NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME

ANNUAL REPORT 2014-15

GOVERNMENT OF INDIA
NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME
DIRECTORATE GENERAL OF HEALTH SERVICES
MINISTRY OF HEALTH & FAMILY WELFARE
22, SHAM NATH MARG, DELHI – 110 054

1. PREAMBLE

The National Vector Borne Disease Control Programme (NVBDCP) is an umbrella programme for prevention and control of vector borne diseases viz. Malaria, Japanese Encephalitis (JE), Dengue, Chikungunya, Kala-azar and Lymphatic Filariasis. Out of these six diseases, two diseases namely Kala-azar and Lymphatic Filariasis have been targeted for elimination by 2015. The States are responsible for implementation of programme, whereas the Directorate of NVBDCP, Delhi provides technical assistance, policies and assistance to the States in the form of cash & commodity, as per approved pattern. Malaria, Filaria, Japanese Encephalitis, Dengue and Chikungunya are transmitted by mosquitoes whereas Kala-azar is transmitted by sand-flies. The transmission of vector borne diseases depends on prevalence of infective vectors and human-vector contact, which is further influenced by various factors such as climate, sleeping habits of human, density and biting of vectors etc.

The general strategy for prevention and control of vector borne diseases under NVBDCP is described below:

(i) **Integrated Vector Management** including Indoor Residual Spraying (IRS) in selected high risk areas, Long Lasting Insecticidal Nets (LLINs), use of larvivorous fish, anti-larval measures in urban areas including bio-larvicides and minor environmental engineering including source reduction

(ii) **Disease Management** including early case detection with active, passive and sentinel surveillance and complete effective treatment, strengthening of referral services, epidemic preparedness and rapid response.

(iii) **Supportive Interventions** including Behaviour Change Communication (BCC), Inter-sectoral Convergence, Human Resource Development through capacity building.

(iv) **Vaccination** only against J.E.

(v) **Annual Mass Drugs Administration** (only against Lymphatic Filariasis)

2. MALARIA

Malaria is an acute parasitic illness caused by *Plasmodium falciparum* or *Plasmodium vivax* in India. The main clinical presentation is fever with chills; however, nausea and headache can also occur. The diagnosis is confirmed by microscopic examination of a blood smear and Rapid Diagnostic Tests. Majority of the patients recover from the acute episode within a week. Malaria continues to pose a major public health threat in different parts of the country, particularly due to *Plasmodium falciparum* due to which severity may develop and may cause fatality, if not treated early.

In India, out of 9 species of Malaria vectors, the major vector for rural malaria is *Anopheles culicifacies*, found all over the country and breeds in clean ground water collections. Other important Anopheline species namely *An.minimus* and *An.fluviatilis* breed in running channels, streams with clean water. Some of the vector species also breed in forest areas, mangroves, lagoons, etc, even in those with organic pollutants.

In urban areas, malaria is mainly transmitted by *Anopheles stephensi* which breeds in man-made water containers in domestic and peri-domestic situations such as tanks, wells, cisterns, which are more or less of permanent nature and hence can maintain density for malaria transmission throughout the year. Increasing human activities, such as urbanization, industrialization and construction projects with consequent migration, deficient water and solid waste management and indiscriminate disposal of articles (tyres, containers, junk materials, cups, etc.) create mosquitogenic conditions and thus contribute to the spread of vector borne diseases.

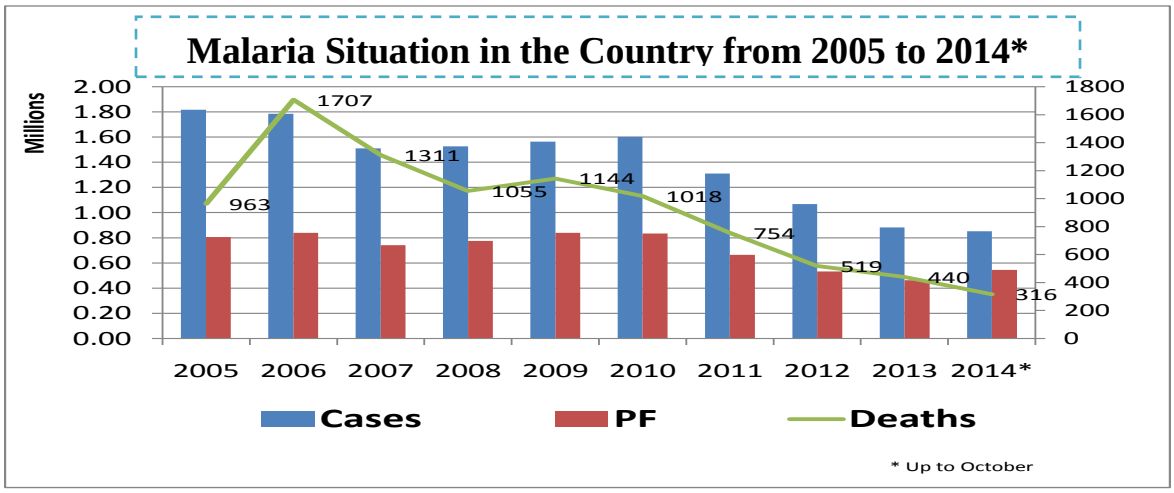
Epidemiological Situation:

The status of total cases, Pf cases, deaths and API from 2005 to 2013 is given in the table and the Graph as follows. The state-wise data on malaria cases & deaths since 2010 is at ***Annexure 1***.

Malaria Situation in the country during 1996-2014*				
Year	**Cases (in millions)**		**Deaths**	**API**
	Total	**Pf**		
2005	1.82	0.81	963	1.68
2006	1.79	0.84	1707	1.66
2007	1.50	0.74	1311	1.39
2008	1.53	0.78	1055	1.36
2009	1.56	0.84	1144	1.36
2010	1.60	0.83	1018	1.37
2011	1.31	0.67	754	1.10
2012	1.01	0.53	519	0.88
2013	0.88	0.46	440	0.72
2014* (till October)	0.85	0.54	316	0.70

Pre-independence estimates of Malaria were about 75 million cases and 0.8 million deaths annually. The problem was virtually eliminated in the mid sixties but resurgence led to an annual incidence of 6.47 million cases in 1976. Modified Plan of Operation was launched in 1977 and annual malaria incidence started declining. The cases were contained between 2 to 3 million cases annually till 2001 afterwards the cases have further started declining.

During 2011, the malaria incidence was around 1.31 million cases, 0.67 million Pf cases and 754 deaths; while during 2012, 1.01 million cases, 0.53 Pf cases and 519 deaths were reported. About 91% of malaria cases and 99% of deaths due to malaria are reported from high disease burden states namely Northeastern (NE) States, Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and West Bengal. However, other States are also vulnerable and have local and focal upsurge. During 2013, 0.88 million cases, 0.46 Pf cases and 440 deaths have been reported. During 2014 (till October), 0.85 million cases, 0.54 Pf cases and 316 deaths have been reported.



Resistance in *Plasmodium falciparum* to Chloroquine was observed to be very high and frequent in the studies conducted during 2001 onwards. Therefore Artemisine based Combination Therapy (ACT) is now being used as first line of treatment for all Pf cases in whole of the county. However, in North-Eastern states early signs of late Clarence to currently used Artesunate+ Sulfadoxine pyrimethamine (SP-ACT), has been noticed and so, as per the advice of Technical Advisory Committee, effective combination of Artemether-Lumefantrine (ACT-AL) has been recommended for the treatment of *Pf* cases in the North Eastern States. For strengthening surveillance, Rapid Diagnostic Test (RDT) for diagnosis of *P.falciparum* malaria was introduced in high endemic areas and being scaled up.

Considering that about 50% of the malaria cases are due to *P vivax* in the country, bivalent RDT (detecting both *Pv* and *Pf* infection) has been introduced in the country at the field level from this year. ASHAs have been trained in diagnosis and treatment of malaria cases and are involved in early case detection and treatment.

The Government of India provides technical assistance and logistics support including anti malaria drugs, DDT, larvicides, etc. under NVBDCP within overall umbrella of NHM. State Governments have to implement the programme and required human resource and other logistics are to be ensured.

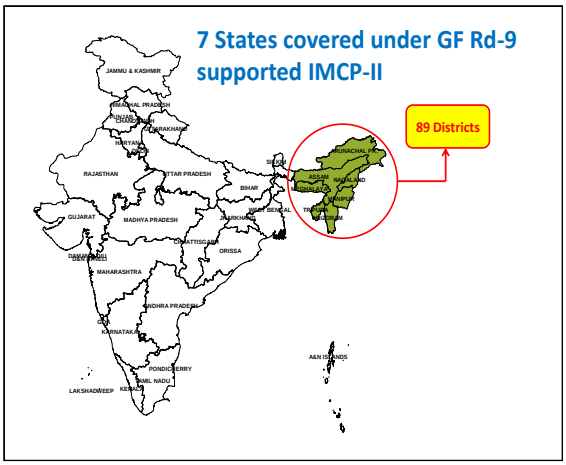
Externally supported projects:

Additional support for combating malaria is provided through external assistance in high malaria risk areas. Global Fund Supported Intensified Malaria Control Project (IMCP-II) in currently being implemented for malaria control World Bank Supported Project on Malaria Control & Kala-azar Elimination has closed on 31.12.2013.

The areas covered under these projects are as under:

The Global Fund supported 'Intensified Malaria Control Project- Phase II' (IMCP-II)

Global fund Round 9 supported Intensified Malaria Control Project (IMCP-II) is being implemented since October 2010 for a period of five years in 7 NE States. The project area covers a population of 46 million in 89 districts as shown in the map.

