CHAPTER IX

SUMMARY AND CONCLUSIONS
The major objectives of the present study are to measure fertility levels in a hunting-gathering tribe, namely the Chenchus and to understand the influence of various socio-cultural and economic factors on fertility. It is also attempted to bring out comprehensive demographic picture of the Chenchus. The conceptual framework developed by Davis and Blake (1956) is utilized as an operational model for carrying out the present study. The study was conducted in 1985-86 in twelve Chenchu settlements. Information on fertility, mortality and other related aspects was collected from 504 ever-married women.

The Chenchus are originally a tribe of hunter-gatherers living in the forest of the Nallamalai of the Eastern Ghats in Andhra Pradesh, South India. Eventhough the Chenchus of the Nallamali were under contact situation with the forest officials, with peasants for long and since two decades with the Tribal Welfare personnel, their basic dependence on food-gathering and hunting still continues to a significant extent. The reasons for this are failure to implement developmental programmes consistently and isolation of the settlements for which no transport facility existed till 1957, when a motorable road was laid. This road connects only Byruluti, Korrapolu
Chinthala. Since 1970, the forest rules have become more stringent and due to large scale deforestation the Chenchus now find it difficult to carry on their traditional occupation. Nevertheless their dependence on forest for food and employment is quite significant.

A majority of the adults in the 12 settlements have the complex skills of gathering and hunting. They have the ability to recognize an enormous variety of plants and use them for food, medicine and domestic purposes. They have immense knowledge about animal behaviour and have developed ingenious methods of hunting animals with simple bow and arrow. They have thorough knowledge about their environment extending beyond one's own catchment territory. What is more striking is that the people's knowledge has not yet reached a stage of being merely theoretical. Quite often the people go to forest and live there, eating plant and animal foods. In fact the Chenchus face problems quite often in sticking on to the alien occupations like wage labour or collection of minor forest produce or selling firewood or bamboo wattle walls etc., because quite often works are suspended (by the Forest Department or its contractors) in the forest or no demand exists for the forest produce or that the Chenchus themselves find these occupations not interesting. Almost all the older members in the settlements lived a life of hunting-gathering during much of their adolescent and adult
life because alternative employment was not within their reach or that there was little intervention from the Forest Department.

The population of the Chenchu tribe as a whole exhibits a four-fold increase in the years between 1891 and 1981, from a base of about 7,000 individuals. For the entire period of 90 years, the annual growth rate is 1.6 per cent. The Chenchus of Kurnool and Prakasam districts also exhibit similar growth rates. For a total period of 100 years starting from 1881, the population has increased by 0.81 per cent per annum. The population has increased by one and one half times from a base of about 2,900 individuals in 1881. On the whole the growth rates show the accretory character of the Chenchu tribe but the growth is much slower compared to the growth rates of the State (2.31% during 1971-81) and total tribal population of Andhra Pradesh (4.27% during 1971-81). Basing on the current fertility and mortality schedules the annual rate of population increase for the sample settlements is worked out to be 0.0038 and 0.0043. All these growth rates agree with the growth rates of 1.8 to 2.7 per cent for the hunter-gatherers estimated by Hassan (1975). The current birth rate and death rate are 36 and 20 per 1,000 population. The net reproduction rate is 1.12 (for women aged 45 years and above) and 1.14 (for women aged 15-49 years). The net reproduction rate suggests that the female
population replaces itself in the next generation (the mean length of a generation being about 29 years).

High current fertility levels are seen in the age groups of 25-29 years and 30-34 years of the women aged 15-49 years. The age-specific fertility rates (15-45 years) indicate a total fertility of 4.5 live-births at the end of a woman's reproductive period. The infant mortality rate is 118 per 1,000 live-births. In other words, one out of every eight infants dies before completing the first year after its birth. Life-table analysis of the deaths reported to children ever-born to 504 ever-married women, indicates that the Chenchu age pattern of mortality exhibits general features of human biological processes and does not exhibit any radical mortality differentials vis-a-vis model life-tables. The evidence suggests that mortality conditions have deteriorated over time, indicating that children born in recent times have lesser chances of survival from one age to the next. The younger women also exhibit high fertility rates. Presently, every Chenchu woman at the end of her reproductive period would have given birth to about 5 children, out of which 2 children would die and 3 children survive.

