Cure rate for PB</td>
<td>&gt;97%</td>
<td>94.55%</td>
</tr>
<tr>
<td>No. of Gr. II disabled cases</td>
<td>25% reduction (Base – 2006-07)</td>
<td>**</td>
</tr>
</tbody>
</table>

** Due to increased efforts for case detection and treatment, Gr. II disability in new cases have not shown reduction.

3.2. Financial Targets and utilization

Table - 2

<table>
<thead>
<tr>
<th>S.No.</th>
<th>11th Plan</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
<th>2010-11</th>
<th>2011-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Allocation</td>
<td>219.29</td>
<td>40.00</td>
<td>45.45</td>
<td>44.50</td>
<td>45.32</td>
<td>44.02</td>
</tr>
<tr>
<td>2. Expenditure</td>
<td>143.19</td>
<td>25.01</td>
<td>45.72</td>
<td>35.11</td>
<td>37.35</td>
<td></td>
</tr>
</tbody>
</table>

(upto 2010-11)

4. Strategy

- Provision of high quality leprosy services for all persons affected by leprosy, through General Health Care System including referral services for complications and chronic care.
- Involvement of ASHA under NRHM for Leprosy work.
- Enhanced Disability Prevention and Medical Rehabilitation (DPMR) services for deformity in leprosy affected persons.
- Enhanced advocacy in order to reduce stigma and stop discrimination against leprosy affected persons and their families.
- Capacity building among Health Service personnel in integrated setting both for Rural and Urban areas.
- Strengthen the monitoring and supervision component of the surveillance system.
5. Programme Components

5.1. Infrastructure

The erstwhile state & district leprosy societies were merged with the state & district health societies. The state & district leprosy units worked under the Health societies as component of the NRHM.

5.1.1. In the 27 States viz. Andhra Pradesh, Assam, Arunachal Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Jammu & Kashmir (separate SLS for Jammu division also), Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamilnadu, Tripura, Uttarakhand, Uttar Pradesh, Uttarakhand and West Bengal, for strengthening the State Leprosy Unit, following categories of staff were provided to the State Leprosy Unit on contract basis:-

- Budget and Finance cum Admin. Officer – 1
- Admin. Assistant – 1
- Data Entry Operator – 1
- Driver – 1

5.1.2. In 8 smaller State/ UTs viz. Goa, Delhi, Chandigarh UT, A& N Island, Lakshadweep, D&N Haveli, Puducherry and Daman & Diu. following categories of staff were provided to the HQ State Leprosy Unit on contract basis:-

- Admin. Assistant – 1
- Data Entry Operator – 1
- Driver – 1

The State Leprosy Unit also got the support from the Financial Management Unit as well as the state Data Management Units of NRHM.

5.1.3. The District Leprosy Officer either full or part-time and a fully functional District Nucleus was the basic structure of the DLS. One driver on contract basis was provided to the districts where regular driver is not available.

5.1.4. A Surveillance Medical Officer (SMO) was posted in the 27 major states and in Delhi, Chandigarh and Dadra & Nagar Haveli.

5.1.5. During the 11th Plan period one NMS per district was provided to the state(s)/UTs of Punjab, Haryana, Delhi, Chandigarh UT and Dadra & Nagar Haveli as they did not have any regular staff to even form the district nucleus.
5.1.6. The Central Leprosy Division was supported with only the Training Consultant out of the programme budget. In addition one National Consultant was provided with WHO support and another Consultant in DPMR was provided with ILEP support WHO also provided support with information & education officer- I BFO-I and Logistics Consultant-I.

5.1.7. The Central Leprosy Teaching and Research Institute (CLTRI), Chengalpattu and 3 Regional Leprosy Teaching and Research Institute (RLTRI) at Raipur, Aska and Gouripur continued to provide support to the programme during the 11th plan period.

5.2. Integrated Leprosy Services and Special initiatives

5.2.1. Integrated Leprosy Services through all the Primary Health Care facilities continue to be provided in the Rural areas.

5.2.2. All the urban areas were covered under the urban leprosy control programme integrating services from all the partners available in the area, including the private practitioners.

5.2.3. Involvement of the Multi-purpose Health functionaries, ASHA in villages and selected NGOs in urban areas engaged for case follow up during treatment.

5.2.4. Emphasis was laid on providing best quality leprosy services through the GHC system. This means easy availability of services on all working days to all patients, correct diagnosis and adequate counseling to patient and family members, provide MDT to patient whenever approached, regular monitoring of the patient during treatment. Treatment completion by all patients was the desired outcome of the programme.

5.2.5. The system of referral of difficult cases to the District hospital for diagnosis and management, was strengthened with capacity building of persons involved at PHC as well as District Hospital level.

5.2.6. The laboratory facilities at the District Hospitals for smear examination to diagnose difficult cases was further strengthened.

5.2.7. Data specific for Female, Schedule Tribe and Schedule Caste patients were also maintained.

5.3. Services through ASHA

The scheme to involve ASHA under NRHM was extended to all the States/UTs to bring out cases from the villages for diagnosis at PHC and after diagnosis, to follow up the patients for completion of their Treatment. The ASHA were entitled to receive incentive as below-
(i) On confirmation of cases brought by them – Rs. 100/-
(ii) On completion of full course of treatment within specified time-
    PB Leprosy case – Rs. 200/-
    MB Leprosy case – 400/-

5.4. **Drugs, Material and Supplies**

5.4.1. Supply of MDT to the leprosy patients was maintained free of cost through WHO during 11th Plan period.

5.4.2. Material and supplies including supportive drugs were procured at district level for use under the programme.

5.5. **Vehicle Hiring and POL / Maintenance**

Mobility for man and material is important to run the programme smoothly. Each district should have one running vehicle for mobility of district nucleus team and DLO. As many districts did not even have a vehicle, provision of hiring vehicle was made during the 11th plan period.

For the 36 state societies, provision was kept for 2 vehicles to each state/UT during the 11th five year plan period.

5.6. **Information, Education and Communication**

For sustaining the anti-leprosy campaign, it was important to integrate leprosy IEC with the IEC of other Health Programmes. This will address the problem of not having technical expertise on communication at various levels of leprosy offices. IEC planning and implementation was therefore under the NRHM IEC cell at Central Level and the State/District NRHM Units at Peripheral level.

5.7. **Training and Capacity building**

5.7.1. During the 11th plan period a large number of training programmes were organized for different categories of staff under GHC system to cover different aspects of the programme need. Main groups of trainee were :-

    - Medical Officer – New and Refresher.
    - Health Supervisor/Health Worker – New and Refresher.
    - ASHA and Anganwadi Workers.
    - District Leprosy Officers and State Leprosy Officers - New.
    - Laboratory Technicians.
    - Surgeons in RCS.
    - Physiotherapist.
    - PRI members, women group, private practitioners – Advocacy.
5.7.2. Learning Material
A manual for training of Medical Officers was published.

5.8. Disability Prevention and Medical Rehabilitation (DPMR)

5.8.1. During the 11th five year plan, more emphasis on the Disability Prevention and RCS services for the leprosy patients was given as compared to the previous plan period.

5.8.2. Prevention of Disability
- During the 10th plan period the programme emphasis was on case detection and treatment so that elimination of leprosy can be achieved quickly. During 11th Plan emphasis was shifted to providing quality services through prevention of disability and care of the disabled.

- Health Workers were trained to suspect cases of leprosy reaction, relapse, insensitive hands and feet and refer to PHC for diagnosis. They also empower patients with self care procedure for prevention of deformity.

- PHC Medical Officers were trained to diagnose cases of reaction and treat them. Severe reaction cases were referred to the District Hospital, if they did not respond well within 2 weeks of starting treatment.

- Service and care for impairment such as ulcers, cracks and wounds, septic hand or feet etc. were available from all the Health Institutions routinely. Complicated ulcer cases were referred to District Hospital.

- Microcellular Rubber (MCR) footwear were supplied to all patients with insensitive feet by the District nucleus staff at the concerned Health institution. An appropriate system of need assessment, procurement and supply was drawn up by the State/ UTs, under guidance from the Central Leprosy Division

5.8.3. Medical Rehabilitation Services for the Deformed
- All patients with grade II disability diagnosed at the PHC were referred to the District Hospital/ District nucleus for further assessment and care. Cases suitable for RCS were referred by District Hospital to the tertiary level care hospital for further care.

- No. of Institutions conducting RCS operations were increased from 51 at the beginning of the 11th Plan to 85 (Govt. Instt. -44 and NGO-41).
Aids and appliances for Medical Rehabilitation were supplied to the patients.

During the XIth plan, following new initiatives were taken to facilitate RCS in leprosy:

- **Incentive to Patient**
  As an incentive and to offset the financial difficulties faced by leprosy affected persons who belong to Below Poverty Line (BPL) families, undergoing reconstructive surgery at the identified institutions (Government Hospital or NGO institutions), will be paid an amount of Rs. 5000/- (Rupees five thousand only) per major RCS.

- **Incentive to Institutions**
  It was felt necessary that Government Sector Medical Colleges/Physical Medicine and Rehabilitation (PMR) centres also need to be facilitated to enable them to carry out RCS. An incentive of Rs. 5000/- per major RCS was paid to the Govt. Institutions for conducting RCS, to facilitate procurement of materials for the surgery.

**5.9. Urban Leprosy Control**

- **Supportive Medicine** – Additional fund was provided for supportive medicines for the urban area institutions.

- **MDT delivery services and follow up** of under treatment patient. Separate fund was provided for this component. Local NGO/Volunteers can be engaged for follow up of under treatment patients to cut down treatment defaulters.

- **Monitoring, supervision and coordination** by the nodal agency which includes periodic meeting and mobility. Separate fund was provided for this component as well.

**5.10. NGO Services**

**5.10.1. SET Scheme**

The Modified SET Scheme was revised with effect from 1st April 2004. The scheme covers NGOs/NGO Hospitals working for the benefit of the leprosy affected persons. The Govt. of India decentralized the SET scheme sanctioning power to the state Govt. with effect from the year 2006-07. The scheme was continued during the 11th plan. A total of 39 NGO are now engaged under the scheme.
5.10.2. The International Federation of Anti-Leprosy Associations (ILEP) also supports nearly 130 NGOs/Hospitals on their own as per State Govt.’s need.

5.11. Operational Research

Research was conducted through the National Institute of Medical Statistics (ICMR), New Delhi, in Bareilly district to finalize a sampling design to carry out National Sample Survey to assess the burden of leprosy in the country. Another Operational Research was conducted through the National JALMA Institute for leprosy and other Mycobacterial diseases, Agra to assess the total disability burden in one district each of UP and Haryana.

5.12. Supervision, Monitoring and Review

5.12.1. Supervision and Travel cost

The programme mainly provided services through the General Health Service infrastructure with supervisory support from the District nucleus staff. Supervisory visits were made by the State level officers as well. While regular State Govt. staffs were drawing their TA/DA from the source of their salary, contract staff like surveillance Medical Officer, BFO and drivers were paid from the programme budget. In addition, NMS posted to the special category of states were also paid TA/DA from programme budget. Similarly travel by the consultants from the Central Leprosy Division to various states, was also made regularly.

5.12.2. Programme Monitoring

A Mid Term Evaluation of the NLEP by an Independent Agency was carried out during the year 2010-211.

5.12.3. Review

Regular Review at National, Regional, State and District level were carried out as per plan at annual, quarterly or monthly basis.

6. Impact of Programme Activities during 11th Plan

1. Six States/UTs achieved Leprosy Elimination Status.
2. ANCDR decreased from 14.27/100,000 in 2005-06 to 10.48/100,000 in 2010-11.
3. Prevalence Rate decreased from 1.34/10,000 in 2005-06 to 0.69/10,000 in 2010-11.
4. Treatment Completion rate improved from 90.34 in 2006-07 to 92.26 in 2009-10.
5. RCS conducted in 11825 persons Affected by Leprosy during 2007-08 to 2010-11 (4 years), to help in reduction of disability.
6. High endemic districts (ANCDR >10/100,000 population) reduced from 275 districts in 2005-06 to 209 districts where special activities proposed during the 12th Plan period.
7. **Constraints**

- With reduction in case load, priority given by States/UTs to the programme gets reduced.
- Removing suitable Officers from key posts, keeping posts vacant are great hindrance to the programme.
- Non-availability of a competent District Nucleus Team consisting of a well trained District Leprosy officer, Medical Officer, Non-Medical Supervisor and Para Medical Worker to supervise the services provided in the Primary Health Centres, in most of the districts is a big problem.
- Referral services at the District Hospital level is not adequate, which need to be organised.
- Fund utilization at district level is hampered because there is procedural delay in release of funds from State NRHM to districts.

8. **Additional Support to in NLEP**

8.1 **World Health Organization (WHO)**

- Supply of MDT free of cost for treatment of all leprosy patients in the county with funds from Novartis.
- Manpower & Equipment maintenance support and review meetings etc. with funds from Sasakawa Memorial Health Foundation and The Nippon Foundation, Japan

8.2 **International Federation of Anti-leprosy Association (ILEP)**

The ten members organization working as Partners in NLEP in India under the banner of International Federation of Anti-Leprosy Associations (ILEP) was providing support to NLEP as a partner. Details of areas for their work were finalized and a MoU was signed between the GoI and the ILEP on 24\textsuperscript{th} October 2007. As per the MoU, ILEP support was on the following six Thematic areas:

- Monitoring and Supervision
- Capacity Building
- Support to DPMR (Referral system)
- Operational Research
- Support to local NGO
- Socio economic rehabilitation and community participation.
PART – II – PROPOSED 12th FIVE YEAR PLAN

Vision

A “Leprosy free India” is the ultimate visionary goal. Interim aim during the 12th plan period is to provide quality leprosy services to all Section of population and achieve the target of less than 1 case per 10,000 population (Elimination) in all the districts of the country, also reducing the burden of disability due to leprosy.

1. Key Lessons learnt from 11th Plan

- Slow achievement in reduction of cases.
- Detection of New cases from various pockets, mostly from 209 districts in 16 States.
- Poor quality of services through integrated service delivery.
- Inadequate referral services at the District Hospital level.
- Role of ASHA at village level for early case detection and for completion of treatment is very encouraging.
- Poor performance of RCS in Govt. Institutions though number has gone up from 20 to 44.
- Keeping the clause of BPL families for receipt of incentives for undergoing RCS operation is counter productive as BPL Cards are not easily available.
- Delay in release of funds from State NRHM to districts resulting in non execution of planned activities.

2. NLEP – Objectives under 12th Plan

To make the NLEP Plan more compliant to the NRHM Guidelines Paradigm changes made in the 12th Plan relates to changing the hitherto activity based plan to a result based plan. The objectives of the plan is therefore changed with aim to achieve following results

i. Improved early case detection
ii. Improved case management
iii. Stigma reduced
iv. Development of leprosy expertise sustained
v. Research supported evidence based programme practices
vi. Monitoring supervision and evaluation system improved
vii. Increased participation of persons affected by leprosy in society
3. **Policy Changes in implementation**

- To make NLEP planning, compliant with NRHM guidelines, the 12th plan proposal has been made a result based plan.

- Reassess the burden of leprosy in the country by shifting from prevalence as the main indicator to Annual New Case Detection Rate and burden of disability in new cases of leprosy.

- Improving the quality of services to all patients with easy accessibility without discrimination.

- Provide integrated leprosy services with primary health care system for sustainability.

- Adequate Referral System for complicated cases.

- Prevention and management of impairments and disabilities.

- Improving community awareness and involvement.

- Support of National Rural Health Mission.

- Care of the cured patients and their rehabilitation.

- Re-define the indicators for monitoring and evaluation.

4. **Targets and Indicators**

   - PR < 1/10,000 in all districts - 100%
   - ANCDR <10/100,000 in all districts - 100%
   - Cure rate MB - >95%
   - Cure rate PB - >97%

No. and rate of new cases with Gr. II disabilities cases/10,00,000 population-35% reduction (Base – 2011-12)

Other additional indicators to assess the quality of services provided e.g. proportion of cases correctly diagnosed, Defaulter rates, Cases with disability after initial treatment, number of relapses, Proportion of new MB, Child, Female and Disability cases are to be used.

5. **Justification**
The strategy of NLEP adopted during the 11th Plan period was discussed in the specialist sub group constituted on National Leprosy Eradication Programme to formulate the 12th Five Year Plan. The strategy was found to be good, however, there are certain gaps in implementation of the strategy due to various administrative and operational issues. Because of this, implementation of activities under the programme is not as desired resulting in low expenditure. Also the country has at present 209 districts where the detection of new cases of Leprosy is high. If these issues are taken care of, implementation will be more effective resulting in quality services in the programme & improvement in expenditure and the programme will be able to achieve the outcome proposed during the 12th Plan.

For implementing the newer activities viz. Special focused activity in 209 high endemic districts & in addl. high endemic districts (if identified), Strengthening of DPMR services including RCS, Consultants/Staff in CLD (from WHO/ILEP funding to GoI funding), Upgradation of CLTRI & RLTRI, Referral services at District level – hiring of Physiotherapists, Support at high endemic Block PHC with one Para Medical Worker each Increased emphasis on Monitoring, Review and Evaluation, the hike in budget during the 12th Plan is essential and justified in interest of the programme.

6. Strategy

- 209 districts identified to give attention.
- Additional districts, if identified during the plan period, will also be given special attention.
- Clear backlog for RCS.
- Promotion of Self Care.
- Capacity building especially in POD.
- Improve referrals at district level.
- Improve Monitoring & Supervision.

7. Result based Strategy and Activities

7.1 Improved early case detection

7.1.1 Integrated Leprosy Services through all the Primary Health Care facilities will continue to be provided in the rural areas. However for Providing Technical support to the Primary Health Care System to strengthen the quality of services being provided, a team of dedicated workers including Medical Officer and other Para-medical worker/ supervisors are placed at district level, known as District Nucleus.

7.1.2 All the urban areas will be covered under the urban leprosy control programme integrating services from all the partners available in the area, including the private practitioners.

7.1.3 As started during the 11th plan, involvement of the Multi-purpose Health functionaries, ASHA in villages and selected NGOs in urban areas are to
be continued for case follow up during treatment to ensure regular MDT collection and consumption, so that all the cases put under treatment gets cured in shortest possible time.

7.1.4 Emphasis will be laid on providing best quality leprosy services through the GHC system. This means easy availability of services on all working days to all patients, correct diagnosis and adequate counseling to patient and family members, provide MDT to patients whenever approached, regular monitoring of the patient during treatment. Treatment completion by all patients will be the desired outcome of the programme.

7.1.5 Regular monitoring and surveillance at National, State, District and Block level will be continued to locate weak areas, so that plan for corrective action can be taken on time. The surveillance medical officer at state level and district nucleus team at district level will enforce routine monitoring and supervision.

7.1.6 Special activities for case detection to be adopted in difficult and inaccessible areas.

7.1.7 Innovative strategy for early case detection - While it is accepted that new cases are occurring regularly and the people are still hesitant to come forward to get themselves diagnosed and treated due to the stigma associated with the disease since long. Detection of the new cases at the early stage is the only solution to cut down the transmission potential in the community and also to provide relief to the leprosy affected persons by preventing disability. However Active search for case detection is not recommended routinely as their procedure puts large number of non–leprosy cases as leprosy which again is not desirable on humanitarian ground. It is therefore suggested that the states will draw up innovative plans so that the leprosy affected persons seek services from the Primary Health Care institutions. In this regard states may consider the following:

- Improved access to services
- Involvement of women including affected persons in case detection
- Skin camps are useful for detecting leprosy patients while providing services for other skin conditions.
- Contact survey to identify the source in the neighbourhood of each child or M.B. cases.
- Maintain regular awareness attempt through the ANM, AWW, ASHA and other Health Workers visiting the villages, to suspect and motivate leprosy affected persons to report to the Medical Officer.
- Involve Representatives of organizations of people affected by leprosy in spreading awareness to motivate people for early reporting to health centres.
7.1.8 Services through ASHA - A scheme to involve ASHA under NRHM was started during 11th plan to bring out cases from their villages for diagnosis at PHC and after diagnosis to follow up the patients for treatment completion. The ASHA will be entitled to receive incentive as below-

(i) On confirmation of cases brought by them – Rs. 100/-
(ii) On completion of full course of treatment within specified time-

PB Leprosy case – Rs. 200/-
MB Leprosy case – 400/-

Before involving the ASHA for leprosy work they were given special sensitization to enable them to take the role for providing quality services to the leprosy affected persons in their home.

It is proposed that the scheme will be further extended in the State/UTs during the 12th plan also.

Table 3

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Yearly costs Average Rs.400</th>
<th>Cost for 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Performance based incentive to ASHA</td>
<td>20,000</td>
<td>100,000</td>
</tr>
<tr>
<td>2 Sensitization of ASHA</td>
<td>6,500</td>
<td>32,500</td>
</tr>
<tr>
<td>Total</td>
<td>26,500</td>
<td>132,500</td>
</tr>
</tbody>
</table>

7.1.9 Additional/New activities during the 12th Plan - It is proposed to cover the identified priority districts under special programme activities during the 12th plan period. As the thrust during the 12th plan is to achieve elimination in all the districts of the country, 209 districts have been identified as priority districts as on March 2011, based on ANCDR more than 10/100,000 population. These 209 districts will be continued to be treated as priority district during the entire plan period, irrespective of change in status expected in any of the years.

Further, on the basis of ANCDR, Disability rate, child case rate and training status of medical and paramedical personnel these 209 districts will be categorized. Special activities will vary according to the category of the district. Similar categorization will also be done in all the districts of the country for suitable necessary action.

Cost:

Table 4

<p>| (Rupees in Thousands) | 156 |</p>
<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Item</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Special activities*&lt;br&gt;In High endemic districts&lt;br&gt;- Active search&lt;br&gt;- Capacity building of staff&lt;br&gt;- Awareness drive&lt;br&gt;- Enhanced monitoring and supervision – 1 person per block&lt;br&gt;- Validation of MB and child cases</td>
<td>150000</td>
<td>-</td>
<td>150000</td>
<td>-</td>
<td>-</td>
<td>300000</td>
</tr>
</tbody>
</table>

* These activities will be carried out twice in five years.

### 7.2 Case Management

**7.2.1** The system of referral of difficult cases to the District hospital for diagnosis and management, which has already been started, will be further strengthened with capacity building of persons involved at PHC as well as District Hospital level. While management of reaction and neuritis to prevent disability will be taken up at the PHC level, all difficult to manage cases will be referred to District Hospital/Leprosy Institutions. Strengthening of the leprosy service delivery components at the District Hospitals will be emphasized.