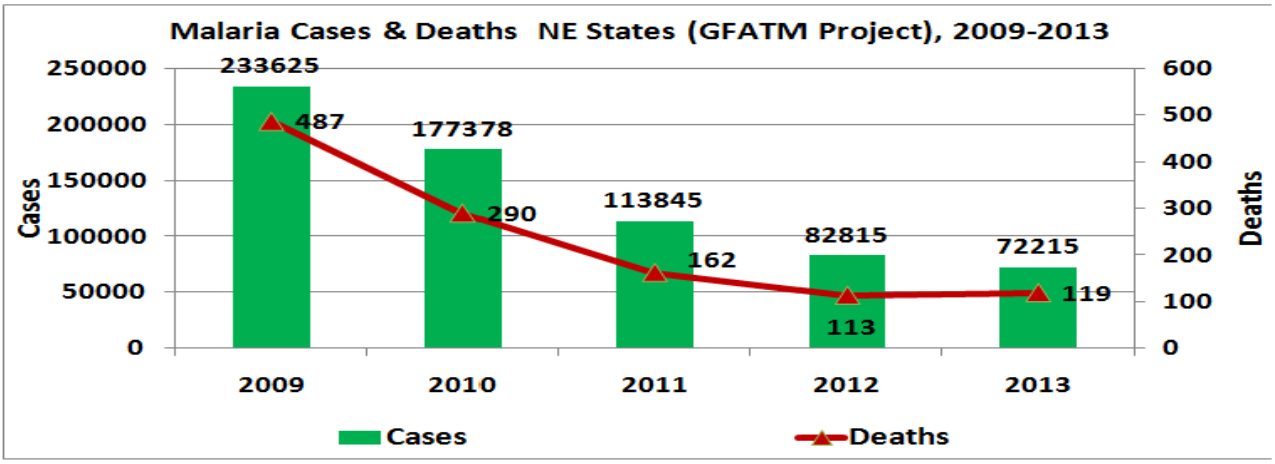


The strategies of the project are early diagnosis and complete treatment, integrated vector control including promotion of Insecticide Treated Bed Net (Long-Lasting Insecticidal Nets), through intensive IEC and capacity building & training of the health workers & community volunteers. Specific inputs are provided to these project areas in the form of manpower, RDTs, drugs and LLINs. The period for first phase was for two years starting from October 2010 to Sept. 2012. The Phase-II is of three years stating from October 2012 to September, 2015. CARITAS India is a complementing partner and Principal Recipient 2 (PR2) in the project.

Additional Support provided in project area is listed below:

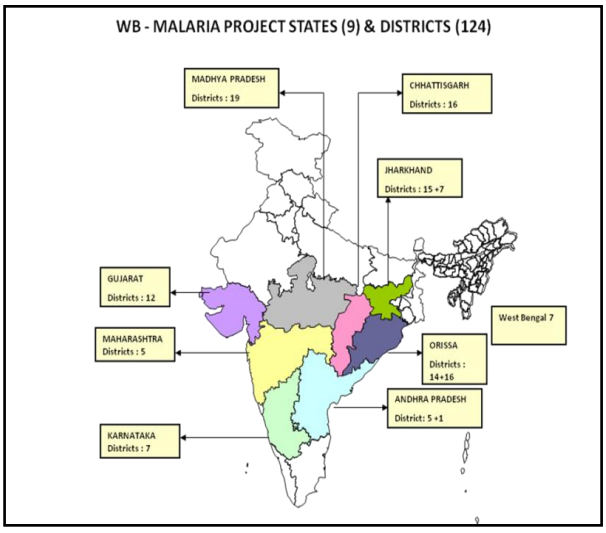
- Human resource such as Consultants and support staff for project monitoring units at state and district level and malaria technical supervisor, (MTS) and laboratory technicians (Lts.) at sub-district level.
- Capacity building of District VBD consultant, MTS Medical Officer/Lab. Technicians/ Health/Volunteers as ASHA, CHV etc.
- Commodities such as Long-Lasting Insecticidal Nets (LLINs), Rapid Diagnostic tests for quick diagnosis of Malaria, drugs Artemesinin based Combination ACT- AC Pv total of Pf malaria Therapy (ACT) and Inj. Artesunate for treating severe malaria cases.
- Planning & administration including mobility support, monitoring, evaluation and operational research (studies on drug resistance and entomological aspects).

The impact of the project activities is reflected in sharp reduction of malaria cases and deaths due to malaria in project states (7) as shown in the graph.



The World Bank Supported Project on Malaria Control & Kala-azar Elimination.

This project was approved for 5 years effective from 2009 to December 2013. The total financial outlay for this project was Rs.1000 crore. This project covers 124 malarious districts of nine (9)



states namely Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra,

Orissa, Karnataka & West Bengal and 46 Kala-azar districts in three states namely Bihar, Jharkhand and West Bengal. Now, Andhra Pradesh state has been bifurcated in 2 states namely Andhra Pradesh and Telangana and districts covered under the project are also divided in both the states. After closure of World Bank Project, on 31st December 2013, all the project activities are being carried out with the Domestic Budgetary Support i.e. upto March 31st 2017.

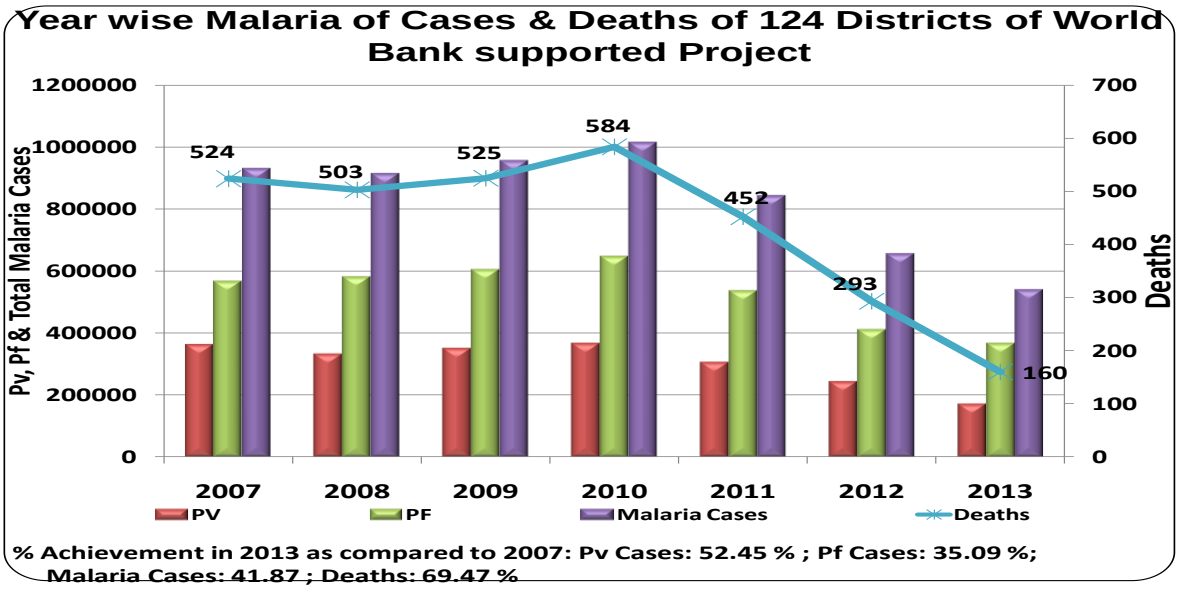
Additional support provided to these States/District are as under:

- Provision of Human Resource like Consultants & Support staff at National, State, District & Sub District level for Surveillance& monitoring.
- Promotion & use of long lasting Insecticide Nets (LLINs) in high malaria endemic areas.
- Social Mobilization and vulnerable community plan to address the issues of marginalized sections.
- Strong BCC/IEC activities at Sub district level through identified agencies.
- The project also envisaged the safe guard policies by undertaking Environmental Management Plan (EMP) on safe disposal & for prevention of environmental hazards.
- Capacity building of Medical Officer/Lab Technicians/Fever Treatment Depots/ Volunteers etc.
- Supply of rapid kits for Malaria and drug Artemesinin based combination therapy (ACT) for treatment of PF cases.

Impact: With this additional support the impact in malaria cases and deaths in 124 districts shows that there has been 41.87 % reduction in malaria cases and 69.47% reduction in deaths due to malaria as indicated below:

No.	Objective	Base Year	Target by 2013	Achievement
1.	Reduce Malaria morbidity (Cases)	2007	by 25%	41.87%
2.	Reduce Malaria mortality (Deaths)	2007	by 50%	69.47%

The status of malaria in 124districts which were covered throughout the project period is shown in the following graph:



3. URBAN VBD (Vector Borne Disease) SCHEME

The Urban Malaria Scheme (UMS) under NVBDCP was sanctioned in 1971 by GoI with main objectives of preventing deaths due to malaria and reduction in transmission and morbidity. This scheme is currently being implemented in 131 towns in 19 States and Union Territories protecting about 130 million population. Under this scheme, the larvicides are supported by GoI through cash assistance, however, the entire staff for implementation and operational cost is to be borne by the state/corporation/municipality.

Epidemiological Situation: About 10% of the total cases of malaria are reported from urban areas. Maximum numbers of malaria cases are reported from Ahmedabad, Chennai, Kolkata, Mumbai, Vadodara, Vishakapatnam, Vijayawada etc. The comparative epidemiological profile of malaria during 2008-2013 in all urban towns of the country is given below:

Comparative Epidemiological profile of malaria in 19 States under UMS during 2008-12							
Year	**Population**	**Total cases**	**P.f**	**P.f %**	**SPR**	**SFR**	**Deaths**
2008	113334073	115424	18971	16.44	2.48	0.41	102
2009	114699850	166075	31132	18.75	2.99	0.56	213
2010	116136978	220062	33174	15.08	3.79	0.58	149
2011	130316971	142502	13910	9.77	2.07	0.21	147
2012	130329138	82554	8236	9.98	1.35	0.14	61
2013	131279000	65568	5463	8.33	1.04	0.09	43

P.f = *Plasmodium falciparum*, SPR= Slide positivity rate, SFR= Slide falciparum rate.

Control Strategy:

Under UMS, Malaria Control strategies are for (i) Parasite control & (ii) Vector control

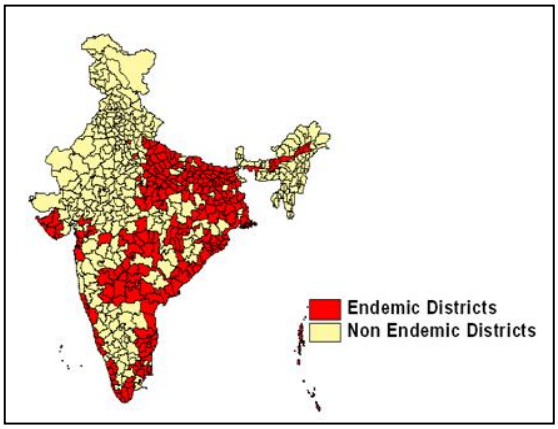
(i) **Parasite control:** Treatment is done through passive agencies viz. hospitals, dispensaries both in private & public sectors. In mega cities malaria clinics are established by each health sector/ malaria control agencies viz. Municipal Corporations, Railways, Defence services

(ii) **Vector control:** source reduction, use of larvicides, use of larvivorous fish, space spray, minor engineering and Legislative measures.