The current vital rates (birth rate and death rate) are reflected in the age and sex structure. The shape of the age and sex pyramid is almost similar to that of 'ideal-type' shape of pre-industrial populations having a broad base and
sharply tapering pyramid. It is characteristic of many developing countries that up to 50 per cent of the population is aged under twenty. Of the 1,880 Chenchus in 12 sample settlements, about 53 per cent is aged under 20. This age structure suggests a high fertility potential. However, this depends upon what proportion of children reach age 15 and reproduce. The mortality data reveal that nearly 30 per cent of all ever-born children die before they reach the age of 15 years. Many children in the age group of 0-4 years and 5-9 years would die before they complete the respective age cohorts under the current mortality schedule.

Compared to many tribal populations in India, the Chenchu exhibits low fertility and mortality levels. For instance, some of the food gathering tribes like the Birhor (Verma, 1977), and Irula (Reddy, 1985) and agricultural communities like the Santhal (Verma, 1977) and Zemi (Bhowmick, 1971) have high fertility and mortality rates. When compared to the Kung Bushmen (a people who retained many features of true food gatherers and hunters), the vital rates for the Chenchus appear rather high.

It is extremely difficult to answer the reasons behind slow growth rate of the population. Because no historical data on births, deaths and migration are available, direct evidence for explaining slow growth rate is almost absent. However, the present study indicates that the slow growth
rate may be due to low fertility and low mortality.

The results of the fertility and mortality analysis of the Chenchus of sample settlements indicates temporal change in these two variables. The older generation of individuals (45 years and above) exhibits marginally less fertility compared to the present younger women. The evidence for this comes not only from the actual number of live-births but also from the trends which the younger women exhibit. The total fertility rate for the younger women works out to be 4.5 children whereas it is 4.9 for women aged 45 years and above. Obviously, when the younger women complete their reproductive career, they would be adding one or two more children to the present number. This is also supported by cohort disaggregational analysis wherein the fertility history of all women is examined retrospectively from the present age of the women. The young women have slightly higher fertility rates in their retrospective years compared to the fertility rates in the same retrospective years of the older women.

The presence of natality regulating mechanisms or absence of those mechanisms which promote strong pro-natalistic tendencies (especially to build up a strong and cohesive corporate kin unit) in the social structure of the Chenchu society lends support to the finding that the Chenchus traditionally have controlled their fertility. In fact, this evidence is much more promising to show that the Chenchus
have indeed developed mechanisms which set limit to rapid population growth. These mechanisms, however have been changing so that pro-natalistic attitudes are encouraged at present. The influence of these changes are reflected in the women of younger generation who exhibit almost as much fertility as that of the older women, much before they complete their reproductive career.

By way of examining the socio-cultural conditions influencing fertility, it is possible to know whether the Chenchu society promotes high fertility or not and thereby the reasons behind the slow growth rate of the Chenchus can be understood.

Sexual intercourse is the first stage in the process of reproduction. There are conditions which govern the formation and dissolutions of unions. Generally speaking, regular sexual intercourse occurs within marital unions. Dissolution of unions render a temporary or prolonged absence of regular, socially acceptable form of sexual congress. Among the Chenchu, several factors intervene and influence the act of sexual intercourse.

In the first place, regular, socially permitted and legitimate sexual unions occur within wedlock. However, pre-marital (pre-pubertal and post-pubertal) sexual relations are tolerated though not freely permitted. Onset of puberty
quicken marriage. Mean age at marriage for 504 ever-married women is 14.80 years. Elderly women aged 45 years and above reported high age at marriage (16 to 17 years). On an average, women wait 1.6 years to get married after reaching puberty. Now-a-days, pre-pubertal marriages are also celebrated. The marriage age for the young women is around 14 years.

Marriage is universal and the striking feature is the speed with which marriages occur in the society. A large number of marriages occur between ages 14 and 17 years. By age 20 years all individuals get married. There are no individuals who remain unmarried at advanced ages. Permanent celibacy or postponement of marriage for economic, religious and other reasons are not observed.

The state of being married is equated with the attainment of adult status. Marriage liberates individuals from dependence and parental protection to an independent and responsible state. Parents find it difficult to rear their children and provide food for the grown up children, especially when the children depend too much on parents. The sooner a child acquires sufficient strength and skills to gain livelihood by food-gathering and hunting or wage labour, parents feel that the child should be married off so that the child can lead an independent life. Consequently, the burden of providing food to the children by parents also gets reduced. Acquisition of enough skills usually completes around age 15
to 18 years. Age at marriage is also influenced by a putative marriage-mortality linkage and a cultural norm according to which husband and wife constitute a significant dyadic relationship for sharing different roles and division of labour and to lead an independent and responsible adult life.

The Chenchus believe that union of man and woman is a necessity for leading a full-fledged life. Besides, marriage is viewed as a mechanism for regularizing sexual behaviour. These values favour an early age at marriage. Early age at marriage, in essence increases the reproductive span and thereby fertility. Thus early age at marriage among the Chenchu have high fertility value.