**7.2.2** The laboratory facilities at the District Hospitals for smear examination to diagnose difficult cases will be further strengthened. Quality control of smears and biopsies can be carried out in central / regional leprosy training institutes and NGO institutions.

**7.2.3** Data for Female, Schedule Tribe and Schedule Caste patients are to be maintained at all levels.

**7.2.4** Prevention of Disability - People affected by leprosy often suffer from deformity of hands, feet or eyes due to involvement of nerves and resultant muscular weakness and paralysis. Such patients may come with deformity at the time of diagnosis of the disease. Although the disease is fully curable on treatment with MDT, however, impairment already developed is not curable.

Further secondary impairment may occur in the hands, feet and eyes due to reaction/ nerve involvement even during treatment. However such deformity
can be prevented more easily than primary impairments by following certain procedures.

Although the number of visible deformity in leprosy affected persons has reduced substantially yet quite a backlog exist for specialized care to remove their deformity. Such efforts will help in regaining the status of the leprosy affected in public mind thereby reducing the stigma to the disease.

During the 10th plan period the programme emphasis was on case detection and treatment so that elimination of leprosy can be achieved quickly. During the XIth plan emphasis had been shifted to providing quality services through prevention of disability and care of the disabled.

- All suspected cases of leprosy reaction, relapse, insensitive hands and feet are referred to PHC for diagnosis. They also empower patients in self-care with material like self-care kit, splints, grip aids etc. for prevention of deformity.

- All PHC Medical Officers diagnose cases of reaction and treat them. Severe reaction cases were referred to the District Hospital, if not responded well within 2 weeks of starting treatment.

- Service and care for impairment such as ulcers, cracks and wounds, septic hand or feet etc. are available from all the Health Institutions routinely. Complicated ulcer cases were referred to District Hospital. Referral centers will be developed depending on the need at all district hospitals and Medical colleges. The referral centers will be supported by dermatologists of district hospital and physiotherapists will function in the centers. Posting of one Physiotherapist for each District Hospital has been proposed on contract basis during the 12th Plan period.

- Microcellular Rubber (MCR) footwear are supplied to the patients with insensitive feet by the District nucleus staff at the concerned Health institution. The States have prepared the list of LAPs with insensitive feet which will help MCR requirement planning during the 12th Plan at the rate of 2 pairs per person.

- PHCs will provide follow up treatment to all patients referred back by the secondary and tertiary level units for reaction, complication or post surgery care.

Operational guidelines for primary, secondary and Tertiary level institutions are available in all Centres.

7.2.5 Medical Rehabilitation Services for the persons with disability -
- All patients with grade II disability diagnosed at the PHC are referred to the District Hospital/ District nucleus for further assessment and care. Cases suitable for RCS are referred by District Hospital to the tertiary level care hospital.

- Aids and appliances for Medical Rehabilitation are supplied to the patients.

- Disability care services will be organized as routine activity and by organizing camps particularly in areas not easily accessible and in Tribal areas. These camps will be used to screen patients for RCS also.

- During the 11th plan new initiatives were undertaken to facilitate reconstructive surgery by involving NGO institutions as well as medical colleges as below:

  ➢ Incentive to patient

As an incentive and to offset the financial difficulties faced by leprosy affected persons who generally belong to Below Poverty Line (BPL) families, undergoing reconstructive surgery at the identified institutions (Government Hospital or NGO Institutions), it was decided to pay an amount of Rs. 5000/- (Rupees five thousand only) per major RCS.

The reimbursement of Rs. 5000/- is sought to be provided for -

- Incentive @ Rs.100/per person x 2 x 20 days = Rs. 4000/-
- Transportation for 2 persons (4-5 times) = Rs. 1000/-
- Total = Rs. 5000/-

Although the scheme to provide incentive to the patients undergoing RCS was very useful in motivating the poor patients, many states reported inability to make the payment, because BPL cards are not available in many States/UTs.

It is therefore proposed that the clause BPL may be substituted with the word ‘poor patients’, for which each State have their own criteria and certification system.

➢ Incentive to Institutions

In addition to the 41 NGO leprosy Institutions who are conducting reconstructive Surgery (RCS), 44 Centres in Govt. Medical Colleges & Hospitals have been identified for RCS.

While the surgeons are conducting RCS free of cost, these institutions have to incur additional expenditure for hospitalization and treatment of patients. As these
are additional activities, some fund is required to procure necessary drugs, dressing materials, Plaster of Paris (POP), splints and other ancillary items required for reconstructive surgery of such patients.

The incentive scheme was approved to provide support to these newly involved Government Medical Colleges / PMR centres @ Rs. 5000/- per major operation conducted, for procurement of supply & material and other ancillary expenditure. Remuneration for surgeon or physiotherapist was not to be incurred out of this fund. NGO institutions were not provided the incentive under this scheme as they were already equipped to provide surgery to LAP with disability.

During the 12th Plan, it is proposed to provide Rs. 5000/- per major operation as incentive to all NGO Institutions who are willing to undertake RCS in leprosy patients as in the case of Govt. Hospitals/Med. Colleges.

Table 5

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Item</th>
<th>Name &amp; Rate</th>
<th>Cost for 1 year</th>
<th>Total cost for 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MCR Foot wear</td>
<td>100,000 pairs per year @ Rs.300/ per pair.</td>
<td>30,000</td>
<td>150,000</td>
</tr>
<tr>
<td>2</td>
<td>Aids &amp; Appliances</td>
<td>Rs.24,000/district/per year 640X 24,000</td>
<td>15360</td>
<td>76,800</td>
</tr>
<tr>
<td>3</td>
<td>Welfare Allowance for RCS patient</td>
<td>Rs.5000 per patientx3000 RCS per year (Refer by DLS)</td>
<td>15,000</td>
<td>75,000</td>
</tr>
<tr>
<td>4</td>
<td>RCS</td>
<td>Rs.5000/- per RCS X 3000 RCS/per year</td>
<td>15,000</td>
<td>75,000</td>
</tr>
<tr>
<td>5</td>
<td>Equipment for RLTRI and CLTRI</td>
<td></td>
<td>200</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>75,560</td>
<td>377,800</td>
</tr>
</tbody>
</table>

7.2.6 Urban Leprosy Control

Urban leprosy control is one of the important component for improving case identification and case management. This aspect needs due attention in the plan.

7.2.6.1 Additional fund for urban areas

These states will be provided additional fund to implement urban control plan under following Heads –

- **Supportive Medicine** – This will be in addition to the provision available under the component for the District Society. That means additional fund will be provided for supportive medicines for the urban area institutions. All institutions should have adequate stock of drugs and materials irrespective of their organization.
- **MDT delivery services and follow up** of under treatment patient. Separate fund will be provided for this component. Local NGO/Volunteers can be engaged for follow up of under treatment patients to cut down treatment defaulters. The State/UT can develop their own mechanism to hire volunteers on need basis.

- **Monitoring, supervision and coordination** by the nodal agency which includes periodic meeting and mobility. Separate fund will be provided for this component as well.

**General fund under District Society**

- **Training** of Medical Officers working in all Govt. and Non-Govt. institutions providing leprosy services. This is covered under training component of the annual action plan.

- **IEC activities** – This is part of the overall IEC plan for the district and funded accordingly.

### 7.2.6.2 Number of urban areas identified for support

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Type of urban area</th>
<th>Number #</th>
<th>Located in State/ UT *</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Township</td>
<td>354</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>Medium Cities – I</td>
<td>55</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>Medium Cities – II</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Mega Cities</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>422</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

#. The exact number of urban areas will be available from 2011 census. The activities and budgets are increased to accommodate increased number of urban areas.

* No additional urban area identified in Arunachal Pradesh, Goa, Sikkim, UT Chandigarh, Dadra & Nagar Haveli, Daman & Diu and Lakshadweep as programme at present is covering all areas of these States/UTs.
### 7.2.6.3 Cost

#### Unit and Annual Cost Activity and Category-wise

**Table 7**

(Rupees in Thousands)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Item</th>
<th>Category of urban area</th>
<th>Activities *</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>A.</td>
<td>Unit cost per year</td>
<td>Township</td>
<td>18</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium City – I</td>
<td>36</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium City – II</td>
<td>72</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mega City</td>
<td>80</td>
<td>240</td>
</tr>
<tr>
<td>B.</td>
<td>Total cost per year</td>
<td>Township – 354</td>
<td>6372</td>
<td>16284</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium City – I – 55</td>
<td>1980</td>
<td>5720</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium City – II – 5</td>
<td>360</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mega City – 8</td>
<td>640</td>
<td>1920</td>
</tr>
<tr>
<td></td>
<td>Total of B</td>
<td>Towns &amp; Cities – 422</td>
<td>9352</td>
<td>24924</td>
</tr>
</tbody>
</table>

* - 1. Supportive Medicine includes Prednisolone, Dressing material and Medicines.
   2. MDT delivery services and follow up of under treatment patient.
   3. Monitoring, supervision and coordination which includes periodic meetings and mobility.

As the category of urban areas are based on population, fund allocation proposed under each of the activities are also estimated on a pro-rata basis.

**Cost for the period 2012-13 to 2016-17 (5 years)**

Total of B x 5 i.e. Rs. 60396000 x 5 = 301980000/-

i.e. 30.198 Crore
7.2.7 Supply of MDT to the leprosy patients is to be maintained free of cost during the 12th plan through WHO.

**Table 8**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Year</th>
<th>Cost of MDT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2012-13</td>
<td>70,000</td>
</tr>
<tr>
<td>2</td>
<td>2013-14</td>
<td>70,000</td>
</tr>
<tr>
<td>3</td>
<td>2014-15</td>
<td>70,000</td>
</tr>
<tr>
<td>4</td>
<td>2015-16</td>
<td>70,000</td>
</tr>
<tr>
<td>5</td>
<td>2016-17</td>
<td>70,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>350,000</td>
</tr>
</tbody>
</table>

7.2.8 Material and supplies including supportive drugs are to be procured at district level under the sub head – supportive drugs, laboratory reagents & equipments and printing of forms.

**Table 9**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Item</th>
<th>Districts</th>
<th>Cost/per district/year</th>
<th>Cost for 1 year</th>
<th>Cost for 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supportive Drugs</td>
<td>640</td>
<td>50</td>
<td>32,000</td>
<td>160,000</td>
</tr>
<tr>
<td>2</td>
<td>Laboratory reagents and equipment</td>
<td>640</td>
<td>10</td>
<td>6400</td>
<td>32,000</td>
</tr>
<tr>
<td>3</td>
<td>Printing forms etc</td>
<td>640</td>
<td>20</td>
<td>12,800</td>
<td>64,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>640</td>
<td>80</td>
<td>51,200</td>
<td>256,000</td>
</tr>
</tbody>
</table>

While most of the medicine required for treatment of leprosy patient should be available in the PHC/Hospitals out of their regular source under NRHM, leprosy patients require some specific drugs for treatment of reactions and disability which are required to be procured separately by the State/District and supply to the primary, secondary & tertiary level institutions.

7.2.9 NGO Services

7.2.9.1 SET Scheme

The Modified SET Scheme was revised with effect from 1st April 2004. The scheme now covers about 40 NGOs/ NGO Hospitals working for the benefit of the leprosy affected persons. The Govt. of India has decentralized the SET scheme sanctioning power to the state Govt. with effect from the year 2006-07. The scheme need to be continued during the 12th plan also.
7.2.9.2 As is the practice now, proposals from NGOs for working in a specific area for NLEP will be submitted to the concerned District Leprosy Officer, who will recommend the suitable proposals to the State Leprosy Officer. The State Leprosy Society will examine the proposal and give approval. Once approved the NGO will receive fund from the State Leprosy Society. The State Leprosy Society will monitor the activities and continue to support the NGO in the subsequent years based on their satisfactory performance. Govt. of India will provide required funds to the SLS for this purpose based on the State Annual Action Plan.

7.2.9.3 Programme need of NGO support

Under the SET Scheme, the NGOs are presently involved for disability prevention and ulcer care, IEC, referral of suspected cases, referral for RCS, Research and Rehabilitation. As the number of cases have gone down dramatically the NGO support can now be extended to ensure follow up of the under treatment cases particularly in urban locations and in difficult to access areas. Such follow up has become necessary because nearly 10% of the patient diagnosed do not take the treatment regularly and often had to be deleted otherwise. For a quality leprosy service one has to ensure that each and every patient complete the treatment in the fixed time. The NGO’s can support the Hospitals/ PHCs in this important activity.

7.2.9.4 The International Federation of Anti-Leprosy Associations (ILEP) & other organizations also support NGOs on their own and will continue to support such organizations as per State Govt.’s need.

7.2.9.5 Cost

<table>
<thead>
<tr>
<th>Table 10</th>
<th>(Rupees in Thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of NGO</td>
<td>Rate per NGO project per year</td>
</tr>
<tr>
<td>50</td>
<td>800</td>
</tr>
</tbody>
</table>

7.3 Stigma reduction

7.3.1 Rationale for proposed IEC strategy

The IEC strategy during the 12th plan period is proposed to be changed in its approach and contents, to focus on communication for Behavioral changes in the general public. Changes are required because –

- Stigma against the disease and discrimination against the leprosy affected persons have been still perceived to be very high. The IEC activities towards
awareness development have helped a lot, but still many more have to be done.

- Certain level of awareness has developed in the communities due to the persistent efforts in communication during last decade. However continuous efforts are needed to cover the uncovered areas. Coverage will have to move from high risk centric to general community at large.

- With reducing number of leprosy cases in the community, awareness about curability of the disease, lessening number of deformity due to leprosy, stigma associated with the disease has become slightly less. The effective way to deal with this difficult challenge of stigma removal is to embark on intensive inter-personal communication (IPC) with the target groups.

- For sustaining the anti-leprosy campaign, it is important to integrate leprosy IEC with the IEC of other Health Programmes. This will address the problem of not having technical expertise on communication at various levels of leprosy offices. IEC planning and implementation will therefore be under the NRHM IEC cell at Central Level and the State/District NRHM Units at Peripheral level.

### 7.3.2 Objectives of the Communication Plan

- To develop effective communication vis-à-vis the target audiences and take on the task of effectively delivering the same.

- To compliment and support the detection and treatment services being provided through the General Health Care System, making it more acceptable to the population.

- To strive to remove stigma surrounding leprosy and prevent discrimination against leprosy affected persons.

- To specifically cover clients, Health providers, influencers and the masses.

### 7.3.3 IEC Plan for the years 2012-17

#### A. Central Level

The Central Leprosy Division will draw up annual plan and implement same with the NRHM IEC unit. Mass media activities at National level will be through Doordarshan channels and AIR. National level press will be used for central level communication.

**Information Design**

- Complete curability and non contagious nature of the disease.
• Availability of good quality treatment (with MDT) free of cost from all Govt. Health Centres.
• Rectification of deformities is possible through surgery.
• Leprosy affected person on treatment can live a normal life alongwith the family.

B. State and Peripheral Level

IEC under NLEP will be decentralized to the States/ UTs who will make their own plan and implement same. Central Leprosy Division will provide broad guidelines with allotted budget to the States/ UTs, who will have the flexibility to allocate cost to districts as per local Priority areas and Target groups to be attended to through

• Mass Media – To a limited extent through local centers of TV, Radio and press in local languages.
• Outdoor Media - Hoardings, Bus panels, Wall paintings, posters, Rallies including Banners.
• Rural Media - IPC group meetings, School IEC, Folk media, Exhibitions and Health Melas.
• Advocacy - Meetings with Zila Parishad, Mahila Mandals, NGOs etc.

For IEC/BCC special efforts will be made for Involvement of people affected by leprosy in improving awareness, case detection and stigma reduction

• Interpersonal Communication (IPC) through the Health staff involving communities, Panchayat leaders and NGO through advocacy workshops will remain the focused approach.

Priority Areas

• States with low literacy rates in general and female literacy rates in particular.
• Tribal population majority areas in State/ UTs
• Endemicity of districts (ANCDR >10/100,000).
• Urban areas with problem of migratory population.
**Target groups**

- Women from the areas where literacy rate is low.
- School children
- Population groups residing in remote inaccessible areas and tribal population.
- Migratory population.
- People living in urban slums.

An IEC campaign towards achieving “Leprosy free India” was started from the 30th January 2008 which continued through the year 2008-09. Main theme of the campaign was based on the concept that –

- The efforts for further reducing leprosy burden in the communities have to be prioritized so that visible deformity in newly detected cases is reduced to the minimum.
- Early reporting and complete treatment of leprosy cases prevent disability.
- Quality of services provided to leprosy affected persons be at optimum level to reduce suffering and prevent consequences in all cases put on treatment.
- Leprosy affected persons will not be stigmatized and discriminated and would lead a socially and economically productive life.

Similar Campaign approach for 15 days of intensive IEC to be organized every year from 30th January which is being observed as Anti Leprosy Day in the country.

**IEC Cost**

**Table 11**

( Rs. In Thousands)

<table>
<thead>
<tr>
<th>Medium</th>
<th>Year</th>
<th>Agency</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass Media (TV, Radio, Press)</td>
<td>20,000</td>
<td>20,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Out Door Media</td>
<td>20300</td>
<td>20300</td>
<td>20300</td>
</tr>
<tr>
<td>Rural; Media</td>
<td>28,000</td>
<td>28,000</td>
<td>28,000</td>
</tr>
<tr>
<td>Advocacy Meetings</td>
<td>4000</td>
<td>4000</td>
<td>4000</td>
</tr>
<tr>
<td>Total</td>
<td>72300</td>
<td>72300</td>
<td>72300</td>
</tr>
</tbody>
</table>
7.4 Development of leprosy expertise

During the 11th plan period a large number of training programmes were organized for different categories of staff under GHC system to cover different aspects of the programme need.

7.4.1 Learning Material

In view of the integration of the leprosy services through the General Health Care staff, the learning materials for training large number of GHC staff were modified, shortened to 3 days duration, printed and supplied to all State/ UTs with ILEP support first in the year 1999. Subsequently again these learning materials were revised, updated and reprinted through ILEP support in the year 2005-06 for District nucleus and other Medical Officers and Health Supervisor/ workers. For POD training also learning material were prepared and used. A training manual for Medical Officers was prepared in 2009-10 and supplied to all States/UTs. A training guide for ASHA was also prepared and supplied.

7.4.2 Training needs during 12th plan period

- Training has to remain a continuous process during the 12th plan period as well. Although the country has achieved elimination of leprosy as a public health problem, yet there are quite a few districts and Block areas that have high endemicity of leprosy. Further, due to huge turnover of Medical Officers in the major states the staff in the Primary Health Centres keep changing every year. In a number of states, Medical Officers on contractual basis works in the PHC, where the turn over is very high. The new entrants are needed to be trained regularly, so that the services to be provided to the people from the GHC system do not suffer. Training of 2 days duration will therefore be carried out every year. This training can be jointly done with the integrated training programme under the National Rural Health Mission.

- Similar 2 days training in leprosy will be required for Medical Officers working in the urban areas both under Govt. and other Non-Governmental institutions regularly.

- In addition to the above mentioned new entrants, remaining Medical Officers under GHC will also require 2 days training. This re-orientation is required firstly to keep the diagnostic and management skill upto date, in view of low number of cases in the community. This should help in improving the quality of services provided by the PHCs. Secondly they should also be able to refer the difficult to diagnose cases to the referral centers i.e. District Hospitals at the earliest. The Disability Prevention and Medical Rehabilitation (DPMR) component will be major focus in all these trainings for the Medical Officers.

- Training for Health Supervisors (M & F) and Health Workers (M & F) for 2 days duration will carried out regularly every year.

Smear examination to detect the Mycobacterium Leprae is one of important requirement for diagnosis of otherwise difficult to diagnose cases. Skin biopsy
examination would be required for a few cases. Biopsy facilities will be made available in central/regional training institutes and institute of pathology and NGO institution. Pathologists will be identified for biopsy investigations and they will function as faculty for training the lab technicians. Now that the district hospitals are being upgraded as referral centre for such cases for diagnosis and management, the laboratory technicians working in these hospitals need to be given specialized re-orientation training under the programme. Atleast 2 lab technicians from each district hospital laboratory are proposed to be trained. These trainings for 2 days duration each will be continued every year on need basis.

- A large number of ASHA are being appointed under NRHM in the states. These village level workers will be provided training on leprosy during their induction training. In addition to sensitize them further one day capacity building at the PHC level will be carried out for all ASHA. Funds under “Services through ASHA” will be utilized for sensitization of ASHA and hence not included separately in the training budget.

- It is to engage Physiotherapist at the District Hospital in a bid to strengthen the Referral Service delivery. These Physiotherapists will be provided 2 days training in identified Institutions.

- Training in programme Management, Supervision & Monitoring is proposed to be given for 3 days to the District Nucleus staff viz. DLO & MO, during the 12th Plan period.