The control of urban malaria depends primarily on the implementation of urban bye-laws to prevent mosquito breeding in domestic and peri-domestic areas or residential blocks and government/commercial buildings, construction sites. The Bye-laws have been enacted and being implemented in Delhi, Chennai, Mumbai, Chandigarh, Ahmedabad, Bhavnagar, Surat, Rajkot, Bhopal, Agartala and Goa etc.

In addition, problem of Dengue is also being increasingly reported from urban areas. Hence, during 12th Plan period, Urban VBD Scheme has been started.

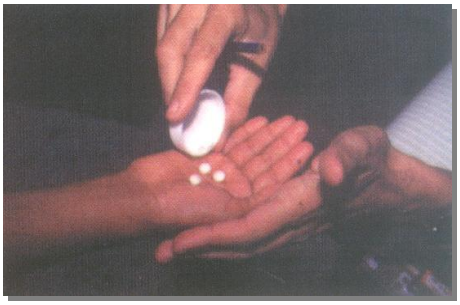
4. ELIMINATION OF LYMPHATIC FILARIASIS



4.1 Lymphatic Filariasis, a parasitic disease, is mainly caused by *Wuchereria bancrofti* and is transmitted mainly by mosquito *Culex quinquefasciatus* which breeds in dirty and polluted water; however, it can also breed in clear water in the absence of polluted water. The infection is prevalent in both urban and rural areas. The disease runs a chronic course and mainly manifested as Lymphoedema and Hydrocele. The disease is also caused by another parasite namely *Brugia malayi* which is transmitted mainly by mosquito *Mansonia annulifera* which is the principal vector of this parasite. *M.uniformis* also plays a role in transmission of the disease and, therefore, is the secondary vector for transmission of *brugia* infection. As per reports available, prevalence of *brugia* infection is restricted to small foci in Kerala State.

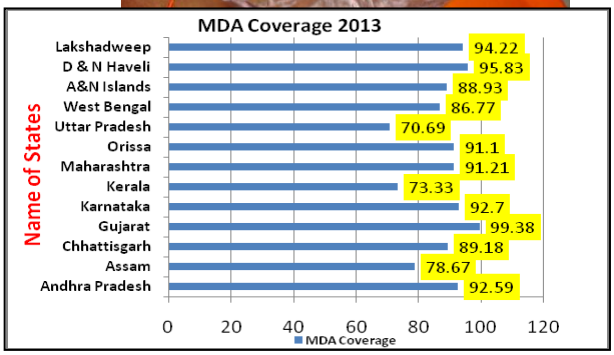
The disease is reported to be endemic in 255 districts in 21 states and UTs. The population of about 650 million in these districts is at risk of lymphatic filariasis. Besides disability, this disease causes personal trauma to the affected persons and is associated with social stigma, even though it is not fatal.

4.2 Government of India is signatory to the World Health Assembly Resolution in 1997 for Global Elimination of Lymphatic Filariasis. The target year for **Global** elimination of this disease is by the year 2020. The National Health Policy (2002) has envisaged elimination of Lymphatic Filariasis in India by 2015.

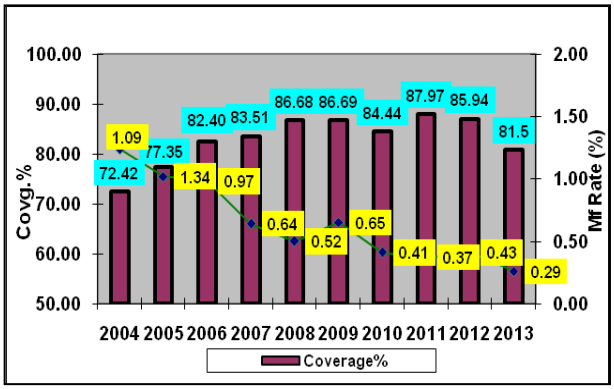


The strategy of lymphatic filariasis elimination is through:

- Annual Mass Drug Administration (MDA) of single dose of DEC + Albendazole for a minimum five rounds 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.
- Home based management of lymphoedema cases and up-scaling of hydrocele operations in identified CHCs/ District hospitals /medical colleges.



4.3 To achieve elimination of Lymphatic Filariasis, the Government of India during 2004 launched annual Mass Drug Administration (MDA) with annual single recommended dose of DEC tablets in addition to scaling up home based foot care and Hydrocele operation. The co-administration of DEC+ Albendazole has been initiated since 2007. The programme covered 202 districts in 2004 whereas by the year 2007, all the 250 LF endemic districts (now 255 districts due to bifurcation) were covered. MDA was started in the month of November; however, the dates of observance of MDA are staggered depending on the preparedness of the states. The coverage has improved from 72.4% in 2004 to 81.5% in 2013.



- To emphasize the urgency of ELF activity, particularly in respect of MDA, National Filaria Week has been observed from 14-20 December, 2014 with MDA being a major activity.

Accordingly a group of officers were selected from MOHFW, DGHS and NVBDCP with the responsibility of monitoring and supervision during pre-MDA, during MDA and post-MDA activities.

Conducting TAS in Daman & Diu

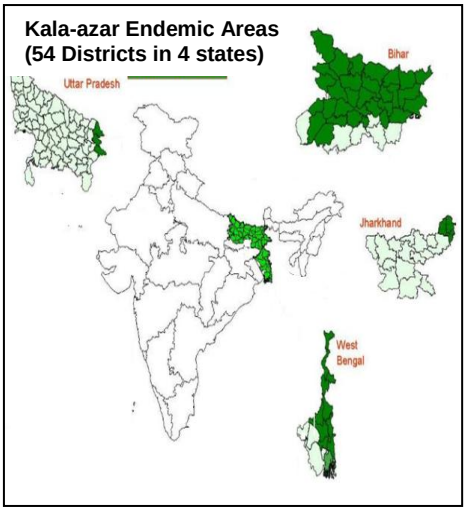
- Up to November 2014, twenty six districts (8 in Tamil Nadu, 5 in Assam, 4 in West Bengal, 2 in Goa, 3 in Maharashtra, 1 each in Karnataka, Puducherry, Odisha and Daman & Diu) have successfully completed Transmission Assessment Survey (TAS) and stopped MDA. Another 62 districts are preparing for TAS and remaining 167 dis . The state wise coverage of MDA 2013 round is indicated in **Annexure-2.**

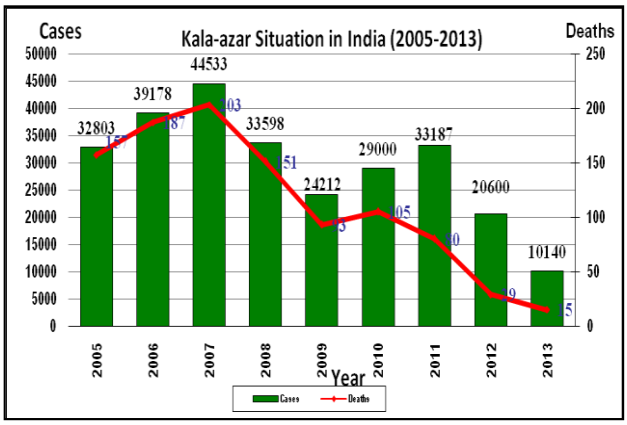
4.4 The Line listing of lymphoedema and Hydrocele cases was initiated since 2004 by door to door survey in these filaria endemic districts. The enlisted cases are regularly being updated by state health authorities and more cases are being recorded. This increase is mainly due to incomplete surveys during initial years and reluctance on part of community to reveal their manifestations of lymphoedema and Hydrocele. The updated figure till October 2014 reveals about 12 lakh cases with clinical manifestations (8 lakhs lymphoedema and 4 lakhs Hydrocele). The initiatives have also been taken to demonstrate the simple washing of foot to maintain hygiene for prevention of secondary bacterial and fungal infection in chronic lymphoedema cases so that the patients get relief from frequent acute attacks. The states regularly update the list and intensify the hydrocele operations in their respective states.

4.5 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 collecting total 4000 slides (500 from each site). The data provided by the states indicate reduction in overall microfilaria rate in the MDA districts (1.24% in 2004 to 0.29% in 2013).

5. KALA-AZAR

5.1 Kala-azar is caused by a protozoan parasite *Leishmania donovani* and spread by sandfly *(Phelbotomus argentipes)* which breeds in shady, damp and warm places in cracks and crevices in the soft soil, in masonry and rubble heaps, etc. Proper sanitation and hygiene are critical to prevent sand fly breeding. The disease has also been targeted for elimination by 2015 as per National Health Policy (2002). In pursuance to achieve the elimination goal, case detection and treatment compliance the programme strengthened Rapid Diagnostic Test for Kala-azar and single day single dose Liposomal Amphotericin B injection and shorter duration of combination drug regimen. National Road Map on Kala-azar elimination was developed in August'2014 with specific tme line, roles & responsibility State & District level VBD Consultants, Kala azar Technical Supervisor (KTS) with motor cycle for monitoring & supervision.





Kala-azar is endemic in 54 districts (33 in Bihar, 4 in Jharkhand, 11 in West Bengal and 6 in UP). The Kala-azar Control Programme was launched in 1990-91. The peak annual incidence of Kala-azar was seen in 1992 when 77102 cases and 1419 deaths were reported from the endemic states. The reported cases of 44533 in 2007 were reduced to 24212 in 2009. In 2013, kala-azar cases reduced by 32.67% & death by 31.03% in comparison with the year 2012. The same declining trend observed in 2014 till October showing 7856 cases & 9 deaths. The state-wise data on malaria cases & deaths since 2010 is at **Annexure 3**.

