training needs
assessment and monitoring
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The demand for operationally useful assessments of training needs has considerably increased in recent years. When economic growth slowed down and unemployment rose, the problem of matching the demand for and supply of manpower became much more apparent. This is particularly true in developing countries where the response to signals about the changing occupational needs in the labour market have been slow in both the education and training systems.

Developing countries can ill afford to misuse and waste the considerable resources being invested in training, especially under present circumstances. It is, therefore, to be expected that the call for training needs assessments will intensify, placing high hopes on the ability of manpower planners to forecast accurately future labour market developments and requirements and relate these to training needs.

Unfortunately, experience has demonstrated that such hopes have not stood the test of reality. As this guide endeavours to show, there is no magic formula for accurately plotting occupational distribution and requirements patterns into the future, except for the very short term. The vicissitudes of the international and national economic climate, the unforeseeable leaps and bounds of structural and technological change and the adaptive strength of occupational substitution make occupational forecasting a hazardous undertaking at best. To base the assessment of training needs and the planning of vocational training solely on these shaky grounds must lead to disappointments and misdirection of investments.

An alternative - or at least a strong supplement - to the forecasting approach exists in the continuous recording and analysis of trends in different labour markets, i.e. the close monitoring of labour supply and demand imbalances. Such work can help reveal promptly and reliably where needs for more, better or different training arise, what form and content it requires and how the training should equip the trainees for the world of work. By regularly observing the happenings and trends in various labour markets, signals are obtained which tell where training efforts have to be expanded or reduced, or where new training courses and programmes have to be established in what quantity and quality. Moreover, early indications may also become discernible on more deep-rooted and longer-term economic and social transformations and their likely repercussions on occupational composition patterns, which those in charge of longer-term investment decisions for vocational training need to know well in advance.

Viewed from this broad perspective, the present study addresses itself primarily to a discussion of (a) the limitations of manpower forecasting techniques as the sole guidepost for decision-making in training investments, and (b) the nature and extent to which labour market information and analysis could
contribute to placing assessment and monitoring of training needs on a problem-solving and thus operationally more useful basis. In this context, the study repeatedly emphasises a cardinal point: such an exercise must not only be a continuous process but also a partnership endeavour of both manpower and vocational training planners. To attain this essential objective, the guide traces a possible course of action and sets signposts which are meant to render such co-operation as close and mutually supportive as possible. It repeats familiar messages, but it also breaks new ground in methodology and planning approaches and indicates a more practical approach to improving the inter-relationships between manpower planning and vocational training planning, with training needs assessment and monitoring being the meeting-point between the two.

In comparison with past approaches and practices, the suggested orientation of training needs assessment and monitoring contains new elements concerning the platform from which they are viewed and the ways in which they are done. The present study aims at serving as a framework for more detailed and practice-related debates about future joint work between manpower and vocational training planners. The outcome of these continuous dialogues must be documented as fully as possible in order to provide the necessary basis for a constant reassessment and improvement of this study in subsequent stages. In this sense, the study is intended as an initial, introductory step in a continuous process of partnership work in practice between manpower and vocational training planners.

Any guide laying claim to realism and accepting its unavoidable limitations must stress that it is an evolving document which needs updating and modification. Concepts, approaches, methodologies and activities are changing everywhere all the time; training needs assessment and monitoring are no exception. Constant feedback and regular revisions of the study are essential ingredients for the continuous process of discussion, action and evaluation without which training needs assessment and monitoring is likely to continue as a field of controversy - rather than to serve as an important working tool jointly forged by manpower and vocational training planners.

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A. Introduction

The central objective of this study is to assist all those concerned with vocational training planning in the taking of informed and rational decisions on the nature and content of training programmes and projects. The document addresses itself primarily to manpower and vocational training planners employed in the relevant government agencies and institutions. However, it is also meant to be useful to the various organisations, groups and individuals, including employers and workers and their respective organisations, who in one way or another are involved in skill or - more broadly - human resources development.

The indispensable basis for such decision-making is the availability of adequate information on the actual situation and perspective development of labour markets. Such information needs to be collected, analysed and disseminated recurrently in order to identify training requirements. It should be linked to specific planning objectives, enabling planners to establish priorities and strategies. Such information can thus help bring about a continuous process of improvement of investment and other decisions in the training field. A considerable part of the study will, therefore, be concerned with the provision, analysis and use of labour market information for training programming purposes. In addition, it will lay particular stress on the utilisation of labour market information for monitoring training efforts and for continuously feeding information on training performance back into the planning and programming mechanism.

The study does not intend to put forward a set of rigid rules and procedures to be followed as a recipe. Its primary aim is to review, synthesise and comment on the various considerations and actions, steps and stages, choices and options which vocational training planners and programmes are facing in their work and to communicate knowledge of experience gained and of lessons learnt from past endeavours in training needs assessment in many countries.

With this in view, the study starts off with a succinct discussion of the main content of the subject-matter under review and of the major conclusions to be drawn from previous manpower planning approaches and operations for improving present forms of organisation and practices. This will be based on the vast amount of literature and case material available from developing and developed countries. However, the focus of this study is on conditions and issues in developing countries. Reference to the experience of developed countries is merely intended to highlight common problem areas and possible lines of remedial action - rather than to suggest the uncritical copying of specific methods and approaches.

The second chapter will build on the main insights derived from the preceding assessment of experience. It will emphasise the reasons which plead for treating training needs assessment as a continuous process of assembling and digesting manpower
information rather than as an on-off survey exercise, and will
discuss the implications of this view. As has been aptly pointed
out in an earlier ILO study, labour markets are moving targets
and zeroing in on such targets demands the constant correction of
the range. The "signalling" of emerging labour supply and demand
imbalances (shortages or over-supplies) assumes particular
importance in this respect, with the more costly and
time-consuming survey being used for elucidating causality or for
adding detail, as for example in skill profile/occupational
analysis where mere signalling is not sufficient. The chapter
closes with an attempt to identify priority needs for upgrading
labour market signalling capacity.

The third chapter argues that training needs assessment and
monitoring are a joint concern of manpower planners and
vocational training planners in their role as labour market
information producers and users. Analogous to the need for
regarding training needs assessment as a continuous process, such
collaboration has to be put on a regular basis instead of being
practised in an ad hoc fashion. The vocational training planner
must articulate what kind of information he needs and for what
purpose. He should tell the manpower planner what his
requirements are. On the other hand, the manpower planner must
be frank with the vocational training planner and make it clear
to him what information he can provide with what degree of
accuracy and reliability. Such collaboration is bound to enhance
mutual understanding and a realistic appreciation of each other's
needs and capabilities. It is vital for the proper use of
information.

The fourth chapter reviews ways and means of
institutionalising this essential collaboration between manpower
planners and vocational training planner. Without trying to
advocate any particular form or type of such collaboration,
importance is attached to creating and maintaining a regular,
routinised cycle of activities, which becomes partly repetitive,
in order to add the monitoring element to training needs
assessment. A manpower development planning unit is discussed as
an example of a wider institutionalised framework for vocational
training planning and monitoring, including training needs
assessment as one of its important areas of interest.

The fifth chapter is devoted to a summary presentation of
manpower planning methodologies - the most popular and
controversial subject of discussion in the manpower planning
field. It begins with the discussion of the more traditional
methods and techniques followed by a presentation of the newer
approaches and practices which have been tried in several
developing countries in the recent past.

