

# NAV News Letter

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## THE 5TH INTERNATIONAL SYMPOSIUM ON VECTORS AND VECTOR BORNE DISEASES

PATIALA, 16-18 FEBRUARY, 2000

### KEY NOTE ADDRESS

**V.P. Sharma**

President, National Academy of Vectors and Vector Borne Diseases

Captain Kanwaljit Singh, Hon'ble Minister of Finance, Punjab Government; Professor J.S. Ahluwalia, Vice-Chancellor, Punjabi University; Professor R.M. Goel, Pro Vice-Chancellor, Punjabi University; Professor D.S. Sidhu, Head of the Zoology Department, Punjabi University; Dr. Jagbir Singh Kirti; Distinguished fellows and executive members of the Academy; Professor K.S. Rai; Distinguished delegates, guests, ladies and gentlemen.

Sat-Sri-Akal, Good Morning and I wish you the most happy and prosperous millennium.

I am grateful to The National Academy of Vectors and Vector Borne Diseases for electing me its President. I consider it a very important

distinction in my career. My colleague Dr. A.P. Dash and members of the Executive Committee have always given me strong support in furthering the activities of the Academy and fulfilling its objectives. I am particularly pleased that we are holding the Conference on the Punjabi University campus in Patiala. Last year I visited Punjabi University, and I must confess that I had an instant love for this school of higher learning, situated in a historical city with beautiful surroundings. On behalf of The National Academy of Vectors and Vector Borne Diseases, I wish to congratulate the Hon'ble Vice-Chancellor for maintaining high standards of learning and the proud done to India by Punjabi University. I also wish to convey our gratefulness for hosting the conference in this prestigious university and for providing financial support. I am thankful to Dr. Jagbir Singh Kirti, the organising secretary and a man of many talents, the distinguished faculty, the students and staff who have worked hard in organising this conference. I am

particularly thankful to the Government and the Industry for their continued support to the activities of the Academy, in particular to the Department of Biotechnology, Department of Science and Technology, Indian Council of Medical Research, Council of Scientific and Industrial Research, Agro-Evo India Ltd., Mumbai, Bayer India Ltd., Mumbai and Zeneca Agro-Chemicals, Chennai.

### Guinea Worm

The Academy has entered the new era of challenges in the control of Vector Borne Diseases. As we have entered the new millennium we have a good news to share – the Eradication of Guinea Worm, a disease of antiquity, de-humanising the poor people living in rural areas with scarcity of water. At the time of the launching of Guinea Worm Eradication Programme in 1983-84 there were 39,792 reported cases of Dracunculiasis spread in 12,840 villages in 6 states. In 1999 there were zero cases. India entered the new millennium with Freedom From Guinea

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Worm. This is an spectacular achievement in the Annals of Public Health of our country. The success was the result of the application of very simple methods such as the use of filter water to eliminate the Cyclops, the vector of Dracunculiasis. On behalf of the Academy and on my own behalf, I take this opportunity to congratulate the public health experts and all those who participated in the march of public health science to make the country free from this dreadful disease.

### Environment

As Founder President of the Academy we have faced many challenges in establishing the Academy, raising it to an international level and addressing the problems of vector borne diseases. To cite one example: In 1994 we had an epidemic of Plague. It was controlled in a short time by mobilising the health services of the country. It was a remarkable achievement. But the threat of Plague still looms large. This is because we are exploiting the environment without any respect to the Mother Nature – in this case in the name of development we have been hitting at the natural ecosystem of rat populations, which may lead to disastrous consequences. While development is important for human welfare, but its exploitation should be minimal with full assessment of its ill impact on ecology and health of human and animal life. In dealing with environmental issues we should Think Globally and Act Locally. In this connection may I remind you the message by the father of our nation – Mahatma Gandhi, and I quote "We have enough in this world for the needs of the people but not for their greed." I have therefore chosen to speak on the environmental issues, particularly

"Development Without Destruction Related to the Vector Borne Diseases in India."

