



Local Government & Spatial Development Department

GUIDELINES & TRAINING MANUAL FOR THE PREPARATION AND UPDATING OF **MASTER PLANS** FOR LOCAL AREAS IN TMAs IN **SINDH**

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May 2006

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1 INTRODUCTION

1.1 The Guidelines and training manual for the Preparation and Updating of Master Plans (Spatial Plans) for Talukas (Local areas and areas within local areas) in Sindh.

The present guidelines and training manual for the preparation and updating of Master Plans (Spatial Plans) for Talukas (Local areas and areas within local areas) in Sindh is part of a series of documents for the Technical Assistance of TMAs in Sindh regarding enhancing their capacity in the preparation and updating of Master Plan (Spatial Plan) of Talukas in Sindh and to develop a more equitable distribution of economic development throughout the Talukas in province of Sindh. The assignment has been undertaken by the Director, Town Planning Department, Government of Sindh, on the directive of Local Government, Katchi Abadies & Spatial Development Department.

1.2 Master Plan reports and guideline manuals

The output of this exercise consists of two series of “products”. These are: (a) the Master Plan (Spatial Plan) reports for the Talukas in Sindh (b) training and plan implementation / up-dating manuals.

Dissemination of the guidelines and training manual is made possible through a variety of means such as meetings, training courses and presentations.

Master Planning reports contain most of the output and have a wide circulation. These are finalized in three stages: preliminary, draft final, and final planning reports.

- Preliminary reports basically contain the basic ideas and suggestions, while draft final and final reports are the products of discussions between the TMAs and the Town Planning Department Government of Sindh who will provide Technical Assistance to all TMAs in Sindh for preparation and updating of Master Plan for Talukas in Sindh.
- Preliminary reports contain the proposals for the respective Master Plans (Spatial Plans), including an assessment of the capability of the TMA & Local areas to finance urban development and a preliminary list of projects on the basis of development priorities defined by the Master Plan.
- Draft final and final Master Plan reports for the Talukas come into two groups. The first group is confined to the refining of the Master Plans of the Taluka on the basis of discussions held and comments received among TMAs District Governments & Town Planning Department Government of Sindh. The Master Plans contain generalized proposals and recommendations, which try to:
 - guide urban development in the Taluka in Sindh in a way that will improve the quality of life of the population;
 - increase the efficiency of the TMA and
 - achieve these objectives by just and equitable means.

The second group deals Taluka wise with the lists of projects and translates these lists into specific “fundable packages” with the help of a detailed multi-dimensional evaluation. Based on this evaluation and with the financial concurrence of fund-giving organizations and bodies, further engineering and implementation studies (PC-I, Detail Design Engineering Estimates, BOQ, Tender Documents etc) of selected projects can take place by the respective TMAs.

In parallel with the Master Plan (Spatial Plan) reports for the Talukas in Sindh, training and plan implementation / updating manuals one of which is the present document, deal with training and management issues, vital for both plan implementation and the continuation of the planning efforts in the TMAs in Sindh.

1.3 Purpose of These Guidelines and Training Manual.

Within the context of this exercise, training is a continuous process accomplished through the day-to-day operations for TMAs by Town Planning Department Government of Sindh. The aim is to consolidate the Master planning and investment evaluation methods among the TMAs in Sindh. In addition, formal training courses will be held wherever necessary.

The “Guidelines and Training Manual” at hand has been prepared by the Director, Town Planning Department, Government of Sindh @ Hyderabad to serve as the working handbook for the Master Plan preparation and updating process. In essence it is a step-by-step illustration of the ways and methods used by the Town Planning Department, Government of Sindh in order to prepare the Master Plan (Spatial Plan) for Talukas in Sindh. Now, it aims to serve as a tutorial for the TMAs who will be assigned the task of updating the process involved in the preparation of Master Plans for Talukas in Sindh.

The Guideline and Training Manual follows closely the outline set forth in the Master Plan series of reports for the Talukas in Sindh. Chapter 2 deals with the basic information required to define the locational and geographical characteristics of the Talukas, as well as its role in the wider region. The method to determine and report on the regional linkages and flows of goods relevant to the Taluka is also presented and explained.

Chapter 3 refers to the techniques employed for the assessment of the existing conditions and the projection of development trends. Particular emphasis is given on the methods used for the population projections.

Chapter 4 illustrates the method for the analysis of the financial situation of the TMAs in Sindh. It also presents the underlying assumptions and the methods used for the estimation of obtainable funds directed for development works.

The above chapters are each divided into four sections. The first section illustrates and defines the tasks to be accomplished titled as “Objectives”. Section two titled “Data Requirements and Sources” presents the necessary data information and sources. Section three “Methodology”, describes and analyses the ways to manipulate the above data. The fourth section lists the “output derived”.

Finally, Chapter 5 deals with the actual Master Plan (Spatial Plan) preparation. The basic definitions and the underlining assumptions, the aims and the scope as well as the ways to implement such plans are presented and analysed.

2. GENERAL INFORMATION AND TALUKA'S REGIONAL CONTEXT

2.1 Objective

The objectives of this section is to provide information related to the location, morphology and climate of the Taluka concerned. Also to provide information regarding its role in the wider regional context it belongs to and examine the regional linkages and activity patterns.

