A Profile of

National Institute of Malaria Research

National Institute of Malaria Research

(Indian Council of Medical Research)

Sector 8, Dwarka, New Delhi-110 077

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Preface

Soon after the resurgence of malaria in India, the erstwhile Malaria Research Centre, now renamed as National Institute of Malaria Research (NIMR) was set up in 1977 to undertake basic, applied and operational research on malaria, as well as to provide much-needed support to the National Vector Borne Disease Control Programme (NVBDCP) of the country in epidemiological research, situation analysis, capacity strengthening and investigation and containment of malaria epidemics. It was realized that malaria is a local and focal disease and its transmission is a dynamic process influenced by the changes in ecological conditions, agricultural practices, urbanization, socio-economical factors, cultural practices and meteorological/climatic conditions. This required evaluation and development of control strategies suited to local needs in various eco-epidemiological settings.

Whereas basic research was mainly undertaken at the NIMR Headquarters in Delhi, a major boost to field research was provided by setting up of an Integrated Disease Vector Control Project in 1986 under Science and Technology Mission mode by the initiative of the Prime Minister of India. This led to opening and operation of 13 field stations in different parts of the country as per the need of the programme. After reorganization, NIMR field units are now functionally operating in 10 malaria-endemic localities in India.

Over the past three decades, a number of technologies developed by NIMR were transferred to NVBDCP, which include insecticide-treated nets or long-lasting insecticidal nets, new insecticides, larvicides, larvivorous fishes, expanded polystyrene beads for larval control, environmental methods for mosquito control, rapid diagnostic kits, artemisinin-based combination therapy for the treatment of malaria, etc. NIMR has not only contributed immensely in providing research support in the fields of malaria, but also in other vector borne diseases, like filariasis, dengue and chikungunya, and in programme support by undertaking situation analysis of vector borne diseases, epidemic investigations, human resource development, advocacy, social mobilization, etc.

The present NIMR profile embodies outcomes of research and technical supports provided by the Institute since inception and highlighted on the benefit of the technologies and tools developed/evaluated at NIMR that have brought in alleviating the sufferings of masses from vector borne diseases in the country.

Meanwhile, the Institute has also strengthened its own capacity to fulfill its mandate and currently has a large number of dedicated scientists, technical staff and research students with facilities to conduct cutting-edge research on all aspects of modern biology. The new building of the Institute at Dwarka, New Delhi will provide physical infrastructure to ensure research of international standard facilities and ambience. NIMR is a 'WHO regional referral centre for the identification of *Anopheles culicifacies* sibling species' and ' WHO collaborating centre for laboratory testing and evaluation of public health pesticides', and has been identified as 'National referral centre for diagnosis of malaria' by National Vector Borne Disease Control Programme.

Thanks to the Director General and senior staff of ICMR for their immense and timely support to the Institute. I also take this opportunity to express my sincere thanks to Drs V.P. Sharma and S.K. Subbarao, former Directors of NIMR for their invaluable support and suggestions. I also wish to acknowledge the sincere efforts of all my scientist colleagues and staff, for their help at several stages in bringing out the current NIMR profile.