Marital instability and dissolution of unions disrupt the regular participation in sex and renders a loss of certain amount of time in the reproductive span. The Chenchu society is characterized by a high rate of marital dissolutions. However, remarriage is allowed upon the incidence of death of a spouse or divorce. On an average a woman remarries 1.7 times after her first marriage. The average time lost is 13.19 months in case of union dissolutions due to divorce and 14.11 months in the case of union dissolutions due to death of husband. This would mean a potential loss of one child in the entire period of one's reproductive career. The loss of fertility is, however, compensated by a slightly higher rate of fertility experienced by women who remarry compared
to those whose first marriage remain unbroken. Further, the women who remarry are under a tacit cultural expectation to deliver children in the new union without much loss of time. Thus, the effect of the intermediate variable 'loss of reproductive span due to union dissolution' on fertility of the Chenchu women is rather insignificant and the fertility value of this variable is rather indeterminate.

Within unions, exposure to intercourse is influenced by three intermediate variables namely - (1) coital frequency (2) voluntary abstinence, and (3) involuntary abstinence.

Coital frequency among the Chenchus seems to be comparatively higher than a few populations for which data are available. However, this variable also has an indeterminate fertility value.

Voluntary abstinence is examined under (1) postpartum abstinence, (2) terminal abstinence, (3) abstinence connected with menstruation, and (4) abstinence for special reasons. There are strong cultural expectations favouring observance of abstinence during specified occasions or periods though the effect due to such observances on fertility is not clearly known. On the whole, abstinence from coitus produces a negative effect and thus this variable has low fertility value.

The Chenchu abstain from sex involuntarily on several occasions. Ill-health, movement, strain due to economic activity, impotency, absence of spouse etc., force people to
abstain from intercourse involuntarily. Though no information is available regarding the frequency of such incidences, coitus is strictly prohibited or not possible during such occasions. Thus involuntary abstinence has a low fertility value but it may not drastically reduce fertility.

Birth intervals are found to be quite long (4.48 years and 3.16 years for all birth intervals for women aged 45 years and above and for women aged 15-44 years respectively). This is achieved, among other reasons by prolonged periods of intensive breastfeeding which in turn effect an extension of duration of postpartum amenorrhea. Usually the Chenchu women suckle their children upto an age of three years, but not uncommonly, can be extended till an age of five years. Usually full or unsupplemented breastfeeding continues till one and one half years. Gradually the child is given supplemental diet. The frequency of breastfeeding is however continued and reduced only at age three.

Several studies have indicated that lactation has a suppressant effect on ovulation. For 161 Chenchu women the mean duration of postpartum amenorrhea is 22.58 months and the mean duration of breastfeeding is 31.75 months. The Chenohu women explicitly recognize the relation between breastfeeding and the duration of postpartum amenorrhea.

The women consider that mother's milk is highly essential for the survival of the child because sufficient
supplemental diet is not available. Besides, they also recognize the economic implication and burden of having children in successive years. Each woman collects on average 8 kgs of plant food material and carries a load of firewood. On an average, in each gathering trip, the woman covers 8 km. Having only one suckling child facilitates the woman to carry the child to forest and carry on her activities without much encumbrances. As the women are increasingly tied down to the vicinity of the settlement due to adoption of new occupations like cultivation and wage-labour activities, rearing more than one child is becoming rather easy. Besides, supplemental diets are now made available at least in a few settlements through the Government sponsored nutrition programmes to mother and child. The Chenchus can also earn bathyam (wage converted into kind which includes grains like rice and red-gram etc.) which facilitates the Chenchu to feed the infant with rice and curd. This change is seen among the younger women.

Thus, breastfeeding practice has the effect of prolonging the postpartum infecundable period and thus is a fertility inhibiting factor.

To sum up, prolonged postpartum infecundity, adolescent sterility sexual taboos, and food-gathering activity of women are the factors which have inhibiting effect on fertility.
Conception is the second stage in the process of reproduction and is influenced by fecundity and contraception. Age at menarche (mean, 14.7 years), period of adolescent sterility (3.82 years), age at menopause (44.39 years), and pre-menopausal sterility period (9.34 years) all influence the reproductive span. Mean age at first birth is 19.06 years and last birth is 35.05 years. The average reproductive span is 16.53 years and the average active child-bearing period is 16.25 years. The length of reproductive span does not vary significantly compared to a few natural fertility populations, but mean length of birth intervals is greater among the Chenchus.