### 7.4.3 Training Load

Rough estimates of human resources to be trained during the 12th plan period has been worked out as below. However, the Districts/States will work out actual requirements in their plans for implementations:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Type of training</th>
<th>Year-wise training load</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medical Officer Training for 2 days.</td>
<td>4500</td>
</tr>
<tr>
<td>2</td>
<td>Physiotherapist Training for 2 days</td>
<td>330</td>
</tr>
<tr>
<td>3</td>
<td>Training for Lab technician for 2 days</td>
<td>750</td>
</tr>
<tr>
<td>4</td>
<td>Training for Health Supervisor/Worker for 2 days</td>
<td>3000</td>
</tr>
<tr>
<td>5</td>
<td>Training for District Nucleus Team for 3 days</td>
<td>300</td>
</tr>
</tbody>
</table>

169
7.4.4 Cost

Unit cost for conducting different courses for 30 persons have been worked out as below:

**Table-13**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Category and type of training</th>
<th>Yearly cost (Rupees in Thousands)</th>
<th>Total Cost (Rupees in Thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medical Officer - Training for 2 days</td>
<td>4992</td>
<td>9984</td>
</tr>
<tr>
<td>2</td>
<td>Physiotherapist - Training for 2 days</td>
<td>1108</td>
<td>1108</td>
</tr>
<tr>
<td>3</td>
<td>Training for Lab technician for 2 days</td>
<td>2520</td>
<td>2520</td>
</tr>
<tr>
<td>4</td>
<td>Training for Health Supervisor/Worker for 2 days</td>
<td>9984</td>
<td>9984</td>
</tr>
<tr>
<td>5</td>
<td>Management Training for District Nucleas Team for 3 days</td>
<td>81501</td>
<td>81501</td>
</tr>
</tbody>
</table>

**Year-wise and Category-wise training cost**

**Table 14**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Category and type of training</th>
<th>Yearly cost (Rupees in Thousands)</th>
<th>Total Cost (Rupees in Thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medical Officer - Training for 2 days</td>
<td>11175</td>
<td>11175</td>
</tr>
<tr>
<td>2</td>
<td>Physiotherapist - Training for 2 days</td>
<td>554</td>
<td>554</td>
</tr>
<tr>
<td>3</td>
<td>Training for Lab technician for 2 days</td>
<td>1260</td>
<td>1260</td>
</tr>
<tr>
<td>4</td>
<td>Training for Health Supervisor/Worker for 2 days</td>
<td>5040</td>
<td>5040</td>
</tr>
<tr>
<td>5</td>
<td>Management Training for District Nucleas Team for 3 days</td>
<td>1080</td>
<td>1080</td>
</tr>
</tbody>
</table>

| Total   | 19109 | 19109 | 17295 | 17295 | 8693 | 81501 |
7.4.5 **Revival of training in Leprosy**

In addition to the short course training given to the different categories of staff, it is felt necessary that longer duration courses for developing expertise in leprosy diagnosis and case management is necessary. Such trainings were held in pre-integration days at the govt. leprosy institutions viz. the central leprosy research and training institute, Chengalpattu, Tamilnadu and the three Regional Leprosy Research and training institutes at Raipur, ASKA and Gouripur. Such longer duration courses are required for State Leprosy Officers/ District Leprosy Officers, Medical Officers, Non-Medical Supervisors, Non-Medical Assistant/PMW and Physiotherapist. These institutes need to be revived for such longer job oriented courses for which curriculum and plan need to be worked out. In addition to the Govt. leprosy institutions, other institutions that can be linked up are the National Institute for Health and Family Welfare, Delhi, Schieffeline Institute of Health Research and Leprosy Center, Karigiri, Tamilnadu and Training Center of The Leprosy Mission, Naini, Uttar Pradesh.

7.4.6 **Updating of leprosy curriculum in under graduate medical course**

It is observed that the teaching in leprosy in the undergraduate medical curriculum is not in accordance with the National Leprosy Eradication Programme. This makes it difficult for the fresh MBBS graduates to fully grasp the need of the programme to deliver as per public health requirement. Linkages are to be developed with the medical council of India and medical universities for updating the course curriculum as per programme requirement. Till such time it is necessary to impart NLEP oriented training in Leprosy to fresh MBBS graduates.

7.4.7 **Training of other graduates**

Similar changes in curriculum need to be developed in relation of Para medical and nursing courses in consultation with their respective councils.

7.5 **Operational Research**

7.5.1 **Priority Topics** : It is proposed to carry out Operational research during the 12th Five Year Plan on the following topics

- Missing cases
- Training Need assessment
- Self-care kit in POD
- Management of cases with reactions under the program
- Focused approach for IEC
- Drug resistance surveillance

These studies will be carried out through ICMR or other organizations viz. CLTRI, RLTRIs, SIHR&LC Karigiri, The Leprosy Mission, National Institute of Epidemiology Chennai, JALMA institute, Agra, Blue Peter Public Health & Research Center, LEPRA, Hyderabad and Stanley Brown Lab, TLM Delhi as identified by the Central Leprosy Division.
### 7.5.2 Cost

#### Table 15

(Rupees in Thousands)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Missing cases</td>
<td>1000</td>
<td>1000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2000</td>
</tr>
<tr>
<td>2.</td>
<td>Training need assessment</td>
<td>1000</td>
<td>1000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2000</td>
</tr>
<tr>
<td>3.</td>
<td>Self-care kit in POD</td>
<td>2000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2000</td>
</tr>
<tr>
<td>4.</td>
<td>Mgmt. of cases with reactions</td>
<td>1000</td>
<td>1000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2000</td>
</tr>
<tr>
<td>5.</td>
<td>Developed focus approach for IEC</td>
<td>2000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>7500</strong></td>
<td><strong>3500</strong></td>
<td><strong>500</strong></td>
<td><strong>500</strong></td>
<td>-</td>
<td><strong>12000</strong></td>
</tr>
</tbody>
</table>

### 7.6 Supervision, Monitoring and Review

#### 7.6.1 Supervision and Travel cost

The programme will mainly provide services through the General Health Service infrastructure with supervisory support from the District nucleus staff. Supervisory visits will be made by the Central/State level officers & experts drawn from other organization as well. While regular State Govt. staff & experts will be drawing their TA/DA from the source of their salary, but contract staff like surveillance Medical Officer, BFO and drivers will have to be paid from the programme budget. In addition, NMS posted to the special category of states will also have to be paid TA/DA from programme budget. Similarly travel will have to be made by the consultants from the Central Leprosy Division to various states.

#### Travel Cost for different level officials

#### Table 16

(Rupees in Thousands)

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Categories</th>
<th>Annual Rate (In Rupees)</th>
<th>Yearly Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Central Leprosy Division</td>
<td>300000</td>
<td>300</td>
<td>1500</td>
</tr>
</tbody>
</table>
| 2.     | States/ UTs           | (a) States with > 50 districts – 150000: 2  
(b) States with > 25-49 districts – 100000 : 8  
(c) States with >10-24 districts – 80000 : 12  
(d) States with > 5 - 9 districts – 60000 : 5  
(e) State/UT with up to 5 districts – 40000 : 9 | 300         | 800     |
|        |                       |                         | 960         |        |
|        |                       |                         | 240         |        |
|        |                       |                         | 360         |        |
|        |                       | 640 districts X 25000    | 16000       | 80000  |
| **Total** |                           |                         | **18960**   | **94800** |
7.6.2 Programme Monitoring

(i) Appraisal

While programme will be monitored at different level through analysis of routine reports and through field visits by the supervisory officers, it is proposed that there should be a component of Programme appraisal by a committee of experts identified by the programme, twice during the plan period. Such appraisal may be conducted during the 2nd and the 4th year of the plan.

Cost

Table 17

(Rupees in Thousands)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity</th>
<th>Year and Cost</th>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2013-14</td>
<td>2015-16</td>
</tr>
<tr>
<td>1</td>
<td>Programme Appraisal</td>
<td>5000</td>
<td>5000</td>
</tr>
</tbody>
</table>

The appraisal of the programme will be carried out after drawing out specific Terms of Reference (TOR)

(ii) Annual Assessment

Performance under the programme will be annually assessed by an Independent expert group.

Cost

Table 18

(Rupees in Thousands)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity</th>
<th>Yearly Cost</th>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Programme Assessment by Independent expert group</td>
<td>2000</td>
<td>10,000</td>
</tr>
</tbody>
</table>

7.6.3 Review Meetings

- Programme review meetings are to be held periodically at Central, State and District level. At central level, Annual review meeting for the State Leprosy Officers will be continued to be held every year with funds from WHO country budget subject to the agreement with WHO.

- Regional review meetings for SLOs will be supported by ILEP (3 meetings per year) subject to the agreement with ILEP.
- A review meeting of all institutions involved in DPMR services will be held every year from programme budget.

- Similar review meeting for NGOs working under the NLEP were also held earlier annually with WHO biennium funds. As this has been discontinued, NGO review meeting is proposed to be held for review of performance of NGOs under ‘modified SET scheme’ twice during the plan period.

- At state level quarterly review meetings for the District level officers are to be held every year with programme funds. For this activity budget is to be earmarked under the plan. NGO’s working in the states are also to be invited these meetings for review of their activities.

- At district level, monthly review meetings are held under the chairmanship of the District Chief Medical and Health Officer in which leprosy is also discussed. Separate fund for this purpose is not needed from the programme budget.

Cost

Table 19

(Rupees in Thousands)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity</th>
<th>Periodicity</th>
<th>Unit Cost (In Rs.)</th>
<th>Yearly Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Review of institutes involved in DPMR</td>
<td>Annual</td>
<td>1000</td>
<td>1000</td>
<td>5000</td>
</tr>
<tr>
<td>2.</td>
<td>NGO review meeting</td>
<td>Biennial</td>
<td>1000</td>
<td>-</td>
<td>2000</td>
</tr>
<tr>
<td>3.</td>
<td>State level review meeting</td>
<td>Quarterly</td>
<td>20000 to 50000</td>
<td>5272</td>
<td>26360</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Avg.25000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>District level review meeting</td>
<td>Monthly</td>
<td>No cost</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>6272</td>
<td>33360</td>
</tr>
</tbody>
</table>
7.6.4 Office operation and Maintenance

Following provisions are being made under different heads of office operation and maintenance.

7.6.4.1 Office Expenditures

Table 20

(Rupees in Thousands)

<table>
<thead>
<tr>
<th>Item</th>
<th>No. of units</th>
<th>Rate per year</th>
<th>Total for 1 year</th>
<th>Total for 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent, Telephone, Electricity, P&amp;T charges, Miscellaneous District</td>
<td>640</td>
<td>35 / distt.</td>
<td>22400</td>
<td>112000</td>
</tr>
<tr>
<td>State Leprosy Cell</td>
<td>36*</td>
<td>75 / state</td>
<td>2700</td>
<td>13500</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>676</strong></td>
<td></td>
<td><strong>25100</strong></td>
<td><strong>125500</strong></td>
</tr>
<tr>
<td>Office Equipment Maintenance cost</td>
<td>36*</td>
<td>50 / state</td>
<td>1800</td>
<td>9000</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>36</strong></td>
<td></td>
<td><strong>1800</strong></td>
<td><strong>9000</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>26900</strong></td>
<td><strong>134500</strong></td>
</tr>
</tbody>
</table>

*Jammu Division & Kashmir Division of J&K are treated as separate state units.

7.6.4.2 Consumables

Table 21

(Rupees in Thousands)

<table>
<thead>
<tr>
<th>Item</th>
<th>No. of units</th>
<th>Rate per year</th>
<th>Total for 1 year</th>
<th>Total for 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationary Items District</td>
<td>640</td>
<td>30 / distt.</td>
<td>19200</td>
<td>96000</td>
</tr>
<tr>
<td>State Leprosy Cell</td>
<td>36*</td>
<td>50 / state</td>
<td>1800</td>
<td>9000</td>
</tr>
<tr>
<td>Central Leprosy Div.</td>
<td>1</td>
<td>75</td>
<td>75</td>
<td>375</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>648</strong></td>
<td></td>
<td><strong>21075</strong></td>
<td><strong>105375</strong></td>
</tr>
</tbody>
</table>

*Jammu Division & Kashmir Division of J&K are treated as separate state units.

7.6.5 Vehicle Hiring and POL / Maintenance

Mobility for man and material is important to run the programme smoothly. Each district should have one running vehicle for mobility of district nucleus team and DLO. The vehicles provided to the districts under NLEP are now very old and many districts do not even have a vehicle. Provision of hiring vehicle was made
during the 11\textsuperscript{th} plan period. It would be useful for the programme to keep provision for hiring of one vehicle per district where no vehicle is available.

For the 36 state societies (Jammu Division & Kashmir Division of J&K are treated as separate units) provision has been kept for 2 vehicles each for the 12\textsuperscript{th} five year plan period also.

\textbf{Cost}

\textbf{Table 22}

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Office</th>
<th>No. of Units</th>
<th>No of Vehicles</th>
<th>Rate per year per vehicles</th>
<th>Total for one year</th>
<th>Total for 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>District leprosy unit</td>
<td>640</td>
<td>640</td>
<td>150</td>
<td>9600</td>
<td>480,000</td>
</tr>
<tr>
<td>2</td>
<td>State Leprosy Office</td>
<td>36</td>
<td>72</td>
<td>200</td>
<td>14400</td>
<td>72000</td>
</tr>
<tr>
<td>3</td>
<td>Central; Leprosy Division</td>
<td>1</td>
<td>1</td>
<td>150</td>
<td>150</td>
<td>750</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>677</strong></td>
<td><strong>713</strong></td>
<td></td>
<td><strong>110550</strong></td>
<td><strong>552750</strong></td>
</tr>
</tbody>
</table>

\textbf{7.7 Increased participation of persons Affected by Leprosy in NLEP}

The stigma associated with leprosy, which has prevailed in virtually every culture and has resulted in discrimination, stereotypes, labeling and ultimately the exclusion of individuals affected by leprosy from equal participation in society. Adoption by the UN General Assembly on 21\textsuperscript{st} December 2010 of the resolution on principles and guidelines for the elimination of discrimination against persons affected by leprosy and their family members was a milestone. The WHO (2011) has brought out guidelines for strengthening participation of persons affected by leprosy in leprosy services. Accordingly it is felt necessary to keep this aspect while formulating the 12\textsuperscript{th} five year plan.

\textbf{7.7.1 Primary issues in the WHO guidelines are – stigma and discrimination, equity, social justice and human rights and gender equality.} It is suggested that it is necessary to

a. Work with persons affected by leprosy to identify and change negative attitude, belief and practice
b. Provide opportunities to share experiences, develop new attitudes and acquire new skills
c. Work with individuals and organisations representing persons affected by leprosy, to educate people who have experience leprosy, programme staff and the community about human rights.
d. Develop / support group especially for women
e. Promote participation of women in delivery of services
Under NLEP, it is proposed to encourage increased participation of persons affected by leprosy in planning as well as in programme implementation. At the central level, the Chairman of the National Forum for People Affected by Leprosy is a member of the Technical Resource Group on NLEP. Towards this end, the States / UTs will be requested to include one member from the local organization of persons affected by leprosy in each of the following committees:

i) Village Health and Sanitation committee

ii) PHC Health Monitoring and Planning committee

iii) Block Health Monitoring and Planning committee

iv) District Health Monitoring and Planning committee

v) State Health Monitoring and Planning committee

Programme Management

The erstwhile state & district leprosy societies have been merged with the state & district health societies. The state & district leprosy units will work under Health societies. However, a separate NLEP account will be maintained under NRHM.

Central Leprosy Division

The Central Leprosy Division need to be provided with consultants for different vital functions like, Disability care, Training/IEC, Finance, public health, Programme Monitoring, Research & Evaluation, Data entry operator, Programme assistant and Driver.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Post</th>
<th>No</th>
<th>Consolidated Salary per month in Rupees</th>
<th>Cost for 1 year</th>
<th>Total cost for 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Public Health Consultant</td>
<td>1</td>
<td>50,000</td>
<td>600</td>
<td>3000</td>
</tr>
<tr>
<td>2</td>
<td>Training/IEC Consultant</td>
<td>1</td>
<td>50,000</td>
<td>600</td>
<td>3000</td>
</tr>
<tr>
<td>3</td>
<td>DPMR Consultant</td>
<td>1</td>
<td>50,000</td>
<td>600</td>
<td>3000</td>
</tr>
<tr>
<td>4</td>
<td>Programme Monitoring</td>
<td>1</td>
<td>50,000</td>
<td>600</td>
<td>3000</td>
</tr>
<tr>
<td>5</td>
<td>Research &amp; Evaluation</td>
<td>1</td>
<td>45,000</td>
<td>540</td>
<td>2700</td>
</tr>
<tr>
<td>6</td>
<td>Finance</td>
<td>1</td>
<td>40,000</td>
<td>480</td>
<td>2400</td>
</tr>
<tr>
<td>7</td>
<td>Logistics &amp; Supply</td>
<td>1</td>
<td>40,000</td>
<td>480</td>
<td>2400</td>
</tr>
<tr>
<td>8</td>
<td>Date Entry Operator</td>
<td>5</td>
<td>12,000</td>
<td>720</td>
<td>3600</td>
</tr>
<tr>
<td>9</td>
<td>Prog. Assistant</td>
<td>2</td>
<td>15,000</td>
<td>360</td>
<td>1800</td>
</tr>
<tr>
<td>10</td>
<td>Driver</td>
<td>1</td>
<td>11,000</td>
<td>132</td>
<td>660</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td></td>
<td><strong>5112</strong></td>
<td><strong>25560</strong></td>
<td></td>
</tr>
</tbody>
</table>
7.8.2. State Leprosy Societies

7.8.2.1 In the 27 States viz. Andhra Pradesh, Assam, Arunachal Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Jammu & Kashmir (separate SLS for Jammu division also), Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamilnadu, Tripura, Uttar Pradesh, Uttarakhand and West Bengal, for strengthening the State Leprosy Unit, as during the 11th Plan Period, following categories of staff will be required to be provided to the State Leprosy Unit on contract basis for smooth functioning:

- Budget and Finance cum Admin. Officer – 1
- Admin. Assistant – 1
- Data Entry Operator – 1
- Driver – 1

7.8.2.2 In 8 smaller State/ UTs viz. Goa, Delhi, Chandigarh UT, A& N Island, Lakshadweep, D&N Haveli, Puducherry and Daman & Diu. following categories of staff will be required to be provided to the HQ State Leprosy Unit on contract basis for smooth functioning:

- Admin. Assistant – 1
- Data Entry Operator – 1
- Driver – 1

7.8.2.3 These staff will be in addition to the regular staff being provided to the State & District Leprosy Unit by the State/ UT from Non-Plan budget. The State Leprosy Unit will also tie up with the state NRHM and get the benefit from the Financial Management Unit as well as the state Data Management Units. The State Leprosy Officers are likely to be holding more than one post. In such a situation, another officer is needed to be in position in the State HQ Cell to assist the State Leprosy Officer. During the 11th Plan a Surveillance Medical Officer (SMO) was posted in the 27 major states and in Delhi, Chandigarh and Dama & Nagar Haveli. The SMO may be a Medical graduate (MBBS) with about 5 years experience in working in any public Health Programme. The post of SMO is proposed to be continued during the 12th plan period in the 30 States and UTs.
Manpower Cost

Table 24

(Rs. In Thousand)

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Post</th>
<th>No</th>
<th>Consolidated salary per month/per person (in Rupees)*</th>
<th>Cost for 1 year</th>
<th>Cost 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Surveillance Medical Officer</td>
<td>30</td>
<td>40,000</td>
<td>14,400</td>
<td>72,000</td>
</tr>
<tr>
<td>2</td>
<td>Budget &amp; Finance officer cum Administrative officer</td>
<td>28</td>
<td>30,000</td>
<td>10,080</td>
<td>50,400</td>
</tr>
<tr>
<td>3</td>
<td>Admin Assistant</td>
<td>36</td>
<td>16,000</td>
<td>6,912</td>
<td>34,560</td>
</tr>
<tr>
<td>4</td>
<td>Data Entry Operator</td>
<td>36</td>
<td>12,000</td>
<td>5,184</td>
<td>25,920</td>
</tr>
<tr>
<td>5</td>
<td>Driver</td>
<td>36</td>
<td>11,000</td>
<td>4,752</td>
<td>23,760</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>136</strong></td>
<td></td>
<td><strong>41328</strong></td>
<td><strong>206640</strong></td>
</tr>
</tbody>
</table>

*The salaries are indicative and need to be firmed up considering respective state salaries and NRHM scales.

7.8.3 District Leprosy Society

7.8.3.1 The District Leprosy Offices will function during the 12th Plan period, with the existing staff. The District Leprosy Officer either full or part-time, and a fully functional District Nucleus will be the basic structure of the DLS. In addition to the regular staff being provided to the District Leprosy Cell following staff on contract basis will be required.

Although 209 districts have been identified as high endemic districts there may be some other districts where special activities may be required to be conducted. It is proposed to place one Medical Officer in each of about 300 high endemic districts to strengthen district leprosy programme.

Physiotherapists are essential for POD care and for pre and post RCS care, who are not available under the programme now. It is proposed to keep provision for 300 Physiotherapists on Contractual basis in the District Hospitals of high endemic districts, so that the referral system can be put in right perspective.

During the 11th plan period, provision of 1 contractual driver per district where regular driver was not available was kept for use (A total of 300 drivers were provided). Provision for about 300 contractual drivers have been kept for the 12th plan period. However the allotment per state will be based on actual requirement.
indicated in the annual action plan. The states are requested to utilize services of surplus drivers available in health departments / other departments in districts which could be utilized for running vehicles under NLEP.

Table 25

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Post</th>
<th>No</th>
<th>Consolidated Salary per month in Rupees</th>
<th>Cost for 1 year</th>
<th>Cost 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medical officer</td>
<td>300</td>
<td>40,000</td>
<td>144000</td>
<td>720,000</td>
</tr>
<tr>
<td>2</td>
<td>Physiotherapist*</td>
<td>300</td>
<td>25,000</td>
<td>90,000</td>
<td>450000</td>
</tr>
<tr>
<td>3</td>
<td>Driver</td>
<td>300</td>
<td>11,000</td>
<td>39,600</td>
<td>1,98,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>273600</strong></td>
<td><strong>1368,000</strong></td>
</tr>
</tbody>
</table>

7.8.3.2 During the 11th Plan period a few skeleton leprosy staff was provided to the states of Punjab, Haryana, Delhi, Chandigarh UT and Dadra & Nagar Haveli as they did not have any regular staff to even form the district nucleus. Provision of one NMS per district need to be made for these States/UTs during the 12th Plan period. One NMS is also proposed to be provided to Lakshadweep on contract basis, during 12th Plan, as the UT has no regular NMS.

Table 26

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>State /UT</th>
<th>No. of NMS</th>
<th>Consolidated Salary per month in Rupees</th>
<th>Cost for 1 year</th>
<th>Cost 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Punjab</td>
<td>20</td>
<td>20,000</td>
<td>4800</td>
<td>24000</td>
</tr>
<tr>
<td>2</td>
<td>Haryana</td>
<td>21</td>
<td>20,000</td>
<td>5040</td>
<td>25200</td>
</tr>
<tr>
<td>3</td>
<td>Delhi</td>
<td>10</td>
<td>20,000</td>
<td>2400</td>
<td>12000</td>
</tr>
<tr>
<td>4</td>
<td>Chandigarh UT</td>
<td>2</td>
<td>20,000</td>
<td>480</td>
<td>2400</td>
</tr>
<tr>
<td>5</td>
<td>Dadra &amp; Nagar Haveli</td>
<td>1</td>
<td>20,000</td>
<td>240</td>
<td>1200</td>
</tr>
<tr>
<td>6</td>
<td>Lakshadweep</td>
<td>1</td>
<td>20,000</td>
<td>240</td>
<td>1200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>55</strong></td>
<td></td>
<td><strong>13200</strong></td>
<td><strong>66000</strong></td>
</tr>
</tbody>
</table>

7.8.3.3 For better programme management, it is essential that the District Nucleus component is filled up with DLO, MO, NMS/PMW and Physiotherapist / Physio-technician as per requirement with mobility support.