A P Dash
Director

Abbreviations & Acronyms

ABER	Annual blood examination rate
ACD	Active case detection
ACPR	Adequate clinical and parasitological response
AMA	Apical membrane antigen
An.	*Anopheles*
ANOVA	Analysis of variance
API	Annual parasite incidence
ACPR	Adequate clinical and parasitological response
ACT	Artemisinin-based combination therapy
AS	Artesunate
ASPCR	Polymerase chain reaction
BHC	Benzene hexachloride
BHEL	Bharat Heavy Electricals Limited
Bs	*Bacillus sphaericus*
BSC	Blood slides collected
BSE	Blood slides examined
Bti	*Bacillus thuringiensis israelensis*
CARE	Cooperative American Relief Everywhere
CDC	Centers for Disease Control & Prevention
CDRI	Central Drug Research Institute
CFR	Child falciparum rate
CHC	Community health centre
CMO	Chief Medical Officer
CPR	Child parasite rate
CQ	Chloroquine
CS	Capsule suspension
CSIR	Council of Scientific and Industrial Research
CSP	Circumsporozoite protein
CTDN	Conventionally treated deltamethrin net
CV	Coefficient of variation
CVC	Comprehensive vector control
Cx.	*Culex*
DALY	Disability adjusted life year
DBP	Duffy binding protein
DBT	Department of Biotechnology
DDC	Drug distribution centre
DDT	Dichloro diethyl trichloro ethane
DFID	Department for International Development, U.K.
DHA	Dihydroartesunate
DHF	Dengue haemorrhagic fever
DMO	District Malaria Officer
DND*i*	Drugs for Neglected Tropical Disease *initiative*
DRDO	Defence Research and Development Organization
DST	Department of Science & Technology
DT	Dispersible tablets
EC	Emulsified concentration
EDPT	Early case detection and prompt treatment
EI	Inhibition of emergence
EIR	Entomological inoculation rate
ELISA	Enzyme linked immunosorbent assay
EMCP	Enhanced malaria control project
EPS	Expanded polystyrene
ETF	Early treatment failure
EVBDCP	Enhanced vector borne disease control project
FTD	Fever treatment depot
GCP	Good clinical practice
GMP	Good maufacturing practice
G-6-PD	Glucose-6-Phosphate dehydrogenase
GIS	Geographical information system
GLC	Gas liquid chromatography
GPL	Glycophospholipids
GR	Geographical reconnaissance
GST	Glutathione S Transferase
HBI	Human blood index
HCH	Hexa-chloro-cyclo-hexane
HEC	Heavy Engineering Corporation
HIA	Health impact assessment
HPLC	High performance liquid chromatography
HPLC	High performance liquid chromatography
HRP	Histidine rich protein
HRP	Histidine Rich Protein
ICGEB	International Centre for Genetic Engineering & Biotechnology
ICMR	Indian Council of Medical Research
ICT	Immunochromatographic test
IDPL	Indian Drugs and Pharmaceuticals Pvt. Ltd

IDVC	Integrated disease vector control
IEC	Information, education and communication
IGH	Ispat General Hospital
IGR	Insect growth regulator
ILTP	Integrated long-term project
IOC	Indian Oil Corporation
IRCS	Indian Red Cross Society
IRMS	Institute for Research in Medical Statistics
IRS	Indoor residual spraying
ITN	Insecticide-treated nets
ITS-2	Inter transcribing Space 2
IVM	Integrated vector management
JE	Japanese encephalitis
LN	Long-lasting insecticidal net
LPF	Late parasitological failure
LTF	Late treatment failure
MCRP	Malaria control and research project
MHD	Man hour density
MLO	Malaria larvicidal oil
MMV	Medicines for Malaria Venture
MPI	Malaria parasite incidence
MPO	Modified plan of operation
MQ	Mefloquine
MRC	Malaria Research Centre
MSP	Merozoite surface protein
NAMP	National Anti Malaria Programme
NEDA	Non-conventional Energy Development Authority
NGO	Non-governmental organization
NICD	National Institute of Communicable Diseases
NIMR	National Institute of Malaria Research
NMEP	National Malaria Eradication Programme
NTPC	National Thermal Power Corporation
NVBDCP	National Vector Borne Disease Control Programme
OD	Optical density
OHT	Overhead tanks
PBO	Piperonyl butoxide
Pf	*Plasmodium falciparum*
PHC	Primary health centre
PPQ	Piperaquine
Pv	*Plasmodium vivax*
PWD	Public Works Department
RFLP	Restriction fragment length polymorphism
RMRC	Regional Medical Research Centre
RMRI	Rajendra Memorial Research Institute
RS	Remote sensing
RWH	Rainwater harvesting
SC	Suspension concentrate
SFR	Slide falciparum rate
SIDA	Swedish International Development Agency
SP	Sulphadoxine-pyrimethamine
SPR	Slide positivity rate
ssu RNA	Single stranded sub unit Ribonucleic acid
TLC	Thin layer chromatography
TPP	Triphenyl phosphate
TRAP	Thrombospondin-related anonymous protein
UGT	Underground tanks
UMS	Urban malaria scheme
UNDP	United Nations Development Programme
UV	Ultra violet
VCRC	Vector Control Research Centre
VSP	Visakhapatnam Steel Plant
WDG	Wettable dispersible granules
WHO	World Health Organization
WHO/SEARO	WHO/South East Asian Regional Organization
WHO/TDR	WHO/Tropical Disease Research
WHOPES	World Health Organization Pesticide Evaluation Scheme
WP	Wettable powder