2.2 Data Requirements and Sources

The exact Taluka coordinates are defined by its latitude, longitude and its bordering areas. Also the geological and climatological conditions on the area specify the morphological and climatic conditions prevailing on the local area. This information is available in respective District Census Report.

To identify the Taluka's activity patterns requires information on production data for each sector of economic activity, both for the Taluka and the region that it belongs. Such data are available from the TMA records.

2.3 Methodology

The methodology used to determine the regional linkages and activity patterns relies on modern regional development theories, which claim that the leading role in the development of a region is played by its export oriented activities. These in the economic parlance are called 'basic activities', and refer to the part of the production output of a region that is directed for consumption outside from its boundaries.

Export oriented activities are identified through the construction of an 'export-base' (EBI). This index represents the ratio of local production to provincial production for each sector of economic activity. Higher than unity EBI denotes exports, and the activities of the respective sector are labelled as 'basic activities'. This implies that the region possesses a comparative advantage over other competing regions in the specific sector production output.

2.4 Output

The information described above is used to define the exact geographical location of the Taluka, the morphology of its soils, and its climate, the depiction of the Taluka on map is also advised, purely for illustrative purpose.

Further, in order to appraise the importance of the local area against the greater area, the total catchment population using the facilities (administrative, social commercial, infrastructure) provided by the Taluka is estimated. For illustrative purposes, the findings may be presented in a tabular form.

Finally, the application of the Export Base Index technique defines the economic sectors where the Taluka enjoys production comparative advantages. For illustrative purposes, the findings may be presented in a tabular form.

3 EXISTING CONDITIONS AND DEVELOPMENT TRENDS

3.1 Objective

The objectives of this section is to provide guidance for the assessment of the existing conditions and the forecasting of development trends of the Taluka, in terms of its.

- Human Resources
- Economy
- Social Development
- Housing
- Spatial Development
- Traffic and Transportation
- Utility Services

3.2 Data Requirements and Sources

Table 3.1 over leaf illustrates the data required and their possible sources, in order to define the present situation and forecast the development trends for each one of the above components.

To assess the human resources relevant to the Taluka requires data on population characteristics (i.e. population figures, age and sex composition of the population etc) as well as household characteristics (i.e. average household size). This data are readily available in the District Population Censuses, Bureau of Statistics, GOS, Other possible sources may be special sample surveys on Talukas conducted as appropriate.

Table 3.1
DATA REQUIREMENTS AND SOURCES FOR THE EVALUATION OF EXISTING
CONDITIONS AND THE ASSESSMENT OF DEVELOPMENT TRENDS IN RESPECT
OF PREPARATION OF MASTER PLAN

I/N	DATA	SOURCE
DEMOGRAPHIC		
DE1	Population figures	Censuses at various years, survey of human settlements / Bureau of Statistics, GOS
DE2	Age and sex composition of the population	Census figures, special sample surveys
DE3	Fertility rates, life expectancy indices and net migration numbers	Censuses, sample surveys,
DE4	Average household size	Special sample surveys, survey of Taluka / Bureau of Statistics, GOS
ECONOMIC		
EC1	Labour force participation rate and total employment figures	Sample surveys
EC2	Distribution of employment by sector and branch of economic activity	Census figures, sample surveys
EC3	Household income distribution (by income brackets)	Special sample surveys

EC4	Average monthly household income, expenditure and savings by income brackets	Special sample surveys
EC5	Average monthly household expenditure on selected items.	Survey of Taluka / Bureau of Statistics GOS
SOCIAL DEVELOPMENT ALTHOUGH SOCIAL DEVELOPMENT (HEALTH & EDUCATIONAL SERVICES) ARE NOT IN THE PURVIEW OF TMAS, HOWEVER THESE NEED TO BE SURVEYED, STUDIED & PLANNED BY TOWN PLANNING DEPARTMENT, GOVERNMENT OF SINDH ETC AS ESSENTIAL PART OF A MASTER PLAN		
SOD1	Number of health units, beds, and medical staff employed	District health department, municipal records survey.
SOD2	Literacy ratios by sex	District educational department, sample surveys
SOD3	Educational enrolment by sex and educational level	District educational department, sample surveys
SOD4	Number of educational units and staff employed	District educational department, sample surveys
HOUSING		
HO1	Existing number of dwellings, number of developed plots, and average plot size	TMA's records, special sample surveys
HO2	Gross residential area and percentage of common use facilities of it	Updated land use maps available at TMA's offices
HO3	Distribution of plots by plot size and household income	Special sample surveys, TMA's records
SPATIAL DEVELOPMENT		
SPD1	Distribution of land use by type of activity	Land use surveys, TMA's records
SPD2	Urban land use by type of usage	Land use surveys, TMA records
SPD3	Number of commercial establishments and persons employed in them	Appropriate TMA department, special sample surveys
SPD4	Average size of commercial establishment and sales floor area that occupy	Appropriate TMA department, special sample surveys
SPD5	Number of industrial establishments and employees in them	Appropriate municipal department, special sample surveys
SPD6	Distribution of employment by land use	Land use surveys, special sample surveys
TRAFFIC AND TRANSPORTATION		
TR1	Modes of transport	TMA records
TR2	Number of public buses, private owned vehicles and trucks	TMA records, special sample surveys
TR3	Number of persons using the public transport system	TMA records, special sample surveys