7.8.3.4 The District Nucleus unit members should be well trained and remain functional.

7.8.4 Block PHC
7.8.4.1 Leprosy was a vertical programme run by specially trained staff under the District Leprosy Officers till 2002-03. The teams had adequate staff strength with mobility support. The integration of leprosy services with the General Health Care system was started from the year 2002-2003 and was completed by March 2005. At that time only 25% of the erstwhile vertical staff (NMS, PMW, Physiotechnician, Health educator etc.) were retained with NLEP and rest of the staff was surrendered to the GHC to work as Multi-Purpose Workers and Supervisors. During this process senior persons were retained under NLEP as they had greater expertise. During the last 6 years, a number of persons have retired on superannuation and in most of the states, these posts remained unfilled. This resulted in shortage of manpower like Para Medical Worker (PMW) at block PHC level.

7.8.4.2 To run the NLEP at block level, the medical officers are still dependent on the vertical components, which are gradually receding. The GHC staff has to perform various other programme works and therefore to provide one person only for leprosy work is getting difficult. In high endemic districts and block having ANCDR > 10/100,000 population, due care could not be provided to the persons affected by leprosy.

7.8.4.3 The SLOs are voicing their concern as programme activities as designed for NLEP are not being fully carried out at block PHC level, resulting in not attaining the level of quality services as desired. It is therefore felt necessary that during the 12th five year plan, the state should be advised to post one PMW in the block PHC in each high endemic block.

7.8.4.4 In the 300 high endemic districts identified for special action during the 12th five year plan, there are approx.3000 blocks with ANCDR>10/100,000 population. Provision of about 3000 PMWs on contracts basis, need to be made under the plan.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Post</th>
<th>No</th>
<th>Consolidated Salary per month in Rupees</th>
<th>Cost for 1 year</th>
<th>Cost for 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Para Medical Worker</td>
<td>3000</td>
<td>16,000</td>
<td>576,000</td>
<td>288,00,00</td>
</tr>
</tbody>
</table>

7.8.5 Central Govt. Institutions

7.8.5.1 Central Leprosy Teaching and Research Institute (CLTRI), Chengalpattu and 3 Regional Leprosy Teaching and Research Institute (RLTRI) at Raipur, Aska and Gouripur are to continue to provide support to the programme during the 12th
plan period. These Central Govt. Institutions will not involve any cost to the programme, for these regular activities.

However it is proposed to upgrade the Central Leprosy Teaching and Research Institution (CLTRI), Chengalpattu and the Regional Leprosy Teaching and Research Institution (RLTRI), Raipur to the level of comprehensive Rehabilitation Institutes.

For the above purpose, following categories of staff are proposed to be provided on contractual basis

(i) Junior Resident - 2 (1 for each Institution)
(ii) Orthotist / Prosthetist - 2 (do)
(iii) OT Technician - 2 (do)
(iv) Data Entry Operator - 2 (do)

In addition provision for few necessary equipment has been kept.

7.8.5.2 Cost

Table 28

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Item</th>
<th>No</th>
<th>Consolidated Salary per month in Rupees</th>
<th>Cost for 1 year</th>
<th>Cost for 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Junior Resident</td>
<td>2</td>
<td>35,000</td>
<td>840</td>
<td>4200</td>
</tr>
<tr>
<td>2</td>
<td>Orthotist/Prosthetist</td>
<td>2</td>
<td>20,000</td>
<td>480</td>
<td>2400</td>
</tr>
<tr>
<td>3</td>
<td>OT Technician</td>
<td>2</td>
<td>15,000</td>
<td>360</td>
<td>1800</td>
</tr>
<tr>
<td>4</td>
<td>Data Entry Operator</td>
<td>2</td>
<td>12,000</td>
<td>288</td>
<td>1440</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>8</td>
<td></td>
<td>1968</td>
<td>9840</td>
</tr>
</tbody>
</table>

Additional/New activities during the 12th Plan

It is proposed to cover the identified priority districts under special programme activities during the 12th plan period. As the thrust during the 12th plan is to achieve elimination in all the districts of the country, 209 districts have now been identified as priority district as on March 2011 based on ANCDR more than 10/100,000 population. These 209 districts will be continued to be treated as priority district during the entire plan period, irrespective of change in status expected in any of the years.

Further, on the basis of ANCDR, Disability rate, child case rate and training status of medical and paramedical personnel these 209 districts will be categorized. Special activities will vary according to the category of the district. Similar categorization will also be done in all the districts of the country for suitable necessary action.
Cost

Table-29

(Rupees in Thousands)

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Item</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Special activities In High endemic districts</td>
<td>104500</td>
<td>-</td>
<td>104500</td>
<td>-</td>
<td>-</td>
<td>Rs. 20.90 Cr.</td>
</tr>
</tbody>
</table>

8 Budget and source of funds

Proposed requirement of fund under 12th plan budget has been worked out to Rs 787.00 crore. Entire cost is to be borne out of Govt. of India budget except for free supply of MDT drugs till 2017 by WHO. Year-wise and Source-wise budget proposed are as below:-

Table 30

(Rupees in Crores)

<table>
<thead>
<tr>
<th>Source</th>
<th>Year-wise Budget</th>
<th>Total Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOI</td>
<td>160.03</td>
<td>145.13</td>
</tr>
<tr>
<td>EAC</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Total</td>
<td>167.03</td>
<td>152.13</td>
</tr>
</tbody>
</table>

Component and item-wise proposed budget is given at Annexure – I/A.

9 Additional Support to NLEP

9.1 World Health Organization (WHO)

MDT

WHO has already intimated that the support of providing MDT & BCPs for treatment of all leprosy patients in the country will continue with funds from donor NOVARTIS.

Special Package for NLEP

The support being provided by WHO with funds provided by the Sasakawa Memorial Health Foundation and The Nippon Foundation, Japan is to continue till December 2011.

WHO support under this Head during 12th Plan is not known.
9.2 International Federation of Anti-leprosy Association (ILEP)

The ten members organization working as Partners in NLEP in India under the banner of International Federation of Anti-Leprosy Associations (ILEP) is providing support to NLEP as a partner till March 2012 as per MoU signed between the GoI and the ILEP on 24th October 2007.

The ILEP support during the 12th Five Year Plan and its scope is not known.

10 Expected Outcome

The Main indicators to be used under the programme to measure the progress and outcome expected are as below

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Outcome expected by March 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR &lt; 1/10,000 all districts</td>
<td>100%</td>
</tr>
<tr>
<td>ANCDR &lt;10/100,000 all districts)</td>
<td>100%</td>
</tr>
<tr>
<td>Cure rate MB</td>
<td>&gt;95%</td>
</tr>
<tr>
<td>Cure rate PB</td>
<td>&gt;97%</td>
</tr>
</tbody>
</table>

No. and rate of new cases with Gr. II disabilities cases/10,00,000 population-35% reduction (Base – 2011-12)

Other additional indicators to assess the quality of services provided e.g. proportion of cases correctly diagnosed, Defaulter rates, Cases with disability after initial treatment, number of relapses, Proportion of new MB, Child, Female and Disability cases are to be used.
Annexure – I/A

Component and Item-wise Cost for 5 Years of 12th Plan
(April 2012 to March 2017)

(Rs in Crores)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Component</th>
<th>Component-wise cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Early Case Detection</td>
<td>43.25</td>
</tr>
<tr>
<td>2</td>
<td>Case Management</td>
<td>148.57</td>
</tr>
<tr>
<td>3</td>
<td>Stigma Reduction</td>
<td>36.15</td>
</tr>
<tr>
<td>4</td>
<td>Development of Leprosy Expertise</td>
<td>8.15</td>
</tr>
<tr>
<td>5</td>
<td>Operational Research</td>
<td>1.20</td>
</tr>
<tr>
<td>6</td>
<td>Supervision Monitoring &amp; Review</td>
<td>94.07</td>
</tr>
<tr>
<td>7</td>
<td>Programme Management</td>
<td>455.60</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>787.00</strong></td>
</tr>
</tbody>
</table>
National Center for Disease Control (NCDC)
INDEX

A. NCDC: ONGOING ACTIVITIES

1. NCDC UP-GRADATION

2. Pilot Project on Prevention and Control of Leptospirosis in 11th Plan

3. Pilot Project on Prevention & Control of Rabies in 11th Plan

4. Disease Surveillance and Response Programme

5. Surveillance of YAWS & Guinea worm


B. New Activities during 12th Plan

7. Up-gradation of existing regional branches and establishment of 27 new branches of NCDC

8. National Programme for Containment of Antimicrobial Resistance (AMR)

9. Prevention & Control of Viral Hepatitis

10. Establishment of inter-sectoral coordination and control of selected Priority Zoonotic Diseases
ONGOING ACTIVITIES
1. **NCDC UP-GRADATION**

National Centre for Disease Control (NCDC), formerly known as National Institute of Communicable Diseases (NICD), is an apex public health institution which was established to function as a national centre of excellence for control of communicable diseases and in the areas of training and research using multi-disciplinary integrated approach. The institute provides expertise to the States and Union Territories (UTs) on rapid health assessment and laboratory based diagnostic services. Surveillance of communicable diseases and outbreak investigation also form an indispensable part of its activities.

In view of the changing disease scenario and emerging public health challenges, there is a need to broaden the scope of NCDC. This institute provides technical expertise in the field of disease control activities and acts as a center of excellence for man-power development, providing technical guidelines and advice to various health agencies including national authorities. It undertakes surveillance of major communicable diseases, keeps vigil over emerging health problems and recommends appropriate measures to the Government to tackle the situation. NCDC played a major role in successful eradication of Smallpox and Guinea worm disease from India, has been the nodal agency in containment of SARS, Avian Influenza & Pandemic Influenza and is also working towards Yaws Eradication.

NCDC, with its composite expertise for disease investigation, prevention/control and management activities, is unique among all public health institutes in the country.

The Institute has eight out-station branches located in different states at Alwar (Rajasthan), Bangalore (Karnataka), Coonoor (Tamil Nadu), Jagdalpur (Chhattisgarh), Kozhikode (Kerala), Patna (Bihar), Rajamundry (Andhra Pradesh) and Varanasi (Uttar Pradesh).

The Institute is proposed to be upgraded as a Centre for Disease Control and renamed as the National Institute for Disease Control (NCDC).

The up-gradation of this premier institute in the country tasked to address the matters relating to infectious diseases is the need of the hour particularly when it is called upon to address newer infections and is also to keep pace with developments in disease control happening around the globe. Laboratories shall be strengthened through procurement of modern equipment to make the diagnostic services modernized, including induction of rapid diagnostic support services. The proposed up-gradation envisages creation of newer centers, newer divisions and up scaling of the existing ones to cope-up with the ever increasing horizon and magnitude of emerging and re-emerging and new diseases. The expected outcomes from proposed upgradation, amongst others would include:

- Enhanced scope of referral diagnostic support services for disease outbreak investigations and networking of public health laboratories.
- Enhanced data management capacity under Integrated Disease Surveillance
- Enhanced capacity for development of trained manpower in public health.
Trained, dedicated Central Rapid Response Teams (RRTs) available 24X7 for disease outbreak control.
Enhanced quality operational research for better disease control.
Preparedness against probable threats of bioterrorism.

EFC recommended the project at a total cost estimates of Rs.382.41 crores. The cabinet committee on economic affairs (CCEA) approved the proposal in December, 2010. National Building construction corporation (NBCC) has been engaged as an agency for construction of civil and services works. Agreement between NCDC and NBCC is under finalization and expected to be executed shortly. Specifications for equipment to be procured and installed have been finalized. Out of 245 additional posts proposed, 103 technical posts have since been sanctioned by the government. The matter is being followed for sanction of the remaining additional posts proposed. In addition, efforts are being made at various levels to obtain approvals from local authorities on the site plan and master plan before tender is floated by the construction agency.

1.1 Status of upgradation of NCDC

- HSCC (India) Limited, NOIDA engaged as Consultant for preparation of Detailed Project Report (DPR). DPR-I and DPR-II submitted by HSCC.
- The Expenditure Finance Committee under the Chairpersonship of Secretary (Expenditure), Department of Expenditure, Ministry of Finance recommended the proposal for proposed upgradation of NICD to NCDC in its meeting held on 3rd August, 2010.
- Cabinet Committee on Economic Affairs (CCEA) approved the proposal in December, 2010 at a total cost estimate of Rs.382.41 crore.
- National Buildings Construction Corporation (NBCC), New Delhi has been engaged as agency for construction of civil and services works. Agreement to be executed between NBCC and NCDC is under finalization.
- The matter is being pursued regularly at various levels for obtaining required approvals of the various local authorities (clearances from Delhi Development Authority and Delhi Fire Services Department on master plan and site plan received. Application for seeking clearance from Heritage Conservation Committee (HCC) submitted).
- After clearance from HCC, approval from Delhi Urban Arts Commission (DUAC) shall be obtained.
- After receipt of approval of DUAC, Construction Agency will float the tender for engaging contractor.
- All existing buildings except heritage structures would be demolished for undertaking construction of new buildings.
1.2  Budget

- 11th Plan Outlay approved for NCDC upgradation: Rs. 450.00 Crore
- CCEA approved upgradation of NCDC in December 2010 for Rs. 382.41 Crore
- Expenditure during 11th plan as on 15.6.11: Rs. 2.59 Crore

Finally approved up-gradation of NCDC seeks to accomplish its mission by working with state health authorities throughout the country to achieve the following:

- Providing Leadership and advocacy for public health activities,
- Detecting and investigating health problems,
- Developing human resource in public health through post graduate doctoral and in-service programmes,
- Conducting applied research to enhance prevention,
- Developing and advocating healthy public policies and prevention strategies,
- Promoting healthy behaviors,
- Developing network of public health institutions,
- Capacity Building for public health and laboratory services
- Working as National Reference Center (somewhat similar to CDC, USA) for diagnosis, prevention and control of diseases of major public health importance.

To accomplish the above tasks new technical centers have been approved by CCEA in 11th Five Year Plan which are:

1.3  New Technical Centres

1.3.1 Central Administrative Complex

1.3.2 Central Facilities

- Central Library/Archival & e-Library
- Central Auditorium/Conference Complex
- Guest House & Hostel Complex
- Central Recreation Unit & Central Cafeteria
- Central Maintenance Wing & Other Supportive Services

1.3.3 Epidemiology & Disease Control Complex

- 24x7 Disease Control Cell
- Centre for Integrated Disease Surveillance
- Centre for Infectious Diseases
  - Vector-borne & Other Arboviral/Exotic Diseases
  - Air-borne Respiratory Diseases
  - Blood-borne Diseases & STIs
  - Water/food-borne Diseases
1.3.4 Centre for Vaccine Preventable Diseases
- Polio/ Measles/MMR /Meningitis vaccination strategies
- Rabies vaccination strategies
- Viral Hepatitis vaccination policy
- Newer vaccines: vigilance & policies

1.3.5 Centre for International Health & Bioterrorism Prevention
- International Health, Health Intelligence & Communication
- International Health Regulations (IHRs)
- Ethical & IPR Considerations
- Vigilance on Bioterrorism and Prevention Initiatives

1.3.6 Centre for Disaster Epidemiology & Emergency Response
- Post-disaster control of diseases
- Disaster Epidemiology & Management

1.3.7 Centre for Medical Informatics & Bio-statistics
- EDUSAT Earth Station & Information Technology Cell
- Central Computer Facility
- Bioinformatics & MIS Biostatistics & Data Analysis

1.3.8 Centre for Manpower Development
- Planning & coordination of National/ International/ WHO Trainings
- Organizing Workshops, Seminars, Meetings and Conferences

1.4 Referral Diagnostics & Laboratory Services Complex

1.4.1 Central Laboratory Facilities
- 24x7 Central Sample Collection & LIMS-based e-reporting
- Central BSL-3 facility
- Central Electron Microscopy Unit
- Central Instrumentation Facility
- Central Animal House

1.4.2 Centre for Viral Diseases & Vaccines
- Polio/ Enteroviruses Reference Laboratory
- Measles/ Respiratory Viruses Reference Laboratory
- National Nodal Laboratory for Endemic/Pandemic-prone Viruses (SARS, Corona, Nipah, InfluenzaA H5N1, H1N1 & other emerging viruses)
- Congenital Viruses (Rubella, CMV, HSV) Laboratory
- Viral Hepatitis Laboratory
1.4.3 Centre for HIV/AIDS & Related Diseases

- National AIDS Reference Centre
- HIV Serology & Quality Control
- AIDS: Cellular Immunology Laboratory
- HIV: Molecular Diagnostic Laboratory
- VCTC: HIV/AIDS Counselling Centre

1.4.4 Centre for Arboviral & Zoonotic Diseases

- Arboviral/Exotic Viral Infections
- Plague Reference Laboratory
- Kala-azar & Toxoplasma Laboratory
- Leptospira Reference Laboratory
- Typhus/Rickettsial & Newer Zoonotic Infections
- Rabies Reference Laboratory

1.4.5 Centre for Bacterial Diseases & Drug Resistance

- Cholera/Typhoid & other Enteric Bacterial Infections
- Pulmonary & Extra-pulmonary Tuberculosis Laboratory
- Meningitis and other Respiratory Bacterial Infections
- Anaerobic Bacteriology
- Bacterial STIs, Chlamydia/ Mycoplasma Reference Laboratory
- Bacterial Drug Resistance Unit

1.4.6 Centre for Biotechnology & Molecular Diagnostics

- Molecular Diagnostics & DNA Fingerprinting of Disease Pathogens
- Gene Cloning & DNA Synthesis Laboratory
- Molecular Virology/Bacteriology Reference Laboratory
- Real-time PCR for Quantification & Prognostic Follow-up
- Drug Resistance Gene Monitoring Laboratory

1.4.7 Centre for Parasitic & Fungal Diseases

- **Human Parasitic Diseases**
  - Malarial/ Helminthic Infections
  - Intestinal Parasites & Amoebiasis

- **Human Fungal Diseases**
  - Deep mycosis
  - Superficial mycosis
1.4.8 Centre for Clinical Biochemistry & Toxicology

- Clinical Biochemistry/Hematology
- Environmental Toxicology
- IDD Reference Laboratory
- Protein Chemistry & Antigen Assay Laboratory

1.4.9 Centre for Pathology & Immunohistology

- Clinical & Diagnostic Pathology
- Immunohistology

1.4.10 Centre for Medical Entomology & Vector Management Complex

- Medical Entomology & Disease Ecology
  - Vectors of Malaria, Dengue, JE, Filaria, Kala-azar, Ectoparasites
  - Transmission dynamics & Vector Ecology
  - Archival Museum

1.4.11 Integrated Vector Management

- Chemical Control of Disease Vectors
- Alternate methods of Vector Control
- Environmental management methods for Disease Control

1.5 Reporting system (24X7) for capturing & disseminating disease related information on real time basis for early warning signals

1.5.1 Objective

- To provide data for better informed action regarding influenza and other diseases prevention and control efforts, including vaccination campaigns. These include data on:
  - epidemiology and seasonality data of influenza & other diseases;
  - groups at higher risk for severe outcomes, including hospitalization and deaths;

1.5.2 Activities

- Round the clock working of outbreak monitoring cell and data collection & analysis of outbreaks in different parts of the country
- There will be one epidemiologist and 6 technical staff, one data manager to make the cell operational, 24X 7. NCDC will provide rest of the facilities.
Budget Influenza /24x7: Rs.6.10 crore.

### PROPOSAL FOR 12th FIVE YEAR PLAN IN RESPECT OF INFLUENZA SURVEILLANCE

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Major Head &quot;2210&quot;</th>
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<th>2015-16</th>
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### 1.6 Masters of Public Health (Field Epidemiology) [MPH-FE] course

NCDC is involved in public health service delivery (e.g., emergency response, outbreak investigation) and in multiple, long-term and short-term training activities in various disciplines. Two years Master in Public Health – Field Epidemiology (MPH – FE) of NCDC started in 2006. The course is affiliated with Guru Gobind Singh Indraprastha University, Delhi. The Goal of the course is to strengthen Public Health services by developing a cadre of professional Field Epidemiologists for the benefit of the society.

MPH students have extensive supervised field visits. The students not only have to learn from the experience of NCDC faculty but also learn from faculty from other institutes throughout the country.

For this, NCDC needs temporary additional input to ensure the quality of the didactic learning activities and field investigations, to coordinate with various State Governments/Institutes. During field investigation students require laptops/software and other IT equipment. Budget for this activity will improve the quality of the course.

The budget requirement to be reflected in the regular budget of NCDC.

### Budget required for NCDC Upgradation will be as under:

<table>
<thead>
<tr>
<th>Major Head</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
<th>Total</th>
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* Note In accordance with EFC, budget for additional regular post to be provisioned in regular budget of NCDC (Plan) after March 2012.
1.7 Operational Research Activities

1.7.1 Introduction

Disease burden estimates which are based on good epidemiological research provide the crucial evidence for public policy. Disease burden data can enable focused targeting and help decide what needs to be done and where, for whom and when. Diseases that are more common among working age adults or the poor, as is the case with HIV/AIDS, tuberculosis (TB), etc, have major impact.

1.7.2 Justification

Limited data is available on burden of diseases in India. According to the report published by National Commission on Macroeconomics and Health on Burden of Disease in India -

"exhaustive review of the available literature brought forth two factors of critical importance to public policy: (a) for almost all diseases/conditions identified, and more particularly the National Health Programmes in which government investment was substantial, namely, malaria and other vector-borne diseases, TB, leprosy, reproductive health and childhood conditions, there is a paucity of high-quality epidemiological information and validated data for arriving at any baseline estimations on prevalence or incidence…….."

In view of the scarcity of disease burden data especially for communicable diseases, NCDC proposes to conduct longitudinal epidemiological studies to estimate the burden of important communicable diseases in India.

1.7.3 Budget

The budget requirement for disease burden estimation is about Rs. 14 crore using infrastructure under disease surveillance programme.
2. Pilot Project on Prevention and Control of Leptospirosis in 11th Plan

2.1 Magnitude of the problem

Due to rapid ecological changes in the region during the past decade many zoonoses have emerged and resulted into epidemics causing significant morbidity and mortality in human beings in different parts of the country. Leptospirosis is one of the disease which predominantly occurs in coastal region. The Andaman Islands have been known to be an endemic focus of leptospirosis since the 1920s. The outbreaks of leptospirosis are increasingly being reported from other states such as Kerala, Gujarat, Tamil Nadu and Karnataka. In addition, cases have also been reported from Goa, Andhra Pradesh, Orissa and Assam.

