SUMMARY

Mosquitoes are surviving on earth since millions of years. They are the important carriers of various diseases like malaria, dengue, filaria, Japanese encephalitis, west nile virus and chikun gunia. These diseases are challenge for the developed and developing countries. Knowledge about mosquitoes and their role in spreading diseases is known since hundreds of years. Sir Patrick Manson, Sir Ronald Ross, Calos and Sir Walter Reed recognized mosquitoes as carriers of protozoan, viruses and other pathogenic organisms. In India 58 species of Anopheles have been reported. Two species viz. An. stephensi and An. culicifacies are well known vector of malaria in urban and rural area respectively.

Filaria has been recognized as one of the major public health problems in India. Fifty nine species of mosquitoes are vectors of the filaria. Among them most important vector is Cx. quinquefasciatus. Dengue is one of the oldest mosquitos borne disease in India. Ae. aegypti and Ae. albopictus are two well known vectors of dengue in India. Japanese encephalitis (JE) is prevalent in India since mid fifties. Cx. vishnui and Cx. tritaeniorhynchus are the most important vectors of JE in India. Chikun guniya is a viral borne disease. It is spread by Ae. albopictus (Asian Tiger Mosquito).

Insecticides and larvicides are important weapons developed by men to fight against adult and larval mosquitoes. After development of applied chemistry many simple and complex synthetic insecticides have developed. These Insecticides and larvicides are formulated as dust, powder or liquid, which effects in different ways on different parts of insects. The stepping stone in the era of modern synthetic insecticides development was the discovery of DDT (Dichloro-diphenyl-trichlorethane) by Paul miller in 1939. Now mosquitoes are becoming resistant to it.
The development of botanical insecticides is also important in the terms of controlling chemical pollution and as new alternative.

Socioeconomic conditions of a community have direct bearing on the problem of diseases. Ignorance and impoverished conditions of people contribute in creation of source and spread of malaria and other mosquito borne diseases and also hinder disease control strategies. Major part of rural population is poor in disease assessment, attitudes towards healthy life style and knowledge of malaria control strategy. In Saurashtra every year hundreds of the people suffer from mosquito borne diseases. Efforts are being put by government to control mosquito population and disease spreading. In addition to that government is also conduct awareness programmes through media, despite diseases are not under controlled.

It is apparent from the foregoing account that the geographical and ecological profile combined with socio-economic status of a region permits proliferation of a vector population and consequent health hazard issues. Quantitative and qualitative entomological information is required to assess the feasibility of any mosquito control programme. Environmental factors also influence the adaptations by change (adjustments) which are accompanied by biological and behavioural changes. Every year hundreds of people suffer from mosquito borne diseases. Malaria, Dengue and most recent Chikun guniya are the disease found in Saurashtra, in which Malaria is more prevalent than any other disease. Disease spreading and vector population control have come up as biggest challenge to the local government body. Lots of efforts in terms of disease and vector control are being taken by local government body and private non government organizations.

Despite of all above mentioned efforts mosquitoes are still sustaining and spreading diseases successfully. During the rainy season more breeding grounds for
mosquitoes are created. Almost every household, especially from the low-income and slum areas are found to be suffering from frequent bouts of mosquito borne diseases. These diseases have become an important public health problem. There is a need for detailed local studies. The basic aim of present study is to generate perfect baseline data about mosquitoes in the rural areas and understand bionomics of mosquito species.

The main objective was the study of larval and adult species in the study area. The next objective is to assess the borne diseases.

Mosquito bionomics, in this study included survey of mosquito breeding sites, resting sites and density of larval and adult mosquito in any type of habitat from seven villages in study area. For this larvae and mosquitoes were collected by standard methods. Larval density and adult densities were calculated by standard formulas. Mosquitoes were identified using standard keys. Monthly and village wise data are obtained. Data of adult density are than compared with major environmental factors like temperature, and rainfall.