### Filaria

Filariasis is transmitted by *Culex quinquefasciatus*. The vector breeds in polluted waters, in the surface drains, gutters, ditches, stagnant water pools and in poorly drained areas. The entire coastal areas are endemic to the disease. There are an estimated 22 million people with disease manifestation and another 20 million microfilaria carriers. Filaria is a social stigma, causes high morbidity but no mortality. Perhaps due to lack of mortality, Filariasis has not received adequate attention of the health planners. WHO has declared Filaria – an eradicable disease. Irrigation without proper drainage is bringing new areas under the Filaria transmission. We see the same culture in our town planning – settlements in low lying areas, lack of drainage, blocked surface drains and stagnant water pools all over in the country particularly after the rains. *Culex quinquefasciatus* takes advantage of our negligence and indifference to the environment – thus enhancing Filariasis transmission as well maintaining very high mosquito nuisance almost throughout the country. Again as in Guinea Worm so in Filariasis simple tools have been discovered for its control. Vector control is important but seems to be very expensive and not a practical solution in the interruption of transmission. Medicated salt with Diethyl carbamazine (DEC) or DEC single dose and Albendazole or Ivermectin combination have proved very useful in the elimination of parasite reservoir from the community. Along with drug administration, treatment of patients with antibiotic

ointments greatly relieves the symptoms of the disease. There is therefore a hope that in a well planned programme elimination of the filariasis is an achievable goal. A beginning has been made in the State of Tamil Nadu and we hope that other states will follow a similar programme. Let us join the government to eliminate this dreadful scourge from our society. Having said that, I must point out that the Filaria Elimination Strategy attacks the parasite and does not improve the environment. Therefore environment related diseases will continue to plague our society.

### Japanese Encephalitis

Viral diseases transmitted by mosquitoes are emerging in a big way spreading to cover the entire country. A small outbreak of few cases of Japanese Encephalitis (JE) reported from villages near Pondicherry in 1955 has spread to cover the entire rice growing belts of the country – killing and maiming the hapless poor people in the rural areas. In 1999 JE epidemics were reported from Andhra Pradesh (reported- 965 cases and 200 deaths); Haryana (reported- 121 cases and 56 deaths); Kerala (reported- 103 cases and 24 deaths); U.P. (reported- 1370 cases and 275 deaths) and Karnataka (reported- 597 cases and 88 deaths). JE vector *Culex tritaeniorhynchus* mosquitoes breed in rice fields and rice being the staple food of India, its cultivation is increasing steadily. Indian agriculture was largely rain fed but irrigation has changed this scenario. Irrigation has increased from 22.6 million hectare in 1950 to >90 million ha. in the late 1990s. This has produced profound effect on the breeding of disease vectors. Rice is now an important crop in the semi-arid zone of the country.



In certain regions in South India even 3 rice crops in a year has become a norm leading to vector breeding throughout the year. Pigs which are the source of viral amplification are the target of attack to eliminate the disease. This will have social and ecological consequences. Studies are urgently required on the control of JE while maintaining agricultural productivity. This is a challenge that must be jointly addressed by the public health and agricultural scientists – but we have no common platform to meet. Inter-sectorial approach is a rational strategy but we have neglected this for too long and it is high time to rise to the occasion.

#### Dengue Fever

The second viral disease is the dengue fever (DF) transmitted by *Aedes aegypti*. DF is endemic in India and cases have been reported for more than a century. The disease was confined to small areas in Tamil Nadu. There have been major ecological changes promoting the breeding of *Aedes aegypti*. These are the urban and industrial growth of the country. Piped water supply introduced the vector to these areas and water shortage leading to rationing of water forced people to store water. *Aedes aegypti* is a container breeder and this changed environment became a boon for the vector breeding. As a result DF epidemics have been widespread. Rural electrification, rural water supply, opening of roads leading to tyre dumps all along the roads in the country side promoting vector dispersal to urbanised villages. Simultaneously the entry of all the four viruses and their intermixing has resulted in the epidemics of dengue haemorrhagic fever (DHF) in many