2.2 Activities in the 11th Plan

A pilot project on Control of Leptospirosis was approved as a New Initiative in the 11th Five Year Plan in March, 2008 and was carried out in 5 endemic states. The project was carried out in 4 districts of Gujarat (Surat, Navsari, Valsad and Tapi), 2 districts of Kerala (Kottayam and Alleppey), 2 districts of Tamil Nadu (Villupuram and Thiruchirapalli,), 4 districts of Maharashtra (Ratnagiri, Thane, Sindhudurg, Raigad ) and 2 districts of Karnataka (Mangalore & Shimoga).

The objective of the pilot project was to reduce the morbidity and mortality due to Leptospirosis in pilot project areas.

2.3 Budget

A total of Rs. 2.36 Crores allocated, of which Rs. 2.31 Crores spent.

2.4 Pilot Project Strategies

- Reduction of morbidity
- Strengthening laboratory diagnostic capacity
- Strengthening of patient management facilities
- Developing trained manpower
- Creating awareness regarding timely detection and appropriate treatment of patients

2.5 Outcome of the Pilot Project

Clinically suspected Leptospirosis patients in leptospira-endemic project areas during rainy season were given presumptive treatment of leptospirosis at PHCs. All suspected leptospirosis cases whether positive or negative with rapid immunodiagnostic test having features of organ dysfunction were immediately shifted to higher centre. With the implementation of the
components of pilot project strategy there has been reduction in morbidity and mortality due to leptospirosis in pilot project areas.

The strategy for prevention and control of leptospirosis has been found to be feasible and implementable and shall be provided to the States for further implementation.

2.6 Gaps in the 11th Plan

The Pilot project was carried out only in five endemic states of the country. The remaining endemic states were not covered.

The intersectoral coordination was inadequate during the implementation of Pilot project in the 11th five year plan.
2.7 Proposal for Leptospirosis control in the 12th Plan

The proposal is to expand and implement the strategy for prevention and control of Leptospirosis developed during 11th Plan in all the endemic states during the 12th Plan period. The strategy evolved and guidelines formulated will be shared and distributed to all endemic states.

2.7.1 Does the strategy need change/paradigm shift?

The strategy of the pilot project was critically reviewed in different meetings chaired by DGHS and in the meetings of Standing Committee on Zoonoses. The strategy was found to be effective and implementable and can be provided to the States for further implementation. Thus there is no change required or proposed in the strategy.

2.7.2 Ownership

The roles and responsibilities of various components at centre, state and intersectoral level shall be clearly defined in consultation with the states.

2.7.3 Capacity building

Training of professionals regarding prevention, diagnosis, management and control of Leptospirosis will be undertaken. This will help in early case detection and proper management of the patients.

2.7.4 Inter-sectoral co-ordination

Sensitization of other sectors viz. veterinary and agriculture will be undertaken to establish intersectoral coordination for prevention and control of Leptospirosis.

2.7.5 Strengthening of patient management facilities

Funds will be provided for strengthening the existing patient management facilities.

2.7.6 Information, Education and Communication

IEC will enhance awareness in the general public regarding prevention and control of Leptospirosis. The awareness will result in early reporting of cases to treatment facilities.

2.7.7 Monitoring of the activities

The activities would be periodically monitored and evaluated by undertaking visits to the endemic areas. On day to day basis monitoring will be done by the designated officers of the state governments.
2.7.8 Outcome
The suspected cases of leptospirosis will get timely and appropriate treatment and awareness in community will help in reducing mortality and morbidity due to leptospirosis in endemic states.

2.7.9 Budget
The estimated total cost is Rs. 3.69 Crores

<table>
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<tr>
<th>Capacity Building: Training courses</th>
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<th>2nd yr</th>
<th>3rd yr</th>
<th>4th yr</th>
<th>5th yr</th>
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</table>
3. Pilot Project on Prevention & Control of Rabies in 11th Plan

3.1 Magnitude of the problem

Rabies is a major public health problem in India. An estimated 20000 deaths occur annually which is about 1/3rd of total global mortality. Estimates suggest that 17.4 million animal bites occur annually (APCRI, Multicentric study to Assess Disease Burden 2004). Dogs inflict more than 95% of bites. Only about 3.0 million receive Post Exposure treatment as per available vaccine utilization data. Rabies is cent percent fatal however it is nearly cent percent preventable by timely and appropriate post exposure prophylaxis (PEP).

3.2 Activities under 11th Plan

As a “New Initiative” a Pilot project on Prevention and Control of Rabies is being carried out in five cities viz Ahemdabad, Bangalore, Delhi, Pune & Madurai with the total budget of Rs 3.69 crores. The main objective of the project is to prevent human deaths due to rabies. The project focuses on

- Improving the management of animal bite cases
  - Training of health professionals
  - Operationalisation of ID route in selected centres
  - Ensuring availability of rabies vaccines and Immunoglobulins (RIGs)
- Enhancing awareness in general community regarding timely and appropriate Post exposure treatment
- Strengthening diagnostic capabilities
- Establishing interface with animal husbandry department
- Strengthening surveillance

3.3 Budget

Budget allocated Rs. 3.69 Crores; expenditure Rs. 2.53 Crores

3.4 Outcome of the pilot project

- Improvement in management of animal bite cases: 43 core trainers trained at NCDC, Delhi have in-turn trained approximately 2065 doctors and paramedical staff in appropriate animal bite management in the pilot project areas improvements are:
  - Uniform and appropriate animal bite management as per the guidelines.
  - Wound washing facilities in all the centres.
Implementation of ID route -wider coverage in the available quantity of vaccines and economical PEP: 54 centres in the pilot project cities have implemented ID route of inoculation of cell culture vaccines.

Increased and appropriate use (local Infiltration in the wound) of immunoglobulins.

Establishment of new ARCs in Ahemdabad, Bengaluru and Pune.

- Enhanced awareness in general community regarding timely and appropriate treatment.
- Diagnostic capabilities strengthened in each pilot project city.
- Interface with other sectors is being developed for coordination of health and veterinary component to develop national consensus strategy.
- Surveillance has been strengthened.

3.5 Gaps in 11th plan

- Rabies continues to be a major public health problem in India accounting for about 1/3rd of global mortality

- No organized control activities in the country, though a Pilot project in 5 cities to prevent human deaths due to Rabies was started.

- No tangible control of rabies in reservoir (stray dog)

- Availability of PEP limited to urban and peri-urban areas

- Inadequate community involvement
3.6 Proposal for National Rabies Control Programme in 12th Plan

Based on the successful implementation of the Pilot Project of Rabies Control in 5 cities during 11th Plan, it is proposed to expand and implement the strategy as a National Programme for control of Rabies during the 12th Plan. This will also include initiating vaccination of stray dogs at 30 selected sites in first phase along with Community involvement in Rabies Control and strengthening inter-sectoral co-ordination.

3.6.1 State Ownership

The roles and responsibilities of various components at Centre State Civic Body level and intersectoral coordination level shall be clearly defined in consultation with States.

3.6.2 Justification of proposal

Rabies is of immense public health importance because

- **The disease is endemic throughout the country.**
- Rabies is 100% fatal yet 100% preventable with timely and appropriate post exposure treatment.
- The number of human deaths: 20000 every year of the total 55000 global deaths.
- Estimated number of Dog bites : 17.4 million/year.
- Besides human deaths, rabid dog bites cause heavy financial loss to live stock owners from deaths in cattle, camel, horses, sheep goat etc.
- 95% of human rabies deaths due to rabid dog bites.

Rabies therefore poses a heavy burden both in terms of loss of humans /animal life as well as financial loss.

3.6.3 Objectives

Reduction of human mortality due to rabies and cutting down transmission

3.6.4 Strategies

The programme focus on:

- Based on the success of 11th Plan pilot project a National Rabies Control Programme is proposed.
- Strengthening of PEP to prevent human deaths in all States/UTs.
- Vaccination of stray dogs at 30 selected sites initially.
- Operationalization of cost effective and efficacious intradermal route for PEP.
- Extension of rabies treatment facilities to peri-urban/rural areas.
- Active involvement of NGOs and community.
- Strengthening intersectoral coordination.

3.6.5 Outcome Indicators

- Establishment of new Anti-rabies Centers (ARCs).
- Increased number of ARCs giving immunoglobulins.
- Number of ARCs using intradermal inoculation of vaccines.
- Number of ARCs with wound washing facilities.
- Increased laboratory based diagnosis of rabies.
- Increased registration and licensing and immunization of pet dogs.
- Vaccination of 70% of dog population in identified areas.

### 3.6.6 Monitoring and Evaluation

The programme will be regularly monitored by nodal agencies and periodically reviewed by Standing Committee of Zoonosis, Joint Monitoring Group and Inter-Ministerial Group.

### 3.6.7 Budget

The estimated total budget is Rs.384.59.

**Budget: National Programme for Rabies Control: Proposal 12th Five year Plan**

(Rs. in crores)

<table>
<thead>
<tr>
<th></th>
<th>1st yr</th>
<th>2nd yr</th>
<th>3rd yr</th>
<th>4th yr</th>
<th>5th yr</th>
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4. Integrated Disease Surveillance Project in 11th Plan

4.1 Background
Integrated Disease Surveillance Project (IDSP) was launched with World Bank assistance in November 2004 to detect and respond to early warning signals of disease outbreaks and to initiate an effective response in a timely manner. The project has been extended for two years up to March 2012 but the World Bank is funding Central Surveillance Unit (CSU) at NCDC & 9 identified states and the rest 26 states/UTs are being funded from domestic budget. Further World Bank assistance will not be available after March 2012 and the programme will need to be given all the funding from GOI domestic budget. It may be mentioned that IDSP has already been merged with NCDC (National Centre for Disease Control) administratively & financially in June 2006.

4.2 Objectives
To strengthen the disease surveillance in the country by establishing a decentralized state based surveillance system for epidemic prone diseases to detect the early warning signals to detect and respond to outbreaks at the earliest at all levels.

4.3 Project Components
i. Integration and decentralization of surveillance activities through establishment of surveillance units at district (DSU), state (SSU) and central level (CSU).

ii. Human Resource Development – Training of State Surveillance Officers (SSOs), District Surveillance Officers (DSOs), Rapid Response Teams (RRTs) and other medical and paramedical staff.

iii. Use of Information Communication Technology for collection, collation, compilation, analysis and dissemination of data.

iv. Strengthening of public health laboratories.

4.4 Achievements
i. Surveillance units have been established at all State and District Headquarters (SSUs, DSUs). Central Surveillance Unit (CSU) is established and integrated in the National Centre for Disease Control.

ii. Training of State/District Surveillance Teams (Training of Trainers) has been completed for 34 States/UTs and partially completed for Uttar Pradesh.
iii. IT network has been established to connect all States/District HQ and premier institutes in the country for data entry, training, video conferencing and discussion related to outbreaks. So far, IT equipment have been established at 776 out of 800 sites.

iv. A portal under IDSP has been established for data entry and analysis to report outbreaks, and to download reports, training modules and other material related to disease surveillance (www.idsp.nic.in).

v. As on July 2011, 85% districts in the country report weekly surveillance data through e-mail and more than 67% districts report through portal. The weekly data gives information on the disease trends and seasonality of diseases. Whenever there is rising trend of illnesses in any area, it is investigated by the Rapid Response Team to diagnose and control the outbreak. Data analysis and actions are being undertaken by respective State/District Surveillance Units.

vi. On an average, 20 outbreaks are reported every week by the States to CSU. A total of 553 outbreaks were reported and responded to by states in 2008, 799 outbreaks in 2009 and 990 outbreaks in 2010. In 2011, 538 outbreaks have been reported in 2011 till 29 May. Earlier only a few outbreaks were reported in the country by the States/UTs. This is an important public health achievement. Majority of the reported outbreaks were of acute diarrhoeal diseases, food poisoning, measles, etc.

vii. Media scanning and verification cell was established under IDSP in July 2008. It detects and shares media alerts with the concerned states/districts for verification and response. A total of 1441 media alerts were reported from July 2008 to May 2011. Majority of alerts in 2010 were related to diarrhoeal and vector borne diseases.

viii. A 24X7 call center was established in February 2008 to receive disease alerts across the country on a Toll Free telephone number (1075). The information received is provided to the States/Districts surveillance Units through e-mail and telephone for investigation and response. The call centre was extensively used during 2009 H1N1 influenza pandemic and dengue outbreak in Delhi in 2010. About 2.33 lakh calls have been received from beginning till May 2011, out of which about 35000 calls were related to Influenza A H1N1.

ix. 50 identified district laboratories are being strengthened in the country for diagnosis of epidemic prone diseases. These laboratories are also being supported by provisions of a contractual microbiologist to manage the lab and an annual grant of Rs 2 lakh per annum per lab for reagents and consumables. Till July 2011, 18 States i.e. 26 labs have completed the process of procurement.

x. In 9 World Bank funded States, a referral laboratory network is being established by utilizing the existing 65 functional labs in the medical colleges and various other major centers in the States and linking them with adjoining districts for providing diagnostic services for epidemic prone diseases during outbreaks. Based on the experience gained, the plan will be implemented in the remaining 26 States/UTs.

xi. 12 Labs have been strengthened and made functional under IDSP for Avian/H1N1 influenza surveillance.
Recruitment of contractual manpower under IDSP has been totally decentralized in May 2010 so that the State Health Societies recruit them at the earliest. A total of 291 Epidemiologists, 50 Microbiologists and 23 Entomologists are working in States/Districts till now. States have been requested to expedite filling up the remaining contractual positions.

**4.5 Reporting of disease surveillance data and outbreaks under IDSP**

Morbidity data on selected diseases reported by the states to CBHI during 2006-10 are shown in Table 1.

| Table 1, Morbidity data for selected diseases, 2006-10 (CBHI) |
|---------------------|---------------------|---------------------|---------------------|---------------------|
|                     | 2006                | 2007                | 2008                | 2009                | 2010 (Prov) |
| ADD                 | 1,02,13,917         | 1,09,93,639         | 1,14,08,666         | 1,19,84,490         | 1,01,12,845 |
| Viral Hepatitis     | 1,52,623            | 1,10,055            | 92,291              | 1,24,085            | 85,164      |
| Enteric Fever       | 7,89,004            | 8,20,360            | 9,34,469            | 10,99,331           | 10,34,642   |
| ARI                 | 2,61,52,957         | 2,61,71,496         | 2,74,51,421         | 2,82,40,346         | 2,47,20,144 |
| Pneumonia           | 6,81,560            | 7,46,714            | 7,32,759            | 8,01,391            | 7,32,132    |

ADD=Acute Diarrhoeal Diseases; ARI= Acute Respiratory Infections.
Data from all health facilities including sub-centres which are not manned by a doctor.

CBHI collects data on cases and deaths from the entire country. Under IDSP, only 85% districts are presently reporting weekly surveillance data on epidemic prone diseases. These districts report only morbidity data in “P” Form (based on probable diagnosis by a doctor). No data are collected on mortality in this form. P form will be revised in next plan to collect data on the no. of deaths also.

Data reported on selected diseases through IDSP are given in Table 2.

| Table 2, Morbidity data for selected diseases, 2009-11 (IDSP) |
|---------------------|---------------------|---------------------|
|                     | 2009                | 2010                |
| ADD including bacillary dysentery | 45,51,508 | 1,02,83,238 |
| Viral Hepatitis     | 70304               | 132226              |
| Enteric Fever       | 614760              | 979743              |
| ARI                 | 1,19,90,219         | 2,68,45,978         |
| Pneumonia           | 409388              | 505343              |

Note: Data reported by 85% of districts through e-mail/portal (Based on probable diagnosis by a doctor) in 2010 and 2011. There is continuous improvement in reporting.

It may be mentioned that about 10 million cases of ADD are reported every year. However, the community based studies indicate that more than 300 million episodes of acute diarrhoea occur every year in India in children below 5 years of age. Thus reported data grossly underestimates the actual problem.
States detect, investigate, control and report outbreaks of epidemic prone diseases under IDSP. Outbreaks reported by states in 2008, 2009, and 2010 are shown in Table 3.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Disease/Illness</th>
<th>No. of outbreaks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2008 2009 2010</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Acute Diarrhoeal Disease</td>
<td>228 332 411</td>
<td>971</td>
</tr>
<tr>
<td>2</td>
<td>Food Poisoning</td>
<td>50 120 184</td>
<td>354</td>
</tr>
<tr>
<td>3</td>
<td>Measles</td>
<td>40 44 94</td>
<td>178</td>
</tr>
<tr>
<td>4</td>
<td>Malaria</td>
<td>43 34 37</td>
<td>114</td>
</tr>
<tr>
<td>5</td>
<td>Chikungunya</td>
<td>25 61 25</td>
<td>111</td>
</tr>
<tr>
<td>6</td>
<td>Viral Fever/PUO</td>
<td>33 39 41</td>
<td>113</td>
</tr>
<tr>
<td>7</td>
<td>Chicken Pox</td>
<td>12 45 47</td>
<td>104</td>
</tr>
<tr>
<td>8</td>
<td>Dengue</td>
<td>42 20 40</td>
<td>102</td>
</tr>
<tr>
<td>9</td>
<td>Cholera</td>
<td>20 34 34</td>
<td>88</td>
</tr>
<tr>
<td>10</td>
<td>Viral Hepatitis</td>
<td>28 30 24</td>
<td>82</td>
</tr>
<tr>
<td>11</td>
<td>Enteric Fever</td>
<td>6 10 10</td>
<td>26</td>
</tr>
<tr>
<td>12</td>
<td>Acute Encephalitis Syndrome</td>
<td>6 5 11</td>
<td>22</td>
</tr>
<tr>
<td>13</td>
<td>Leptospirosis</td>
<td>6 3 6</td>
<td>15</td>
</tr>
<tr>
<td>14</td>
<td>Anthrax</td>
<td>2 6 3</td>
<td>11</td>
</tr>
<tr>
<td>15</td>
<td>Acute Respiratory Illness</td>
<td>4 3 3</td>
<td>10</td>
</tr>
<tr>
<td>16</td>
<td>Meningitis</td>
<td>2 3 1</td>
<td>6</td>
</tr>
<tr>
<td>17</td>
<td>Mumps</td>
<td>0 2 3</td>
<td>5</td>
</tr>
<tr>
<td>18</td>
<td>Scrub Typhus</td>
<td>3 1 1</td>
<td>5</td>
</tr>
<tr>
<td>19</td>
<td>Dysentery</td>
<td>0 1 3</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td>Kalazar</td>
<td>1 0 3</td>
<td>4</td>
</tr>
<tr>
<td>21</td>
<td>Diphtheria</td>
<td>1 1 1</td>
<td>3</td>
</tr>
<tr>
<td>22</td>
<td>Rubella</td>
<td>0 1 2</td>
<td>3</td>
</tr>
<tr>
<td>23</td>
<td>Others</td>
<td>1 4 6</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>553 799 990</td>
<td>2342</td>
</tr>
</tbody>
</table>

Note: 538 outbreaks reported in 2011 upto 29 May.

It was envisaged that under IDSP weekly disease surveillance data on epidemic prone diseases would be collected from all health facilities providing primary, secondary and tertiary health care. Although 85% of districts are reporting currently, such data are collected from primary health care units and indoor wards of secondary and tertiary care facilities. Efforts are now being made to collect OPD data also form major hospitals. Further, there is also a need to improve the quality of data and outbreak investigations by involving public health laboratories which continue to be the weakest link under the project.

4.6 Budget for IDSP under 11th Plan and Utilization
• Outlay under 11th Five Year Plan for IDSP – Rs. 300.45 Crore
• Rs. 126 Crore given to DAHD for animal component of Avian Influenza in 2007
• Expenditure/amount released to the states till 31 March 2011 – Rs. 146.64 Crore

<table>
<thead>
<tr>
<th>Year</th>
<th>BE</th>
<th>Expenditure/release</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>80.0</td>
<td>41.36</td>
<td></td>
</tr>
<tr>
<td>2008-09</td>
<td>72.0</td>
<td>21.75</td>
<td></td>
</tr>
<tr>
<td>2009-10</td>
<td>48.5</td>
<td>39.95</td>
<td></td>
</tr>
<tr>
<td>2010-11</td>
<td>35.0</td>
<td>43.58</td>
<td>An additional amount of Rs. 5.40 crore given to NE states diverted from Rural Family Welfare Services Head (total Rs. 48.98 crore)</td>
</tr>
<tr>
<td>2011-12</td>
<td>63.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>298.5</td>
<td>146.64</td>
<td></td>
</tr>
</tbody>
</table>

4.7 Gaps / Constraints faced during 11th Plan

- Low Priority to public health/disease surveillance by states
- Dedicated State/district surveillance officers not in position
- Key human resources (Epidemiologists, Entomologists, Microbiologists) not/less available in most districts
- Currently weekly disease surveillance data are collected from primary health care units and indoor wards of secondary and tertiary care facilities. OPD data are usually not collected from major hospitals.
- Absent/poor public health laboratories in most states/districts
- Inadequate intersectoral co-ordination

4.8 Disease Surveillance & Response Programme: Proposal for 12th Plan
4.8.1 Background

Although non-communicable diseases like cancers, diabetes, cardiovascular diseases, chronic obstructive pulmonary diseases etc are on the rise due to change in life style, communicable diseases like tuberculosis, malaria, kala-azar, dengue fever, chikungunya and other vector borne diseases, and water-borne diseases like cholera, diarrhoeal diseases, leptospirosis etc continue to be major public health problems in India.

While many of communicable diseases are endemic, some frequently attain epidemic proportion. The outbreaks/epidemics are public health emergencies which disrupt routine health services and are major drain on resources. Besides direct costs in epidemic control measures and treatment of patients, the indirect costs due to negative impact on domestic and international tourism and trade can be significant. For example, plague which was not reported from any part of the country for almost a quarter of century, caused a major outbreak in Beed district of Maharashtra and Surat district of Gujarat in 1994 and resulted in an estimated loss of almost USD 1.7 billion. In addition, avoidable human misery resulting from diseases and death can not be quantified in economic terms.

Because of the existing environmental, socioeconomic and demographic situation, many areas in the country are affected by epidemics/outbreaks. Under IDSP, a total of 553 outbreaks were reported and responded to by states in 2008, 799 outbreaks in 2009 and 990 outbreaks in 2010. In 2011, 538 outbreaks have been reported in 2011 till 29 May. Earlier only a few outbreaks were reported in the country by the States/UTs. This is an important public health achievement.

It is impossible to always prevent outbreaks, but we can always mitigate their impact by anticipating them and by being prepared. Disease surveillance and response system, availability of laboratories, trained professionals, fast communication, and strong coordinating mechanism between different sectors, especially between animal and human health sectors, are critical for prevention/control of outbreaks and minimizing their impact.

