

2. SAMPLING PROCEDURE AND SAMPLE SIZE

The National Survey was planned in such a manner that it was possible to make valid estimates of ARTI at least at the zonal level. For the purpose of this survey, the country was divided into four zones of approximately same population. The zones comprised of geographically contiguous states. Each zone has been further divided into two strata, viz. rural and urban based on the ratio of respective population in the entire zone.

A two-stage sampling procedure was adopted for selection of clusters within each strata. At the first stage, a sample of six districts was selected in each of the zones (except in east zone where eight districts were drawn into the sample) by systematic sampling, after arranging the districts in the ascending order of population and selecting the first district at random. In east zone, eight districts were selected due to higher number of states and to give larger representation to northeastern states. The location of selected districts, zone wise, is shown in Map 2. The numbers of clusters in each stratum (i.e. rural and urban) were distributed among the sample districts, in proportion to the stratum population in the districts. The samples of clusters within each district were selected by PPS (population proportional to size) method.

For the purpose of estimating sample size, the minimum expected prevalence of infection was assumed as 8%. This was based on the results of surveys, conducted earlier in different parts of the country. The sample size was so calculated that it enabled estimation of the prevalence of infection within 10% of the true value at 5% level of significance. The design effect was calculated based on the experience gained during earlier tuberculin surveys conducted at NTI. The various parameters considered for estimating sample size are tabulated below :

Expected prevalence of infection	8%
Relative precision	10%
Level of significance	5%
Cluster size (No. of children without BCG scar to be test read in each cluster)	20
Rate of homogeneity	0.07
Design effect	2.33 (~2.5)
Sample size	11,045

The estimated sample size was rounded off to 12,000 children without BCG scar to be test read in 600 clusters in each zone.

The identification of rural and urban clusters was based on 1991 census data. A village was considered as a rural cluster and an urban census enumeration block as the urban cluster. Within each cluster, 85 children irrespective of BCG scar were to be registered. This number was fixed in order to ensure a minimum of 20 test-read children without BCG scar, assuming a maximum drop out of 20% from the stage of registration to reading of tuberculin reactions and approximately 70% of the children to be with BCG scar.



Planning under progress in a rural cluster