Long periods of conception-waits may be due to marital instability, delay in effecting pregnancy, infertility of the husband and disease. Pathological reasons originating from some of the practices connected with delivery induce temporary or permanent sterility. Besides, as the women grow old, no motivation exists to have sex with an intention to produce children. Caring for children and maintenance of the household become her primary responsibilities.

The Chenchus have developed certain native mechanisms of contraception which include both magical and mechanical methods. The Chenchus believe that these methods of contraception induce sterility possibly by producing anovulatory cycles or stopping menses. Women use these native contraceptives either after each birth (at the end of postpartum
amenorrhea) or at some advanced age when the couple decides not to have children. Lack of pronatalistic emphasis in social structure, weak organization of *kulam*, nuclear family organization coupled with relative independence and the cultural expectation that every individual should strive to fend for himself, lack of strong family oriented goals such as maintenance of property, lack of son preference, lack of control over labour services of or commodities acquired by the children and active participation of women in economic activities are the determinants of moderate fertility among the Chenchu. In fact a high fertility is rather cumbersome to the women - a fact which the Chenchus recognize.

Utilization of fecundity is far from below compared to such natural fertility populations like the Hutterites. This may be because the entire child-bearing period is not utilized due to adolescent sterility and prolonged period of premeno-pausal sterility and also because many women cease to produce children beyond 35 years.

The Chenchus have developed certain native mechanisms for enhancing fertility and treating sterility. Despite this, the fecundity variables have only low fertility value mainly due to the reasons cited above. The effectiveness of native contraceptives could not be assessed. However, contraceptives are used with an intention to avoid pregnancies either permanently or temporarily indicating a motivation for
curtailing fertility. Thus this variable has a low fertility value.

The last stage in the process of reproduction is the growth and successful parturition of the foetus. Survival of the child is also a very important variable that influences fertility.

The incidence of foetal mortality due to abortion and still-birth is found to be rather low. However, foetal mortality, in effect, induces a loss of reproductive duration and hence has a low fertility value.

The findings of the present study can be used to assess certain theoretical propositions profounded by some scholars.

Carr-Saunders (1922) and Krzwick (1934) have maintained that in primitive societies, the level of fertility is low. This statement appears to be true at least with regard to the older generation of the Chenchus.

Davis and Blake (1956) hold that fertility levels of non-industrial societies are generally affected by factors which are nearest to the actual moment of parturition. The factors which are related to parturition are those related to abortion, miscarriage and still-birth. Among the Chenchu the incidence of foetal mortality is found to be low. Though women have reported induced-abortions, the practice is discouraged because of social stigma and suspicion. Besides,
inducing abortion amounts to disrespecting ancestors responsible for causing pregnancy. Many devices are developed to cope up with the process of parturition. It should be however, mentioned that some such practices lead to sterility thereby affecting fertility. On the other hand, factors associated with conception (reproductive span, contraceptives) and exposure to intercourse within unions (abstinence, prolonged periods of lactation) have greater influence on the reduction of fertility. Low age at marriage and discouragement of celibacy, on the contrary, are the variables which contribute favourably for a high fertility.

Notestein (1945) opines that ideals, customs and behavioural patterns of societies having high mortality rates are generally oriented toward high fertility. In other words, fertility levels of the societies having high mortality rate are usually high. The main difficulty in testing this proposition is to determine what levels constitute a high or low fertility and a high or low mortality. The mortality rate of the Chenchu is on the higher side when compared to the rates found in the present day developed countries, but is low when compared to a few tribal populations in India. Besides, the view that in pre-modern societies, mortality amounting to a loss before the age of reproduction (around age 15 years) of as much as 50 per cent of all individuals born, as held by some demographers does not hold good with the Chenchus. On
the other hand, fertility inhibiting mechanisms exist among the Chenchu. The kinship system also does not emphasize pronatalistic attitude among the kinsmen in order to develop a strong unilineal corporate body. There is a practical necessity to maintain large interbirth intervals especially to carry out food gathering activity and ensuring the survival of the child. Consequently, the fertility levels are not very high among the Chenchu. It is also difficult to agree with Notestein's generalization that pre-modern societies have an exceptionally high mortality. Among the Chenchus, about 30 per cent of all individuals ever-born die (as against 50 per cent) before they attain age 15 years.