It was reveled after data analysis that mosquitoes and mosquitogenic conditions are throughout the rural areas. Different mosquito species have different preferences of breeding and resting (Table: 4.1 to 4.4). These preferences are dependent upon the availability of breeding site, feeding host and perfect environment for resting. Mosquito species density is varies according to seasonal changes which are the changes in the atmospheric temperature, and rainfall. It was observed that increase in temperature gives adverse effect on the mosquitoes. Post monsoon season time is ideal for the mosquitoes to breed and sustain.
Social awareness based study

The aim of this part of the study was to assess the level of awareness regarding malaria, its spread, prevention, and the vector and health consciousness among population of villages.

A cross-sectional study assessing the knowledge, attitude and practices regarding malaria was performed among the citizens of the study area (Table: 1) during January-December 2008. A Gujarati questionnaire was used and 252 persons of seven villages interviewed i.e. eighteen men and women were from each village. The collected data were analyzed (Table No. 5.1 - 5.6).

Table 5.2 describes the demographics of the study population. Among the subjects, Majority (61.11%) belonged to the age group of 26–40 years. Considerable majority of respondents educational based were from primary school level (63.10%) and others were illiterate (22.62%).

Data revealing the awareness of malaria transmission, its symptoms and treatment were shown in Table 5.3. Majority (89.29%) of the respondents had heard about malaria and most (86.51%) of them believed that the disease was transmissible. When asked about the common symptoms, fever was the most consistent response (40.48%) and 26.19%, 16.67% respectively shivering and nausea.

Data showing the extent of knowledge regarding vector breeding sites, mosquito bite time and preventive practices is presented in Table 5.4. About one-third (36.90%) of those interrogated were not cognizant of the fact that the malaria mosquito breeds in standing clean water. Most of the people told that the mosquito usually bites either at night (41.27%) or at sunset/dusk (19.84%). Knowledge of preventive measures were majority characterized into following (1) Use of smoke to drive away mosquitoes (26.98%), (2) Mosquito mat, coils, liquid vaporizer (18.65%),
and (3) Use of fan (26.59%), as a most common choices for prevention. Regarding preventive practices regarding eradication of breeding sites of mosquitoes were majority of the respondents no ideas (65.08%).

Figure 5.1 and Table 5 lists the distribution of preventive practices against malaria. Here, majority of the respondents relying on Use of smoke (25.40%), and Fan to drive away mosquitoes (31.75%).

Figure 5.2 and Table 6 showing a Source of information on various aspects of malaria. Television was identified as the major source of public information (40.48%), second was Friends/relatives (19.84% each), Newspapers, schools and other were considered as a source of information.

This is showing high level of lacking proper knowledge regarding mosquito and mosquito borne diseases. Similar observations were recorded by (Collins et al., 1997) illiteracy level was high among respondents, which leads to lack of awareness. The respondents were found to have knowledge that malaria is a mosquito borne disease but they had misconception about malarial vector and its breeding sites. Awareness regarding malarial vector and breeding preferences should be created to control the vector breeding. Majority of respondents had no idea about malarial vector and commonly available medicines in the market. A few respondents had suffered with malaria in past and showed knowledge about medicines. The respondents were majority depended on Use of smoke, away mosquitoes, Mosquito mat, coils, liquid vaporizer, and Use of fan to drive away mosquitoes. Use of personal or household protection methods are indicators of socio-economic status which in itself has been reported as an important factor associated with malaria (Singh et al., 1998), because low or moderate income reduce the facilities in house for protection against mosquito. While estimating the impact of media in generating awareness, it was observed that
television, Friends/relatives and newspaper are the most potential media as information about malarial awareness. Thus, it is suggestive that these Medias should be utilized to generate mass awareness in communities.

The impact of socio-economic conditions can not be denied in spreading of diseases. Education regarding mosquito borne diseases through various campaigns should be carried out. People should be guided for the available facilities for the detection of various mosquito borne diseases.