5.2. Strategy for Kala azar elimination:

- **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;

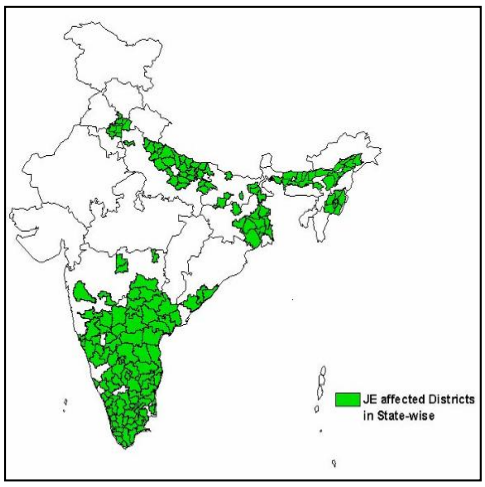
- **Supportive interventions**
  - Behaviour Change Communication for social mobilization;
  - Inter-sectoral convergence;
  - Capacity building by training and Monitoring and Evaluation

5.3 To realize the goal of elimination of Kala-azar, the Govt. of India provides 100% operational costs on spray to the State Governments, besides anti-kala-azar medicines, diagnostic and DDT 50% since December 2003.

5.4. Initiatives undertaken for Kala-azar elimination are as follows:

1. National Roadmap for Kala-azar Elimination (2014) has been prepared with clear goal, objectives, strategies, timelines with activities and functions at appropriate level. This document is developed for focused efforts at national, state, district and sub-district level.
2. Long duration treatment of 28 days for Kala-azar patient reduced to single day single dose treatment and combination treatment of 10 days for better treatment compliance.
3. Incentive to Kala-azar activist/health volunteer/ASHA @ Rs.300/- for referring a suspected case and ensuring complete treatment.
4. Free diet support to patient and one attendant.
5. Rs. 500/- as incentive to Patient for loss of wages irrespective of drug regimen and Rs. 2,000/- to Post Kala-azar Dermal Leishmaniasis (PKDL) cases.
6. Strengthening of human resource component by positioning state consultants, District VBD consultants and Kala-azar technical supervisor for effective monitoring and supervision with vehicle and motorcycles.
7. Involvement of stakeholders like RMRI(ICMR),CARE/BMGF,DNDi, MSF, KA consortium, PATH & Surveillance Medical Officers from National Polio Surveillance Project (NPSP) and other partners on treatment, service delivery and supervision.
8. Operational research on Pharmaco-vigilance, Longitudinal studies on sand fly, Sentinel Surveillance of VL and Quality Assurance of RDK by RMRI, Patna to guide the programme on change in policy if any.
9. Continuous technical support from WHO.

6. JAPANESE ENCEPHALITIS

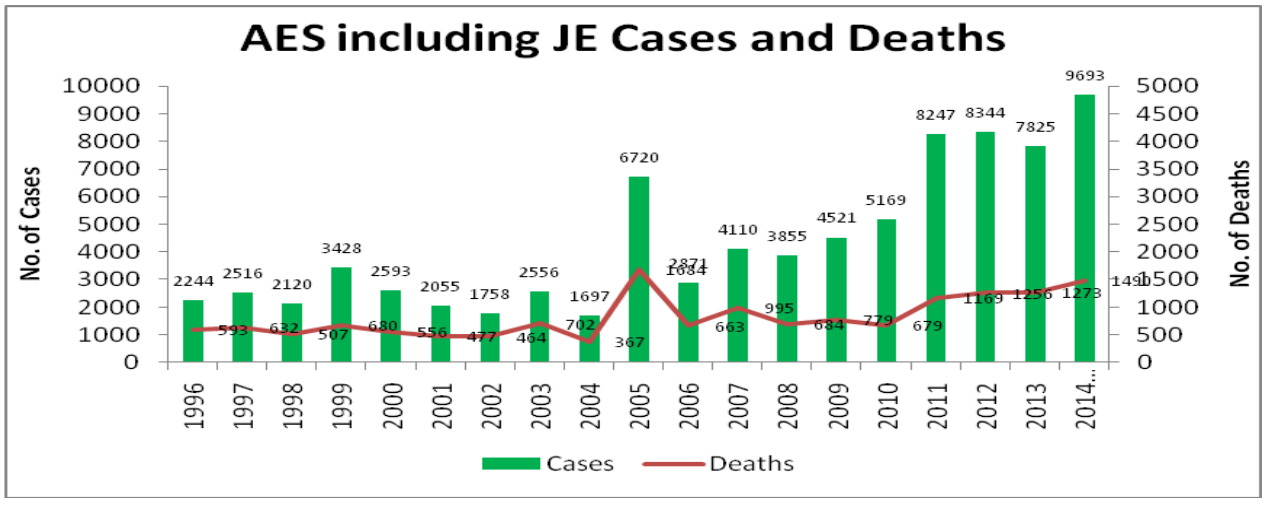


6.1 Japanese Encephalitis is a zoonotic disease which is transmitted by vector mosquito mainly belonging to *Culex vishnui* group. The transmission cycle is maintained in the nature by animal reservoirs of JE virus like pigs and water birds. Man is the dead end host, i.e. JE is not transmitted from one infected person to other. Outbreaks are common in those areas where there is close interaction between pigs/birds and human beings. The vectors of JE breed in large water bodies rich in aquatic vegetations such as paddy fields. The population at risk is about 375 million.

6.2 JE is reported under the umbrella of Acute Encephalitis Syndrome (AES). Therefore, the data reported from states are for total AES including JE cases. The data on confirmed JE cases are also indicated in the table.

6.3 Epidemiological Situation: JE has been reported from different parts of the country. The disease is endemic in 179 districts of 21 states of which Assam, Bihar, Tamil Nadu, Uttar Pradesh and West Bengal have been reporting more than 80% of disease burden. During 2011, 8249 cases and 1169 deaths and during 2012, 8344 cases and 1256 deaths due to Acute Encephalitis Syndrome (AES) including JE were reported. During 2013 7825 cases and 1273 deaths due to Acute Encephalitis Syndrome (AES) including JE have been reported. During 2014 till 11.12.2014 9693 AES cases including JE and 1490 deaths have been reported.

State-wise AES and JE cases with deaths as reported by states are given in **<u>Annexure - 4.</u>**



6.4 There is no specific cure for this disease. Symptomatic and early case management is very important to minimize risk of death and complications. Govt. of India launched JE vaccination campaign in 2006 with single dose live attenuated JE (SA- 14-14-2) for children between 1 and 15 years of age which is followed by one dose under Routine Immunization (RI) at the age of 16-24 months to cover the new cohorts. Further after recommendation of the expert group, two dose of JE vaccine first at the age of 9 months and second at the age of 16-24 months have been incorporated under RI since April 2013. However, 152 districts have been covered under JE Vaccination (till December 2014).

6.5 In addition, implementation of public health measures such as, Social Mobilization through different media, inter-personal communication, etc for disseminating appropriate messages in the community is crucial. The emphasis is given on keeping pigs away from human dwellings or in pigsties particularly during dusk to dawn which is the biting time of vector mosquitoes. Sensitization of the community regarding avoidance of man-mosquito contact by using bet nets and fully covering the body are also advocated. Since early reporting of cases is crucial to avoid any complication and mortality, community is given full information about the signs and symptoms as well as availability of health services at health centres/hospitals. Besides, the states are advised fogging with Malathion (technical) as an outbreak control measure in the affected areas.

6.6 Realizing the gravity of the situation mainly due to non JE viruses in Uttar Pradesh, Group of Ministers (GoM) was constituted on 4.11.11 which suggested a multi pronged strategy for combating the menace of encephalitis. GoM met four times (21st November, 25th November, 9th December, 2011 and 2nd February, 2012). The recommendation of GoM was approved by the Cabinet on 18.10.2012. The main thrust is on an integrated approach for strengthening prevention and control measures in 60 high priority districts in states of Assam, Bihar, Uttar Pradesh, West Bengal and Tamilnadu, with involvement of following Ministries:

1. Ministry of Health & Family Welfare as the nodal ministry
2. Ministry of Drinking Water Supply & Sanitation
3. Ministry of Housing and Urban Poverty Alleviation
4. Ministry of Women & Child Development
5. Ministry of Social Justice & Empowerment

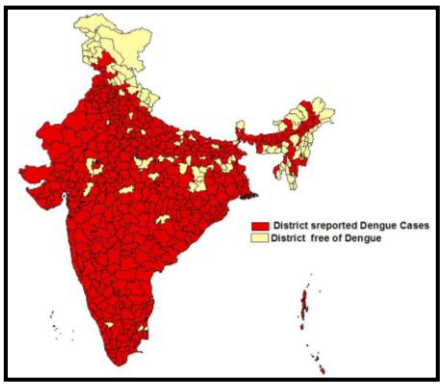
The major thrust areas are:

- Strengthening public health measures
- Establishment of Paediatrics ICUs in 60 district hospitals
- JE vaccination in 62 additional districts

- Establishing PMR in 10 different medical colleges across 5 states
- Providing safe drinking water, sanitation in rural and slum areas
- Setting up of District Rehabilitation and counseling centers in 60 identified districts
- Improving the nutritional status of the children in endemic areas
- Involvement of ASHAs for helping in early referral of encephalitis cases

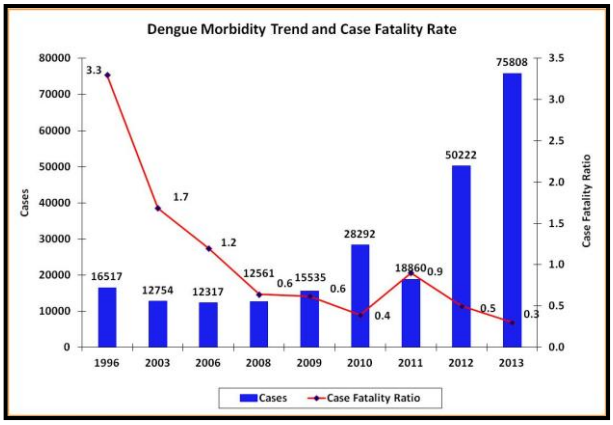
7. DENGUE FEVER/DENGUE HAEMORRHAGIC FEVER

7.1 Dengue Fever is an outbreak prone viral disease, transmitted by *Aedes* mosquitoes. Both *Aedes aegypti* and *Ae. albopictus* are involved in transmission. *Aedes aegypti* mosquitoes prefer to breed in manmade containers, viz., cement tanks, overhead tanks, underground tanks, tyres, desert coolers, pitchers, discarded containers, junk materials, etc, in which water stagnates for more than a week. This is a day biting mosquito and prefers to rest in hard to find dark areas inside the houses. *Aedes albopictus* mosquitoes prefer to breed in natural habitats like tree holes, plantation etc. The risk of dengue has increased in recent years due to rapid urbanization, and deficient water management including improper water storage practices in urban, peri-urban and rural areas, leading to proliferation of mosquito breeding sites. The cases peak after monsoon and it is not uniformly distributed throughout the year. However, in the southern states and Gujarat the transmission is perennial. Dengue is a self limiting acute disease characterized by fever, headache, muscle, joint pains, rash, nausea and vomiting. Some infections results in Dengue Haemorrhagic Fever (DHF) and in its severe form Dengue Shock Syndrome (DSS) can threaten the patient's life primarily through increased vascular permeability and shock due to bleeding from internal organs. Though during 2013, highest numbers of cases were reported (75808) the deaths have declined. The case fatality ratio (CFR) which was 3.3 % in 1996 had come



down to 0.4% in 2010 and 0.3 in 2013. The disease is spreading to newer geographical areas every year.