TR4	Number of bus and truck terminals	TMA records
UTILITY SERVICES		
US1	Total daily quantity of water supplied from various sources	Public Health and Engineering Department (PHED), TMA records
US2	Water stored and treatment capacity	- do -
US3	Average per capita water consumption	TMA records
US4	Percentage of dwellings connected with the water distribution network	TMA records
US5	Losses from the water network	TMA records
US6	Water connection charges to domestic and commercial consumers	Appropriate TMA department
US7	Percentage of dwellings connected with sewerage system	TMA records
US8	Charges of sewerage facilities for domestic and commercial connections	Appropriate TMA department
US9	Daily effluent production	TMA records
US10	Existence of duping sites and means of refuse collection	TMA records
US11	Charges for refuse collection	Appropriate TMA department

The evaluation of the prevailing economic situation demands data on labour force and employment (i.e. labour force participation rate, distribution of employment by sector and branch of economic activity, etc) household income and expenditure (i.e. Household income distribution average monthly household income expenditure and savings etc) and urban poverty (i.e. number of people who lie below a certain subsistence level). This data are collected from the District Population censuses and special socio-economic survey.

Data on social development includes various health, educational and housing indicators (i.e. number of hospital units, beds and medical staff employed, literacy ratios, educational enrolment, existing number of dwellings, distribution of plots by plot size and income, etc). The necessary data are collected from the District government appropriate departments (Health, Education, Road and Transportation), the TMA and special socio-economic surveys.

Necessary data to assess the spatial development of the local area define the urban structure (i.e. urban land use by type of activity). The residential areas (i.e. total gross residential area and percentage share of common use facilities in it), and the employment zones (i.e. distribution of employment by land use). Future demand for land can then be forecasted, Data sources are special land use surveys, updated land maps and TMA records.

Data necessary to report on existing conditions and forecast future trends for the traffic and transportation sector are modes of transport, traffic conditions and road capacity (i.e. number of public buses, trucks and privately owned vehicles, persons using the public transport system, etc). Such data are available in the District Government Transport department, the TMA and from specially conducted surveys.

Finally, the evaluation of the present conditions and the forecasting of development trends for the utility services requires data on:

- the water supply system, (the total quantity of water supplied from various sources, existing storage and treatment capacity, average per capita consumption, etc)
- the sewerage system (the total number of dwellings connected with the sewerage network, the daily effluent production, etc) and
- the refuse collection and disposal system (the existence of dumping sites, the means of collection and the effective charges).

The above mentioned data are available from the PHED (Public Health and Engineering Department) the TMA records and special surveys.

3.3 Methodology

The method used to project the population development trends requires to calculate the impact of the three major factors influencing population change (i.e. births, deaths and migration). It is sufficient to calculate the impact of each of these three factors at five year time intervals. The base year is usually the date of the latest census available.

The method uses the base year population data separated into each sex and age groups, and applies specific fertility and mortality rates to each age group. This is because the fertility and life expectancy of people, varies according to their age and sex.

This means that for each five year age sex group we apply a special factor to calculate the number of births that are likely to occur (to women aged 25-49 years) in that age group, and apply a survivorship factor for the number of males and females in each age group that are likely to survive into the next five year of the projection.

A new set of age specific fertility and survivorship factors is applied to the same five year age group as they age with each additional five years (e.g. the fertility of a woman aged 35 is higher than when she is aged 40, and similarly, the likelihood of surviving to age 65 is higher than that of surviving until age 70 and so on).

The result of these calculations is that the total births, which are calculated to occur per five year period, are added into the 0-4 age group and the number of survivors grows smaller as people get older.

The third major factor (i.e. migration), which is measured in terms of net-migration (i.e. total in-migrants less total out-migrants), is added into the base population every year. It should be noted that migration does not include people who commute in or out to work, but only these who move permanently to or from a TMA. In the case of net out migration, no further action is required. For in-migrants, however, the number of births to migrant women is calculated, and the survivors of these births, together with the migrant population (per time interval) are added to the base population. This total population (i.e. base population + migrants + births) forms the base population for the next five year period of the projection and so on.

The preparation of the above statistics (i.e. demographic indicators), must be in two stages:

- (1) Estimation for the present or base year of fertility rates, life expectancy (LE) and net-migration.
- (2) Forecasting future change in these statistical indicators.

In the case of this Master Plan series of reports, general as well as age specific fertility rates for the women of child bearing age (i.e. 15-49 years) are drawn from the report "Pakistan Economic Development and Population Growth. The implicit assumption made here is that the Taluka rates are similar with the national. A partial justification of the above assumption is the observed trends showing that the fertility rates in Sindh province, tend to approach the national average.

Forecasted future fertility rates are taken to decline in respect to those applied in the base year. The assumption is that in general as the economy of a nation develops, fertility rates tend to decline. This is an observed fact in many countries and it is justified, since economic certainty seems to offset social prejudices.

