Chapter II

BACKGROUND INFORMATION REQUIRED

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Purpose of this Chapter

It is obvious that comprehensive background information is essential for any planning activity. In the case of the type of telecommunication planning considered in these guidelines, the background information is required to serve two important purposes:

- that required by financial institutions and possible investors to enable them to assess the viability of any loan or grant requested;
- that which is essential to enable the future planning activities, technical, commercial and financial, to be efficiently carried out.

This chapter gives a resumé of the information which is essential to have available at all times, in suitably up-dated versions. At the same time this information forms a valuable management tool. Ideally, it should be possible to extract it when required from a management information system.

Outputs to be obtained

- Objective analysis of the entire telecommunication sector, including technical, commercial, financial and political aspects;
- Up-dated inventory, including descriptions and configurations, of all equipment and systems in service;
- Historical, current and forecast subscriber and traffic figures.

Inputs required

- Information from management;
- Planning data;
- Financial analyses;
- Collaboration with governmental bodies on demographic and planning aspects.

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2.1 General

Comprehensive background information is essential before any telecommunication planning can be efficiently carried out.

This information is required not only for the planning activities themselves but also, and in particular in the case of developing countries, to provide the background against which the possible risks which could be faced by investors and financing institutions can be assessed. Thus the information has to include a realistic objective analysis of the entire telecommunication sector, reflecting the actual situation and not attempting to disguise deficiencies in resources, administration and general performance.

In addition to its usefulness to financing institutions etc. the background information provided by Administrations is obviously of crucial importance for any technical assistance agency or consultants called upon to assist in the planning work. Valuable time is often wasted by external assistance staff having to collect information which should be readily available before their arrival.

It is convenient to divide the background information required into two categories:

- that which is essential for financing institutions and possible investors;
- that which is essential to enable the future planning to be efficiently carried out, and which is also essential for external assistance personnel.

These are considered in the following sections.

2.2 Background for financing institutions

Telecommunication development and expansion are often financed by loans or grants from international or national banks or other institutions. This applies in particular to developing nations, the Administrations of which, for obvious reasons, have no other source of finance.

Before even considering a loan or grant, these institutions invariably require information on which to base their own viability studies. Unless a project is considered to be technically and financially viable, the financing institution will not provide the loan or grant.

The information requested is quite comprehensive and it is clearly advisable for Administrations always to have this type of information well documented and available at short notice. Briefly, it consists of a complete review of the telecommunication sector of the country in question and includes:

- a country description giving the essential statistics of its socio-economic development over, for example, the last 10 years, together with its projected future development;
- the role of the telecommunication sector in this development, including its share of the GNP, of the national budget etc., and details of any subsidies;
- availability of foreign exchange, access to financial markets, status of any long-term loans negotiated;
- description of the regulatory and institutional environment in which the Administration is required to operate;

- a description of the operating entity in terms of Organisation, key personnel, manpower productivity, overall efficiency, financial position etc.;
- full description of the existing network, in terms of its structure, technology used, availability and general performance (including fault rates of the various components);
- an objective review of the current strategic and development plans and investment programmes, giving expected and actual results for example;
- analysis of deficiencies and constraints encountered;
- details of all other telecommunication operators and service provided in the country giving the services and facilities offered;
- an estimate of the degree of competition,, both currently and in the future, in terms of possible reduction of revenues;
- in the case of multiple operators, full information on the methods and procedures used (or to be used) for regulating tariffs and sharing revenues;
- full details of the means used, or to be used, for the interconnection of the technical facilities of multiple operators.

As already mentioned, the analyses should be realistic and no attempt should be made to disguise obvious deficiencies. The financing institution will analyse the requested information and will, if necessary, make recommendations for any deficiencies to be rectified as a condition for granting the loan or other assistance.

(In addition to the above, any loan request should of course include a full project description giving details of the expected benefits.)

2.3 Background required for planning activities

All planning activities have to have a starting, or reference, point - which is provided by the background information collected, and documented, by the Administration before the planning work is started.