The sixth chapter contains a suggested framework for an
overall analysis of labour supply and demand imbalances
throughout an economy, with the emphasis on discerning problems
and possibilities of solution. This relates to different levels
of skills of different occupations and to different sectors, with
special emphasis on training needs assessment in the agricultural
and rural sectors - in view of the predominant role which these sectors play in most developing countries.

The final chapter recalls the essential conceptual and practical features of training needs assessment and monitoring and the emergence of new thinking and approaches in this field in recent years, with the emphasis on problem identification, problem-solving and, generally, better decision-making in the manpower development sector. The point is stressed that the generation, analysis and utilisation of manpower information for training needs assessment and monitoring are among a number of factors to be taken into account in the planning and programming of vocational training, be it at the national, regional or local levels. The study focuses on assessing and monitoring trends in the demand for skilled manpower. It is thus primarily concerned with answering questions about whether more or fewer workers with specific skills will be required in different sectors, occupational groups or localities. Readers interested in more detailed information on any one of the techniques presented are referred to the relevant literature given in the references and notes.

Because of this emphasis on the labour market perspective which has been too long neglected in training needs assessment work, the guide, for reasons of space, can make no more than cursory reference to occupational/task analysis.

However, there is no denying the importance of such analysis for vocational training planning. It breaks down a specific skill into its components and helps to determine how best the relevant training is to be imparted and whether institutionalised or on-the-job training, or a combination of both, is the better training mode. In this respect, particular mention should be made of the methodology for skill analysis and its relevance to curricula preparation developed as an integral part of the approach to training based on Modules of Employable Skills.

In addition to training needs assessment and occupational analysis there are, of course, many other factors to be considered in vocational training planning such as the comparative costs of different programmes; the availability of the requisite instructors and material facilities; the training opportunities provided by employers; and course and curricula design - to cite only the more important ones. All these factors need to be considered as well, though they do not constitute the central concern of this study. However, this does not leave a gap since this study has been prepared as part of a series of studies planned by the ILO Vocational Training Branch on the subject of vocational training planning.

All these documents are meant to complement each other as practical tools to assist training authorities and other organisations, groups and individuals concerned with training in taking informed decisions and in improving generally the overall efficiency and effectiveness of training activities in developing countries.
B. Manpower development planning in perspective and retrospect

1. Main objectives and subject areas of training needs assessment

Before taking a look back at the nature, scope and performance of previous efforts at training needs assessment, it is essential to have a clear notion of the major objectives and subject area to be dealt with.

With regard to objectives, training needs assessment has generally been expected to contribute to:

(a) At the national level

(i) the development of criteria for defining priorities in the field of training and for allocating investment resources to training activities;
(ii) the definition of training policies adapted to the development strategy of a country; and

(b) At the level of training planning

(i) the determination of orders of magnitude of the various categories of manpower to be trained;
(ii) the determination and quantification of the inputs in terms of training structure, equipment, manpower resources and finance required for undertaking training activities to satisfy the identified training needs; and
(iii) the definition of the qualitative content as well as the form of organisation of the training to be provided.

With respect to the main subject areas of training needs assessment, these may be stated as follows:

(a) the recurring needs for expansion and replacement of medium- and large-scale enterprises and organisations, typically in the formal sector. Such establishments rely to a large extent on their own internal training programmes rather than on the output of public or private authorities. Since marketing uncertainties inhibit longer-term needs forecasting, needs assessments have largely been confined to the short- and medium-term period relying on special-purpose surveys conducted by employment services or other authorities;

(b) the recurring needs of small enterprises and of the (much larger) informal sector, including the often underrated needs of the self-employed. Small enterprises rely mainly on labour market mechanisms for meeting their skill needs (e.g. attracting trained workers from other firms) and on
organising on-the-job training. In principle, such needs can be identified by sample surveys and labour market information reporting, though very few developing countries have managed to do so satisfactorily; and (c) future training needs likely to arise from different rates of growth by economic sector, technological progress and the ensuing structural changes regarding occupational patterns in the different sectors. This component of training needs assessment which poses problems of quantification at the level of individual establishments has traditionally been of interest and concern to manpower forecasting and projection work.

The main objectives and meaning of the term training needs assessment are summarised in the following definition:

The process of determining the needs of qualified manpower is an important part of vocational training planning. The process includes not only identifying skills in demand by the productive system, but also characterising variables of the labour force that might be influencing production and, in consequence, also bearing on that demand.

A workable definition for the purpose of the guide might run like this: "training needs assessment attempts to find out how the immediate and short-run demand for skilled labour could be brought more closely to the specific needs in a given situation". It will be noted that this definition does not refer to the term "monitoring", as included in the title of this guide. The principal reason for this is that training needs monitoring has gained due recognition only in recent years, in spite of its considerable importance - as will be demonstrated throughout this guide.

Recent publications on the subject have pleaded for replacing the term "training needs assessment" by "determination of training priorities". This involves cost-benefit considerations asking for example; what emphasis should be given to training policy A relative to training policy B, C or D; and what package of skills will eventually lead to a higher level of development and faster economic growth. Essentially, determination of training priorities also involves the capturing of relevant labour market signals, especially the unit cost of producing a particular type of trained worker, and the labour productivity of one type of trained worker compared to that of another. However, this approach is complementary to the labour market signalling approach advocated in this guide and it raises questions of exact definition and practicability. Moreover, it has been thrown into the arena of debate only quite recently. It is not proposed to make it the subject of discussion of this guide, but it demonstrates clearly that the art of training needs assessment and monitoring is in full evolution and that the search is going on for more satisfactory approaches, techniques and emphasis than those followed in the past.

To sum up; Training needs assessment and monitoring investigate and review the economically conditioned manpower
requirements for the realization of development plans, programmes and projects, and the demand emanating from labour markets. It is an essential ingredient of vocational training planning which seeks to strike a balance between the results of training needs assessment, social demand factors, and financial ability and priorities.

2. Manpower forecasting as a tool of training needs assessment

Past efforts in the field of training needs assessment have been dominated by the manpower requirements approach, often supplemented, but rarely replaced by alternative methods such as cost-benefit analysis, employers’ surveys and special area skill surveys. Manpower forecasting work has often been undertaken simultaneously with - though not necessarily as an integral part of - national development planning efforts. This approach and the various techniques associated with it will be discussed at a later stage, within an overall review of the main manpower planning methods and techniques which have been applied in practice to varying degrees.

The manpower requirements approach has come in for severe criticism as a tool of vocational training needs assessment, both on the part of manpower development economists and practitioners. Many manpower development/human resources economists have argued that manpower planning activities of this type are "of value for only a limited number of occupations and for some of these they may not really be necessary.' Other critics have pointed out that the methods used have discouraged the development of information useful for the policy-making process. "In particular, they have led educators in developing countries to expect that manpower planners will give them exact specifications on the number of graduates of various types which they must produce to meet the economic goals of the society, and that the requirements for university graduates, vocationally trained workers, agricultural extension workers, lathe operators, bricklayers and bus drivers can all be derived by the same method and with the same precision.' The creation of such expectations has had undesirable consequences not only because it is impossible to work out such precise requirements, but also because it has tended to relieve the educational/training authorities of a feeling of responsibility for finding out how their trainees fared in the labour market and how the skills they imparted to them were utilised or not utilised.