7.2 Epidemiological Situation: Dengue is endemic in 35 states/UTs. After 1996 outbreak (total 16517 cases and 545 deaths) upsurge of cases were recorded in 2003, 2005, 2008, 2010, 2012 and 2013. In 2010 total 28292 cases and 110 deaths have been reported. During 2012, 50222 cases and 242 deaths and during 2013, 75808 cases and 193 deaths were reported. Highest number of deaths were reported by Maharashtra (48) followed by Kerala (29) and Punjab (25). During 2014 (till November), 33320 cases and 86 deaths have been reported. (**Annexure-5**).



7.3 There is no specific anti-viral drug or vaccine against dengue infection. Mortality can be minimized by early diagnosis and prompt symptomatic management of the cases. Guidelines for clinical management of dengue fever/ dengue haemorrhagic fever and dengue shock syndrome cases have been developed and sent to the states for wider circulation. A Mid Term plan has been approved by Committee of Secretaries (CoS) on 26/5/2011 for prevention and control of Dengue which have been shared with the States for implementation. The main components of Mid Term Plan (known as 'Octalogue') for Prevention and control of Dengue are as follows:

- Surveillance - Disease 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 – with Ministries of Urban Development, Rural Development, Panchayati Raj, Surface Transport and Education sector
- Monitoring and Supervision - Analysis of reports, review, field visit and feedback

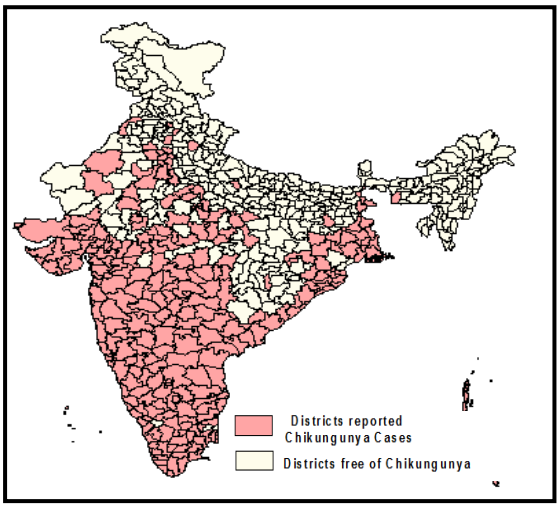
Intensive health education activities through print, electronic and inter-personnel media, outdoor publicity as well as an inter-sectoral collaboration with civil society organization (NGOs/CBOs/

Self-Help Groups), PRIs and Municipal bodies have been emphasized. The month of July is observed as Anti Dengue Month when states are undertaking widespread campaigns for community awareness and mobilization inter-personal communication, etc. in addition to regular IEC/BCC activities.

Regular supervision and monitoring is conducted by the Programme. The Government of India in consultation with States has identified 439 sentinel surveillance hospitals with laboratory support for augmentation of diagnostic facilities in the endemic states. Further, for advanced diagnosis and backup support 15 Apex Referral Laboratories have been identified and linked with sentinel surveillance hospitals.

For early diagnosis ELISA based NS1 kits have been introduced under the programme which can detect the cases from 1st day of infection. IgM capture ELISA tests can detect the cases after 5th day of infection.

8. CHIKUNGUNYA



Chikungunya is a debilitating non-fatal viral illness caused by Chikungunya virus. The disease re-emerged in the country after a gap of three decades. In India a major epidemic of Chikungunya fever was reported during 60s & 70s; 1963 (Kolkata), 1965 (Pondicherry and Chennai in Tamil Nadu, Rajahmundry, Vishakapatnam and Kakinada in Andhra Pradesh; Sagar in Madhya Pradesh and Nagpur in Maharashtra) and 1973 (Barsi in Maharashtra). This disease is also transmitted by *Aedes* mosquito. Both *Ae. aegypti* and *Ae. albopictus* can transmit the disease. Humans are considered to be the major source or reservoir of Chikungunya virus. Therefore, the mosquitoes usually transmit the disease by biting infected persons and then biting others. The infected person cannot spread the infection directly to other person (i.e. it is not contagious disease). Symptoms of Chikungunya fever are most often clinically indistinguishable from those observed in dengue fever. However, unlike dengue, hemmorrhagic manifestations are rare and shock is not observed in Chikungunya virus infection. It is characterized by fever with severe joint pain (arthralgia) and rash. Chikungunya outbreaks typically result in large number of cases but deaths are rarely encountered. Joint pains sometimes persist for a long time even after the disease is cured.

8.1 During 2006, total 1.39 million clinically suspected Chikungunya cases reported in the country. Out of 35 States/UTs, 16 were affected: Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, Madhya Pradesh, Gujarat, Kerala, Andaman & Nicobar Islands, Delhi, Rajasthan, Puducherry, Goa, Orissa, West Bengal, Lakshadweep and Uttar Pradesh. There are no reported deaths directly related to Chikungunya. In 2007, total 14 states were affected and reported 59535 suspected Chikungunya fever cases with nil death. Subsequently in 2008, 2009, 2010, 2011 and 2012 95091, 73288, 48176, 20402 and 15977 suspected Chikungunya fever cases with nil death were reported. During 2013, 18840 suspected Chikungunya cases were reported whereas during 2014 (till November) 12694 suspected Chikungunya cases have been reported (**Annexure-6).**

8.2 As already mentioned, *Aedes* mosquitoes bite during the day and breed in a wide variety of man-made containers which are common around human dwellings. These containers such as discarded tyres, flower pots, old water drums, family water trough, water storage vessels and plastic food containers collect rain water and become the source of breeding of *Aedes* mosquitoes. *Ae.aegypti* played the major role in transmitting the disease in all the states except Kerala, where *Ae. albopictus* played the major role. *Ae. albopictus* breeding was detected in latex collecting cups of rubber plantations, shoot-off leaves of areca palm, fruit shells, leaf axils, tree holes etc.

There is neither any vaccine nor drugs available to cure the Chikungunya infection. Supportive therapy that helps to ease symptoms, such as administration of non-steroidal anti-inflammatory drugs and getting plenty of rest are found to be beneficial.

8.3 Government of India is continuously monitoring the situation, sending guidelines and advisories for prevention and control of Chikungunya fever to the states. Since same vector is involved in the transmission of Dengue and Chikungunya strategies for transmission risk reduction by vector control are also same. A comprehensive Mid Term Plan for prevention & control of Chikungunya and Dengue/Dengue Haemorrhagic Fever has been prepared and disseminated for guidance to the states. Support in the form of logistics and funds are provided to the states. The central teams are deputed to the affected states for technical guidance of the state health authorities. As most transmission occurs at home, therefore community participation and co-operation is of paramount importance for successful implementation of programme strategies for prevention and control of

Chikungunya. For effective community participation, people are informed about Chikungunya and the fact that major epidemics can be prevented by taking effective preventive measures by community itself. Therefore, considerable efforts have been made through advocacy and social mobilization for community education and awareness.

For carrying out proactive surveillance and enhancing diagnostic facilities for Chikungunya, the 439 Sentinel Surveillance hospitals involved in dengue **(Annexure- 8)** in the affected states also carries Chikungunya tests. Both Dengue and Chikungunya Diagnostic kits (IgM capture ELISA) to these institutes are provided through National Institute of Virology, Pune and cost is borne by GOI. Further, rapid response by the concerned health authorities has been envisaged on report of any suspected case from the Sentinel Surveillance Hospitals to prevent further spread of the disease.

