HIGHLIGHTS OF RESEARCH ACTIVITIES UNDER "INTEGRATED DISEASE VECTOR CONTROL OF MALARIA" PROJECT

Nadiad (Gujarat): A study on the health impact assessment of the Sardar Sarovar Narmada water resources development project on communicable diseases with particular emphasis on mosquito-borne diseases was initiated. A WHO-sponsored project was started in selected talukas in northern Gujarat to develop strategy for integrated control of vectors of malaria and dengue. New insecticide formulations were evaluated for malaria vector control. Support in technical, training, health education, epidemic investigation and containment was provided to antimalaria programme.

Jabalpur (Madhya Pradesh): Malaria epidemic investigation was carried out in Betul district on the request of state health department. Impact of DDT indoor residual spraying was evaluated. Situation analysis was done in Mandla, Dindori, Sagar and Damoh districts on the request of the NAMP. A study on placental malaria was done. Tolerability and efficacy of artesunate plus chloroquine or sulphapyrimethamine combination vs single agent chloroquine or sulphapyrimethamine in the treatment of uncomplicated falciparum malaria was studied. A study on integrated control of malaria in Sagar district was initiated. Insecticide susceptibility status of malaria vectors was evaluated in eight districts.

Hardwar (Uttaranchal): Work on isolation of plant origin antimalarials and mosquito larvicidal, adulticidal agents and repellents continued. Allethrin residue in the environment was examined. Concentrations of chloroquine, sulfadoxine and quinine were determined at the time of recurrence to confirm multi-drug resistant *P. falciparum* malaria in Assam. Monitoring of bioenvironmental control strategy which has been successfully demonstrated at BHEL, Hardwar, IDPL, Rishikesh and IOC, Mathura was done. Consultancy support was provided to other industrial complexes.

Rourkela (Orissa): Longitudinal epidemiological studies were continued in forest and plain areas characterized by hyper- and meso-endemic malaria situations respectively to prepare a site for malaria vaccine trial. A study on malaria transmission dynamics in tribal areas is underway. Gametocytocidal effect of compound 80/53 was studied. A study on the prevalence of G-6-PD deficiency in tribal population was undertaken. Work was initiated on the study of genetic diversity of *P. falciparum* and *P. vivax* and development of microsatellite markers. Therapeutic efficacy of chloroquine and sulphapyrimethamine in uncomplicated *P. falciparum* malaria was evaluated in Keonjhar. Situation analysis of malaria was done in three districts of Orissa. Technical, training and health education supports were provided to antimalaria programme. Field evaluation of tablet formulation of deltamethrin was done.

Sonapur (Assam): The major areas of research included evaluation of therapeutic efficacy of antimalarials, situation analysis under roll back malaria initiative, and malaria outbreak investigations in selected districts of Assam. The emergence of multiple drug resistance in *P. falciparum* has been detected in areas of stable transmission, and for their containment, intensive surveillance coupled with antivector measures with a focus on insecticide treated nets is being advocated. Other activities included GIS mapping of *An. minimus*, genetic composition of *P. falciparum* isolates, sibling species composition of *An. fluviatilis*, IEC activities during antimalaria month, and mass propagation and distribution of larvivorous fishes (guppy) in towns of Assam.

Panaji (Goa): Technology transfer on bioenvironmental control of malaria to the Mormugao Port was continued during the fifth year. A study of malaria in migrants was done. Fungal isolates with larvicidal activity were maintained for further study. A new rapid *Pf* diagnostic kit — Binax was evaluated. Malaria situation analysis was done in Panaji and Cansarvarnem PHCs as part of RBM. Therapeutic efficacy of chloroquine in *P. vixax* malaria was evaluated in Navi Mumbai. Training support to antimalaria programme was provided.

Bangalore (Karnataka): Use of larvivorous fish was scaled-up in five talukas of four districts and in Mangalore city. Geographical reconnaissance of mosquito breeding habitats was undertaken to plan integrated disease control. A remote sensing study on delineation breeding habitats of *An. culicifacies* was undertaken. Work on mosquito control plan in Bangalore city was carried forward. Monitoring of parasite sensitivity to chloroquine and susceptibility of *An. culicifacies* to malathion and deltamethrin was also done.

Haldwani (Uttaranchal): Dynamics of malaria transmission in some areas of Bhabar region, District Nainital, Uttaranchal was studied. Insecticide susceptibility of *An. culicifacies* was evaluated in four districts in Chhattisgarh (as part of situation analysis) and two districts (Nainital and Udham Singh Nagar) in Uttaranchal. Technical, training and health education supports were provided to the antimalaria programme.

Chennai (Tamil Nadu): During the year, studies on bioecology of *An. stephensi* and its role in malaria transmission were undertaken in and around Chennai city. Areas were mapped based on the ecological variants. Association of mosquito breeding with urban rainwater harvesting was studied. Study on therapeutic efficacy of chloroquine for the treatment of vivax malaria was completed, which showed that it was a fully effective drug. A study in Rameswaram revealed development of resistance to pyrethroids in *An. culicifacies*. Other activities included technical support, health education, training, and malaria diagnosis and treatment through malaria clinic in Chennai.

Shahjahanpur (Uttar Pradesh): Geographical reconnaissance of mosquito breeding habitats in Shahjahanpur district was undertaken. Malaria surveys were conducted in some high risk PHCs. Situation analysis of malaria was carried out in four districts—Lakhimpur Kheri and Sonbhadra districts in Uttar Pradesh, and East Godavari and Visakhapatnam in Andhra Pradesh. Insecticide susceptibility status of malaria vectors was evaluated. Malaria clinic was run. Health education activities were organized.

Shankargarh (Uttar Pradesh): Malaria situation analysis was undertaken in Districts Ranchi and Hazaribagh in Jharkhand state and Gadchiroli in Maharashtra. Malaria clinic at the field station provided early diagnosis and prompt treatment of malaria. Health education activities were organized. Susceptibility of *An. culicifacies* against different insecticides like DDT, malathion and deltamethrin was evaluated.

Car Nicobar (A&N Islands): Epidemiological study of malaria among primitive tribes Jarawas was continued. Role of duffy blood group in vivax malaria was studied. Health education and training activities were organized. Technical support in malaria outbreak investigation and containment was provided. Diagnostic and treatment services at malaria clinic are being provided. Use of larvivorous fish in vector control was promoted.