The strongest opposition to past manpower planning approaches and methods has been raised concerning its value as a guidepost for educational planning on the grounds that "it begs too many questions about the relationships between the structure of occupations in an economy and the educational requirements for jobs, not mentioning the notorious inaccuracy of such forecasts." For these critics the question is not whether such
forecasts are accurate or not, but whether the "entire exercise is perhaps not misconceived in its very foundation".9

Vocational training planners and practitioners have not been kinder in their judgement on the usefulness of past manpower planning work. Some have expressed their disillusionment in these terms:

... behind all the smoke of manpower predictions and planning terminology lies the assumption that if all the information can be assembled ... supply and demand can be balanced. There is every indication that such notions are self-deceptive ... The general impression internationally is that the prospects for manpower planning at the national level are, to say the least, unpromising. "

In the same vein, other vocational training planners have lamented that when they looked for manpower information which not merely pointed to numbers of people needed per field or activity but also for a specification of the tasks to be performed and the levels of skill attached to it, they only found "projections in the form of generalities." These provided too few clues upon which detailed planning could be based. "Left to work with generalities and conjecture, wastage of precious resources, both human and financial, is bound to occur."^10

In the face of the various criticisms raised against manpower planning, it is somewhat surprising to note that this has had little effect on the flow of requests for technical co-operation projects in this area. Has this been due to the slowness with which these criticisms found entry into the field of practice, to the non-availability of better alternatives, or to the fact that the criticisms were mainly levelled against long-term manpower forecasting work to be used for educational planning? The observation that the accuracy of short-term occupational forecasting has been greater than that of longer-term educational forecasting, and that industry-level forecasts have met with less virulent critics than those for the economy as a whole points to an affirmative answer to the last question.12 Finally, many developing countries were perhaps not prepared "to renounce all planning under the pretext that economic needs are too difficult to foresee and that the correspondence between training and employment can be neither precise nor rigid."13 They probably accepted the statement that "whatever criticisms forecasters may attract, forecasts must be made if a sound basis for policy-making - more rational than what would exist if forecasts were not available - is to be provided".14

3. The experience of ILO-sponsored manpower planning projects

In order to throw light on this controversy and to determine its own standpoint in this problematic area, in the late seventies the ILO initiated a series of assessments of its
technical co-operation activities in the field of manpower planning, in general, and its relevance to vocational training planning, in particular.

These regionally based assessments as well as related studies of past experience led to a number of insights and conclusions which, though not dismissing the past manpower requirements approaches as useless or unnecessary, underlined the need for quite a substantial reorientation of existing approaches and emphasis in manpower planning. $\textsuperscript{a}$

The major conclusions might be summarised as follows;

(a) manpower requirements forecasts over plan periods have turned out to be poor quantitative indicators of future requirements in different educational/occupational categories. As a general rule, it was found that forecasting became more questionable and unreliable the further it probed into the future and the more it attempted to provide occupational detail;

(b) data constraints and the difficulties associated with making realistic assumptions about key parameters of the manpower equation, especially technological change and occupational substitution, have compounded the basic problem of manpower forecasting which is that it relies on economic forecasting characterised by a high degree of uncertainty;

(c) predicted shortages of certain manpower categories have often turned out to become costly surpluses. Perhaps some of these surpluses might have arisen because of the self-fulfilling tendency of manpower forecasts and the overshooting reaction on the part of education/training institutions and of students to predicted shortages;

(d) problems of manpower imbalances were often shown to be more of a qualitative than a quantitative nature. Such imbalances had a great deal to do with personal attitudes, perceptions and expectations vis-à-vis the rewards of different occupations. They also could be related to prevailing incentives differentials as well as to hiring practices and policies, especially on the part of the public sector which in many countries in the developing world is the largest employer;

(e) the lion's share of manpower planning work had gone to the formal sector and, in particular, to the high-level manpower categories, to the neglect of the large informal sector, both in rural and urban areas. Apart from very broad estimates of the need for higher-skill manpower categories for agricultural/rural development administration and large-scale programmes based on pragmatically fixed norms, manpower planning in most developing countries had little to offer for this vast sector.

These major lessons and conclusions drawn from previous experience lead to a number of suggestions as to how manpower planning should look in the future and what main approaches and emphasis it should follow. These suggestions may be summarised as follows.*
(a) sights should be lowered regarding the ability of economic forecasting and its derivative manpower planning to provide decision-makers in the educational/training system with accurate "point" figures about the number of people needed in different occupations at what skill levels and at what time. However, manpower planning can come forward with alternative projections varying according to different assumptions concerning key parameters which indicate ranges of requirements for broad occupational groups likely to emerge in the future. These may help national policy-makers and planners to define the direction and emphasis of national manpower development and utilisation strategies and policies, rather than to specify the nature and volume of the different education/training programmes to be planned for;

(b) the previous emphasis of manpower planning work on forecasting/projections should be redirected to analysing the functioning (or imbalances) of labour markets, particularly those at local levels. This may serve as an important step for improving occupational previews or outlooks meaningful to vocational training planning since many of these activities take place at these levels. Significantly, even the most severe critics of manpower planning activities of the old style have expressed support for this shorter-term and disaggregated component of manpower planning. The prompt capturing of various labour market signals assumes primary importance in this respect;

(c) in conjunction with labour market signalling, more attention should be paid to closely scrutinising the specific educational/training requirements held to be necessary for the performance of different jobs, especially those signalled to be in short supply. Recent occupational analysis work has pinpointed good reasons for a training approach that seeks to impart to young people a broader range of knowledge and aptitudes through institutional training and to leave the preparation for specific occupations and skills for on-the-job training. Assessing and analysing occupational clusters or families as an input into training needs assessment might help to bridge a widely lamented gap between the kind of skills imparted by the existing training system and those absorbable by the world of work;

(d) there is a dire need for greatly stepped-up manpower reporting and analysis work in the informal sector of developing countries. The group or population on which improved manpower information is foremost required is that of the self-employed and their family members. The proper identification of their training needs poses particular problems different from those in the formal sector. Assessment of skill needs of this large group might have to be related in the first place to the opportunities for self-employment opened up by various agricultural/rural
development programmes and projects. The critical problem of initiating such manpower analysis and reporting work in the detail and at the intervals required is that the cost of relevant traditional survey and investigation approaches is quite high and difficult to sustain. It is for these reasons that a number of developing countries have experimented with new methods of information gathering for manpower planning activities in the informal sector;

(e) the success of the remedial action suggested above requires the overcoming of one of the most pernicious and persistent obstacles to effective manpower and vocational training planning alike. This is the lack of co-operation and co-ordination among planners and other agencies, organisations and institutions concerned with training needs identification. And where consultative arrangements of some sort do exist, they are "at present typically unsatisfactory".²²

This cursory review of past experience in manpower planning and its performance in and relevance to training needs assessment has shown that previous inadequacies have been fully recognised and that there is a growing consensus regarding the need for new directions and emphasis in manpower planning work. The main features and implications of this reorientation will be the subject of discussion of the following chapters of this guide.