The same method described shows for the estimation of fertility rates is also used for the estimation of life expectancy indicators. Again the Taluka indicators are assumed to be similar to the national. Also, life expectancies are assumed to increase through time. The rationale behind the last assumption is that as economic conditions are expected to improve, have positive repercussions on medical care, diet patterns, etc. that obviously push upward the life expectancy indicators.

In the case of inadequate data the following technique may grossly approximate the Taluka migration trends. This is simply the difference between the estimated existing population and the estimated population through the application of the Natural Increase rate. This is expressed as:

$$GR = NI + \text{Net Migr.}, \text{ or its equivalent } \text{Net Migr.} = GR - NI$$

Where: GR: The growth rate of the population of a Taluka, for a period of a 5-10 years preceding the base year. And,
NI: the natural increase (i.e. the total births minus deaths) of the base population.

The natural increase of the base population, for each five year projection interval, can be calculated on the computer using the data on fertility and life expectancy.

In the case of the present exercise and for the calculation of the growth rate of the population, past censuses data are used. Also, in order to be able to estimate the future level of migration, two methods of forecasts are used in each case:

a) Extrapolation: We assumed that the rate of change in the conditions causing the migration rate will remain the same. So we calculate its growth using the average annual growth rate and continued the observed trend.

b) Constant number of migrants: The assumption made here is that the number of migrants remains the same, as it was in the preceding period. In real terms, this means that the rate of migration declines slowly, because the number of migrants as a percentage of the total population will decrease (because the population is growing by natural increase). Thus, for each year of the projection period we add in the same number of migrants, divided into age and sex.

The analysis of the produced results follows a specific rational. If they don't exhibit big differences we take as a migration rate the average between the two. If the rate is negative, then net out-migration has occurred, If it is positive, then net in-migration is the case.

Once the calculation of the number of net migrants entering or leaving a Taluka has been made, we need to divide them up into age and sex, so that they can be added to the appropriate age / sex age groups in the projected natural increase population.

The age structure of migrants can be taken from census data on migration. Due to the lack of this data. We made the assumption that the migrants exhibit the same pattern as the one prevailing for the population, this is not a very sound assumption, since the majority of migrants who move in search of work and better economic conditions are predominantly male, belonging to the economically active age groups. It is though, the best estimate we can make about their age structure.

Household size is expected to decrease with the improvement of the economic conditions. The workable assumption that is made refers to a flat rate of household size applied for all income groups, which is equal to the average household size. Although this is contrary to the evidence observed in other countries, it is believed that the prevailing social and cultural attitudes in Pakistan, won't permit significant deviations of household size between the low, middle and high income groups.

Regarding the methodology for the forecasted sectoral distribution of employment, we apply to each sector its average annual rate of growth estimated in the report 'Pakistan: Economic Development and Population Growth', adjusted, whenever possible, to the peculiarities of each particular Taluka.

Subsequently, the labour force participation ratio (expressed as a percentage of labour force to economically active population) is increased, tending to approach the average of the urban sector of the country at the end of the forecasted period.

Annual per capita incomes, which for the Taluka covered in our series of reports will be found to be substantially lower from national per capita averages, will be forecasted in relation to these averages.

The average per capita income growth rates are calculated based on the National Perspective Plan estimates. Taking into consideration the aim of the national policy to smooth regional discrepancies and the overall average rate of growth applied to the Talukas for the entire project period, the Taluka per capita incomes are assumed to be higher than the respective national.

The Taluka average annual per capita income is then transformed into average monthly household income through multiplication to the average household size figure.

Based on these monthly household income figures, the household income distribution by groups is projected. The observed shift towards higher income brackets, is a consequence of the anticipated growth on average household income.

Average household savings are estimated as a percentage on household income. It is assumed that the average savings rate will gradually increase, approaching the expected average national rate at the end of the plan period.

The average household expenditure projections are based on prevailing expenditure patterns in urban centres also considering the corresponding sizes of population and income level.

To estimate the future educational facilities needs, it is necessary to forecast the trends on enrolments of the school going population. Such forecasts are based on the expected changes in the present enrolment ratios, due to the adoption of 'aggressive' educational policies.

On the basis of the following standards conforming with the national standards for the year 2000, the future needs in educational facilities have been forecasted:

- For primary education: 12 sq.m. per pupil for plot area and 1.8 sq.m. per pupil for gross floor area, and
- For middle and high education: 12 sq.m per student and 2 sq.m per student for plot area and gross floor area respectively.

To access present housing demand and to forecast its future size, the assumption made is that as the economy grows, in the long run improvement of the observed overcrowding conditions are expected. Thus, the dwelling occupancy ratio that denotes households per dwelling, will tend to approach unity (i.e. one household per dwelling). Total housing demand are then derived from the division of the number of households by the dwelling occupancy ratio.

It is further assumed that there is no outstanding demand for houses at the beginning of the forecasted period (i.e. the housing market is at an equilibrium). For the subsequent years a certain percentage of the available houses will be still in a resizable position, while the rest will need replacement due to the deterioration of their conditions. Both, will constitute the total housing stock.

New plot demand for the construction of new houses will be the difference of the total housing demand, minus the existing available housing stock.