Ford (1945, 1952) formulated that the desire to bear children is not an 'innate component of human nature' but an acquired motive which is constantly reinforced by social rewards and punishments'. Reproductive decisions are influenced by the rewards which the woman receives and the stress and strain associated with gestation, parturition and child-rearing. A delicate balance exists between the pressures towards bearing children and tendencies to avoid birth. The present study lends some support to these generalizations. Among the Chenchu, a highly fecund woman does not enjoy any special status nor a man with large number of children receive any special status or political power. Though strong cultural expectations exist for procreation of children, they do not
support a high fertility. On the contrary, long durations of interbirth intervals are maintained, sexual taboos observed, contraceptives used and producing children at age beyond 35 years is drastically reduced. Excepting contraceptives, others are involuntary checks. Nevertheless, the Chenchu explicitly recognise the negative economic implications of having children in quick succession. By avoiding a pregnancy a woman also avoids the pain and suffering in childbirth. Women, thus after giving birth to 4 or 5 children, develop strong disinclination to produce more.

Lorimer (1958) puts forth several hypotheses relating to socio-cultural factors and the desire to beget children in non-industrial societies. One important hypothesis relevant for the present study is that 'social and cultural adjustments to actual conditions of living tend to induce widespread restriction of fertility when such restriction is recognized, or assumed, to be favourable to the achievement of accepted goals'. Despite the presence of fertility-inhibiting proximate determinants like postpartum infecund period, waiting time to conception, intrauterine mortality and incidence of sterility (Heny, 1953, 1957), the Chenchus also recognize the selective disadvantages in overproduction of children. The strongest motive for limiting fertility lies in the need to space births in order to permit the women to perform food-gathering activities. Even the social structure and cultural
values do not encourage a high fertility mainly due to the recognition of the fact that overproduction of children is disadvantageous to lead a hunting-gathering way of life.

The above discussion reveals that favourable cultural conditions exist for formation of marital unions but reproduction within these unions is influenced by several factors which reduce the fertility level of the Chenchu. However, the changing conditions such as practice of new occupations, availability of supplemental diet, sedentarization, the gradual necessity of having helping hands in cultivation etc., may influence fertility decisions of the Chenchus in future.

Already, the indications of fertility change and emergence of pro-natalistic tendencies are noticeable. The traditional cultural values may become obsolete in the event of growing pressure on the forest in the form of various Forest Policies and due to afforestation and deforestation activities and expanding peasant populations who are gradually encroaching into the forest lands. Especially the occupation of food-gathering and hunting is under serious threat. Not only the resource depletion and the preventive and prohibitory rules of the Forest Department, but also low social value for the occupation of food-gathering and hunting as ascribed by the caste populations of the neighbouring areas and the organized discouragement of the occupation by the Tribal Welfare Department and the Forest Department, are coming in the
way of the Chenchus from leading a traditional life. Adoption of new occupations especially wage-labour and cultivation would remove much of the constraints involved in child-rearing in hunting and gathering way of life which hitherto demanded long gaps between successive births. Movement is drastically reduced and availability of supplemental diet to the children relieve mothers from prolonged intensive suckling which in turn reduces the period of postpartum amenorrhea. Such an eventuality itself may not lead to population growth. However, changes would also occur in other aspects especially in the kinship system. Practice of cultivation demands not only consolidation of labour power but also effective control of resources like land. Consequently a strong extended family organization or lineage may develop.

Pressure on land (created due to the restrictions imposed by the Forest Department) may also lead to competition which would further strengthen the unilineal principle. Male domination and authority would replace equality between sexes and the woman's reproductive powers would be controlled under a strong patriarchal system. Consequently pronatalistic tendencies might generate and high fertility would be encouraged. A slight growth in population may speed up economic development which in turn may permit further growth in population.
The above expectations and guesses about the future demographic situation are supported by some evidence especially among the younger generation of individuals. However, they exhibit a high fertility as well as a high mortality. Even under these conditions, the population may grow at a slightly faster rate compared to the past growth rates. The growth rate may increase in the immediate further to around 2 per cent per annum (based on current fertility and mortality rates). If the government is successful enough to cater medical aid to the people along with the provision of better employment opportunities, the population would experience less mortality but fertility in all probabilities would grow slightly higher from the present level which would in turn lead to faster growth of population.

Given the changes in the social system and economic organization and considering the poor medical aid, a high fertility and mortality levels can be expected. However, a lot depends upon the political decisions. Political decisions may influence the demographic situation among the Chenchus radically. Because, after the new Forest Policy of 1986 and protection of environment and wildlife, large stretches of forest areas in the Nallamalai are declared prohibited areas and plans are underway to evacuate the Chenchus from their natural habitat. Even before that happens, the food-gathering and hunting activities will be strictly
curtailed (It is learnt that many of the traditional implements were seized and destroyed and the Chenchus were fined simply because they were found roaming in the forest by the Forest Department). Such programmes of the government may produce unpredictable changes in the demographic structure.