urban and rural areas. In 1996 there was a serious DHF epidemic in Delhi with reported 10,252 cases and 423 deaths. Several DHF epidemics have visited Delhi but this was the worse of all. Since then sporadic cases of DHF have been reported from Delhi and nearby districts in U.P., Punjab and Haryana. At least 80 well documented epidemics of DHF have been reported from India, mostly from urban areas but DHF epidemics from villages have been reported from Maharashtra, U.P. and Rajasthan as well. There are no breakthrough leads in its control. Vaccines are still under development. DHF is spreading in all continents of the world with unstoppable march entering new areas of development. Prevention of vector breeding and attack on the vector by the communities are the ideal solutions to the problem of DHF control. The vector *Aedes aegypti* prefers to live in developed human settlements, bites during day and occasionally in night, and attacks all groups of people. The treatment is palliative and there is no cure of the disease. Case fatality rates may be 20 or more and 4-5 in the best managed hospitals. We need to come out of our inertia and fight DHF with the help of community participation. The techniques are simple and low cost but require regularity in action. Any relaxed field work may bring the vectors and DHF. The added advantage of community action would be the control of *Anopheles stephensi*, the vector of urban malaria and reduction in mosquito nuisance. It seems we have failed in educating the communities and taking advantage of this immense resource going waste. I wish to inform this august gathering that we started school health programme on malaria

in Goa. For several years now nearly 50,000 students from class 8th to 12th study malaria as a subject and pass the examination. We have many other examples of successful community participation in malaria control in this country, but what prevents the movement to spread is becoming difficult to explain. *Aedes aegypti*, *Anopheles stephensi*, *Culex quinquefasciatus* responsible for the transmission of dreadful diseases are the output of development with complete disregard to the environmental degradation conducive for vector proliferation. Do we want such development or incorporate adequate safeguard to protect our health. We must answer this question before undertaking new development schemes. In this connection it is important to highlight the importance of health impact assessment in the environment impact assessment in all our projects. This is a neglected field in our country, although it should receive highest priority and made mandatory for all projects. We have amongst us a world renowned scientist Professor K.S. Rai who has life time experience in vectors and vector control particularly *Aedes aegypti*. We are fortunate to have him back in India. His talents must be utilised in fighting Dengue and Dengue Haemorrhagic Fever in the country. I have the good fortune of working in his laboratories as a post-doctoral fellow and I am proud of this long standing association with him.

#### Kala Azar

Kala Azar is yet another disease of serious concern to us. Kala Azar is endemic in India, and several epidemics have been reported from India in the last 100 years. Kala Azar



is transmitted by the sand flies *Phlebotomus argentipes*. Spraying of DDT for malaria control almost eradicated endemic foci of Kala Azar from the country. This followed a period of resurgence and in 1977, 1,00,000 cases and in 1971, 2,50,000 cases of Kala Azar were reported from India. DDT spraying brought down cases again in the 1990s but we have reports of increasing incidence of Kala Azar. The parasite *Leishmania donovani* has become resistant to sodium stibogluconate and to Pentamidine and now Amphotericin B is used to treat drug resistant cases. Treatment of Kala Azar is very expensive and poor communities suffer from the disease, and eventually die. I have myself seen completely drained and hapless patients waiting for the death to visit. Currently this disease has again surfaced in an epidemic form in Bihar, parts of U.P. and West Bengal. Cutaneous leishmaniasis transmitted by *Phlebotomus papatasi* is spreading in arid and semi arid zones and in areas with dams due to high humidity favouring its breeding in the mud houses. Good spraying can interrupt Kala Azar transmission but this is not being done. Environmental modification in the form of improved housing can eliminate the disease but in endemic villages mud houses cum cattle sheds constitute an ideal habitat for the sand flies to breed and maintain transmission. While we have witnessed nuclear age, space age, information technology and mind boggling advances in Biotechnology, but our vast hinterland with primitive life style has remained unchanged. People are ignorant, superstitious and live in abject poverty. Primary health care is weak in remote and

inaccessible areas, where it is needed most. It is time for communities to wake up and demand the delivery of "Health For All".

### Malaria

Let me now briefly review the malaria situation in India.