One of the most important threads running through this new fabric of manpower planning is the recognition that training needs assessment and monitoring cannot continue to rely on the traditional tools of manpower information generation and analysis and, especially, on habitual survey and investigation work with long intervals between enquiries and with, usually, high levels of aggregation. Information snapshots will not do; a flow of information is required, especially for feeding the monitoring process. This process must rely on prompt and reliable labour market signalling.

C. Training needs assessment as a process

1. Analysing processes requires data flows

A process is usually understood as a series of connected actions and changes. This interpretation of a process is also highly relevant to training needs assessment and monitoring. Training needs assessment cannot be a sporadic or "on-off" activity. It needs to be visualised as something ongoing, in a sense repetitive, always alert to changes, and responsive to opportunities for improvement.

Diagram 1 presents in a schematic form the patterns of data flows for training needs assessment and monitoring. Both information inputs and outputs (generation and analysis) are involved.
Data from employment services, statistical units, vocational training institutions, planning agencies, other ministries, employers and workers' organisations and research institutions.
The point of departure of the process is the gathering of all available data on the current and prospective manpower situation, i.e. the actual and anticipated behaviour of labour markets. This stock-taking exercise must include the search for data in all departments, agencies, institutions and organisations concerned with manpower development questions including: the ministry of labour and its employment services; the statistical services and the planning agency; the ministry of education and technical training; research institutes,* and, last but not least, workers' and employers' organisations.

A special effort is required to secure information from the training authorities about how much training is going on at what level and what places, and about what the major policy issues and priorities are on the decisions which have to be taken.

A first scrutiny of the information available is likely to reveal inadequacies. In this case special or ad hoc enquiries may be required to fill - or at least attenuate - the most important gaps. The underlying causes of observed labour supply and demand imbalances, particularly of alleged manpower shortages, are strong candidates for such surveys.

The widened and improved data base will be analysed with the emphasis on discerning sectoral, occupational and geographical imbalances in labour supply and demand. Occupations found to be in particularly high demand or short supply should be given close attention, with supplementary studies of task components, skill levels currently needed and changes in skill profiles as reflected in changing hiring requirements.

The results of the analysis are to be published in reports generally accessible to all labour market information consumers, with a periodicity which is geared to the time when decisions are due for trainee intake to be taken by the various training institutions/programmes. Adequately to determine training requirements, a half-yearly sequence of labour market reporting appears to be a good balance between what is desirable and what is possible in many developing countries.

The information flow should also include indications provided by the training institutions/programmes on the assumptions and criteria actually used in determining the nature and the volume of the training efforts to be undertaken. These indications also need analysis before final decisions on enrolment policy are taken.

With the organisation and initiation of training programmes and projects, the information process should not come to an abrupt end - a phenomenon still widely observable in developing countries. If vocational training needs are to be properly monitored, information needs to be obtained and analysed on how the graduates/trainees of the different training institutions have made use of the knowledge and aptitudes imparted to them and what type of job and conditions of employment have been obtained. Moreover, such information gathering might usefully solicit the views of the employing establishments about the value

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of the training imparted to different occupational groups through different forms of training.

Before the cycle of information generation and analysis starts anew there should be an opportunity for reviewing possibilities for improvement, as there is likely to be a constant need for re-emphasis, realignment and refinements of the different components of the process. In fact, experience everywhere has made it amply clear that manpower data flows never measure up to expectations and requirements. Demands for more and better information always tend to run ahead of producing capacity. Analysis of and proposals for upgrading information generation, analysis and dissemination should therefore be an integral part of the training needs assessment and monitoring cycle.

2. Feeding flows through labour market signalling

Manpower information flows and analysis processes depend largely on what has come to be called labour market signalling. The term denotes the flow of labour market information which is significant and of direct and immediate use for decision-making in the broad field of labour market policy, including training needs assessment and monitoring. Labour market signals carry messages or indications to decision-makers to initiate, modify or cease certain policies, programmes, projects or measures or, simply, to continue the course of action in progress. Thus, labour market signals may be briefly defined as the most recent indicators of the situation and trends in the labour market(s). They provide early warnings of significant changes to be expected or they confirm tendencies previously observed. They can be of a quantitative or qualitative nature and of national, regional or local scope.

Labour market signals are thus of various kinds, and so are their actual and potential users. First and foremost national policy-makers and planners require longer-term, aggregate signals in the form of time series. Examples of such signals are: the rate of population growth versus employment growth, education expansion and the labour market; the rate of unemployment and changing occupational composition patterns; the increasing difficulties experienced by secondary-school leavers as well as by some professional groups; the unabated tide of rural-urban migration, with both its desirable and undesirable features; as well as the recent addition of international migration and the "brain drain" as a signal depicting both opportunities and issues. All these longer-term signals provide a picture of the overall dynamics of manpower supply and demand in the whole economy. Global structural tendencies, and manpower supply and demand imbalances can thus be identified and remedial strategies and policies designed accordingly. Sources of manpower and employment information providing broad signals of the above kind
are - or are becoming - quite adequate in many developing countries.°

Invariably, medium- and short-term signals are more difficult to come by in developing countries, though these are of the greatest potential value for training needs assessment and monitoring since the duration of vocational training courses rarely surpasses the three-year mark. Movements in the rates of unemployment, vacancies, labour turnover, wage rates and incentives and differentials pertaining to different economic sectors, occupations and geographical areas are among the more important signals involved. They point to existing and emerging imbalances in labour supply and demand.

Of course, care has to be taken not to equate identified shortages of labour with training needs. The suggestion that a particular type of labour shortage or an increase in the demand for that labour must be met by stepped-up training is untenable because there are several other ways to overcome. manpower shortages. An important one is the change of prevalent wage/salary scales pertaining to the occupation in question with a view to attracting workers from other jobs, substitutable occupations, and retirement. Others are the simple suppression of the relevant job, a change in its description or internal promotion.°

Moreover, captured signals are not always of sufficient detail and reliability to provide guidance for training of a particular type of manpower reported to be in short supply. For instance, problems with the wage rate as a labour market signal are twofold. The first is that available wage data are often too highly aggregated. The second is that excess demand for or a shortage of labour is not necessarily associated with wage rate fluctuations. As already pointed out above, employing establishments might sidestep the problem by a variety of measures such as overtime work, productivity drives, altering the descriptions of the job(s) in question, and so on. A general caveat should be added: wages in developing countries are often determined by wage regulations/statutory wage fixing which are not always based on productivity criteria and, more generally, on prevailing labour supply and demand relationships.

Similarly, labour market signals obtained from vacancy data and the unemployment register of employment services, though of considerable potential value as an indicator whether or not the market for a particular labour category is tightening or easing, need to be handled with caution. In many developing countries, the employment services network is rather thin and unequally distributed over the country, coverage of different occupations is rather incomplete, and labour market reporting is often fraught with inordinate delays. These constraints are widely known and need no restatement here. The important thing to stress is that many developing countries have made considerable efforts in recent years to improve the labour market signalling function of their employment services. However, this is a task which cannot be tackled on a broad front with immediate results.
fully satisfactory to those concerned with training needs assessment and monitoring. It has to proceed in a step-by-step manner dictated by resource constraints. This means setting priorities.

3. **Upgrading labour market signalling capacity**

The kind of labour market signalling to establish, develop or improve should ideally be chosen by the main labour market information users and producers. With respect to the upgrading of labour market signalling relevant to training needs assessment and monitoring, such a decision should be made by manpower planners and vocational training planners. This topic will be the subject of a more detailed discussion in a later chapter.