Annexure-1

State wise Malaria situation in the Country

SI. No.	STATEs/UTs.	2011		2012		2013		2014 (Upto November)	
		Cases	Deat	Cases	Death	Cases	Deaths	Cases	Dea
1	Andhra Prd.	34949	5	24699	2	19787	0	21220	0
2	Arunachal Prd.	13950	17	8368	15	6398	21	5184	4
3	Assam	47397	45	29999	13	19542	7	12415	3
4	Bihar	2643	0	2605	0	2693	1	1287	0
5	Chhattisgarh	136899	42	124006	90	110145	43	90900	4
6	Goa	1187	3	1714	0	1530	0	665	0
7	Gujarat	89764	127	76246	29	58513	38	35138	2
8	Haryana	33401	1	26819	1	14471	3	3594	0
9	Himachal Prd.	247	0	216	0	141	0	97	0
10	J&K	1091	0	864	0	698	0	263	0
11	Jharkhand	160653	17	131476	10	97786	8	72428	6
12	Karnataka	24237	0	16466	0	13302	0	11131	2
13	Kerala	1993	2	2036	3	1634	0	1509	4
14	Madhya	91851	109	76538	43	78260	49	68842	9
15	Maharashtra	96577	118	58517	96	43677	80	32071	35
16	Manipur	714	1	255	0	120	0	118	0
17	Meghalaya	25143	53	20834	52	24727	62	31202	62
18	Mizoram	8861	30	9883	25	11747	21	20238	5
19	Nagaland	3363	4	2891	1	2285	1	1729	2
20	Orissa	308968	99	262842	79	228858	67	316143	57
21	Punjab	2693	3	1689	0	1760	0	984	0
22	Rajasthan	54294	45	45809	22	33139	15	12417	0
23	Sikkim	51	0	77	0	39	0	39	0
24	Tamil Nadu	22171	0	18869	0	15081	0	7479	0
25	Telangana*								
26	Tripura	14417	12	11565	7	7396	7	44046	69
27	Uttarakhand	1277	1	1948	0	1426	0	1120	0
28	Uttar Pradesh	56968	0	47400	0	48346	0	37413	0
29	West Bengal	66368	19	55793	30	34717	17	20220	51
30	A&N Islands	1918	0	1539	0	1005	0	492	0
31	Chandigarh	582	0	201	0	150	0	109	0
32	D & N Haveli	5150	0	4940	1	1778	0	664	1
33	Daman & Diu	262	0	186	0	91	0	46	0
34	Delhi	413	0	382	0	353	0	98	0
35	Lakshadweep	8	0	9	0	8	0	0	0
36	Puducherry	196	1	143	0	127	0	71	0
	Total	**1310656**	**754**	**1067824**	**519**	**881730**	**440**	**851372**	**316**

*Newly created state in 2014 carved out from erstwhile Andhra Pradesh. Data before 2014 clubbed in Andhra Pradesh.

Annexure-2

Population Coverage (%) during Mass Drug Administration (MDA) for Lymphatic Filariasis Elimination

Sl. No.	States/UTs	2009	2010	2011	2012	2013
1	Andhra Pradesh*	91.85	92.50	92.74	93.30	92.59
2	Assam	ND	82.72	78.10	81.19	78.67
3	Bihar	77.91	78.61	ND	86.38	ND
4	Chhattisgarh	91.53	92.99	90.06	ND	89.18
5	Goa	95.37	94.63	96.21	MDA Stopped	MDA Stopped
6	Gujarat	97.63	98.33	97.66	99.04	99.38
7	Jharkhand	85.99	63.64	86.53	84.36	ND
8	Karnataka	89.30	91.46	91.81	93.84	93.7
9	Kerala	77.81	81.91	89.62	80.90	73.33
10	Madhya Pradesh	87.59	90.74	89.27	87.88	Report awaited
11	Maharashtra	89.51	89.38	89.28	75.33	91
12	Orissa	89.66	90.63	90.55	ND	91.1
13	Tamil Nadu	94.13	ND	93.58	94.76 (4 districts)	ND
14	Uttar Pradesh	ND	80.68	80.45	83.15	70.69
15	West Bengal	86.93	ND	79.23	84.83	86.77
16	A&N Islands	91.40	77.12	90.15	90.06	88.93
17	D & N Haveli	95.84	96.20	98.51	96.88	95.83
18	Daman & Diu	91.56	92.04	90.89	MDA Stopped	MDA Stopped
19	Lakshadweep	83.86	80.09	73.94	ND	94.22
20	Puducherry	96.02	96.92	97.14	MDA Stopped	MDA Stopped
	Total	**86.69**	**84.44**	**87.97**	**85.94**	**81.5**

ND: - Not Done
NR: Not reported
***Andhra Pradesh bifurcated in 2 states (Andhra Pradesh and Telangana) in 2014**

Annexure -3

State-wise Kala-azar Situation in Country

(AS ON 28.10.2014)

Sl. No.	Affected States	2010		2011		2012		2013(P)		2014(P)	
		C	D	C	D	C	D	C	D	C	D
1	Bihar	23084	95	25222	76	16036	27	10730	17	6704	8
2	Jharkhand	4305	5	5960	3	3535	1	2515	0	778	0
3	West Bengal	1482	4	1962	0	995	0	595	2	354	1
4	Uttar Pradesh	14	0	11	1	5	0	11	1	11	0
5	Uttarakhand	1	0	0	0	7	1	0	0	4	0
6	Delhi *	92	0	19	0	11	0	6	0	0	0
7	Assam	12	0	5	0	6	0	4	0	1	0
8	Sikkim	3	0	7	0	5	0	8	0	4	0
9	Madhya Pradesh	0	0	0	0	0	0	0	0	0	0
10	Himachal Pradesh	6	1	1	0	0	0	0	0	0	0
11	Punjab*	1	0	0	0	0	0	0	0	0	0
Total		**29000**	**105**	**33187**	**80**	**20600**	**29**	**13869**	**20**	**7856**	**9**

Note : C = Cases, D = Deaths, * = Imported, (P) = Provisional.

State-wise AES cases including JE in the country

Sl. No.	States/ UTs	2010		2011		2012		2013		2014 (P) 11.12.2014	
		Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1	Andhra Pradesh	139	7	73	1	64	0	345	3	2	0
2	Arunachal Pradesh	0	0	0	0	0	0	0	0	88	9
3	Assam	469	117	1319	250	1343	229	1388	272	2194	360
4	Bihar	50	7	821	197	745	275	417	143	866	162
5	Delhi	0	0	9	0	0	0	0	0	0	0
6	Goa	80	0	91	1	84	0	48	1	17	0
8	Haryana	1	1	90	14	5	0	2	0	1	0
7	Jharkhand	18	2	303	19	16	0	270	5	273	2
9	Karnataka	143	1	397	0	189	1	162	0	75	0
10	Kerala	19	5	88	6	29	6	53	6	6	2
11	Meghalaya	0	0	0	0	0	0	0	0	212	3
12	Maharashtra	34	17	35	9	37	20	0	0	0	0
13	Manipur	118	15	11	0	2	0	1	0	1	0
14	Nagaland	11	6	44	6	21	2	20	0	6	0
15	Punjab	2	0	0	0	0	0	0	0	2	0
16	Tamil Nadu	466	7	762	29	935	64	77	8	209	4
17	Telangana*										
18	Tripura	0	0	0	0	0	0	211	0	107	0
19	Uttarakhand	7	0	0	0	174	2	0	0	0	0
20	Uttar Pradesh	3540	494	3492	579	3484	557	3096	609	3264	599
21	West Bengal	70	0	714	58	1216	100	1735	226	2370	349
Total		**5167**	**679**	**8249**	**1169**	**8344**	**1256**	**7825**	**1273**	**9693**	**1490**

***State created in 2014**

State-wise JE situation in the country

Sl. No.	States / UTs	2010		2011		2012		2013		2014 (P) 11.12.2014	
		Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1	Andhra Pradesh	7	5	4	1	3	0	7	3	0	0
2	Arunachal Pradesh	0	0	0	0	0	0	0	0	32	3
3	Assam	142	40	489	113	463	100	495	134	761	165
4	Bihar	0	0	145	18	8	0	14	0	4	1
5	Delhi	0	0	9	0	0	0	0	0	0	0
6	Goa	9	0	1	0	9	0	3	1	0	0
7	Haryana	1	0	12	3	3	0	2	0	1	0
8	Jharkhand	2	2	101	5	1	0	89	5	77	2
9	Karnataka	3	0	23	0	1	0	2	0	13	0
10	Kerala	0	0	37	3	2	0	2	0	3	2
11	Meghalaya	0	0	0	0	0	0	0	0	72	3
12	Maharashtra	0	0	6	0	3	0	0	0	0	0
13	Manipur	45	5	9	0	0	0	0	0	1	0
14	Nagaland	2	0	29	5	0	0	4	0	6	0
15	Punjab	0	0	0	0	0	0	0	0	0	0
16	Tamil Nadu	11	1	24	3	25	4	33	0	25	2
17	Telengana*										
18	Tripura	0	0	0	0	0	0	14	0	9	0
19	Uttarakhand	7	0	0	0	1	0	0	0	0	0
20	Uttar Pradesh	325	59	224	27	139	23	281	47	175	32
21	West Bengal	1	0	101	3	87	13	140	12	389	76
Total		**555**	**112**	**1214**	**181**	**745**	**140**	**1086**	**202**	**1568**	**286**

***State created in 2014**.

Annexure-5

State-wise Dengue Situation in Country

Sl. No.	State	2010		2011		2012		2013		2014 (Prov. upto 30.11.14)	
		Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1	Andhra Pd.	776	3	1209	6	2299	2	910	1	805	3
2	Arunachal Pd.	0	0	0	0	346	0	0	0	7	0
3	Assam	237	2	0	0	1058	5	4526	2	75	0
4	Bihar	510	0	21	0	872	3	1246	5	289	0
5	Chhattisgarh	4	0	313	11	45	0	83	2	56	5
6	Goa	242	0	26	0	39	0	198	2	140	1
7	Gujarat	2568	1	1693	9	3067	6	6272	15	1942	1
8	Haryana	866	20	267	3	768	2	1784	5	200	2
9	Himachal Pd.	3	0	0	0	73	0	89	2	0	0
10	J & K	0	0	3	0	17	1	1837	3	0	0
11	Jharkhand	27	0	36	0	42	0	161	0	26	0
12	Karnataka	2285	7	405	5	3924	21	6408	12	2842	0
13	Kerala	2597	17	1304	10	4172	15	7938	29	2361	9
14	Madhya Pd.	175	1	50	0	239	6	1255	9	1991	12
15	Meghalaya	1	0	0	0	27	2	43	0	8	0
16	Maharashtra	1489	5	1138	25	2931	59	5610	48	6485	29
17	Manipur	7	0	220	0	6	0	9	0	0	0
18	Mizoram	0	0	0	0	6	0	7	0	16	0
19	Nagaland	0	0	3	0	0	0	0	0	0	0
20	Orissa	29	5	1816	33	2255	6	7132	6	6231	9
21	Punjab	4012	15	3921	33	770	9	4117	25	437	2
22	Rajasthan	1823	9	1072	4	1295	10	4413	10	817	6
23	Sikkim	0	0	2	0	2	0	38	0	5	0
24	Tamil Nadu	2051	8	2501	9	12826	66	6122	0	2074	0
25	Tripura	0	0	0	0	9	0	8	0	6	0
26	Telangana	0	0	0	0	0	0	0	0	606	0
27	Uttar Pradesh	960	8	155	5	342	4	1414	5	119	0
28	Uttrakhand	178	0	454	5	110	2	54	0	1	0
29	West Bengal	805	1	510	0	6456	11	5920	6	3388	3
30	A&N Island	25	0	6	0	24	0	67	0	121	0
31	Chandigarh	221	0	73	0	351	2	107	0	11	0
32	Delhi	6259	8	1131	8	2093	4	5574	6	847	3
33	D&N Haveli	46	0	68	0	156	1	190	0	483	1
34	Daman & Diu	0	0	0	0	96	0	61	0	0	0
35	Puducherry	96	0	463	3	3506	5	2215	0	931	0
TOTAL		**28292**	**110**	**18860**	**169**	**50222**	**242**	**75808**	**193**	**33320**	**86**