- WHO estimates 15 million cases and 19,500 deaths due to malaria as against about 3 million cases and 1,000 deaths.
- Economic loss due to malaria exceeds US \$ 1 billion.
- Malaria epidemics have become common place.
- Multiple insecticide resistance in *Anopheles culicifacies*, the major malaria vector of rural India.
- Enhanced outdoor resting and feeding vector behaviour.
- Mono and multi-drug resistance in the malaria parasite(s).
- Chemical vector control has started producing diminishing returns.
- Malaria is entering new areas and those free from the disease.
- Environment is being altered in favour of vector proliferation.
- Climate change is adding fuel to the fire of malaria.
- New malaria ecotypes have emerged and stabilised.
- Malaria control costs have become unsustainable.
- There is acute lack of expertise at the periphery.

In India malaria was a rural disease although cases were reported from some urban areas e.g. Mumbai. The National Malaria Control Programme (NMCP) launched in 1953 was a rural programme. In 1958 NMCP was converted to the National

Malaria Eradication Programme (NMEP). DDT spraying reduced malaria cases from 75 million and 0.8 million deaths in the 1950 to 100,000 cases and no malaria deaths by the early 1960s. At this point of time intensive malaria control to eliminate the residual foci would have further reduced malaria cases to very low levels, instead malaria control and research in the country was de-emphasised. Malaria started to raise its ugly head in the late 1960s and within a decade malaria was seen erupting in the rural and urban areas. This was partly the result of man made alterations in the environment for human settlement, food production and industrial revolution. In the last 3 to 4 decades new malaria ecotypes have emerged. These have been identified as the Urban malaria, Industrial malaria, Irrigation malaria, Forest malaria, Border malaria and Migration malaria. Malaria control in the new ecotypes requires knowledge of local vectors and dynamics of malaria transmission. I am not speaking against the development, but what I am emphasising is to provide adequate safeguards while we alter the environment. I wish to apprise this august gathering that over the last two decades we have developed the bio-environmental malaria control strategy as an alternative to the chemical control of disease vectors. This strategy is the rational solution to the long term and sustainable control of malaria and other vector borne diseases. The strategy works under most situations and in the newly established ecotypes described above. This strategy is eco-friendly, utilises local talents and resources, works in the hands of communities, generates employment and currently under implementation



through the primary health care system.

There have been many new concepts and initiatives in malaria control which are still relevant in our fight against malaria, but I would like to share with you the Roll Back Malaria (RBM) initiative of the World Health Organization (WHO). Dr. Gro Harlem Brundtland, Director General, WHO has launched RBM Initiative aimed to reduce malaria related mortality by half within five years. RBM is based on six elements.

1. Evidence based decisions using surveillance, appropriate responses and building community awareness.
2. Rapid diagnosis and treatment.
3. Multiple prevention. Better multi-pronged protection using insecticide treated mosquito nets, environmental management to control mosquitoes and making pregnancy safer.
4. Focused research to develop new medicines, vaccines and insecticides, and to help epidemiological and operational activities.
5. Coordinated action for strengthening existing health services, policies and providing technical support.
6. Harmonised actions to build a dynamic global movement.

RBM is a laudable initiative as it emphasises community based approaches and priority in disease control among the poor and marginalised populations. Initially RBM will be piloted in a few districts and extended to other districts in the second phase.

#### Our Concern

Entomological support to the control of vector borne diseases is absolutely essential but unfortunately vector control programmes are unlikely to come out of the inertia due to neglect of this important profession. With the environmental degradation and resurgence of diseases, this role of entomologists is becoming still more crucial. Unfortunately there is little realisation of this critical role of entomologists in public health by the governments. Entomologists are few, often assigned miscellaneous jobs, lack proper training, work at low rung in the hierarchy and not fully involved in the planning of field operations. They lack promotional avenues and remain as a demoralised lot. Unless entomologists are given their due place, service conditions brought at par with other services and involved in the planning and monitoring of the field programmes, I have little hope of any major advance in our fight

against the vectors and vector borne diseases.