It must be stressed that labour market signalling is an integral part of the overall system of labour market information; its specific needs and requirements have to compete with those of other labour market information users. This point can be overstated, however, for improvements in labour market information systems aimed at removing major problems and constraints identified by major information producers and users are bound to have a beneficial effect on the satisfaction of the requirements of individual consumers, such as vocational training planners and programmers. This becomes apparent from the review of labour market information programmes, their priority needs, constraints and opportunities carried out some years ago in the Asian region which provides a complete picture of the issues and constraints met not only by Asian countries but by the developing world at large.

The remedies suggested by this review, though in the form of a long list of desiderata, retain topical interest and should be carefully considered by both manpower and vocational training planners, who strive to build up labour market information programmes adapted to their decision-making responsibilities.

Another important aspect must be considered. Priority needs for labour market information will necessarily be different between densely and less densely populated countries, between those of a mainly rural-based or industrial economy, between countries with varying degrees of predominance of the public over the private sector and, last but not least, between countries of different geographical sizes. Most significantly, priority needs will vary between countries with respect to the degree of commitment with which national manpower and employment policies are designed and carried out, and according to the different nature of decision-making processes, planning and action, whether public or private, central, regional or local. Finally, the main emphasis in a national labour market information programme will not be the same in countries where the predominant concern is job creation to reduce growing rates of unemployment, and underemployment and in countries where, due to serious manpower shortages, the emphasis is on manpower development.
Nevertheless, it is possible to make a few general observations on priority areas in labour market signalling, in relation to what is known about current data availability in the Asian and African regions. These priority areas are the following:

(a) the building up or establishment of bench-mark data for main labour market areas and major (key) occupations on the basis of regularly collected and analysed manpower and employment information. This should include the exploitation of all direct and indirect sources of labour market information, including the tapping of those which prima facie are not likely to yield labour market information or which are not readily accessible. Administrative records and studies and documents available in workers' and employers' organisations are cases in point;

(b) the regular preparation and wide dissemination of up-to-date labour market reports, newsletters or bulletins at major labour market area levels, in addition to national reports which due to their usually high degree of aggregation and delayed publication have less signalling value than regional/area/local reports. This should include the monitoring of the usefulness of both bench-mark data and reports by asking for major consumers' reactions and suggestions,*

(c) an ongoing effort, again on the basis of the established data bank, of previewing significant developments in employment and occupational patterns, one to three years ahead, bringing both general-purpose and macro-type data and specific-purpose information into the mainstream of labour market signalling. This implies that raw data from national inquiries such as census and household/labour force sample surveys are available for analysis at local levels;

(d) the continuous analysis of (key or critical) occupations on the basis of knowledge of the current and prospective labour market situation and its existing and emerging imbalances derived from the above-mentioned activities. This should permit a better specification of skill requirements as an essential input into vocational training needs assessment and vocational guidance programmes which, if systematically developed, could also make an important feed-back contribution to training needs assessment; and

(e) the systematic monitoring of the labour market/employment experience of ex-trainees from different institutions and training streams, and of graduates from higher-level technical or vocational education to provide prompt and accurate feedback to vocational training programmes for adjustments in quantity and quality.

The priority areas of labour market signalling outlined above do not imply excessive inputs in terms of finance and personnel. A great deal of the information on which such signalling relies is available in many developing countries, though it is not always systematically tapped, purposefully
analysed, and properly disseminated. Moreover, much of the reporting required from existing employment and manpower services in many developing countries is primarily geared to administrative requirements rather than to a diagnostic capacity which keeps the finger on the pulse of labour markets. A determined effort at reorienting the outlook and activity of existing employment services towards more labour market intelligence, with no additional inputs demanded, constitutes a great step forward in the establishment and maintenance of a useful labour market signalling system, which in most developing countries has a clear potential but remains greatly underestimated and underdeveloped.

D. The need for partnership between manpower and vocational training planners

1. The raison d'être for joint responsibility

Viewing training needs assessment as a process to be fed regularly by quantitative and qualitative labour market signals requires the fulfilment of certain pre-conditions and prerequisites. The first one is the need for close collaboration between manpower planners and vocational training programmers at each stage of the process. The previously presented schema of the data and analysis flows involved shows clearly that, after the completion of a full cycle of data collection, analysis and planning operations, the different functions become repetitive - with each successive cycle ideally finding a progressively higher level of quality and finer tuning of the activities involved. Thus, co-operation has to be continuous if it is to be an effective process instrument. Or, to put it more strongly; training needs assessment and monitoring that is to make full use of labour market signalling requires the building up of a real partnership between manpower planners and vocational training planners.

Such partnership will develop with difficulty if it is not based on a full, mutual comprehension of the other's trade and of the main tasks, opportunities and limitations involved. In other words, some basic training of the two in the other's field of activity is highly desirable. This should enable each to understand what to expect from the other, including their relevant contributions to the partnership and the mutual benefits they could derive. In this context, vocational training planners will learn how to define clearly the nature and scope of information they need to have for each specific purpose. Manpower planners will have to learn to put forward a convincing case for the usefulness of labour market signals for training needs assessment, explaining the different degrees of advantage and disadvantage, as well as the fields of application of various signals and the trade-offs among them regarding detail, precision
and cost, on the one hand, and relevance, timeliness and practical use, on the other. Learning from each other and identifying mutual concerns, requirements, and capacity should include the search for new and unorthodox sources of information and ways of analysis, of the kind discussed in the previous chapter. There is little point in developing such approaches with training needs assessment in mind if training planners do not share a favourable opinion regarding their practical usefulness.

The question of cost-effectiveness of data generation and analysis is highly relevant in developing countries. Providing an appropriate response to it is very much the joint responsibility of manpower planners and vocational training planners, as far as the objective data needs for training needs assessment and monitoring are concerned. It is much easier to ask for more and better information than to give precision to such demands. And justifying them convincingly is still harder. It is even more difficult to abstain from asking for more information or to consent to stopping the generation of useless information. Judging from the number of surveys and the amount of data ostensibly produced for training needs assessment, projections or forecasts and the little practical use that has been made of them for training planning, there is clearly room for more thrift in data generation and for more concern with producing the right kind of information.

Adherence to exaggeratedly high-standard principles of professional statisticians and, in particular, the pursuance of representative accuracy and reliability in survey work for training needs assessment data are also inimical to cost-effectiveness considerations. There is a facile habit - both among manpower planners and vocational training planners - to clamour for professional excellence and a high degree of numerical accuracy in manpower data generation. However, given the fact that manpower planners "will not be able to tell (authorities in the education and training sector) exactly how much and which types of manpower are required by a given date", it is hard to argue that such accuracy can be attained and that it is really necessary. One of the main points made in the discussion of the key informants approach is that for characterising the labour market situation, its developments and notably its imbalances, orders of magnitude and directions of change might fit the requirements quite well.

It is obvious that this is an area where the collaboration of manpower planners and vocational training planners is particularly called for. Solution of the problems inherent in the generation of suitable information and its purposeful use will fall short of workability if both partners do not clearly make their point and justify their desires, state their priorities and constraints, and seek a common ground for compromise.