Annexure-6

State-wise Clinically Suspected Chikungunya Cases in Country

Sl. No	Name of the States/UTs	2010	2011	2012	2013	2014 (Prov. upto 30.11.14)
1	Andhra Pd.	116	99	2827	4827	944
2	Assam	0	0	0	742	0
3	Bihar	0	91	34	0	0
4	Goa	1429	664	571	1049	979
5	Gujarat	1709	1042	1317	2890	574
6	Haryana	26	215	8	1	3
7	Jharkhand	0	816	86	61	0
8	Karnataka	8740	1941	2382	5295	6219
9	Kerala	1708	183	66	273	239
10	Madhya Pd.	113	280	20	139	142
11	Meghalaya	16	168	0	0	0
12	Maharashtra	7431	5113	1544	1578	1130
13	Orissa	544	236	129	35	10
14	Punjab	1	0	1	0	1
15	Rajasthan	1326	608	172	76	22
16	Tamil Nadu	4319	4194	5018	859	466
17	Telangana	0	0	0	0	518
18	Tripura	0	0	0	0	21
19	Uttar Pradesh	5	3	13	0	3
20	Uttrakhand	0	18	0	0	0
21	West Bengal	20503	4482	1381	646	910
22	A&N Island	59	96	256	202	156
23	Chandigarh	0	1	1	1	0
24	Delhi	120	110	6	18	8
25	D&N Haveli	0	0	100	2	0
26	Lakshadweep	0	0	0	0	0
27	Puducherry	11	42	45	146	349
Total		**48176**	**20402**	**15977**	**18840**	**12694**

Annexure - 7

APEX REFERRAL LABORATORIES

1. National Institute of Virology, Pune.
2. National Center for Disease Control (former NICD), Delhi.
3. National Institute of Mental Health & Neuro-Sciences, Bangalore.
4. Sanjay Gandhi Post-Graduate Institute of Medical Sciences, Lucknow.
5. Post- Graduate Institute of Medical Sciences, Chandigarh.
6. All India Institute of Medical Sciences, Delhi.
7. ICMR Virus Unit, National Institute of Cholera & Enteric Diseases, Kolkata.
8. Regional Medical Research Centre (ICMR), Dibrugarh, Assam.
9. King's Institute of Preventive Medicine, Chennai.
10. Institute of Preventive Medicine, Hyderabad.
11. B J Medical College, Ahmedabad.
12. State Public Health Laboratory, Thiruvananthapuram, Kerala
13. Defence Research Development and Establishment, Gwalior
14. Regional Medical Research Centre for Tribals, (ICMR) Jabalpur, Madhya Pradesh
15. Regional Medical Research Centre, (ICMR), Bhubaneswar, Odisha

Annexure – 8

List of Sentinel Surveillance Hospitals (SSH) for Dengue & Chikungunya

Sl. No.	State	Number of SSH
1	A & N Island	3
2	Andhra Prd.	16
3	Arunachal Pradesh	4
4	Assam	13
5	Bihar	7
6	Chandigarh	1
7	Chhattisgarh	4
8	Delhi	33
9	Daman & Diu	2
10	Dadra & Nagar Haveli	1
11	Goa	3
12	Gujarat	23
13	Haryana	15
14	Himachal Pradesh	5
15	Jammu	10
16	Jharkhand	4
17	Karnataka	32
18	Kerala	26
19	Lakshadweep	1
20	Madhya Prd	17
21	Maharashtra	26
22	Manipur	2
23	Meghalaya	3
24	Mizoram	1
25	Nagaland	2
26	Odisha	20
27	Puducherry	5
28	Punjab	20
29	Rajasthan	27
30	Sikkim	2
31	Tamil Nadu	30
32	Telangana	16
33	Tripura	2
34	Uttar Pradesh	24
35	Uttrakhand	7
36	West Bengal	32
	Total	**439**

Vector Borne Situation in North Eastern States

Malaria situation in Northeastern States

The North-Eastern region is prone to malaria transmission mainly due to

- topography and climatic conditions that largely facilitate perennial malaria transmission,
- prevalence of highly efficient malaria vectors,
- pre-dominance of Pf as well as prevalence of chloroquine resistant pf malaria.

The North-Eastern states namely Arunachal Pradesh, Assam, Meghalaya, Mizoram, Manipur, Nagaland, Sikkim and Tripura together contribute about 4% of the country's population 7.8% of malaria cases, 12.0% of Pf cases and 21.8 % of malaria deaths reported in the country of the year 2012. The epidemiological and malario-metric indicators are given below:

Malaria Situation in the NE States during 1996-2013

Year	Cases (in million)		Deaths	API
	Total	Pf		
1996	0.28	0.14	142	8.01
1997	0.23	0.12	93	6.51
1998	0.19	0.09	100	5.12
1999	0.24	0.13	221	6.40
2000	0.17	0.08	93	4.49
2001	0.21	0.11	211	5.29
2002	0.18	0.09	162	4.57
2003	0.16	0.08	169	3.93
2004	0.14	0.08	183	3.36
2005	0.15	0.09	251	3.64
2006	0.24	0.15	901	5.67
2007	0.19	0.12	581	4.58
2008	0.19	0.13	349	4.38
2009	0.23	0.18	488	5.19
2010	0.17	0.13	290	3.80
2011	0.11	0.09	162	2.49
2012	0.08	0.06	113	1.80
2013	0.07	0.05	119	1.53

State-wise situation of Malaria in NE states-2012

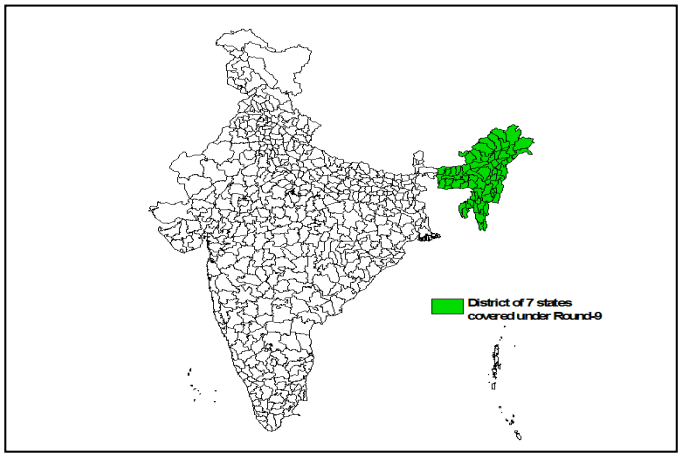
SN	STATES / UTS	Pop. (in 000)	B.S.E.	Positive Cases	P.f. Cases	Pf%	ABER (%)	API (per 1000)	SPR (%)	SfR (%)	Deaths (No.)
1	Arunachal Pradesh	1369	150707	8368	2789	33.91	9.38	4.86	5.18	1.76	5
2	Assam	32459	3973341	29999	20579	66.63	12.97	0.97	0.75	0.50	13
3	Manipur	2723	115257	255	83	32.55	4.23	0.09	0.22	0.07	0
4	Meghalaya	3067	354574	20834	19805	95.13	11.34	6.73	5.94	5.65	52
5	Mizoram	1179	168421	9883	9437	95.05	16.24	9.59	5.90	5.61	25
6	Nagaland	1981	214943	2891	821	28.40	10.58	1.46	1.35	0.38	1
7	Sikkim	203	6574	77	14	18.18	3.48	0.41	1.17	0.21	0
8	Tripura	3694	268189	11565	10915	94.71	7.07	3.09	4.37	4.14	7
	Total	46674	5252006	83872	64443	**76.83**	**11.25**	**1.80**	**1.60**	**1.23**	**113**

The table shows that Meghalaya and Mizoram are having API more than 5.

State-wise situation of Malaria in NE states-2013

SN	STATES / UTS	Pop. (in 000)	B.S.E.	Positive Cases	P.f. Cases	Pf%	ABER (%)	API (per 1000)	SPR (%)	SfR (%)	Deaths (No.)
1	Arunachal Pradesh	1340	112455	6398	2181	34.09	8.39	4.77	5.69	1.94	21
2	Assam	32919	3895330	19542	14969	76.60	11.83	0.59	0.50	0.38	7
3	Manipur	2855	92762	120	42	35.00	3.25	0.04	0.13	0.05	0
4	Meghalaya	3162	360044	24727	22885	92.55	11.39	7.82	6.87	6.36	62
5	Mizoram	1088	229818	11747	10340	88.02	21.12	10.80	5.11	4.50	21
6	Nagaland	1998	224571	2285	519	22.71	11.24	1.14	1.02	0.23	1
7	Sikkim	198	11136	39	13	33.33	5.62	0.20	0.35	0.12	0
8	Tripura	3811	257760	7396	6998	94.62	6.76	1.94	2.87	2.71	7
	Total	**47371**	**5183876**	**72254**	**57947**	**80.20**	**10.94**	**1.53**	**1.39**	**1.12**	**119**

Assistance to States: Government of India provides 100% central assistance for programme implementation to the Northeastern States Including Sikkim. The Govt. of India also provides commodities like drugs, LLINs, insecticides/ larvicides as per approved norms to all NE States as per their technical requirements. The assistance provided since 2010-11 is at **Annexure – N.E.-I**



The additional support under Global Fund for AIDS, Tuberculosis and Malaria (GFATM) is provided to all NE States except Sikkim for implementation of intensified Malaria Control Project (IMCP), with the objectives:

(i) to increase access to rapid diagnosis and treatment in remote and inaccessible areas through community participation,

(ii) malaria transmission risk reduction by use of (LLINs) and

(iii) to enhance awareness about malaria control and promote community, NGO and private sector participation.