Malaria research is under funded. To fight malaria we need new drugs, vaccines, diagnostics, vector control tools, etc. This is possible through partnership in research and development and commitment by the national and international agencies. India has always been in the forefront of malaria research. Sir Ronald Ross discovered the mosquito transmission of malaria and for this discovery he was awarded the Noble Prize. The Indian Society for Parasitology organised an International Conference in Hyderabad to celebrate 100 years of this epoch making discovery in August 1997. There have been other breakthrough researches by the Indians for which the world community has given due recognition. I hope the young generation scientists would keep the flag flying and attain freedom from "Malaria and other Vector Borne Diseases".

In this connection I wish to quote Sir C.V. Raman. While addressing the Annual Meeting of The Institution of Engineers on 29 February, 1948 he said "There is only one solution to India's economic problems and that is science, more science and still more science."

Thank you for your kind attention.  
JAI HIND.

#### ANNOUNCEMENT

It is proposed to bring out a Directory of Members of the Academy. Members are requested to send their recent address with Fax & E-mail, if any, to Dr. Namita Mahapatra, Regional Medical Research Centre, Bhubaneswar-751 023, Orissa.

(E-mail : navbd@hotmail.com)

#### ANNOUNCEMENT

The 6th International Symposium on Vectors and Vector Borne Diseases will be held at Bhubaneswar in November, 2001. The exact dates will be notified in due course. Further informations may be obtained from Dr. Namita Mahapatra in the same address.



## Recommendations of the 5th International Symposium on Vectors and Vector Borne Diseases held in Patiala during 16-18 February, 2000

A steering committee was constituted to draft recommendations emanating from the deliberations of the Symposium in context of the prevailing situation of vector borne diseases in the country. The following recommendations were made to the University and the Government of Punjab.

1. To open a Medical Entomology Centre in the Department of Zoology, Punjabi University. Medical Entomology Centre will function as an independent institution and carry out the following activities.
  - a. Fauna survey of the medically important insects of Punjab and establish the role of vectors in disease transmission.
  - b. Initiate basic and applied research directed to control the spread and control of vector

borne diseases in Punjab and other states.

- c. Function as a Centre for the Networking of Taxonomy of the Medically Important Insects in the country.
  - d. Initiate collaborative research with the leading National and International Institutions.
  - e. Participate in the Roll Back Malaria Initiative of the WHO.
2. A visiting lecturership was established by Professor Karamjit Singh Rai in memory of his father. Leading vector biologists from within the country would be invited to deliver the lectures and interact with the students. The lecturership would be an annual feature and the Awardee would be

given a bronze medal, honorarium, air travel and hospitality by the university. Steering committee recommended that this lecturership may be accepted by the university and arrangements/formalities for the institution of this lecturership may be made expeditiously.

3. Recommendations of the Steering Committee may be forwarded to the Government of Punjab for immediate action and the establishment of the Centre.
4. The Department of Zoology should prepare a Blue Print comprising of building plans, staff, equipment, chemicals and other infrastructural details for this purpose for onward transmission to the Government of Punjab.

## NEW LIFE MEMBERS

1. **Dr. Andrew, J.**  
Lecturer in Zoology  
School of Entomology  
St. John College, Agra-282 002
2. **Mr. Dasgupta, R.K.**  
Asst. Director  
National Anti Malaria Programme  
22-Shamnath Marg, Delhi-110 054
3. **Mr. Ganesan, K.**  
Scientist 'C'  
Defence R&D Establishment  
Jhansi Road, Gwalior-474 002  
Madhya Pradesh
4. **Mrs. Gheewala Gayatri D.**  
Asst. Insecticide Officer  
4/2029 Kanlhawala's Delo  
Navabwadi, Begampura, Surat
5. **Mr. Joshi, R.D.**  
Asst. Director  
National Anti Malaria Programme  
22-Shamnath Marg, Delhi-110 054

6. **Dr. Lal Rajeshwar**  
Assistant Director  
Vector Control Research Centre  
(ICMR), Indira Nagar,  
Medical Complex  
Pondicherry-605 006
7. **Dr. Rajni Kant**  
Research Officer  
P & I Division, Indian Council of  
Medical Research  
P. Box No. 4911, Ansari Nagar  
New Delhi-110 029
8. **Dr. Rajendran, R.**  
S.R.O., Centre for Research in  
Medical Entomology, Field Station  
127, Cuddalore Main Road  
Periyar Nagar  
Vidhachalam-606 001, Tamil Nadu
9. **Dr. Rudra, S.K.**  
Research Scholar  
P.O. Sonamukhi (Ratanganj)  
Dist. Bankura-722 207, West Bengal