The average lot size of the new constructed houses is assumed to increase, being positively influenced from the expected improvement in the economic conditions. Needs in new residential land can then be estimated through the multiplication of the number of new plots by the average plot size. It is further assumed that the plot area equals 50% of the gross area.

The demand for commercial establishments drives by assuming that:

- Their sales floor area turnover (measured in Rs. Per sq. m) will increase, due to the foreseen significant increase in total household expenditure, which will be effected from the anticipated increase in household income and
- Their average size will also increase. This trend is attributable to the expected structural change in commerce, whereby more capital intensive activities will gradually replace the labour intensive ones.

Sales floor area demand is estimated from the division of household expenditure by sales floor area turnover, while the forecasted demand for shop units is derived from the division of sales floor area by average shop size.

Finally in order to forecast the demand for urban land, total employment is distributed to the activity zones of a Taluka (i.e. residential, CBD, public, institutional, industrial). ‘Density of employment’ indices (i.e. employees per ha.) are then calculated for each area, which subsequently are used to assess land use demand for each of these areas.

For the distribution of commercial related employment between residential areas and CBD, on account of capital wise intensification of commercial activities introduction of bigger shops, reduction of encroachments, etc.. Also in the industrial areas, a s capital intensive activities are expected to reduce labour intensive ones due to technological change and economic growth.

3.4 Output

Data elaboration and the application of the above described methodology, produces the output illustrated on Table 3.2 the output produced through the elaboration of the above data and the use of the prescribed methods must be presented on a formal and clear way. This will greatly assist the decision makers to decide and act in the best interests of the city towards its development.

In the present Master Plan series of reports, such output is presented both under a tabular graphic and a text format. In the tabular form apart from the actual population numbers which are given in specific years, the average annual rate of growth is also calculated, indicating the percentage yearly average change of population.

For comparison purposes the distribution of employment by sector and branch of economic activity is recorded both by Taluka and by the Sindh urban sector.

The information about the number of educational units, students and staff, enable for estimation of the ratios on educational units per student and staff per student. This can be presented on a tabular form.

The table on household profiles contains information about the household size, the number of households (derived from the division of total population by household size) and the distribution of households according to the income group (low, middle, high), which they belong.

SOD2	Medical staff per 1,000 of population	Text form
SOD3	Literacy ratios (expressed as % of active population)	Tabular format
SOD4	Education attainment at each educational level	Tabular format
SOD5	Educational units, students and staff	Tabular format
SOD6	School going population and enrolment	Tabular format
SOD7	Needs in educational facilities	Tabular format
HOUSING		
HO1	Household profiles	Tabular format
HO2	Dwelling units and plots	Tabular format
HO3	Distribution of plots by plot size and household income	Tabular format
HO4	Registered development profiles	Tabular format
HO5	Housing demand by income groups	Tabular and graphical format
HO6	Demand for residential land	Tabular format
SPATIAL DEVELOPMENT		
SPD1	Aggregate land use Characteristics	Tabular format
SPD2	Urban land use characteristics	Tabular and graphical format, as well as depicted on a map
SPD3	Commercial development profile	Tabular format
SPD4	Sales floor area demand	Tabular format
SPD5	Demand for shops	Tabular and graphical format
SPD6	Employment distribution by land use	Tabular format
SPD7	Demand for urban land	Tabular format
TRAFFIC AND TRANSPORTATION		
TR1	Main road arteries and their holding traffic capacity	Text form
TR2	Identification of problems generating traffic congestion	Text form
TR3	Service capacity of main infrastructure facilities (e.g. railroad stations, bus terminals, etc)	Text form
UTILITY SERVICES		
US1	Water demand	Tabular format
US2	Effluent production	Tabular format

(1) Output includes both existing and forecasted data

The table on residential development profile contains information about the distribution of plots to households according to their income, the average plot size (which was assumed to increase with income level), the total plot and residential areas in hectares. The whole residential area is assumed to be twice the size of the total plot area in order to accommodate the common use facilities. Also, the table incorporates information on the total number of residents and the resulted residential density (measured in persons per ha.).

The urban land use characteristics are presented in a tabular and graphical (i.e. 'pie' chart) form, and are also depicted in a generalized land use map as well.

These characteristics demonstrate the use of land by type of usage (i.e. Gross residential area, central, public, institutional, recreational, industrial, etc.) in hectares, as well as the percentage distribution of the various uses.

The commercial development profile presented in a tabular format, contains information about the existing number of commercial establishments classified according to their type (i.e. retail, wholesale and services). The percentage distribution among these types is calculated and presented, together with the sales floor area they occupied and their average size.

Helpful indices, such as shop per persons and employees per shop ratios, can be inferred from the above information.

4. EVALUATION OF OPERATIONAL STRUCTURES OF TMAs.

4.1 Objective

This chapter deals with the methods to analyze the TMA structures. Of particular interest is the capability of the TMA to manage urban change and growth. Also the methods to formulate proposals to assist the strengthening of the TMA's role in the 'urban management process' are presented.