For strengthening early case detection and complete treatment more than 52840 ASHAs have been sanctioned are engaged in 52446 these areas. Out of them, 47190 have been trained and involved in high malaria endemic areas along with Fever Treatment Depots (FTDs) and Malaria clinics. This is in addition to the treatment facilities available at the health facilities and hospitals. Anti malaria drugs and funds for training are provided by GoI under the programme.

As per the National Drug Policy, Cholorquine is used for treatment of all *P.vivax* cases. And Artemesinin Combination Therapy (ACT) with Sulfadoxine Pyrimethamine (AS+SP) combination is being implemented for the treatment all Pf cases in the country. However, in North-Eastern states early signs of resistance to currently used SP-ACT, has been noticed and so, as per the advice of Technical Advisory Committee, effective combination of Artemether-Lumefantrine (ACT-AL) has been recommended for the treatment of *Pf* cases in the North Eastern States.

Indoor Residual Spraying (IRS): Under integrated vector control initiative, IRS is implemented selectively only in high risk pockets as per district-wise Micro Action Plans from domestic budget. The Directorate has issued Guidelines on IRS to the States for technical guidance. Guidelines on uniform evaluation of insecticides have also been developed in collaboration with National Institute of Malaria Research (NIMR), Delhi. Over the years, there is a reduction in IRS covered population in view of paradigm shift to alternative vector control measures such as extensive use of Insecticide Treated Nets (ITNs) and Long Lasing Insecticide Treated Nets (LLINs).

The strategies of the project are:

(i) Early diagnosis and prompt treatment with special reference to the drug resistant pockets,

(i) integrated vector control, including promotion of LLINs, intensive IEC and capacity building and efficient public-private partnership among, CBO, NGO, and other voluntary sectors and

(ii) Training the health workers and community volunteers.

Japanese Encephalitis is mainly endemic in **Assam, Manipur and Nagaland** as these states are regularly reporting JE/AES cases. The details of AES/JE cases from 2009 are as follows:

Sl. No.	Affected States	2010				2011				2012				2013 (Prov. upto 18.10.13)			
		AES Cases	Deaths	JE Cases	Deaths	AES Cases	Deaths	JE Cases	Deaths	AES Cases	Deaths	JE Cases	Deaths	AES Cases	Deaths	JE Cases	Deaths
1	Assam	469	117	142	40	1319	250	489	113	1343	229	463	100	1341	268	487	129
2	Manipur	118	15	45	5	11	0	9	0	2	0	0	0	1	0	0	0
3	Nagaland	11	6	2	0	44	6	29	5	21	2	0	0	20	0	4	0

For control of J.E., Government of India has strengthened 9 sentinel sites in Assam and one each Manipur and Nagaland for diagnosis of J.E. cases. Regarding JE vaccination, 16 districts in Assam, 1 district in Arunachal Pradesh, 5 districts in Manipur and 3 districts in Nagaland have been covered under J.E. vaccination programme since 2006.

Dengue: NE States till few years back did not have problem of Dengue. Manipur has reported for the 1st time in 2007. The state-wise details of dengue cases from 2010 are as follows:

Sr. No.	Affected States	2010		2011		2012		2013 (Prov. upto 18.10.13)	
		Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1	Assam	237	2	0	0	1058	5	2516	2
2	Arunachal Pradesh	0	0	0	0	346	0	0	0
3	Manipur	7	0	220	0	6	0	0	0
4	Meghalaya	1	0	0	0	27	2	1	0
5	Mizoram	0	0	0	0	6	0	7	0
6	Nagaland	0	0	3	0	0	0	0	0
7	Sikkim	0	0	2	0	2	0	38	0

Chikungunya: Assam, Arunachal Pradesh, Manipur, Mizoram, Nagaland, and Tripura are not endemic for Chikungunya. However in **Meghalaya** for the first time, the state has reported 16 Clinically Suspected Chikungunya cases from West Garo Hills district during 2010. During 2011, the state has reported 168 clinically suspected and 32 confirmed cases from West Garo Hills district. No death has been reported due to Chikungunya. Since 2012, no clinically suspected case has been reported from the state of Meghalaya.

Lymphatic Filariasis is endemic in 7 districts of Assam, whereas other states in NE region are reported as non-filaria endemic. The strategy of Elimination of Lymphatic Filariasis with annual single dose Mass administration of DEC is being implemented since 2004. The coverage of population from 2010 is as under:

Year	Coverage (%)
2010	82.72
2011	78.10
2012	81.19
2013	78.67

Annexure – N.E.-I

Statement Showing Central Assistance provided to North Eastern States Under NVBDCP

(Rs in lakhs)

State	2012-13			2013-14			2014-15		
	Cash	**Kind**	**Total**	**Cash**	**Kind**	**Total**	**Cash**	**Kind**	**Total**
Arunachal Pradesh	357.48	477.95	835.43	1016.31	0.00	1016.31	0.00	42.91	42.91
Assam	68.31	1633.45	1701.76	3315.29	498.16	3813.45	945.73	32.38	978.11
Manipur	148.15	80.20	228.35	211.63	0.00	211.63	0.00	30.77	30.77
Meghalaya	263.13	507.08	770.21	445.54	0.00	445.54	695.15	38.05	733.20
Mizoram	422.83	314.79	737.62	614.19	0.00	614.19	863.35	12.95	876.30
Nagaland	486.43	443.72	930.15	439.06	0.26	439.32	664.82	113.35	778.17
Tripura	0.00	905.64	905.64	722.76	12.58	735.34	977.60	0.00	977.60
Sikkim	31.12	2.18	33.30	27.36	0.00	27.36	0.00	2.43	2.43
Total	**1777.45**	**4365.01**	**6142.46**	**6792.14**	**511.00**	**7303.14**	**4146.65**	**272.84**	**4419.49**

Allocation and Releases made to N.E. States during 2014-15 (as on 31.10.2014)

(Rs in lakhs)

State	Allocation			Releases (till 31.10.14)		
	Cash	**Kind**	**Total**	**Cash**	**Kind**	**Total**
Arunachal Pradesh	991.00	300.00	1291.00	0.00	0.00	0.00
Assam	2336.00	700.00	3036.00	945.73	0.00	945.73
Manipur	841.00	250.00	1091.00	0.00	0.00	0.00
Meghalaya	862.00	300.00	1162.00	695.15	0.00	695.15
Mizoram	948.00	300.00	1248.00	863.35	0.00	863.35
Nagaland	983.00	550.00	1533.00	664.82	0.00	664.82
Tripura	969.00	490.00	1459.00	977.60	0.00	977.60
Sikkim	70.00	0.00	70.00	0.00	0.00	0.00
Total:-	8000.00	2890.00	10890.00	4146.65	0.00	4146.65

Introductory Para

The incidence of vector borne diseases viz. Malaria, Filaria, Kala-azar, Acute Encephalitis Syndrome (AES) including Japanese Encephalitis (JE), Dengue and Chikungunya is linked with economic and social development of the community. There are various factors which govern the transmission of the diseases. Among all the vector borne diseases, malaria is still a major problem in the country though the reported figures from the states have shown a decline. The recorded malaria cases of 6.40 million in 1976 were brought down first time to below 2 million cases in 2003 i.e. 1.87 million cases. Since then the reported cases are hovering around 1.5 to 1.6 malaria cases. During 2011, 1.31 million cases and in 2012, 1.02 cases were reported. During 2013 (till August updated on 25.09.13), 0.48 million cases have been reported. Various initiatives have been taken for prevention and control of malaria such as Upscaling of rapid diagnostic tests, use of effective drug i.e. Artemisinin Combination Therapy (ACT), use of Long Lasting Insecticidal Nets (LLINs) and providing additional manpower. In North-Eastern states early signs of resistance to currently used SP-ACT, has been noticed and to tackle that effective combination of Artemether-Lumefantrine (ACT-AL) has been recommended for the treatment of *Pf* cases in the North Eastern States. To intensify the malaria control activities in high malarious endemic districts, additional inputs are also provided under projects supplied by World Bank and Global Fund. The cases of viral diseases such as J.E., Dengue and Chikungunya are managed symptomatically. However, the surveillance and diagnosis have been strengthened to detect more cases and provide early case management by the states/UTs. In case of J.E., the vaccination campaign for children between 1 and 15 years of age was started in 2006 under Universal Immunization Programme (UIP) and till 2012, 114 districts have been covered. During 2013-14, additional 16 districts have also been covered under vaccination through immunization division. Kala-azar has been targeted for elimination by 2015 as per tripartite agreement between India, Nepal and Bangladesh. Lymphatic Filariasis has been targeted for elimination by 2015 as per NHP - 2002, however, the global elimination target is 2020. The efforts have been initiated to achieve the target for elimination of these diseases. In Kala-azar, the total number of Kala-azar endemic blocks identified during 2012-13 were 584. Out of this 342 endemic blocks have achieved the target of less than 1 case per 10000 population in 2012. In filaria elimination, more than 186 out of 250 districts have achieved the microfilaria prevalence less than 1%. The validation process has been initiated in phased manner and 5 districts have successfully completed the transmission assessment survey indicating that transmission has been interrupted. The process is on in another 50 districts which is likely to be completed in 2013-14.

DIRECTORATE OF NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME

MATERIAL ON FACILITIES FOR SCHEDULED CASTE/SCHEDULED TRIBES FOR INCORPORATION IN THE ANNUAL REPORT 2013-14

Under National Vector Borne Disease Control Programme, the services for prevention and control of Malaria, Kala-Azar, Filaria, Japanese Encephalities, Dengue/Dengue Hemorrhagic Fever (DHF) and Chikungunya are provided to all sections of the community without any discrimination, however, since vector borne diseases are more prevalent in low socio economic group, the focused attention is given to areas dominated by the tribal population in North Eastern states and some parts of Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Orissa & Karnataka. The additional inputs under externally assisted projects from Global fund to N.E. States and World Bank to other states especially for control of malaria is provided. For kala-azar elimination in the states of Bihar, Jharkhand and West Bengal world Bank support is also being provided. In addition, the N.E. states are being provided 100% central assistance for implementation of the programme from domestic budget.