4.8.2 Justification of Proposal

Disease surveillance and response is a core public health activity which has to be undertaken on a continuous basis. Although state and district surveillance units have been strengthened under IDSP to detect and respond to outbreaks at the earliest – states reported 990 outbreaks in 2010 - they are at varying stages of implementation. The states/districts still need continuous central support till they have adequate disease surveillance and response mechanism.

Under the International Health Regulations (2005) which came into force in 2007, it is mandatory for the country to develop, strengthen and maintain core capacities for surveillance and response to detect, assess, report, notify and control all events irrespective of origin and source which may constitute a public health emergency of international
concern. Thus, disease surveillance and response capacities are also critical in implementation of IHR.

Public Health Preparedness and Response for Emergencies/Epidemics essentially requires three core capacities. These are:

- Establishment/strengthening of a laboratory based IT-enabled disease surveillance system to collect baseline data on epidemic-prone diseases, monitor disease trends and to detect epidemics in early rising phase,

- Development of epidemiological, clinical, entomological and laboratory capacities to investigate the epidemics to characterize the cases in terms of time, person and place and to understand the transmission dynamics,

- Development of response capacities to prevent/control the epidemics to reduce the morbidity and mortality to the minimum.

The Programme aims to strengthen these core capacities at all district/state levels. Therefore, all activities being undertaken presently under IDSP are proposed to continue as Disease Surveillance and Response Programme under NCDC in the next Five-Year Plan as a Central Sector Scheme.

Central Surveillance Unit will be merged into “Centre for Integrated Disease Surveillance” under NCDC. All support to states/districts health societies including additional contractual staff given under IDSP will continue in the next Plan. The funds will be released to the state health societies for implementation of disease surveillance and response programme within their health system.

**4.8.3 Proposed Strategy**

The strategy for Disease Surveillance and Response Programme was deliberated in the sub-group. It was unanimously felt that it is a sound strategy and does not require any change. However, some administrative and operational gaps have been identified in the implementation of the Integrated Disease Surveillance Project which resulted in less than expected outcome, both physical as well as financial. By addressing these issues, the implementation of the strategy would be very effective resulting in improved implementation of the project. For addressing the identified gaps, the activities proposed require more financial inputs, hence the budget proposed for it in the 12th Plan is Rs. 851.81 Crore.

**4.8.4 Objectives**

To strengthen/maintain a decentralized State-based disease surveillance and response system for epidemic prone diseases by

- Weekly collection of disease surveillance data to monitor disease trends
- Detecting early warning signals of impending disease outbreaks and taking timely control measures

**4.8.5 Proposed activities during 12th Five-Year Plan**
• Collection, collation, compilation, analysis and dissemination of data
  o Complete reporting of weekly disease surveillance data through portal
  o Data entry/data analysis facility up to block level in a phased manner
  o Detection, investigation and control of outbreaks in early rising phase

• Use of Information Communication Technology
  o ICT equipment would be provided to the newly created districts which have not been provided ICT equipment so far
  o 15% of ICT equipment may need replacement every year
  o ICT connectivity with all states/districts surveillance units & premiere institutes
  o Portal strengthening/maintenance
  o Call center (24X7 toll free) maintenance
  o GIS integration with portal
  o Media scanning and verification to detect and verify media alerts to detect early warning signals/outbreaks

• Human Resources
  o Essential contractual manpower provided in the 11th Five Year Plan will continue in the 12th Plan to support the states in implementation of disease surveillance and response programme.
  o One additional contractual position for a veterinary (consultant) is proposed to improve intersectoral coordination and to support the State Surveillance Officer in tackling the zoonotic diseases like avian influenza, plague, leptospirosis etc which are important epidemic prone diseases

• Capacity Development
  o Induction training of new epidemiologists, microbiologists, entomologists and veterinarians
  o Refresher training of State Surveillance Officers, District Surveillance Officers, Rapid Response Team members and contractual staff
  o Paramedical staff on principles of disease surveillance.

• Strengthening of public health laboratories
  o Monitoring/support to district public health laboratories established under IDSP & through NRHM.
  o All districts will have a public health laboratory or will have access to a public health laboratory for which equipment will be provided by NRHM and consumables will be provided under the Disease Surveillance and Response Programme under the 12th Plan.
  o About 190 Medical colleges labs/referral labs will be linked to about 500 district public health laboratories. Presently 65 labs in 9 states have been linked with districts.
  o A Lab Expert Group will be constituted to provide technical support and to monitor public health laboratories in the country.

In addition to above mentioned activities, special focus will be on surveillance of influenza and sentinel surveillance for vaccine preventable diseases

• Surveillance for influenza through 16 labs. Presently 12 labs are functional. 4 more labs will be identified in areas not covered by the existing labs and strengthened under IDSP.
Sentinel surveillance system for vaccine preventable diseases (case based surveillance) at 30 identified sentinel sites.

Infrastructure created under the Polio Eradication Programme will be used by the Disease Surveillance and Response Programme after the eradication of poliomyelitis in the country.

### 4.8.6 Monitoring and Evaluation

1. Regular monitoring of the programme by (i) field visits by MOHFW/NCDC officers/consultants, (ii) meeting of all State Surveillance Officers twice in a year
2. Every State will undertake in-depth review of programme in at least one district in a month
3. NCDC will undertake in-depth review of the programme in at least one state in a quarter
4. Annual review of Programme by the Common Review Mission of NRHM
5. Third Party monitoring of this as well as other national programmes under NRHM
6. Two Independent appraisals of the programme in 12th Plan period (Mid-term and at the end)

### 4.8.7 Outcome indicators

1. All State/District Surveillance Units staff will get trained
2. Almost all districts will report disease surveillance data on epidemic prone diseases every week.
3. All DSUs and SSUs will have the capacity to compile, analyse and interpret data to detect outbreaks
4. Clinical samples will be collected and sent to the laboratories in at least 70% of outbreaks
5. All DSUs and SSUs will have the capacity to investigate and respond to outbreaks.

### 4.8.8 Proposed changes in 12th Five Year Plan

1. The Programme will be totally funded through domestic budget.
2. Roles and responsibilities of state/district surveillance officers will be further defined so that they own the programme.
3. OPD data will be collected from major hospitals including medical colleges hospitals
4. All data to be reported and managed through portal only (currently, they use e-mail as well as portal for this purpose).
5. “P” form will be revised to collect data on morbidity as well as mortality.
6. The call centre will be popularized among the community, especially among local leaders, to get early information about potential outbreaks.
7. Absence of public health laboratories continues to be the weakest link. About 500 district public health labs will be strengthened and also linked to about 190 medical colleges/referral labs under the 12th Five year Plan. This will help in improving the quality of data and outbreak investigations.
8. Case based surveillance is proposed to be started in 30 sentinel centres for vaccine preventable childhood illnesses.
(9) Recruitment of a Veterinary (consultant) at each state surveillance unit to strengthen coordination between animal and human health sectors to control zoonotic diseases.

### 4.8.9 Budget

Proposed outlay required, year-wise, in the 12th Five Year Plan period (2012-2017) is annexed. NCDC would release funds to the state health societies with approval of Ministry/IFD for implementation of disease surveillance activities within their health system.

It is mentioned that no budget for IEC is proposed as all activities related to IEC are undertaken by NRHM. However, required IEC material will be prepared and distributed to states. Similarly, no budget for civil work and furniture and fixtures has been kept considering the same would be provided by NRHM wherever needed.

<table>
<thead>
<tr>
<th>DISEASE SURVEILLANCE AND RESPONSE PROGRAMME - PROPOSAL FOR 12th FIVE YEAR PLAN (2012-17)</th>
<th>( Rs in Lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Major Head &quot;2210&quot;</strong></td>
<td><strong>2012-13</strong></td>
</tr>
<tr>
<td><strong>CENTRAL SURVEILLANCE UNIT (NCDC)</strong></td>
<td></td>
</tr>
<tr>
<td>270111 - Travel Expenses</td>
<td>77.0</td>
</tr>
<tr>
<td>270120 - Other Admin. Expenses</td>
<td>140.0</td>
</tr>
<tr>
<td>270121 - Material &amp; Supply (AI)</td>
<td>300.0</td>
</tr>
<tr>
<td>270126 - Advertisement &amp; Publicity</td>
<td>87.5</td>
</tr>
<tr>
<td>270128 - Professional Services (Training &amp; Remunerations)</td>
<td>435.0</td>
</tr>
<tr>
<td>270131 - Grants-in-aid - General (AI Lab - Staff remuneration &amp; operating expenses)</td>
<td>141.6</td>
</tr>
<tr>
<td>270150 - Other Charges (Review meetings, Consultancy Services, Meeting of all SSOs &amp; other meetings)</td>
<td>45.5</td>
</tr>
<tr>
<td>270328 - Professional Services (IT - Portal, Call centre, AMC, NIC Services)</td>
<td>570.3</td>
</tr>
<tr>
<td><strong>GRANT TO STATE HEALTH SOCIETIES</strong></td>
<td></td>
</tr>
<tr>
<td>270431 - Grants-in-aid General (States/UTs)</td>
<td>11396.6</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>13193.4</td>
</tr>
</tbody>
</table>

**Note:**
1. A total of 10 % of the plan outlay will be earmarked for NE States.
2. The budget for remuneration of contractual staff at State/District level is estimated by considering 85% of the total staff in position at given time.
3. Development of District Public Health Labs (including civil work and equipment) will be done under NRHM. Remuneration for Microbiologist and consumables will be provided under Disease Surveillance and Response Programme.

### 5. Surveillance of YAWS & Guinea Worm
Guinea Worm Disease has already been eradicated from the country. However its continuous monitoring is required till the disease is eradicated globally. Its budget shall be reflected in the regular budget of NCDC.

YAWS has been declared eliminated from the country since 2006. However for eradication of the disease, activities like sero surveillance, active search, awareness generation in the community and Independent appraisals etc. will be carried out and the results will be placed before the WHO Commission for declaring eradication of YAWS from the country. It is an ongoing activity of NCDC and budget shall be reflected in the regular budget of the NCDC.

6.1 Background

The International Health Regulations (IHR) are an international legal instrument that is binding on 194 countries across the globe including India. The purpose and scope of IHR (2005) is to prevent, protect against, control and provide a public health response to the international spread of disease in ways commensurate with and restricted to public health risks which avoid unnecessary interference with international traffic and trade. IHR (2005) were adopted by the World Health Assembly in 2005 and came into force in 2007.

The key country obligations under IHR include:

1. Designate National Focal Point (NFP), update his/her details and communicate to WHO every year.
2. Assess ability of existing national structures and resources to meet minimum requirements under IHR (2005)
3. Develop, strengthen and maintain core capacities for surveillance and response to detect, assess, notify, report and control Public Health Emergencies of International Concern (PHEICs).
4. Strengthen core capacities for points of entry (Airports, ports, ground crossings) for responding to the events.
5. Assess all urgent events irrespective of origin and source within 48 hours and notify WHO within 24 hours of assessment of events that may constitute PHEIC (Public Health Emergencies of International Concern).
6. Designate Airports, Ports and Ground Crossings which have the core capacities.
7. Revise Legislation, Health Documents/Forms/Certificates and charges in accordance with IHR (2005)

6.2 Justification

Under the International Health Regulations (2005) it is mandatory for the country to develop, strengthen and maintain core capacities for Disease Surveillance and Response and at Points of Entry to detect, assess, report, notify and control all events irrespective of origin and source which may constitute a public health emergency of international concern. As the country has committed to implement IHR (2005) and has nominated the Director, NCDC, Delhi as the National Focal Point for IHR (2005), NCDC needs strengthening under 12th Five Year Plan to fulfill the obligations under IHR (2005).

6.3 Proposed Activities during 12th Five Year Plan

To implement IHR, the following activities are proposed during 12th Five Year Plan

1. Strengthening of National Focal Point to implement the IHR (2005)
2. Strengthening of core capacities for surveillance and response

214
3. Strengthening of capacities at Airports, Ports and other points of entry (ground crossings).
4. Strengthening of communication with all International Airport and Port Health Organizations and Point of Entry to improve reporting and response
5. Identification, sensitization of and coordination with IHR focal points of all states/points of entry and all stakeholders
6. Communication with WHO

6.3.1 Strengthening of core capacities for surveillance and response

Presently, core capacities for surveillance and response to detect, assess, notify, report and control Public Health Emergencies of International Concern are being developed under Integrated Disease Surveillance Project (IDSP). The Project is up to March 2012. All activities being undertaken IDSP are proposed to continue and further strengthened under 12th Five Year Plan as a separate proposal.

6.3.2 Strengthening of capacities at Airports, Ports and other points of entry (ground crossings)

IHR (2005) require specific core capacities at international entry airports/ports and other Points of Entry for undertaking health measures at all times and during the time of PHEIC. Health measures at all times include (i) surveillance of international passengers and crew for yellow fever disease, (ii) quarantine, (iii) medical care to ill travelers and facility for transportation, (iv) vaccination for yellow fever disease, (v) measures for conveyances and cargo-inspection and disinsection, (vi) vector control and surveillance, and (vii) food safety. Measures during PHEICs include (i) surveillance and response measures during PHEIC - screening (exit/entry) for early detection, laboratory diagnosis, pharmaceutical & non-pharmaceutical intervention, clinical management and risk communication; (ii) measures for the conveyances (aircrafts/ships/others) - inspection, disinsection and decontamination, (iii) measures for the baggage, cargo for possible sources of PHEIC and its transmission, and (iv) provisions for transit travelers.

Each APHO/PHO would be strengthened by 2 contractual positions - one epidemiologist and one entomologist. 2 contractual epidemiologists and 2 DEOs are proposed for NFP.

6.3.3 Budgetary requirement

<table>
<thead>
<tr>
<th>Activity</th>
<th>(Rs. In Crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Training (Sensitization/Orientation/ reorientation of the existing manpower and new persons joining in place of transferred out/ retired) and periodic meetings NFP, SSO, APHO/PHO/Ground staff, Stakeholders and Core group</td>
<td>0.30</td>
</tr>
<tr>
<td><strong>2</strong> Additional Human Resources One Epidemiologist* &amp; 1 Entomologist** each @19 PoEs; 2 Epidemiologist <em>&amp; 2 DEO</em>** at NFP (*@ Rs. 50000/- PM; **@ Rs. 35000/- PM; ***@Rs. 10000/- PM)</td>
<td>10.82</td>
</tr>
<tr>
<td><strong>3</strong> Logistic support @ PoEs IT and other equipment (@1 lakh); AMC; Broadband connection and reporting @ 10000/- Per month</td>
<td>1.35</td>
</tr>
<tr>
<td><strong>4</strong> Operational cost for NFP Contingency/Stationary/Miscellaneous</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<tr>
<td>Sl. No.</td>
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<tr>
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</tr>
<tr>
<td>1</td>
<td>Training (Sensitization/Orientation/reorientation of the existing manpower and new persons joining in place of transferred out/retired)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Periodic meetings</td>
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<td>Additional Human Resource</td>
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<td></td>
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<tr>
<td></td>
<td>Subtotal</td>
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<td></td>
<td>Subtotal</td>
</tr>
<tr>
<td>4</td>
<td>Operational cost for NFP</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
</tr>
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</table>

* to co-ordinate with states/ APHO/PHO/ Ministries
** to assist the NFP, Epidemiologist
NCDC: New Activities during 12th Plan
7. Up-gradation of existing regional branches and establishment of 27 new branches of NCDC

7.1 Current Status

NCDC has been established to function as a National Centre for excellence for control of communicable diseases. The head quarter is located at Delhi and currently there are eight branches of National Centre for Disease Control located in Alwar (Rajasthan), Varanasi (UP), Patna (Bihar), Rajahmundry (Andhra Pradesh), Jagadalpur (Chattisgarh), Bangalore (Karnataka), Coonoor (Tamil Nadu) and Kozhikode (Kerala). These branches at present are carrying out disease specific activities only (Such as Malaria, Filaria, Kala Azar, Plague Surveillance etc.)

7.2 Justification

- Over the years need has been felt to further expand the mandate of these branches so as to function as complete units for decentralized presence of NCDC. Hence these branches are proposed to be upgraded to function as mini-NCDCs in the area of their location to cover all issues of public health importance.
- To deal with emerging infectious diseases, there is need to strengthen laboratory capacity and entomology facilities in the branches to provide rapid diagnosis and formulate prevention and control measures rapidly.
- Large numbers of diseases have re-emerged in the last three decades and no new expertise has been added at NCDC Branches.
- Strengthening of the branches would support the HQ in rapid diagnosis and reporting of diseases to meet the requirements of IHR.
- Capacity building to respond to increasing problem of emerging and re-emerging diseases.
- To assist State Rapid Response Teams in disease outbreak investigation in control of epidemics.
- Develop technical manpower in the field of public health

7.3 Gaps observed during 11th Plan

It was experienced that NCDC branches could not have effective interaction with the states where these were not physically located. The location of the branch in a state develops close working relations with the concerned states and the same is very helpful for fulfilling the mandate of the NCDC
7.4 Need for Additional NCDC branches

For closer interaction with the states in the field of Communicable Disease Control it is proposed to augment the decentralized presence of NCDC by way of opening a new branch in each of the remaining 27 states/UTs.

7.5 Activities to be undertaken

The strengthened branches of NCDC shall be carrying out the function of disease surveillance capacity building in public health, carrying out operational research and closely interface with the State/UT health authorities for efficient implementation of Disease Control activities.

7.6 Ownership of the States

The location of the new branches and local priorities shall be finalized in Consultation with the states. The norms of construction, equipment, manpower and other logistics shall be as applicable to the existing branches and shall conform to the Govt. administration and financial norms.

7.7 Monitoring & Evaluation

The branches shall be under the administrative control of the NCDC head quarter, which shall be responsible for monitoring & evaluating the functioning of the branches. The State Government officials shall be regularly and actively involved in all the activities of the branches.

7.8 Major decentralised presence of NCDC

It is a major step in the focus of the NCDC. The presence of a branch of NCDC in each state shall help in effectively carrying out the disease surveillance, meet the needs of the IHR-2005, enhance the efficiency of disease control activities and additionally help in better implementation of the new proposed programmes such as National Rabies Control Programme, National Anti Microbial Resistance Containment programme and prevention and control of Viral Hepatitis etc

7.9 Budget:

7.9.1 Up-gradation of 8 existing regional branches of NCDC

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Activity</th>
<th>For existing 8 branches (Rs. In Crore)</th>
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<tbody>
<tr>
<td>1.</td>
<td>Salary</td>
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<td>2.</td>
<td>Professional Services</td>
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<td>3.</td>
<td>Motor Vehicle</td>
<td>4.00</td>
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<tr>
<td>4.</td>
<td>Material, Supply, other charges</td>
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<tr>
<td>5.</td>
<td>Rent Rates and Taxes</td>
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<tr>
<td>6.</td>
<td>Up-gradation of regional branches- new constructions, equipments etc @ Rs 30.00 crore/branch</td>
<td>240.00</td>
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<tr>
<td></td>
<td>Total</td>
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### 7.9.2 For the proposed 27 new branches

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Revenue</th>
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<tr>
<td>I.</td>
<td>Office expenditure</td>
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<td>II.</td>
<td>T. E.</td>
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<tr>
<td>III.</td>
<td>Material supplies</td>
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<tr>
<td>IV.</td>
<td>Other charges</td>
<td>7.00</td>
</tr>
<tr>
<td>V.</td>
<td>Prof. Services</td>
<td>28.00</td>
</tr>
<tr>
<td>VI.</td>
<td>Motor Vehicle</td>
<td>25.20</td>
</tr>
<tr>
<td>VII.</td>
<td>Mach. &amp; Equipment</td>
<td>11.20</td>
</tr>
<tr>
<td>VIII.</td>
<td>New construction including land</td>
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</tr>
<tr>
<td></td>
<td>@30 crore X 20 = 600</td>
<td>705.00</td>
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<tr>
<td></td>
<td>@15 crore X 7 = 105</td>
<td></td>
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<tr>
<td>Total</td>
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<td>854.80</td>
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Total (A+B) = 1143.30 Crore
8. National Programme for Containment of Antimicrobial Resistance (AMR)

8.1 Magnitude of the problem

The published reports in the country reveal an increasing trend of drug resistance in common diseases of public health importance i.e. Cholera: showing high level of resistance to commonly used antimicrobials eg. Furozolidone (60-80%), Co-trimoxazole (60-80%) and Nalidixic Acid (80-90%), Enteric fever: Chloramphenicol, Ampicillin, Co-trimoxazole (30-50%), Fluoroquinolones (up to 30%), Meningococcal infections: Co-trimoxazole, Ciprofloxacin and Tetracycline (50-100%), Gonococcal infections: Penicillin (50-80%), Ciprofloxacin (20-80%).

8.2 Gaps in the 11th Plan

Development of AMR in pathogens of public health importance is a major global and national public health problem which can lead to serious health, social, economic and disease transmission problems if not tackled timely. We may finally end up in Post-antibiotic era with very few treatment options available. There was no organized Antimicrobial Resistance Containment Programme in the 11th Plan in the country despite increasing antibiotic resistance developing in pathogens causing diseases of public health importance as mentioned above. However, a National Task Force was constituted by MoH&FW during August 2010 under the chairpersonship of DGHS to frame national policy for containment of AMR.

8.3 Does the strategy need change or paradigm shift?

There is an urgent need to change the strategy for containment of AMR in the country. The strategy has been well spelt out in the recommendations of the Task Force, which includes strengthening of regulatory component, discouraging the over-the-counter sale of antibiotics, limiting access to newer antimicrobials, promoting rational use of antibiotics, strengthening hospital infection control practices, setting up a network of quality controlled laboratories for AMR surveillance, ascertaining the pattern of use of antimicrobials in the community and hospitals, reducing extra-human use of antibiotics and communicating with doctors and community at large regarding proper use of antibiotics.

8.4 Ownership of States

States would be actively involved for ownership of the programme by involving not only the doctors in the public sector but also doctors in private sector and by educating the community.
8.5 Proposed Activities

8.5.1 Meetings of Task Force

A national Task Force has already been constituted by MOHFW for framing strategy for AMR containment, the meetings of the Task Force would be held at regular intervals for monitoring various activities for containment of AMR.

8.5.2 Working group meetings

For implementing the various recommendations of the task force, different technical working groups would be formed eg for AMR surveillance, antimicrobial usage studies, hospital infection control etc. the working groups would be meeting on regular basis for framing relevant guidelines and to monitor the implementation of the same.