Close working relationships between manpower and vocational training planners are also bound to have a beneficial effect on
the vocational guidance and placement services. They have a vital interest in the data generation and analysis work connected with training needs assessment and monitoring. On the other hand, the recording and study of their activities provide valuable information input and feedback. The many cross-connections and interlinkages between manpower services components and the function of labour market information analysis and training needs assessment are portrayed schematically in diagram 2 which points out the important relationships and linkages. The need for such co-operation sounds so reasonable that it should exist in the form and intensity required. Unfortunately, experience tells a somewhat different story.

Although this is only briefly related in this guide, the purpose is to convince manpower planners and vocational training planners to abandon their deplorable practice of undertaking needs assessment separately. Instead a real partnership must be established.

2. The past record – an uneasy relationship

In 1984, an ILO study of manpower and training assessments for petroleum development in the Arab region\(^2\) made the observation that working relations between vocational training programmers and manpower planners do not have the reputation of being close. This statement has universal validity and in many cases it may be a euphemistic description of the actual state of affairs. Several examples can be provided. An interpretive study, on national occupational projections for vocational training planning in the United States, published in 1983,\(^1\) pointed out that vocational training authorities in that country have been criticised for "ignoring occupational projections which identify future job growth and opportunities in planning vocational education programmes". But vocational training programmers apparently had a good reason for this. They retorted that the published data provided by state and national sources did not address their needs and were considered only because regulations for state and national planning activities required them to do so. In a hopeful vein the study notes that efforts "to establish greater co-operation between the users and producers of occupational projections have resulted in the data being used to a greater extent". However, it apparently was not quite convinced of the progress made because it added that "even greater usage needs to occur if vocational educators are to be fully informed when they take decisions related to programme planning".\(^2\)

A comparative study carried out jointly by France and the Federal Republic of Germany on the links between vocational training planning and employment and their importance for vocational training and labour market policies, undertaken in the late seventies, alludes to a similar state of affairs in these two countries. It observes that:
the piece-meal view which has prevailed until today in the research as well as policy-making fields and the isolated treatment of the problems relating to vocational training and the labour market do not take sufficient account of the most important linkages between vocational training and employment which explains, at least partly, the difficulties encountered by the countries of the [European] Community in their attempts to solve their problems in the field of training and the labour market. 

In Japan a Study Group of Labour Market Institutions set up to advise the Director of the Public Employment Security Office (PESO) in the early eighties came to the conclusion that "public vocational training institutions are not closely related with PESO at present. Systematic co-operation between PESO and public institutions of vocational training is a pressing need ...".

It should not really come as a surprise that reports on the relevant situation in developing countries arrive at similar conclusions. In most cases manpower planners have gone ahead producing projections and analysis which they perceived as useful for training needs assessment. They seldom posed the question - or asked the vocational training authorities to comment on - whether the projection work was useful for vocational training planning. When they did, they found that the vocational training planners wished to have data at a level of occupational detail and with a precision which they were unable to provide.

Exasperated by this situation, vocational training planners often decided to undertake their own training needs assessment surveys. Many - if not the majority - of these exercises have not provided better guidance for vocational training planning than the manpower planning operations referred to earlier. However, this is not meant as a negative judgement on the methodology and organisation of the surveys undertaken. Many of them were prepared and executed in a very thorough, well-considered and technically quite competent manner. Some of the guidelines written on training needs assessment are competently written documents on the preparation, conduct and completion of training needs surveys. Their usefulness in creating bench-mark manpower data where no previous attempts had been made to base training planning on formal analysis is not to be denied.

However, these training needs assessment surveys have been beset with many of the problems and weaknesses characteristic of past manpower forecasting and projection work, as discussed in the first chapter. Moreover, more often than not they have remained one-shot exercises without proper follow-up, and the record of their actual utilisation in training planning and programming is poor. The costs involved also seem to have been rather high. This largely explains the on-off nature of these exercises. Finally, training needs surveys of this kind have been largely devoid of what might be called a labour market perspective.
There is a long history of manpower and vocational training planners turning a deaf ear to each other or, in the more acrimonious cases, heaping reproaches and recriminations upon one another. This is a far cry from the spirit of partnership evoked in the preceding section of this chapter. It is imperative that the conditions, factors, perceptions and attitudes which have led to this deplorable situation be tackled energetically to remove them from the scene.

Experience has unfortunately shown, however, that mere exhortation and pleading do not suffice. Here again, the potential benefits of bringing about a better understanding and comprehension of each other's tasks, responsibilities and tools, as well as primary concerns and constraints through mutual learning cannot be overstressed. The question remains as to how this can be achieved successfully in practice.

3. Directions and prospects of improvements

If it is accepted that an improved understanding of mutual activities and responsibilities is a key factor in the kindling of the spirit of co-operation and partnership that should characterise relationships between manpower and vocational training planners, adequate training for both of them (and a proper assessment of their training needs) assumes primary importance. Equipped with such knowledge, there is no guarantee that better collaboration and partnership attitudes will follow automatically. However, a first important step in this direction will have been made.

The requisite training material for this purpose is at hand. The respective manuals and guides relating to the subject of vocational training planning and programming have already been listed in the Introduction. This presentation needs to be complemented by the training documentation which is available on the manpower planning/labour market information/manpower analysis side. The publications which are likely to be most useful in this respect are the following:

1. Guide-lines for the development of employment and manpower information programmes in developing countries - A practical manual;
2. Employment and manpower information in developing countries - A training guide;
3. Major stages and steps in energy manpower analysis - A practical framework;**
4. Reporting by key informants on labour markets;^3 and
5. "An outline on rural manpower assessment and planning in developing countries".\(3^r\)

A brief description of the main content of these documents will be found in Chapter I (References and notes).

On the basis of these documents and those referred to in the Introduction, national training programmes and courses can be organised and held for all personnel and staff directly or
indirectly concerned with training needs assessment and monitoring to impart technical knowledge and enhance understanding of the need for and benefits of joint work on a complex subject. The major content of such national training programmes and courses might usefully follow the patterns and presentation of main subjects in this guide, though variations are of course indicated regarding detail and emphasis in order to respond to different levels of development of manpower planning and vocational training planning in various developing countries. However, there are certain areas which would seem to merit focus in any training effort. These are.*

(a) the variety and complexity of the manpower development/training sector;
(b) the consecutive steps and stages involved in a practical training needs assessment and monitoring operation;
(c) the process nature of such assessment and monitoring;
(d) the main technical tools of manpower and vocational training planners; and
(e) the main manpower development issues as areas of joint concern where joint solutions must be worked out.

Once action along these lines is initiated, there might be a greater readiness on both parts to consider and give full support to the regular exchange of information on each other's plans, programmes and activities, i.e. to set in motion a regular flow of documentation produced by them either in published or unpublished form. This might prompt ad hoc contacts and exchanges of views in the event of sudden mismatches in supply and demand of certain important categories of workers in specific sectors, occupations or areas, or at important decision-making stages of the vocational training planning and programming processes. Once such habits have been acquired and consolidated, a more coherent and formalised pattern of co-operation might be sought with mutually agreed lines of consultation and joint work procedures.

It will have become obvious that each consecutive step will place progressively higher demands on the readiness and preparedness of the two sides to develop a true partnership. Co-operation is often cumbersome, time-consuming and inconvenient, and the first flurry of enthusiasm for collaboration might quickly subside and give way to a return to old habits - in spite of all the good intentions. This is why the manpower and training planners most committed to co-operation insist that some sort of institutional organisation or mechanism has to be provided for.

