Step 5

Determine Subscriber Demand

The next step in the needs analysis is to assess subscriber demand in the areas selected for service. In this section, the impact of investment on demand, growth rates, and accuracy are discussed.

5.1 Demand and Investment

When sufficient investment is available, market forces govern the number of subscribers served, and the cost of service compared to the disposable income of potential subscribers is the primary demand determinant.

In the rural sector, however, the scarcity of investment usually limits the amount of subscriber demand that can be satisfied. In this case, the amount of investment and project objectives determine the number of subscribers served.

The number of subscribers should be tabulated by location (see Figure 5.1 for a sample worksheet) and shown on a map. When preparing a table for this data, it may be convenient to extract relevant portions of the worksheet developed in the previous section (Step 4, Figure 4.2).

5.2 Growth Forecasts

As with initial subscriber demand, growth rates in the rural sector often depend on the availability of investment.

When investment is sufficient to satisfy demand, growth rates should be estimated from such considerations as the historical telephone growth rate, trends and forecasts for economic growth, population growth, and population shifts due, for example, to urbanization or decentralization. The CCITT handbook *General Network Planning* (Geneva 1983) provides detailed guidance in forecasting this type of growth.

However, growth in the rural network, particularly in its early stages of development, is often limited by the amount of investment available. In this case, growth estimates should be based on investment policies and forecasts.

Growth should be forecast over a sufficiently long period so that network decisions can be based on a valid economic study period. (This aspect is discussed again in a later step in this guide.) Typically, forecasts will cover some 15 to 25 years. Figure 5.2 shows possible growth curves and Figure 5.3 is an example of a table of annual growth rates.

Typical annual growth rates could lie between 2 and 25 per cent, depending on specific conditions. The lowest growth rates generally reflect situations where investment is limited. Or, in a well developed network, low growth rates may indicate market saturation. The highest growth rates generally reflect situations where sufficient investment has become available and suppressed demand is being met.

The growth forecasts should be applied to the initial figures for subscriber demand. Figure 5.4 shows these data added as new columns to the previous worksheet.

5.3 Accuracy

Provisioning decisions are based on the estimates of subscriber demand, traffic, and growth. Since these decisions ultimately affect customer satisfaction, accuracy is important.

Checking estimates against other forecasts, and rationalizing any differences, can improve accuracy and confidence levels.

One common consistency check involves comparing the forecast trends at the local level to overall national trends or objectives. That could, for example, mean a comparison of
■ expected local telephone service penetration levels (say, the number of lines per 100 persons) relative to national trends or objectives for the rural sector;