8.5.3 Establishment of Quality Assured Laboratory Network for AMR surveillance

In order to generate quality data about burden of AMR in communicable diseases of public health importance in the country, a network of around 100 microbiology laboratories preferably located in the medical colleges representing different zones of the country would be established. The laboratories would be asked to carry out identification as well as antimicrobial sensitivity testing of identified bacterial pathogens using a standardized methodology and reagents., the data generated would be analyzed by the respective laboratories using established tools and the results would be communicated to NCDC for collation. The network laboratories would be strengthened in terms of manpower (Laboratory Technician, Data Manager), office and laboratory equipment, laboratory reagents and money for contingent expenses. The network would be backed up by strong External Quality Assessment System.

8.5.4 Surveillance of antibiotic usage & operational research

A network of institutions (Around 100) would be strengthened to carry out surveillance for antimicrobial usage in the country both in hospital settings as well as the community. The surveillance would be done initially during the first year of the project and second time at the end of the project to see the change in trends. The institutions would be representative of the different geographical settings in the country. Before establishing the complete network, a pilot study would be done in a few sites and based on the results of pilot study, the detailed action plan for the scale up would be developed. The identified institutions would be provided with funds for manpower recruitment and travel expenses.

8.5.5 Strengthening of Hospital Infection Control Practices

Infection control practices play a pivotal role in preventing development of AMR in hospital settings. Though, such policies are available and being implemented in a large number of hospitals in the country, the same needs to be strengthened, In this regard, national hospital infection control guidelines would be developed and disseminated to the hospitals for implementation. The funds would be utilized for developing prototype Hospital Infection Control Guidelines. Each hospital should establish a hospital infection
control committee for implementation and monitoring of hospital infection control guidelines. The budget needed for this has to be arranged by the respective hospitals.

8.5.6 Training/ Manpower development

A large number of training workshops would be conducted by NCDC in partnership with some other identified institutions for different levels of health care workers addressing all the above issues. The trainings would be done for the laboratory professionals in identification of pathogens as well as AST methodology and AMR data analysis. NCDC along with some identified National Institutions would be conducting trainings for the core trainers drawn from different states. Subsequently, these core trainers would be facilitating state/ district level trainings. The funds would be provided for the purpose.

8.5.7 IEC for dissemination of information about rational use of antibiotics

Self medication of antibiotics by community at large is a major issue that needs to be addressed through various IEC activities to generate awareness in the community about the problem of AMR and the role of community in preventing the same. Prototype IEC module would be developed centrally. The same would be provided to the State Health Authorities for printing in local languages and further dissemination.

8.5.8 Strengthening of diagnostic tools to prevent misuse of antibiotics

It has been observed that one of the major factors for irrational use of antibiotics is due to non availability of correct and timely diagnosis of an infectious disease, therefore stress would be given to strengthening of laboratory diagnostic capacity of laboratories in the country at different levels of health care facilities. An interface would be developed with the laboratory strengthening component of IDSP.

8.5.9 Co-ordination with DCG(I) for regulatory issues

Since, widespread availability of antibiotics over the counter in our country is one of the major causes for misuse of antibiotics leading to development of AMR, the regulatory issues in this regard need to be strengthened by DCG(I). A coordination mechanism would be developed with the office of DCG(I) for this purpose.

8.5.10 Interface with Department of Animal Husbandry to minimize extra-human use of antibiotics

Since extra human use of antibiotics meant for human use specially in animals is one of the important reasons of development of AMR, the issue needs to be addressed by Deptt of Animal husbandry. An interface would be developed with them for this purpose.

8.6 Expected Outcomes

- Containment of antimicrobial resistance
- Increased awareness among medical practitioners regarding judicious use of antibiotics.
- Implementation of infection control policy including use of antibiotics across the country

## 8.7 Budget

### National Programme for Containment of AMR for 12th Plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>4th Year</th>
<th>5th Year</th>
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<tr>
<td>National Task Force / Steering committee / Working group meetings</td>
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<td>0.2</td>
<td>0.2</td>
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<td>0.2</td>
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<tr>
<td>Surveillance of Antimicrobial Resistance in Humans</td>
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<td>8.5</td>
<td>8.5</td>
<td>8.5</td>
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<td>Surveillance of Antimicrobial use – in humans</td>
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<td>0.2</td>
<td>0.2</td>
<td>10.45</td>
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<td>Development and implementation of National Infection Control Guidelines, Standard Treatment Guidelines</td>
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<td>0.05</td>
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<tr>
<td>Training and capacity building of professionals in relevant sectors</td>
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<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>13.0</td>
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<tr>
<td>Operational Research on antimicrobial usage, environmental surveillance and AST methodology</td>
<td>2.5</td>
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<td>2.5</td>
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<td>2.5</td>
<td>12.5</td>
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<tr>
<td>Create awareness and educate the HCW and general population about rational use of antibiotics through IEC activities</td>
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<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
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Grand Total 112.25
Hepatitis is defined the defused inflammation of the liver caused by a variety of etiologic agents. Some viruses that primarily target liver are collectively named as hepatitis viruses. There are, at least, five different hepatitis viruses (HAV to HEV) that primarily target the liver in humans, whereas the role of the newer hepatotropic viruses i.e HGV, TTV and SEN viruses has not been established. Although basic symptoms produced are similar, these viruses differ greatly in their structure, mode of replication and transmission, thus requiring altogether different control strategies.

9.1 Global Burden

- An estimated 1.4 million cases of hepatitis A occur annually.
- HBV is the major cause of chronic liver disease and hepatocellular carcinoma.
- About 2 billion people worldwide have been infected with the virus and about 350 million live with chronic infections. An estimated 600,000 persons die each year due to the acute or chronic consequences of hepatitis B.
- About 25% of adults who become chronically infected during childhood later die from liver cancer or cirrhosis (scarring of the liver) caused by the chronic infection.
- The hepatitis B virus is 50 to 100 times more infectious than HIV.
- About 10%-15% of Chronic Liver Disease and Hepatocellular carcinoma (HCC) are associated with HCV infection in India.
- HDV infection is infrequent in India and is present about 5%-10% of patients with HBV-related liver disease.
- HEV is considered benign but during epidemics is associated with severe liver disease affecting mainly the pregnant women (12-20%).
- Fulminant form of hepatitis develops, with overall patient population mortality rates ranging between 0.5% - 4.0%. Fulminant hepatitis occurs more frequently in pregnancy and regularly induces a mortality rate of 20% among pregnant women in the 3rd trimester.

9.2 Burden of Disease in India

Viral hepatitis is a major public health problem in India and these can be water-borne or blood borne infections.

Water borne: Among the water borne viral hepatitis HAV and HEV are hyper endemic in India. Some seroprevalence studies reveal that 90%-100% of the population acquires anti-HAV
antibodies and becomes immune by adolescence. However, recent studies including findings of the recent outbreaks occurring in India have shown a shift in age and cases are being reported among adults. HAV related liver disease is uncommon in India and occurs mainly in children.

Many epidemics of HEV have been reported from India. HEV is also the major cause of sporadic adult acute viral hepatitis and Acute Liver Failure. Pregnant women and patients with chronic liver disease (CLD) constitute the high risk groups to contract HEV infection, and HEV-induced mortality among them is substantial, which underlines the need for preventive measures for such groups. Children with HAV and HEV coinfection are prone to develop acute liver failure.

**Blood borne:** India has intermediate HBV endemicity, with a carrier rate of 2%-4%. HBV is the major cause of chronic liver disease and hepatocellular carcinoma. Chronic HBV infection in India is acquired in childhood, presumably before 5 years of age, through horizontal transmission. Vertical transmission of HBV in India is considered to be infrequent. Inclusion of HBV vaccination in the Expanded Programme of Immunization will reduce the HBV carrier frequency and disease burden. HBV is the major cause of CLD and HCC. HBV genotypes A and D are prevalent in India.

HCV infection in India has a population prevalence of around 1%, and occurs predominantly through transfusion and the use of unsterile syringes and needles. HCV genotypes 3 and 2 are prevalent in 60%-80% of the population as reported in different studies carried out in India. Genotype 1 has also been reported from southern and northeastern parts of India. About 10%-15% of CLD and HCC are associated with HCV infection in India. HCV infection is also a major cause of post-transfusion hepatitis.

HDV infection is infrequent in India and is present in about 5%-10% of patients with HBV-related liver disease. HCC appears to be less common in India than would be expected from the prevalence rates of HBV and HCV.

The high disease burden of viral hepatitis and related CLD in India, needs attention and as the information is still not available from different parts of country we needs to initiate certain actions to know actual incidence of disease so that control and prevention measures can be initiated.

### 9.3 Current Status of Viral Hepatitis facilities at NCDC

- NCDC has viral hepatitis laboratory having facilities for diagnosing all types of hepatitis and supports all outbreaks in the country however, the surveillance system in India through lab network which was established 15 years back with the support of WHO could not be sustained in the country. Though there is an existing laboratory support for markers of viral hepatitis in some laboratories still many parts of country lack the diagnostic support and there are no quality checks on testing of the laboratories.
Recently in view of large outbreaks not only due to Hepatitis A & E but also due to Hepatitis B & C requires a lab based surveillance system to be established in the country.

In view of this, it is proposed to set up laboratory based surveillance in a phased manner in the 12th five year plan.

### 9.4 Objectives

a) To establish laboratory based network for surveillance of viral hepatitis in different geographical locations of India.

b) To find out the incidence of different types of viral hepatitis in different parts of the country. Measure and monitor trends in the burden of a disease including detection of epidemics/outbreaks and changes in related factors;

c) To assist State and local health agencies, and governments in their efforts to decrease the incidence of new infections of water borne hepatitis A and E and blood borne hepatitis B and hepatitis C viruses.

d) To decrease risks for chronic liver diseases including cirrhosis and liver cancers in persons with chronic hepatitis B and hepatitis C infections.

### 9.5 Proposed Activities

Currently there is no program for viral hepatitis in the country and large number of outbreaks is being reported and exact burden of the disease in the country is not known and it is a major step forward under the newer initiatives in the 12th five year plan.

The surveillance plan would be initiated in a phased manner involving 10 laboratories of the Medical colleges under the IDSP project initially. Five labs will be rolled out every year in the 2nd, 3rd, 4th year so as to have laboratory set up in 25 states. All the kits for testing different types of viral hepatitis including hepatitis B markers would be provided by NCDC. Regular workshops and trainings will also be imparted by NCDC. There will be provision for primary and secondary guidelines formulations based on data collected and analyzed.

Following activities shall be carried out.

- Setting up of 25 laboratories for initial diagnosis for all viral markers for hepatitis A,B,C,D,E
- Collection of data and samples transport to laboratories.
- For Quantitative analysis (viral load) and genotyping of viral hepatitis B and C, specialized laboratories will be set up so as to have at least one such laboratory in each Zone. NCDC will coordinate all the activities and there will be central supply of kits and reagents for each laboratory.
- Secondary prevention guidelines including anti-viral and interferon therapy, repeat testing & quantitative analysis etc. will be formulated and circulated to all stakeholders for implementation.
- Assessment of role of interferon and antiviral therapy for management of hepatitis B & C in selected patients through five medical colleges in a project mode.
• Primary prevention guidelines and provision of vaccine for high risk groups.

9.5.1 Responsibilities of the designated laboratories

• Identifying a nodal person for carrying out surveillance activity
• Collection of samples and sending to the designated laboratory
• Testing and analysis of samples
• Reporting results to the sentinel site on weekly basis
• Reporting results to NCDC on monthly basis

9.5.2 Responsibilities of the centre (NCDC)

• Coordinating with the sentinel sites.
• Kits evaluation for finalization of diagnostic kits and there provisions to participating laboratories.
• Funds management
• Training of the personnel
• Analyzing the results received from the designated lab.
• Development of primary and secondary prevention guidelines.

9.5.3 Responsibilities of the State/centre

• Implementation of primary and secondary guidelines.

9.6 Justification

• Viral hepatitis is of major public health concern.
• Indian population is at high risk for both blood borne and water borne infections.
• To detect changes in health practices and the effects of these changes on disease the system is essential
• To prioritize the allocation of health resources for control of diseases.
• Describe the clinical course of disease; and
• Provide a basis for epidemiologic research
• To setup diagnostic capability across the country.

9.7 Expected Outcomes

• Burden & Baseline data of different type viral hepatitis for the country.
• Early warning signal for any outbreak.
• Suggestions for strategies for prevention and control
• Develop and evaluate the effect of therapeutic and preventive measures including vaccination for hepatitis B vaccine.
• Determining natural history and risk factors

9.8 Monitoring & Evaluation
• Standardization of indicators to assess proportion of cases reported with risk factors
• Determining the frequency with which individual data elements are reported with non-missing data
• Time between date of diagnostic testing and date reported to health department
• Proportion of at risk contacts immunized
• Monitor disease transmission patterns and to identify high risk groups that need to be targeted by vaccination programs
• Surveillance through a network of labs would help in monitoring the effects of education, counseling, other prevention programs, and newly developed therapies on the burden of the disease

9.9 Budget estimates for 5 years under 12th plan

| Setting up of 25 labs for initial diagnosis including Collection of data and samples transport to labs | Rs 1000.00 lakh |
| Primary prevention guidelines and provision of Vaccine for high risk groups | Rs 1000.00 lakh |
| Secondary prevention guidelines including anti-viral and interferon therapy, repeat testing & quantitative analysis etc: Testing | Rs 2000.00 lakh |
| Treatment | Rs 8000.00 lakh |
| **Total Budget** | **Rs 120.00 crores** |

**PROPOSAL FOR 12th FIVE YEAR PLAN 2012-17 SURVEILLANCE OF HEPATITIS - NCDC( PLAN ) – DELHI (Rs. In Crores)**

<table>
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<th>Sr.No</th>
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<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
<th>GRAND TOTAL</th>
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<td>1.00</td>
<td>1.00</td>
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<td>20.18</td>
<td>32.23</td>
<td>32.28</td>
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10. Establishment of inter-sectoral coordination and control of selected Priority Zoonotic Diseases

10.1 Problem statement

Globally more than 850 pathogens are recognized as zoonoses, some of them being of major economic importance. Zoonotic disease prevalent in India can be divided into three categories: endemic (Rabies, Anthrax, Brucellosis, Toxoplasmosis, Cysticercosis, and Echinococcosis); re-emerging (JE, Plague, Leptospirosis, Scrub Typhus, and KFD) and emerging (Avian Influenza, Nipah, Trypanosomiasis, Swine flu, CCHF).

10.2 Gaps in the 11th Plan

In the 11th plan there was inadequate inter sectoral co ordination and low priority for control of Zoonotic diseases in an integrated fashion. The coordinated control activities with the community involvement is required to address the problem of zoonoses.

10.3 Is a policy change required in the 12th Plan?

For control of Zoonotic diseases there is requirement of mutisectoral integrated response which is practically non existent in the country. This is the major policy change proposed in the 12th plan proposal. There is a need for collaboration among medical, veterinary and other related departments for effectively preventing the Zoonotic diseases. Strengthening surveillance and response capacity, development of early warning systems, and formulating appropriate policies to control these diseases is of utmost importance. The intersectoral coordination established for responding to Avian Influenza pandemic is an encouraging example.

10.4 State ownership/Community Involvement

States/UTs shall be actively involved in the formulation, implementation and evaluation of the activities for control of zoonoses. The roles and responsibilities at each level shall be clearly defined with the emphasis on monitor able parameters. Community as well as NGOs shall be involved in the control activities.

In 12th Five year plan the expert group opined that the focus should be on

1. Establishment of Inter-sectoral Coordination Mechanism
2. Focus on prevention and control priority zoonoses. Rabies, Brucellosis, Leptospirosis, Anthrax and Plague are chosen for co-ordination to begin with.
3. Laboratory capacity development for diagnosis of Zoonotic diseases
4. Manpower development
5. IEC

10.5 Establishment of Intersectoral Coordination Mechanism
To establish the intersectoral coordination the following mechanism should be strengthened/developed at the Centre, State and District level utilizing and strengthening the existing system and facilities rather than creating new ones.

10.5.1 Centre

10.5.1.1 Zoonosis Coordination Cell at NCDC, Delhi

The Zoonosis coordination cell at NCDC, Delhi under the Directions of Director NCDC shall monitor the prevention and control activities regarding Zoonosis and submit the progress to Inter Ministerial Group, Joint Monitoring Group and Standing Committee on Zoonosis for guidance and also provide feedback to the States.

10.5.1.2 Inter-Ministerial Group

With the representatives from Ministries of Health & Family Welfare, Agriculture, Food and Civil Supplies, Environment & Forests and Commerce. Members from other Ministries may be co-opted based on the needs. This group should meet at least twice in a year to review the progress submitted by Director NCDC and monitor the activities of prevention and control of Zoonoses in the country.

10.5.1.3 Joint Monitoring Group

The scope of the existing Joint Monitoring Group on Avian influenza should be expanded to undertake the monitoring of other Zoonotic diseases of public health importance. This group should meet at least biannually to coordinate the activities of prevention and control of zoonoses in the country, based on the progress reported by Director NCDC.

10.5.1.4 Standing Committee on Zoonoses

Which is in existence since 2006 under the chairpersonship of DGHS should meet biannually to advice on various facets of the work on zoonoses in India, ensuring intersectoral coordination between medical, veterinary and other allied institutes, strengthening of laboratories in health and veterinary sectors and formulation of projects on priority problems. Zoonoses Division at NCDC, Delhi should coordinate the activities of the Standing Committee on Zoonoses.

10.5.2 State

Existing State Surveillance Committees under IDSP should form a subgroup to undertake the activities on Zoonoses. State Surveillance Officer (SSO), under IDSP should coordinate the activities of Sub Committee. This committee shall monitor the progress of the Districts in the State and provide feedback to NCDC regularly. The Veterinary officer appointed under IDSP should assist the SSO in carrying out the activities and establishing the intersectoral coordination. Provision of appointment of 35 veterinary officers, one for each State/UT, has been made under IDSP in 12th Five year plan.

10.5.3 District
For effective coordination between the medical and veterinary professionals at the district and the block levels, District Surveillance Officer (DSO), under IDSP should coordinate the activities between veterinary, municipal corporation/committees and other local bodies and voluntary agencies involved in the subject.

10.6 Focus on prevention and control priority zoonoses viz Rabies, Brucellosis, Leptospirosis and Plague

Priority Zoonotic diseases identified after deliberations are as follows:

10.6.1 Rabies

Rabies is a major public health problem throughout the country. A National Rabies Control Programme is being proposed in the 12th plan, building on the success of the pilot project implemented in the 11th plan.

10.6.2 Brucellosis

Brucellosis is a major problem in livestock in India. The Dept of Livestock Health, Ministry of Agriculture has identified this disease to be undertaken in 12th Five year plan. The magnitude of problem in humans is not known however it is one of the important occupational disease and forms differential diagnosis of Pyrexia of unknown origin with effective treatment. If no interventions are undertaken the magnitude of the problem may not be known in human beings.

10.6.3 Leptospirosis

Leptospirosis is a major public health problem in the western and southern belts involving six States of the country. Leptospirosis control was undertaken in 11th Five year Plan in 2008. The strategy developed was effective in reducing the burden of the disease. To further consolidate the strategy the disease has been identified for 12th Five year plan to be extended to all the endemic states in the country.

10.6.4 Plague

Plague is important disease with international implications. Maintenance of continuous surveillance is key in early detection and prevention of human plague. The manpower meant for surveillance of plague is depleting in the country. If the effective surveillance the disease is not undertaken, more outbreaks may occur. Thus the disease is included in the 12th Five Year Plan.

10.6.5 Anthrax

Anthrax is primarily a disease of herbivorous animals that occasionally affects humans. In the past few years Anthrax cases have been reported in humans from Andhra Pradesh, Orissa, Karnataka, Tamil Nadu and West Bengal. Antibiotics are effective if the disease is recognized early and treated fully. If left untreated, mortality is high.
There is need to strengthen diagnostic capability in endemic areas and create awareness in the general community regarding non-consumption of meat of dead animals and proper disposal of carcass. In 12th Plan provision of laboratory facilities in the endemic states along with IEC and improved inters sectoral coordination will be under taken.

10.7 Strengthening of laboratory services for Zoonosis

Laboratories identified under IDSP should be further strengthened enabling them to undertake diagnosis of Zoonotic diseases.

10.8 Manpower development

NCDC should identify and train the core trainers. These core trainers shall in turn train the professionals in their respective States/districts. The names of the core trainers should be made available at NCDC website.

10.9 Information, Education and Communication (IEC)

10 per cent budget earmarked for undertaking IEC activities for prevention and control of Zoonotic Diseases. Prototype material should be developed at NCDC and provided to State governments with the provision of funds for translation in local languages for wider dissemination.