In fact, in a number of developing countries variants and elements of such machinery already exist, sometimes with regulatory or even legislative underpinning. They have worked with varying degrees of success though the overall record has not been very impressive.

It is, therefore, hardly feasible to select one of those and present it as a model. Instead, in the next chapter the possible framework of an institutionalised basis for joint manpower
planning and vocational training planning efforts, the main issues involved, the need for a sort of routinised programme, and the specification of the tasks to be performed will be set out and discussed. These discussions will be based primarily on the relevant conclusions reached by the ILO assessment of its past manpower planning projects in the field of technical co-operation, and on current international debates on the effective management of the manpower development sector in developing countries.

E. The case for an institutional basis-

1. The main issues involved

Ever since manpower planning and vocational training needs assessment became widely recognised and well-established activities on their own, the question of their proper institutionalisation with regard to linking them into a coherent whole has been persistently debated. While there was not much disagreement on the potential benefits to be had from closer collaboration – as has been pointed out before – this certainly did not pertain to the discussions on the form and content which the institution to be created was to take. A telling proof of the lack of consensus in this respect is the multiplicity of co-ordinating machinery which emerged in many developing countries. The most frequently used denominations in this respect were manpower or training councils, manpower advisory councils, manpower planning boards, manpower development units, human resources development agencies, and the like. As the varying titles suggest, the functions and responsibilities of these bodies have been different in nature, content and emphasis. This diversity of experience makes it impossible to say what the co-ordinating machinery should look like and how it should operate.

In addition to form and content, the question of what department should be primarily responsible for such co-ordination cannot be answered in terms of what government agency would be most suitable for this role. Here again, experience does not offer good council. In practice, various ministries have been designated to carry out this task. Most frequently, planning departments and ministries of labour have been put in charge. Also, ministries of education and technical training, statistical services and prime ministers' offices were appointed to – or just assumed – this role. More often than not, overall responsibility and what it involved were not clearly demarcated and as a result many government departments and agencies dabbled in manpower development planning. But even in those cases where such responsibility was laid down by government decree or regulation, many agencies or departments concerned with manpower development planning went ahead with their own programmes and activities
without bothering about co-ordination. The point to be made here is that the engagement of various departments in manpower development planning is laudable, but that the absence of effective co-ordination is bound to lead to duplication of efforts and a waste of scarce resources.

In spite of this chequered experience, the past offers some insights which are well worth remembering when measures are planned for establishing or overhauling the co-ordinating structure or mechanism for manpower development planning and monitoring.

No matter what mechanism is established, the tasks and functions to be performed by it must be clearly spelled out and made known to all agencies, institutions or organisations concerned with human resources development planning. A presidential decree or administrative regulation duly published is an essential requirement, designating the agency in charge and outlining its sphere of responsibilities.

Imposing authority is not the primary role of the co-ordinating authority. Its proper attitude should be one of a primus inter pares - and not one of a commander - which orchestrates the multifarious activities in the manpower development sector. Therefore, it should primarily seek to stimulate, encourage, promote, technically support, analyse, synthesise and monitor the work of the many other agencies and institutions involved in human resources development. In any case, it cannot possibly be expected to exert close control over the whole manpower development sector. No single agency has either the experience and know-how, or the technical and financial resources at its disposal for such a mammoth operation.

The second insight relates to the question of resources. Financial endowment of the co-ordinating machinery cannot be on a lavish scale. Nevertheless, it needs to rely on a technically strong staff. This is especially necessary for the varied functions which the unit will be called upon to perform. Joint co-ordinating meetings have to be well prepared on the basis of carefully selected agenda items to facilitate decision-making. And the decisions taken require energetic follow-up. Thus, the main task of the co-ordinating unit is not to do much of the work involved in manpower development planning itself, but to ensure that the linkages between the different components and their technical performance are well developed. Neglect of these major principles may provide an important part of the explanation for the marred picture that has been painted of the past performance of manpower development planning units.

A third important consideration is that whatever co-ordinating mechanism is established it must adhere to a detailed work programme, setting priorities and carrying out well-phased interlinked activities. Otherwise unplanned and unforeseen demands for work often outside responsibilities of the unit may take precedence over established programme items. In the past this ad hoc tendency has been largely responsible for the deviation of manpower planning work from generating and
analysing manpower information for the systematic assessment and monitoring of training needs.

2. The need for an annual plan or programme

Whatever the type of co-ordinating apparatus decided upon and put into operation, the process nature and the signal-receiving orientation of training needs assessment and monitoring make it imperative to work out an annual plan or routine.^

As has already been alluded to earlier, a great deal of decision-making in the manpower development sector and the data gathering and analysis activities supporting it occurs within an annual cycle. Specific events like the beginning of course programmes set deadlines to be respected.

However, some tasks will have to be repeated at longer intervals than one year. Special inquiries into the skills problems of sectors like the construction sector, the follow-up of the post-training experience of ex-trainees, and studies of key occupational groups or narrow skill categories coming suddenly into demand such as computer programmers, technicians and systems analysts are examples. On the other hand, there are many routine activities which occur at intervals shorter than a year. The whole gamut of labour-signalling activities, discussed earlier, belongs to this category.

There are a number of potential benefits to be had from the establishment of and adherence to an annual routine of carefully planned activities. The first is that an annual plan ensures that the responsibilities and functions of the co-ordinating unit are articulated and performed in a regular and systematic manner.

Secondly, the various agencies, institutions or organisations making up the manpower development sector will know clearly and sufficiently in advance what kind of contribution or input is expected from them and when.

Thirdly, when it becomes routine, the planning of annual programmes does not have to start from scratch every year. Finally, the establishment of an annual programme with clearly defined tasks and deadlines for different work items will make it difficult for ad hoc encroachments to push out or inordinately delay routine activities.

The preparation and execution of an annual programme will also progressively enable the co-ordinating unit to gain more experience and knowledge of the manpower development sector and identify areas for improvement in the process. Considering the high rates of staff turnover to which developing countries are, as a rule, accustomed and which are not likely to spare manpower development units, an annual routine will surely facilitate the development of a systematic and effective framework for training new staff members.

The concrete content of an annual plan will obviously have to be tailored to the specific nature and scope of the tasks
entrusted to the manpower development unit in question. Recent literature on the subject has come out in favour of a comprehensive approach. It argued that the opportunities for constructive intervention by the co-ordinating agency will be as manifold and heterogeneous as the institutions and processes which characterise the manpower development sector. Accordingly, the co-ordinating agency is not only expected to (a) help to improve the general information flow in the sector and (b) provide guidance for formulating training policy and priorities. Its supporters also wish it to have a guiding hand in (c) improving the administrative capacity for decision-making in the manpower development sector, (d) promoting the efficient use of resources and (e) dealing with other related policy issues and problems.

In line with the essential objectives of this study, the following discussion will focus on tasks (a) and (b) enumerated above. This in no way implies neglect of the other important objectives and areas of activity of the co-ordinating unit.

