INTRODUCTION
Malaria still remains to be one of the major public health problems in India, though spectacular results in its control were achieved between 1958-61 following the National Malaria Eradication Programme (NMEP) launched in 1958. As per the latest estimates, 38.5% of the 4.8 million malaria cases all over the world were reported from India alone (Anonymous, 1987). Vector control continues to be the mainstay of NMEP, and the reasons for its setback in the Programme are too many (Ramachandra Rao, 1984; Kalra, 1978). Eight anopheline species have been reported to play major role in human malaria transmission in India and five others are of local importance. *Anopheles fluviatilis* James, 1902 ranks first when the vector species are graded in terms of their efficiency in malaria transmission. When the vector responsible for actual number of malaria cases is considered, this species occupies second place next to *A. culicifacies* (Ramachandra Rao, 1984). In hyperendemic and stable malarious areas *A. fluviatilis* is the main vector involved in transmission. It is essentially a species of hills and foot-hills and is a vector of malaria in all areas of India wherever it is prevalent. In certain areas, particularly hills and foot-hills, it is extraordinarily efficient in transmission and in other areas it is either a major or subsidiary vector. This species is known for high anthropophilic index and day time outdoor resting habit (exophily). Despite its exophilic behaviour, considering its predominant indoor
biting habit and high susceptibility to insecticides, DDT indoor residual spray was used against this species. Though initial success was achieved in many areas where this species is the major vector, in some areas malaria remains to be a serious problem till to-day.

Among the present hard-core malarious areas in India, the hilly tracts of Koraput district contribute a significant number of Plasmodium falciparum cases (Pani, 1990) and A. fluviatilis is mainly involved in the transmission. Very recently it has been reported that all the four species of human Plasmodium are prevalent in this area (Jambulingam et al., 1989). This district with a population accounting a fraction of less than one percent (0.36%) contribute 2.23% to 2.81% of all malaria cases and 6.20% to 9.95% of P. falciparum cases in India. In Orissa state, this district alone accounts for about 20% of all malaria cases (90% of them due to P. falciparum). As many as 80 deaths due to cerebral malaria have been reported by NMEP during 1981-1986.

Ever since the inception of Malaria Control Programmes in this area, insecticides have been used continuously and it is believed that A. fluviatilis has changed its behaviour due to the prolonged insecticide pressure (Gunasekaran et al., 1989). Expansion of rice cultivation and concomitant deforestation was attributed to the decrease in malariousness in certain areas (Perry, 1914). However, inspite of large scale deforestation and extensive rice cultivation
in recent years this area still remains to be highly endemic.

While reviewing the disturbing situation due to resurgence of malaria in this country, the Experts Committee on Malaria under the auspices of Indian Council of Medical Research emphasized the need to study the ecology and behaviour of the vectors in areas where malaria is still persisting. It was also recommended to orient the studies in relation to the variations in the localities and control measures (Anonymous, 1977) since malaria is purely a local phenomenon. Intensity of transmission, prevalence and distribution of vector and parasite species are determined by local malarial conditions, which differ from village to village (Anonymous, 1986). However, no scientific study was carried out in Koraput district for the past 40 years particularly on *A. fluviatilis*, the major vector (Perry, 1914; Senior White, 1937 & 1938) despite the persistence of malaria.

Since such information is essential in planning an alternate malaria control strategy a fresh and an indepth study on various aspects of ecology and behaviour of *A. fluviatilis* in relation to malaria transmission was undertaken with the following objectives.

1. To determine the role of *A. fluviatilis* in malaria transmission and estimate its vectorial capacity.
2. To elucidate the resting behaviour and to assess the degree of man-vector contact.
3. To study the population dynamics of adults, their natural survival and growth.

4. To determine the dispersal range.

5. To identify the various breeding habitats and to assess their potential in supporting A. fluviatilis breeding.

6. To study the population dynamics of immatures.

7. To evaluate susceptibility status to conventional insecticides.