10.10 Proposed Budget

Budget proposed for Intersectoral coordination and priority zoonotic diseases under 12th five year plan is

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<th>1st yr</th>
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<td>Priority Disease specific budget Plague, Brucellosis, Anthrax</td>
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Rs in crores
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<td>GRAND TOTAL</td>
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7. Brief of the proposals of 12th Five Year Plan (Rs. crores)

<table>
<thead>
<tr>
<th>Programme</th>
<th>Disease Burden</th>
<th>Risk Factors</th>
<th>Achievements during 11th Plan</th>
<th>Plan of Action during 12th Plan</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaria</td>
<td>• 1.5 million cases reported every year (50% of them are falciparum malaria)</td>
<td>• Unplanned urbanization with inadequate infrastructure.</td>
<td>• ABER – 9.2%</td>
<td>• To reduce API to &lt;1</td>
<td>3976.24</td>
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<td></td>
<td>• Reported annual incidence at national level-1.3 cases /1000 population</td>
<td>• Rapid Industrialization</td>
<td>• API – 1.3</td>
<td>• Quality microscopy at all health facilities to screen 70% of the cases, remaining 30% by RDT</td>
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<tr>
<td></td>
<td>• Expert Committee estimated 4.9 million cases and 30,000 deaths due to malaria in 2009.</td>
<td>• Ecological changes</td>
<td>• Reduction in Morbidity by 16.2% (base 2006)</td>
<td>• Introduction and up-scaling bivalent RDT (both for Pf &amp; Pv) - 160 million RDTs</td>
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<td></td>
<td>• North Eastern states, Orissa, Chattisgarh, Jharkhand, Madhya Pradesh, Andhra Pradesh, Maharashtra, Gujararat, West Bengal and Karnataka contributes 80% of malaria burden.</td>
<td>• Insecticide and drug resistance.</td>
<td>• Reduction in Morbidity by 55.1% (base 2006)</td>
<td>• Up scaling of ACT to treat all Pf cases (about 13 million doses)</td>
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<td></td>
<td>• Population migration</td>
<td>• Population migration</td>
<td>• 3.5 lakh ASHAs trained for diagnosis and management</td>
<td>• Improved reporting including from private sector</td>
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<td></td>
<td>• Poor Vector control measures</td>
<td>• Poor Vector control measures</td>
<td>• Upscaling of RDT</td>
<td>• Strengthening Treatment Facilities for severe malaria</td>
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<td></td>
<td>• Livestock kept close to human dwellings and sleeping habits of people</td>
<td>• Livestock kept close to human dwellings and sleeping habits of people</td>
<td>• Upscaling ACT</td>
<td>• Up-scaling of LLINs (about 36 million)</td>
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<td></td>
<td>• ABER – 9.2%</td>
<td>• ABER – 9.2%</td>
<td>• 4.81 million LLIN supplied; 6.58 million being supplied</td>
<td>• Additional technical and managerial Human Resource to strengthen state and district VBD units</td>
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<td></td>
<td>• API – 1.3</td>
<td>• API – 1.3</td>
<td>• Reduction in Mortality by 16.2% (base 2006)</td>
<td>• Elimination by 2015</td>
<td>700.66</td>
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<td></td>
<td>• Reduction in Morbidity by 16.2% (base 2006)</td>
<td>• Reduction in Morbidity by 16.2% (base 2006)</td>
<td>• Reduction in Mortality by 55.1% (base 2006)</td>
<td>• Strengthening of case search for hot spots using RDT</td>
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<td></td>
<td>• Reduction in Mortality by 55.1% (base 2006)</td>
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<td>• 3.5 lakh ASHAs trained for diagnosis and management</td>
<td>• Drug delivery on Directly Observed Treatment (DOT) pattern</td>
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<td></td>
<td>• 320/514 endemic blocks reported &lt;1 case per 10,000 population in 2010</td>
<td>• 320/514 endemic blocks reported &lt;1 case per 10,000 population in 2010</td>
<td>• Focus on complete treatment</td>
<td>• Quality Indoor Residual Spray (IRS) with &gt; 80 % coverage in 52 districts</td>
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<td></td>
<td>• Reduction of kala-azar deaths in 2010 - 44% (base 2006)</td>
<td>• Reduction of kala-azar deaths in 2010 - 44% (base 2006)</td>
<td>• Upscaling of RDT, miltefosin</td>
<td>• Training &amp; IEC/BCC</td>
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<td></td>
<td>• Additional staff for improved monitoring</td>
<td>• Additional staff for improved monitoring</td>
<td>• Intensified IEC/BCC</td>
<td>• Intensive M&amp;E</td>
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<td>• Focus on complete treatment</td>
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<td>• Intensified IEC/BCC</td>
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<td></td>
<td>• Additional technical and managerial Human Resource to strengthen state and district VBD units</td>
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<td>• Intensive M&amp;E</td>
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<td>Kala-azar</td>
<td>• About 30,000 cases in 52 districts of 4 states</td>
<td>• About 30,000 cases in 52 districts of 4 states</td>
<td>• 320/514 endemic blocks reported &lt;1 case per 10,000 population in 2010</td>
<td>• Elimination by 2015</td>
<td>700.66</td>
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<td></td>
<td>• Cases&lt;1/10,000 population in 320 blocks</td>
<td>• Cases&lt;1/10,000 population in 320 blocks</td>
<td>• Reduction of kala-azar deaths in 2010 - 44% (base 2006)</td>
<td>• Strengthening of case search for hot spots using RDT</td>
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<td>• Cases &gt;1/10,000 population in 194 blocks</td>
<td>• Cases &gt;1/10,000 population in 194 blocks</td>
<td>• Additional staff for improved monitoring</td>
<td>• Drug delivery on Directly Observed Treatment (DOT) pattern</td>
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<td></td>
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<td>• Focus on complete treatment</td>
<td>• Quality Indoor Residual Spray (IRS) with &gt; 80 % coverage in 52 districts</td>
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<td>• Cases&lt;1/10,000 population in 320 blocks</td>
<td>• Cases&lt;1/10,000 population in 320 blocks</td>
<td>• Upscaling of RDT, miltefosin</td>
<td>• Training &amp; IEC/BCC</td>
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<td>• Cases &gt;1/10,000 population in 194 blocks</td>
<td>• Cases &gt;1/10,000 population in 194 blocks</td>
<td>• Intensified IEC/BCC</td>
<td>• Intensive M&amp;E</td>
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<td>Dengue</td>
<td>• Endemic in 31 States</td>
<td>• Endemic in 31 States</td>
<td>• 311 sentinel surveillance hospitals &amp; 14 apex labs established</td>
<td>• Maintaining dengue CFR below 1%</td>
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<td>• 28292 cases and 110 deaths in 2010</td>
<td>• 28292 cases and 110 deaths in 2010</td>
<td>• CFR due to DHF reduced to 0.4% in 2010</td>
<td>• Sustaining effort for containment of Dengue &amp; Chikungunya outbreaks</td>
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<td>• Reemerged in 2006, 1.39 million cases</td>
<td>• Reemerged in 2006, 1.39 million cases</td>
<td>• CFR due to DHF reduced to 0.4% in 2010</td>
<td>• Strengthening of diagnosis and case management – 400 diagnostic centres</td>
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<td>• Endemic in 19 states</td>
<td>• Endemic in 19 states</td>
<td>• CFR due to DHF reduced to 0.4% in 2010</td>
<td>• Thrust on entomological monitoring, source reduction</td>
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<td>• Reemerged in 2006, 1.39 million cases</td>
<td>• Reemerged in 2006, 1.39 million cases</td>
<td>• CFR due to DHF reduced to 0.4% in 2010</td>
<td>• Strengthening HR Development, Inter-sectoral convergence &amp; Monitoring</td>
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234
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<tr>
<th>Programme</th>
<th>Disease Burden</th>
<th>Risk Factors</th>
<th>Achievements during 11th Plan</th>
<th>Plan of Action during 12th Plan</th>
<th>Budget (Rs. In crores)</th>
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<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• JE vaccination in 111 districts through campaign</td>
<td>• Prevention of outbreak</td>
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<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• JE vaccine integrated in UIP</td>
<td>• Reduction in JE mortality by 50%</td>
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<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• 51 sentinel sites strengthened</td>
<td>• Thrust on case management at district and below</td>
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<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• Improvement in case management</td>
<td>• &gt;80% JE coverage under RI</td>
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<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• NIV Field Station, RD Field Unit at Gorakhpur MC</td>
<td>• Medical rehabilitation of disabled cases</td>
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<tr>
<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• 51 sentinel sites strengthened</td>
<td>• Strengthening of disease and vector surveillance</td>
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<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• Improvement in case management</td>
<td>• Enhancing capacity building &amp; Intensified BCC/IEC</td>
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<tr>
<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• NIV Field Station, RD Field Unit at Gorakhpur MC</td>
<td>• Elimination by 2015</td>
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<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• 51 sentinel sites strengthened</td>
<td>• To cover entire population in 250 endemic districts during MDA</td>
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<tr>
<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• Improvement in case management</td>
<td>• Awareness intensification for improvement in Drug Compliance</td>
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<tr>
<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• NIV Field Station, RD Field Unit at Gorakhpur MC</td>
<td>• Intensification of Lymphoedema management with specific training</td>
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<tr>
<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• 51 sentinel sites strengthened</td>
<td>• Up scaling Hydrocele Operations</td>
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<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• Improvement in case management</td>
<td>• Use of MC and research institutes for M&amp;E</td>
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<tr>
<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• NIV Field Station, RD Field Unit at Gorakhpur MC</td>
<td>• Post MDA surveillance in districts where MDA is stopped</td>
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<tr>
<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• 51 sentinel sites strengthened</td>
<td>• Honorarium for MDA to ASHAs &amp; Supervisors</td>
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<tr>
<td>• 5149 AES cases and 677 deaths in 2010</td>
<td>• 565 JE cases and 110 deaths reported by 11 states in 2010</td>
<td>• Improvement in case management</td>
<td>• Independent assessment &amp; Elimination verification</td>
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<tr>
<td><strong>Filaria</strong></td>
<td>• Endemic in 250 districts of 20 states</td>
<td>• All 250 endemic districts covered during MDA</td>
<td>• Elimination by 2015</td>
<td></td>
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<tr>
<td>• Endemic in 250 districts of 20 states</td>
<td>• 600 million population at risk</td>
<td>• MDA coverage 85%.</td>
<td>• To cover entire population in 250 endemic districts during MDA</td>
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<tr>
<td>• Endemic in 250 districts of 20 states</td>
<td>• 40 million infected, 1/3 of global cases</td>
<td>• 8 Lakh Lymphodema &amp; 4 Lakh Hydrocele cases line listed</td>
<td>• Awareness intensification for improvement in Drug Compliance</td>
<td></td>
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<tr>
<td>• Endemic in 250 districts of 20 states</td>
<td>• Microfilaria rate more than 1% in 100 districts</td>
<td>• 72,464 hydrocele operated</td>
<td>• Intensification of Lymphoedema management with specific training</td>
<td></td>
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<tr>
<td>• Endemic in 250 districts of 20 states</td>
<td>• 8 lakh lymphodema and 4 lakh hydrocele cases line listed</td>
<td>• Mf rate reduced from 1.24% in 2004 to 0.34% in 2010</td>
<td>• Up scaling Hydrocele Operations</td>
<td></td>
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<tr>
<td>• Endemic in 250 districts of 20 states</td>
<td>• 8 lakh lymphodema and 4 lakh hydrocele cases line listed</td>
<td>• Mf rate reduced from 1.24% in 2004 to 0.34% in 2010</td>
<td>• Use of MC and research institutes for M&amp;E</td>
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<td>• Endemic in 250 districts of 20 states</td>
<td>• 8 lakh lymphodema and 4 lakh hydrocele cases line listed</td>
<td>• Mf rate reduced from 1.24% in 2004 to 0.34% in 2010</td>
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<td>• Mf rate reduced from 1.24% in 2004 to 0.34% in 2010</td>
<td>• Honorarium for MDA to ASHAs &amp; Supervisors</td>
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<td>• Mf rate reduced from 1.24% in 2004 to 0.34% in 2010</td>
<td>• Independent assessment &amp; Elimination verification</td>
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<tr>
<td><strong>NHBDCP including crosscutting budget (Rs. 4115.38 Cr)</strong></td>
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<td>10693.18</td>
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<tr>
<td>Programme</td>
<td>Disease Burden</td>
<td>Risk Factors</td>
<td>Achievements during 11th Plan</td>
<td>Plan of Action during 12th Plan</td>
<td>Budget (Rs. In crores)</td>
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<tr>
<td>RNTCP</td>
<td>2 million new cases every yr (1/5 of global TB burden)</td>
<td>HIV, Diabetes, Smoking, Malnourishment, Overcrowding, Congregate settings, Increasing age, male, Low standard of living</td>
<td>Case detection 70%</td>
<td>Case detection target &gt; 90%</td>
<td>5825.28</td>
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<td></td>
<td>Estimated prevalence of TB is 266 cases /lakh population</td>
<td></td>
<td>Cure rate of 86-87% achieved in each year</td>
<td>Cure rate of &gt;90% of new TB cases, &gt;85% of previously treated cases</td>
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<td>23 person/lakh population dies annually</td>
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<td>&gt;27 million TB suspect cases examined, &gt;6 million cases treated in 4 years</td>
<td>Universal access to quality DOTS</td>
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<td>Annual Risk of TB infection-1.1%</td>
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<td>DOTS plus for the management of MDR-TB started; 4200 cases treated in 4 years</td>
<td>Extend RNTCP services to cases diagnosed &amp; treated in private sector</td>
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<td></td>
<td>19 C&amp;DST labs established for diagnosis of MDR-TB cases</td>
<td>Complete geographical coverage of MDR-TB treatment services by 2013</td>
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<td>Total 73 Culture and Drug susceptibility testing (C&amp;DST) laboratories to be setup for the diagnosis of MDR-TB patients</td>
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<td>Treatment for all MDR-TB patients diagnosed</td>
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<td>HIV testing and counseling to all TB cases</td>
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<td>Universal access to quality DOTS</td>
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<td>Extend RNTCP services to cases diagnosed &amp; treated in private sector</td>
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<td>Complete geographical coverage of MDR-TB treatment services by 2013</td>
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<td>Total 73 Culture and Drug susceptibility testing (C&amp;DST) laboratories to be setup for the diagnosis of MDR-TB patients</td>
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<td>Treatment for all MDR-TB patients diagnosed</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>HIV testing and counseling to all TB cases</td>
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<tr>
<td>NLEP</td>
<td>Half of global burden contributed by India</td>
<td>Close contact with cases (Reducing contact with known leprosy patients is of dubious value)</td>
<td>Prevalence Rate (PR) &lt;1/10,000 population (Elimination of Leprosy) achieved in 82.8% districts</td>
<td>100 % districts to achieve PR &lt; 1/10,000 population</td>
<td>787.00</td>
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<td></td>
<td>126,800 new cases reported in India during 2010-11</td>
<td></td>
<td>Annual New Case Detection Rate (ANCDR)&lt;10.48/10,000 population</td>
<td>To achieve ANCDR &lt;10/10,000 population in all districts</td>
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<td></td>
<td>Prevalence Rate- 0.69/10,000 population in 2010-11 at national level</td>
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<td>No. of high endemic districts reduced from 275 in 2005-06 to 209</td>
<td>Focus attention to 209 districts to achieve elimination</td>
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<td>125,756 Grade-II disability cases as on 31st March 2011.</td>
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<td>89.87% cure rate of MB leprosy achieved</td>
<td>To achieve &gt;95 % cure rate of MB patients</td>
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<td>97% cure rate of PB Leprosy achieved.</td>
<td>To achieve &gt;97% cure rate of PB patients</td>
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<td>Grade-II Disability reduced by 25% (base year,2006-07)</td>
<td>To reduce grade-II disability by 35% base year 2011-12</td>
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<td></td>
<td>Enchanced IEC activities to reduce stigma</td>
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<tr>
<td>Programme</td>
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<td>Budget (Rs. In crores)</td>
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<tr>
<td><strong>Disease Surveillance and Response Programme</strong></td>
<td>• Communicable diseases are major public health problem.</td>
<td>• Poor hygiene and sanitation • Uncontrolled population growth and high density • Rapid urbanization • Population migration • International travel • Breakdown of public health measures • Climate change • Rapid deforestation • Contact with animals • Poverty and social inequality</td>
<td>• Surveillance units established at all States and Districts. • RRT trained in 34 states • Data centre equipment installed at 776 sites • 85% districts report weekly data • About 20 outbreaks reported every week</td>
<td>• IDSP is proposed to be implemented as Disease Surveillance &amp; Response Programme • All contractual positions to continue • All districts to report through portal • All districts will have access to public health lab – 500 labs • 190 referral labs will be linked to districts labs • Collection of OPD data from major hospitals • Case based surveillance from 30 sentinel centres for Vaccine Preventable Diseases</td>
<td>851.81</td>
</tr>
<tr>
<td><strong>National Programme for Rabies Control</strong></td>
<td>• 17.5 million animal bites annually • 20000 death annually</td>
<td>• 25 million stray dogs • Inadequate control/IEC</td>
<td>• Pilot project at 5 sites • Strategy for preventing human death operationalised</td>
<td>• Programme to be introduced in the entire country both in rural &amp; urban areas • Strengthening of Post-exposure prophylaxis • Using ID route for vaccination • Vaccination of stray dogs at 30 sites initially • Strengthening intersectoral coordination</td>
<td>384.59</td>
</tr>
<tr>
<td><strong>Prevention and control of leptospirosis</strong></td>
<td>• Predominantly in costal areas • Outbreaks in Kerala, Gujarat, Tamil Nadu, Orissa, Karnataka, Maharashtra, A&amp;N etc</td>
<td>• Presence of infected rodents • Alakline soil • Agriculture practices • High rains</td>
<td>• Pilot project in 5 states • Strategy developed to reduce burden of disease</td>
<td>• Strategy developed in 11th Plan will be extended to all endemic states • Development of trained manpower • Focus on case management facilities • Intersectoral coordination • Improvement in lab capacity • Augmentation of surveillance</td>
<td>3.69</td>
</tr>
<tr>
<td><strong>Intersectoral coordination and control of priority zoonotic diseases</strong></td>
<td>• Major public health problems • &gt;75% emerging diseases are zoonotic</td>
<td>• Vast reservoir of animals • Close interface between animals and human</td>
<td>• Pilot project on rabies and leptospirosis • JMG for AI/swine flu established • Integrated avian influenza pandemic plan developed</td>
<td>• Establishment of Intersectoral coordination mechanism • One Con (vet) at SSU under IDSP • Focus on priority diseases, brucellosis, anthrax, plague • Development of lab capacity • Strong IEC</td>
<td>51.08</td>
</tr>
<tr>
<td>Programme</td>
<td>Disease Burden</td>
<td>Risk Factors</td>
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<tr>
<td>Prevention and control of viral hepatitis</td>
<td>• Major public health problem</td>
<td>• Unsafe water, food and poor hygiene and sanitation are risk factors for HAV, HEV</td>
<td>• No organized viral hepatitis surveillance in the country</td>
<td>• Setting up of 25 labs for diagnosis of hepatitis A, B, C, D, E&lt;br&gt;• Setting up 5 regional labs for genotyping of Viral hepatitis&lt;br&gt;• Central supply of kits and reagents&lt;br&gt;• Development and dissemination of Primary / secondary prevention guidelines&lt;br&gt;• Provision of hepatitis B Vaccine for high risk groups&lt;br&gt;• Guidelines for anti-viral and interferon therapy to be formulated and disseminated</td>
<td>120.0</td>
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<td>• HAV very common in children</td>
<td>• Unsafe blood transfusion, exposure to body fluids, contaminated injections, unsafe sex are risk factors for HBV, HCV, HDV</td>
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<td>• Almost all outbreaks of viral hepatitis are due to HEV</td>
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<td>• 2-4% HBV carrier rate (35 million carriers)</td>
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<td>• HBV common cause of Chronic liver disease and cancer</td>
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<td></td>
<td>• HCV prevalence 1%</td>
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<td>National programme for AMR containment</td>
<td>• Increasing trend of drug resistance</td>
<td>• Irrational use of antibiotics&lt;br&gt;• Over the counter availability of antibiotics&lt;br&gt;• Rampant use of antibiotics to feed livestock&lt;br&gt;• Inappropriate prescription&lt;br&gt;• Lack of proper infection control practices&lt;br&gt;• Inadequate surveillance</td>
<td>• National Task Force constituted in August 2010 to frame national policy</td>
<td>• Strengthening of regulatory component&lt;br&gt;• Discouraging the over-the-counter sale of antibiotics&lt;br&gt;• Limiting access to newer antimicrobials&lt;br&gt;• Promoting rational use of antibiotics&lt;br&gt;• Strengthening hospital infection control practices&lt;br&gt;• Setting up a network of quality controlled laboratories for AMR surveillance&lt;br&gt;• Antimicrobial use surveillance&lt;br&gt;• Reducing extra-human use of antibiotics&lt;br&gt;• Sensitizing doctors and community at large regarding proper use of antibiotics</td>
<td>112.25</td>
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<tr>
<td>NCDC upgradation</td>
<td>NA</td>
<td>NA</td>
<td>• Approval of the EFC for upgraded NCDC&lt;br&gt;• The cabinet committee on economic affairs (CCEA) approved the proposal in December 2010.&lt;br&gt;• NBCC engaged as an agency for construction of civil and services works&lt;br&gt;• Out of 245 additional posts proposed, 103 technical posts have been sanctioned by the government&lt;br&gt;• Expenditure during 11th Plan as on 15.6 11is Rs. 258.57 Lac</td>
<td>• All the proposed activities in the approved EFC will be completed&lt;br&gt;• Ongoing activities and proposed newer initiatives shall be implemented</td>
<td>350.00</td>
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<tr>
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<td>Strengthening of NCDC Branches</td>
<td>NA</td>
<td>NA</td>
<td>• During EFC of NCDC upgradation, Planning Commission and PMO observed the need of strengthening NCDC Branches</td>
<td>• Strengthening of 8 existing branches so that they function as mini NCDC</td>
<td>288.50</td>
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<td>Establishment of 27 new NCDC branches</td>
<td>NA</td>
<td>NA</td>
<td>• Opening of NCDC branches in the remaining 27 States/UTS also</td>
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<td>854.80</td>
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<tr>
<td>24x7 reporting system and influenza surveillance</td>
<td>NA</td>
<td>NA</td>
<td>• Outbreak Monitoring Cell (OMC) already functioning</td>
<td>• Round the clock working of OMC and data collection &amp; analysis of outbreaks in different parts of the country</td>
<td>6.10</td>
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<td>• Strengthening of capacities at points of entry</td>
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<td>• Strengthening of communication with all APHOs/PHOs and Point of Entry to improve reporting and response</td>
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<td>• Identification, sensitization of and coordination with IHR focal points of all states/ points of entry and all stakeholders</td>
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<td></td>
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<td>• Communication with WHO</td>
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<td>Operational Research</td>
<td>NA</td>
<td>NA</td>
<td>•</td>
<td>• In view of the scarcity of disease burden data especially for communicable diseases, NCDC proposes to conduct longitudinal epidemiological studies to estimate the burden of important communicable diseases in India</td>
<td>14.00</td>
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<tr>
<td>NCDC</td>
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<td>•</td>
<td>•</td>
<td>3049.35</td>
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<td>Total</td>
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### 8. Summary of the total budget proposed for Communicable Diseases in the 12th Plan (Rs. In crore)

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<td>1.</td>
<td>NVBDCP</td>
<td>2329.13</td>
<td>1969.51</td>
<td>1992.82</td>
<td>2107.28</td>
<td>2294.45</td>
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<td>2.</td>
<td>RNTCP</td>
<td>936.12</td>
<td>949.93</td>
<td>1173.27</td>
<td>1316.27</td>
<td>1449.68</td>
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<td>3.</td>
<td>NCDC</td>
<td>718.34</td>
<td>1025.09</td>
<td>408.84</td>
<td>433.82</td>
<td>463.26</td>
<td>3049.35</td>
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<td>4.</td>
<td>NLEP</td>
<td>167.03</td>
<td>152.13</td>
<td>166.05</td>
<td>151.65</td>
<td>150.14</td>
<td>787.00</td>
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<td>Total</td>
<td></td>
<td>4150.62</td>
<td>4096.66</td>
<td>3740.98</td>
<td>4009.02</td>
<td>4357.53</td>
<td>20354.81</td>
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