It must be clear that under the term 'urban management process', the following activities of the delegated tiers of administration which are involved, are included:

- a) Formulation of Master Plans, at both the strategic level and the detailed action plans.
- b) Design, implementation, operation and maintenance (O/M) of:
 - Urban infrastructure projects (i.e. Roads, water supply, sewerage, power supply, refuse collection), and
 - Social and Community projects (i.e. housing, educational, health and other public buildings,
- c) Control of development, which includes issuance of development permits, building permits and 'no-objection' certificates (NOCs). and,
- d) Collection of fees, charges and taxes, related to the performance of the above duties.

Finally, this chapter also aims to provide instructions for the analysis and evaluation of the financial status of the TMAs. The examination of the expenditure patterns, the analysis and presentation of the potentialities to enhance on the financial resources and the projection of funds available for development projects are illustrated and explained.

4.2 Data Requirements and Sources

In order to analyze and evaluate the administrative structures, of TMAs information about the prevailing urban development planning procedures, as well as the implementation practices of the TMA is needed. Such information can be gathered from the Provincial Government Department of Town Planning (DTP), or from special surveys.

In the case of the present exercise and in order to elaborate the financial status of the TMAs, use will be made of the findings of the 'Study of TMA Finances in Sindh', However, the TMA budgets will be the prime data used for the financial analysis, also, the interviews with the appropriate TMA financial officers will be very helpful.

Table 4.1 illustrates the specific 'hard' data requirements and the possible sources to collect them.

Data on personnel directly employed by the TMAs can be found from the office of the TMAs.

The TMA budgets include information on the TMA revenues and expenditures on a department level.

Finally, information about the effective tax rates, the exemptions from taxation or from any of the various charges applied, and the collection efficiency of the TMA authorities, can be collected from the TMA financial office.

Table 4.1
DATA REQUIREMENTS AND SOURCES FOR THE EVALUATION OF TMA OPERATIONAL STRUCTURES

I/N	DATA	SOURCE
1	Personnel employed in the various departments of a TMA	Appropriate TMA department
2	Revenue and expenditures of a TMA by primary categories	Finance department of a TMA
3	Breakdown of TMA revenues	Finance department of a TMA
4	Breakdown of TMA expenditures	Finance department of a TMA
5	Effective tax rates, tax base, and collection efficiency	Finance department of a TMA

4.3 Methodology

The identification of the problems associated with the agencies involved in the urban management process are effected through the examination of their existing administrative structure. Reasons which contribute to the creation of these problems must be recorded, analyzed and lead to recommendations aiming at improving their regulation and control of urban development practices.

In TMA financial analysis, before anything else, the past years, budget figures must be adjusted for inflation. This will create a common base for the budget figures and they will be directly comparable under this real (i.e. constant) terms regime. The factors used to transform the budget figures into constant terms are related to the past years inflation rates.

The trend in the overall financial position of a TMA, is made evident from the summary statement of budgets. This is simply the determination of the budget surpluses or deficits, occurring during each fiscal year.

The presentation of the detailed revenue budgets enables for the TMA revenues structure to be classified into various sources (i.e. revenue receipts and capital receipts, together with the appropriate items they encompass). Such classifications will penlight on the TMA revenue base of a Taluka. Further it is now possible to compute the average annual growth rate for both revenue receipts and capital receipts as well as their contribution to total receipts collected.

Per capita receipts are taken as another indicative index, used to uncover the trend in the revenue collection ability of a TMA.

The same procedure described above is also followed for the expenditure budgets analysis. For the purposes of this analysis, expenditure is classified as development (i.e. recurring) and development expenditure. The average annual growth rate for each category, together with the percentage share in total expenditure is also presented.

Per capita expenditure is also computed as an indicator, denoting the expenditure patterns of a TMA in relation to the number of its inhabitants. Finally, the analysis of the revenue base and the effectiveness of the applied tax rates enables for the formulation of specific proposals to enhance the municipal revenue ability.

An important consequence of the TMA financial analysis is the ability to project within tolerable confidence limits the future availability of TMA revenue resources. In the case of the present exercise, three alternative scenarios are built. The respective governing assumptions for each scenario are stated below:

Scenario 1 (the present state): continuation of current tax rates and collection practices.

Scenario 2 (probable: Partial improvement of current tax rates and collection mechanisms, and

Scenario 3 (optimistic): Further enhancement of current tax rates, extension of tax base, introduction of new taxes and improvement of collection system.

The projections related to the above scenarios are presented in the form of total and per capita future financial revenues available to the TMAs.

Proceeding and in order to estimate total TMA receipts, capital receipts (i.e. grants and income from other capital sources) are projected, based on the assumption that per capita capital receipts will grow at the same rate as the expected per capita income, of the Taluka in which a TMA belongs.

Further, adding to the estimates of the capital receipts the projected revenues of the above scenarios, the derivation of the total TMA receipts is made possible

Finally, it is assumed that a certain percentage of these total receipts connected to the average percentage recorded in the recent past, will be devoted to development projects. The funds available for development expenditure are forecasted in relation to each one of the three scenarios.