10. **Dr. Singh, W. Purnakishore**  
Reader  
Dayanand Medical College, Ludhiana
11. **Dr. Thiagarajan**  
Lecturer  
Deptt. of Community Medicine  
Govt. Kilpauk Medical College  
Chennai

## ANNUAL MEMBERS

1. **Dr. Singh Himmat**  
Research Assistant  
Desert Medicine Research Centre  
P.O. 122, New Pali Road  
Jodhpur, Rajasthan
2. **Mr. Srivastava Vijay Kumar**  
Entomological Assistant  
Miya Sahab's Hata  
Charphatak, Mohaddipur  
Gorakhpur-273 001





Inaugural function of the 5th International Symposium on Vectors & Vector Borne Diseases at Punjabi University, Patiala. Hon'ble Minister of Finance, Punjab, Captain Kanwaljit Singh (3rd from left) and Vice-Chancellor of Punjabi University, Professor J.S. Ahluwalia (1st from left) graced the occasion as the Chief Guest and Guest of Honour respectively.





# NATIONAL ACADEMY OF VECTOR BORNE DISEASES

(Registered under Societies of Registration Act XXI of 1860)

The National Academy of Vector Borne Diseases is a non-profit scientific/academic organisation established in 1994 in India with more than 100 eminent senior scientists from 20 different States of the country. The Academy itself came into existence as a spin off from the recommendations made by a panel of experts from both India and abroad during the proceedings of the **"First International Symposium of Vectors and Vector Borne Diseases"** held at the Regional Medical Research Centre, Bhubaneswar in November, 1994.

The National Academy of Vector Borne Diseases (Academy) is a registered pioneering organisation championing the cause of promotion of knowledge in vectors and vector borne diseases. The Academy published the proceedings of the International symposia on vectors and vector borne diseases in September, 1995 and 1997. The Academy also publishes a **"News Letter"** in every year which disseminates timely news of the Academy. The Academy also organises national/international symposia on Vectors and Vector Borne Diseases in alternate years. The Academy also co-sponsored the IInd Global Meet on Parasitic Diseases held at Hyderabad during 17-22 August, 1997.

Membership is open to any individual interested in any aspect(s) of Vectors and Vector Borne Diseases (i.e., epidemiological, control, clinical, entomological, parasitological, experimental, sociological, economics and cost-benefits and cost-effectiveness of control methods, etc.). Following memberships are available :

Annual Member	:	Rs.100/- per annum (US \$ 10.00 for scientists abroad)
Student Member	:	Rs.50/- per annum (US \$ 5.00 for scientists abroad)
Life Member	:	Rs.500/- (at present), one time (US \$ 50.00 for scientists abroad)
Institutional Member	:	Rs.20,000/- (one time) (US \$ 2000.00 for institutions abroad)
Patron	:	By donating more than Rs.20,000/- or US \$ 2,000.00 for persons abroad.

**Contact Address:** Dr. R.K. Hazra, Treasurer, National Academy of Vector Borne Diseases, Regional Medical Research Centre, Bhubaneswar-751 023, India.

**Phone:** 91-674-300900, **Fax:** 300728, **E-mail:** navbd@hotmail.com.

- The Life members of the Academy are requested to send their important achievements, if any, from time to time to Dr. (Mrs.) Namita Mahapatra, Joint Secretary, National Academy of Vector Borne Diseases, Regional Medical Research Centre, Bhubaneswar-751 023 for possible inclusion in the News Letter.
- Members are also requested to intimate their change of address, if any, to Dr. Namita Mahapatra in the above address.
- Mini review articles (2-4 types pages) of good quality in any aspect of vector borne diseases are invited from members of the Academy for possible use in the News Letter.
- Members are requested to renew their Annual Membership before 31.12.2000.