2.3.1 Information on existing network

As the rate of development is often limited to a greater or less extent by the availability of financial resources, it is essential to assemble a detailed inventory of all existing facilities, equipment and systems so that decisions can be made for their retention in service, their possible re-deployment or their disposal.

The inventory should list the essential features of all the equipment and systems in service and should include:

- equipment type and manufacturer;
- location, including, for transmission routes, their composition and length;
- function of equipment or system;
- date of first commissioning;
- date of last extension;
- final capacity;
- circuits or lines equipped;
- signalling and interworking facilities used.

In the case of local networks and rural system, a description of each network with details of capacities, type of equipment, system utilisation etc. should be available.

All inventories and descriptions should be supported by maps and network diagrams which include the current exchange area boundaries and the routing principles used.

The performance of the existing networks should be stated, in terms of quality of service (QOS) parameters such as:

- call completion rate (CCR) for the various connections possible on the network;
- dial tone delay;
- operational availability;
- reported fault rates for the various network components.

2.3.2 Subscriber information

All subscriber demand forecasts depend on an accurate estimation of the current demand, which has to be assessed in terms of subscriber category (residential, business, official, etc.) and the geographical distribution of these categories.

The demand itself is defined as the sum of the satisfied and unsatisfied demands, the satisfied demand being the actual number of subscriber connections and the unsatisfied demand including the unexpressed demand as well as the expressed demand recorded on the waiting lists. The unexpressed demand consists of potential subscribers who, for various reasons, have not registered on the waiting list, the reasons including high access charges and a knowledge that the waiting list is so long that there is little prospect of a line becoming available in a reasonable time. This type of potential demand is difficult to quantify but, if long waiting lists exist, it has to be taken into account by realistic estimates.

It is important to distinguish residential from non-residential demand as the two categories have radically different growth characteristics. For the purpose of the current demand estimate, these categories have to be identified in terms of their location in the local exchange and basic service areas, as indicated by the exchange records (connections, waiting lists, etc.) and estimated by surveys. For practical reasons, the forecasts have to be based on the national administrative areas - which rarely coincide with telecommunication areas but which have the advantage of remaining fixed.

It is obvious that a considerable amount of demographic and socio-economic information will have to be collected, analysed and documented before any forecasts can be made. This information has to be made available by the national census or statistical records office and includes:

- population data, including estimates of probable growth, for areas more or less corresponding to the telecommunication service areas if possible;
- if not, this information should be available for administrative areas of all sizes;
- household data (number of households, number of persons per household and future trend) for similar areas;
- division of population into urban and rural categories;
- estimates of migration of rural population;
- number of business enterprises and employees in each sub-area, classified according to type of activity;
- economic growth data;
- policy changes expected.

This large volume of information requires a computerised system for its manipulation and the data listed in this paragraph are normally entered into a data base for this purpose, as explained in the chapter on forecasting. It is of course essential to up-date continually this data base as the information becomes more reliable.

2.4 Traffic information required

Subscriber demand forecasts constitute one of the inputs to the traffic forecasts which are required for most of the network optimisation and design calculations. The major part of the preparatory work consists of the analysis of the traffic at existing exchanges, in terms of subscriber category and destination, and the preparation of initial traffic matrices for the multi-exchange networks in urban areas and the national trunk network.

The composition of the traffic at each exchange is derived from the total mean traffic per subscriber and the number of subscribers in each category examined. The total mean traffic per subscriber should be expressed in terms of:

- originating traffic;
- terminating traffic;
- outgoing traffic;
- incoming traffic;
- transit traffic;
- internal (own exchange) traffic.

The incoming and outgoing traffic categories can then be divided into further sub-categories, the number of which depends on the precision required for the traffic study (local, regional, national, etc.).

This subject is treated in more detail in Chapter 6 which also considers the construction of traffic matrices.

2.5 Financial information

All the balance sheets and income/expenditure statements covering the last 10 years should be available, together with a summary of the current financial position of the Administration, to enable a complete financial analysis of the proposed development plans to be made. The history of the tariff structure should also be included in this information, together with any current proposals for its modification.

Details of all outstanding loans should be included, as well as details of any current requests for loans, as emphasised in § 2.2.