Table 4.2
MUNICIPAL OPERATIONS ANALYSIS OUTPUT

I/N	OUTPUT	PRESENTATION
1	Proposals for strengthening the urban management process	Text form
2	Administrative employment of a TMA	Tabular format
3	Summary statement of budgets	Tabular and graphical format
4	Revenue budget	Tabular and graphical format
5	Per capita revenues	Tabular format
6	Expenditure budgets	Tabular and graphical format
7	Per capita expenditure	Graphical format
8	Proposals for the enhancement of the revenue raising ability of a TMA	Text form
9	Projected revenue and capital receipts under alternative scenarios	Tabular and graphical format
10	Funds available for development expenditure	Tabular and graphical format

4.4 Output

Table 4.2 illustrates the output derived through the analysis of the TMA administrative and financial structures.

The first output item presented is the number of direct TMA employees classified according to the particular department. This output is also illustrated in a tabular form.

The summary budgets statement presented also in a tabular and graphical format, contains the budget position of the TMA and for several fiscal years. The overall surplus or deficit of the budget in any one-year shows by the difference of revenues and expenditures. The revenue component is further subdivided into revenue receipts and capital receipts Equally so, the expenditures components is further subdivided into recurring expenditure and the development expenditure.

In the tabular presentation of revenue budgets which are also depicted in graphical form, the revenue receipts are further subdivided into taxes, rates, fees and charges, rents and miscellaneous. The capital receipts are subdivided into transfer payments (i.e. grants), sales of land and miscellaneous.

The presentation of the expenditure budgets follows the name format. Non development (i.e. recurring) expenditure is further subdivided into expenses related to: general administration, departments of finance, taxation, social welfare, health, medical animal husbandry, water supply and buildings and works, and miscellaneous, Development expenditure needs not be further subdivided.

5 PREPARATION OF A PROPOSED MASTER PLAN

5.1 Objectives

The objective of this section is to provide guidelines for the formulation of a Master Plan for a TMA.

5.2 Basic Definitions

A plan constitutes the final phase of ‘a process of preparing a set of decision for action in the future, directed at achieving goals by preferable means’, called planning.

In essence then, a plan can be defined as a ‘set of decisions for action in the future’, which is derived through a rational method of decision making.

For matters of clarify, it is considered necessary to further analyse some ‘key’ words from the above definitions, Thus, planning always targets at the materialization of a specified set of goals and objectives, which describe what should be achieved in a particular area or region, or in particular physical, social and economic sectors over a period of years.

Goals might be of different type. There are short-term and long-term goals depending on the urgency of the issue, or the time required for their achievement, or the priorities attached. They might be further distinguished into quantitative objectives and qualitative goals, depending on whether they can be expressed in quantitative terms (e.g. satisfying the specified housing demand up to a target year), or in qualitative terms (e.g. preservation of agricultural land).

Goals also refer to all development components of a plan and are accordingly characterized as physical or environmental goals (e.g. conservation of natural resources), as social goals (e.g. upgrading the education level), or as economic goals (e.g. creation of job opportunities).

The planning framework not only sets goals, but it must also involves the provision of courses of action i.e. policies, that must explicitly describe the ways and means by which the attainment of certain specific goals and objectives judged desirable for a future state of things, it will be possible. A policy has to be singled out from among alternative courses of action, and must be particular suited to meet the specified goals (which are selected independently of and prior to the choice of means), with the minimum required means (i.e. resources) at its disposal.

5.3 Master Plans and Spatial Plans

The term development is used to denote the social, economic and environmental improvement of an area and its inhabitants, so far as they are subject to planning control and influence.

Master plans link measures aimed at current problems with long-range generalized proposals aimed at higher-order community goals, and in effect, set a framework of policies for:

- Sensible distribution of population, and activities and relationships between them.
- Controlled patterns of land uses and activities they give rise to and
- Accessible and efficient network of communications and systems of utility services.

The approach they follow is a holistic, comprehensive one, that relates to the whole of a system as opposed to the parts of it, due to the recognition of the inter-relation of all the variables (e.g. economic, social, etc) that compose it.

The above offers an explanation to the fact that a Master Plan is not a single plan. Rather, it is usually a series of plans (e.g. regional plan, sectoral plans, etc.), all of which they constitute the main contents of a Master Plan.

Master planning which relates to the process involved for the preparation of Master plans, can be seen then as a means-goal matching relationship, its ultimate aim being that of implementation of development projects.

Sectoral plans (e.g. spatial plan, transportation plan, utilities plans, etc.) are ‘board brush’ plans, that include maps and explanatory text, and specify the development directives in the respective sectors. They indicate broad magnitudes and directions of growth, and placement of major facilities. They do not attempt to specify detailed land uses or local road configurations, but they identify those areas where growth and change are such that more detailed ‘immediate action proposals’ are needed.

Specifically, a spatial plan is essentially a written statement, which formulates policies, and proposals that will guide the future development in the physical structure of an area.

As proposals are considered specific courses of action, which have been decided, and for which resources and development time scale are agreed. They should be arranged in accordance with a properly ordered set of priorities, and thus, they must be related to specific time periods.

The structure of an area refers to all aspects of its socio-economic and physical systems, which are under planning influence.

Goals and policies must be laid down to the written statement after taking into consideration the constraints and the positive coincidences of the national economic environment, and they should be within the margins of the framework defined from the evaluation of the existing conditions, and the general aspirations set in National Development Plans.

The functions which both a Spatial and a Master Plan perform, are stated below:

- a) Interpret in space national and regional (provincial) policies.
- b) Incorporate development planning goals and proposals of the local authorities.
- c) Provide a framework for the elaboration of detailed local plans.
- d) Indicate action areas.

- e) Provide guidance for development control.
- f) Provide a basis for co-ordination decisions. And,
- g) Bring main planning issues and decisions before higher tier authorities.

Finally, a general map in the form of a key diagram that is part of a Spatial Plan, is a locational index to the policies and proposals in the written statement, confirmed largely to providing references to the text.

5.4 Process for Plan formulation

The process by which a plan is rationally made, may be described to include the following four steps:

Step 1: Analysis of the situation / Problem specification.

Planners (i.e. people with qualified knowledge, engaging in the profession of planning), must be lay down in prospect every possible course of action which would lead to the attainment of the goals sought. The formulation of goals though, is merely a reflection of the evaluation of the existing conditions, which is also useful for the setting of priorities that will translate the sectoral plans into immediate action proposals.

In order to construct an evaluation scheme, the use of urban indicators is advocated. Urban indicators are broad indexes for living conditions. The qualitative notion of living conditions can be transformed through the use of appropriate data into a set of index numbers easily interpreted and compared.

The selection of specific indicators is based upon the following criteria.

- The overall number of indicators should be a manageable set of tractable figures necessary to adequately reflect the problems involved.
- Indicators should only represent issues that can be modified or influenced by urban development decisions.
- Indicators should be fairly easy to obtain from the available secondary sources at periodic intervals.
- Indicators should be such that a balanced representation of the various quality of life factors is achieved.
- In case it is not possible to associate a problem with a quantifiable indicator, a qualitative indicator should found as the next best choice. Qualitative indicators represent key services (offered or not) in the Talukas in Sindh.

Based on the above criteria, such indicators may be constructed to refer to:

- Economic aspects (e.g. household income, unemployment rates, dwelling ownership, etc.)
- Social aspects (e.g. number of hospital beds or doctors per 1000 population, literacy rates, crime rates, etc.)
- Infrastructure aspects (e.g. number of houses with piped water, electricity and sewage, length of paved roads, etc.)
- Environmental aspects (e.g. water and air pollution, etc.)

Specially, in the case of the present series of reports, the procedure followed for the evaluation of the existing conditions through the setting of evaluation criteria (e.g. urban indicators), can be described as follows:

- The present major common development issues in the Talukas in Sindh are summed up.
- Suitable, quantifiable or qualitative indicators are correlated to these issues and an average is found for the Talukas in Sindh and
- The resulted outcome, which was presented in a tabular form, is used to point out in which areas a specific Taluka is deficient in comparison with the average picture.

In addition to areas where a Taluka is deficient in comparison with the rest of the, Talukas in Sindh the study made also evaluative statements about issues when:

- A Taluka presented comparative advantages (positive evaluation). And,
- All Talukas in Sindh are deficient as compared to minimum internationally accepted standards for countries like Pakistan.

Step 2:Goals reduction and elaboration.

In the previous section, goals were formulated in a rather general and vague manner. In this section, these goals must be specified towards a certain action and their meaning must be specified towards a certain action and their meaning must be explained clearly and in full.

Following these instructions, goals are set in the Master Plans of the Talukas in Sindh and the various sectoral plans that constituted them.

Step 3:Design of courses of action.

At the most general level these imply a description of the key actions to be taken, or the commitments that have to be made. These key actions constitute then, the premises upon which any less general courses of action are based. Hence, decisions of a less general character represents choices from among those alternatives, which are not precluded, by the more general decisions already made.

Step 4:Comparative evaluation of consequences.

All consequences which might follow from the attainment of the specified goals, both intended and unintended must be taken into account, if a plan is to be rationally formulated. Their evaluation should be in terms of the net value attached to each one of them. Difficulties arise from the fact that all values can not be expressed in terms of a common numerical index, as well as from the assessment of unlike intangibles which usually do not possess any relevant measurable values.

5.5 Immediate Action Proposals and Development Priorities

Immediate action proposals that take the form of action plans, arise during the evaluation of the existing conditions in order to answer urgent specific development needs. These are detailed specific proposals prepared for the comprehensive treatment of a 'priority' area in which these needs are identified, and therefore, intensive change over a short period of time is required.

As a result a 'multi-sectoral investment program' i.e. a set of projects is prepared. For the derivation of development package of projects it is necessary to set of the development priorities for the Taluka.

The method used to evaluate and prioritise the projects within and among every Taluka's multi-sectoral investment programmes will be described in a separate manual to be prepared within the these guidelines. As a general point however, here it can be stated that the major inputs in order to prioritise the projects are:

- The set of ideas, suggestions and projects proposed by the TMA of the specific Taluka during the various meetings and discussions held (representing the local 'demands')
- A comparison of the Taluka under study with the average national or regional situation. and,
- The specially conducted surveys in the Taluka concerned, indicating the population preferences and priorities.

This method guaranteed that priorities as perceived by the local people were cross checked with a more detached and objective approach, and assured that the resulted package fused local experience and wishes with the technocratic approach of the development plan.