3. The specification of tasks in an annual programme

The annual programme will comprise a number of activities relating to information flows which have to be carried out in collaboration with the various components of the manpower development sector. In the two major areas under discussion the co-operating elements most involved are the manpower planning/labour market information units, on the one hand, and the vocational training planners and programmers, on the other hand. The type and scope of the tasks will naturally vary between different countries. The existing state of development of the data-generating system will certainly influence the content and level of the programme. Moreover, the kind of socio-economic development objectives pursued by different countries and - the prevailing institutional/organisational structure of the manpower development sector will exert a profound influence on the main features of the annual programme.

Thus, it is not possible to put forward a list of activities to be undertaken over a year which is uniform for each country, both with regard to technical substance and specific timing. In spite of these necessary qualifications, there are certainly some tasks - of broad application which will constitute cornerstones of the development of an annual routine. In particular the manpower development co-ordinating unit will pay major attention to (a) ensuring a continuous flow of information on the labour market situation and trends and (b) seeing to it that specific, in-depth, policy-oriented ad hoc studies are undertaken to throw light on problems and issues which are not easily understood and which need to be clarified before effective action can be designed and implemented.
With regard to the organisation and support of a continuous flow of labour market reporting, the annual programme might include the following project activities;

(a) assistance in the development of a regular labour market information programme to provide a continuous flow of basic information on the situation and trends at subnational levels. This would include assistance in the development of an establishment reporting system under which all enterprises make available regular information on the number of persons employed, any existing vacancies, any labour shortages experienced, their prospective needs for various manpower categories, and so on. Supplementary information might be needed on their training programmes, their views on the adequacy of institutional training facilities, entry qualifications and labour turnover rates. In other words, basic information is needed on current and prospective manpower requirements by occupation from work sites, ideally to be obtained each year on a continuing basis. By establishing and maintaining employers' files for each enterprise (at subnational levels), manpower requirements can be monitored. Processing and analysis of the returns from these enterprises will reveal gaps and limitations (especially coverage), as well as possible remedies,*

(b) assistance in the establishment or development of labour market analysis capacity.
Here technical help and encouragement would be supplied by the co-ordinating unit for the continuous analysis of the information flows set in motion. In addition to help in the creation of the necessary staff capacity for such analysis work, support is also required for the establishment of a manpower information bank or pool to procure and keep track of all relevant sources of labour market data, whether published or unpublished, issued by the different departments, institutions and organisations. A helping hand is also needed in identifying gaps in information flows and in filling gaps in data that are essential for planning purposes;

(c) encouragement for the creation and maintenance of an inventory of vocational and technical education and training facilities, if possible, both formal and informal'.
These inventories must be undertaken on a subnational (i.e. regional or area level) basis in order to include all kinds of training institutions, and to define the type and duration of courses given, entry requirements, intake, output, and so on. On the basis of the current stock figures and the output of the training institutions, the supply flow of different occupations can be worked out. This work might include follow-up studies of ex-trainees' experience in the labour market (already discussed earlier), supplemented by detailed studies of the main characteristics of skilled workers registered as unemployed and seeking work with the employment services,
(d) support for the analysis of local manpower requirements in specific occupations, linking industrial organisations (notably employers' and workers' organisations) with training institutions and facilities. This involves the identification of industrial organisations and training institutions which could effect linkages relating to employment opportunities and needs in the area, and jointly outline suitable training programmes. It also involves the encouragement where feasible of joint training schemes on the part of medium- and small-scale industrial enterprises which are unable to provide in-plant training individually for upgrading their workers;

(e) encouragement of the development of occupational analysis/job analysis capacity for the preparation of occupational monographs describing the local labour market situation and the outlook for specific and key occupations. Special studies in this respect will provide information on: the tasks or functions associated with a specific job/occupation; its importance in the industry; current and prospective employment opportunities for the occupation; education, training and experience requirements; availability of local training facilities; entry requirements and opportunities for promotion; the needs and interests of applicants;

(f) encouragement of ad hoc studies on specific problem areas (e.g. recruitment and promotion policy, mobility of skilled workers, etc.) both in the private and public sectors, including the collection of information on the prevailing incentives structure and relative earnings levels between different occupations. Analysis of the latter should be a continuous activity.

The above-mentioned activities provide a broad framework for a regular labour market information programme providing the flow of information on the manpower supply and demand situation, and on trends necessary for training needs assessment and monitoring. Such a framework reflects the joint interests and concerns of manpower development planning units, and the manpower planning and vocational training planning components of the manpower development sector as a whole, as can be observed in the majority of developing countries.

The preparatory work necessary for the drawing up of the annual programme might best be left to the technically responsible components concerned. However, the co-ordinating agency can usefully call and arrange formal or informal co-ordinating meetings to discuss and take decisions on the tasks to be performed and on the implementation schedule.

It has been suggested that the co-ordinating agency establish and maintain a file on the initiation and execution of the different jobs assigned. These documents might include the following items:

(a) the objectives of the task;
(b) a list of staff entrusted with the task;
(c) a list of the reports to be prepared and other action to be taken at the end of the task;
(d) a timetable giving the dates by which the task and its different stages should be completed;
(e) background information relevant to the task, including supporting documentation.

It is essential that these files be kept up to date. Thus, the main preoccupations of the co-ordinating unit in the establishment of an annual routine will be to provide guidance and leadership, as well as encouragement and support, in manpower development planning. Dovetailing of the timing of the various activities with the decision-making events throughout the year will be a primary responsibility.

These reflections and suggestions concerning an annual programme in manpower development, and the specific tasks of a manpower development planning and co-ordinating unit have only recently entered the international debate on manpower development planning. The views and suggestions put forward above are unlikely to find easy and quick application in practice. One has to be realistic. Plans for improved collaboration between manpower planners and vocational training planners have been made constantly during the recent and not so recent past, but unfortunately to little avail. Political and administrative problems have weighed heavily against bringing about positive and sustained collaboration and co-ordination. Excessive departmentalisation, entrenched hierarchical habits, and bureaucratic inertia might be singled out as the main obstacles. They have proved difficult to tackle successfully. And the fashionable emphasis in many developing countries on the problems of manpower utilisation, rather than on manpower development, has not helped to argue the case for more co-ordination in the manpower development sector.

It has been alleged that the requirements of a continuous and regular process of manpower data generation and analysis for training needs assessment and monitoring have been distorted by the propensity and practice of the international aid agencies to promote large-scale training projects. These have been described as "antithetical to the development of an improved continuous manpower analysis capacity in the borrower countries".3

The implications of this view are far-reaching and it seems worth while to keep the debate going. Two aspects seem to occupy a predominant position in this debate.*

(a) the shift away from a mechanistic approach in manpower planning, i.e. from the construction of formal models to a more realistic concept of regular reporting, analysing and pointing to imbalances in labour supply and demand in different sectors, occupations and areas; and
(b) the establishment of an annual planning framework of activities for the manpower development sector as a whole, under the guidance of a co-ordinating agency which, among the array of functions assigned to it, should aim at a
constructive partnership among the various components making up the manpower development sector.

Determined and continuous efforts along these lines are certain to enhance the purposefulness, performance and standing of whatever mechanism is designed to ensure effective co-ordination of activities in the manpower planning development sector, and especially those concerned with training needs assessment and monitoring.

F. The problem of methodology

1. Conventional methodologies

At first sight it might be surprising that the question of methodology and technique has been relegated to a place of lesser priority in this training study. This is because the main concern of this guide is to highlight the process features of training needs assessment and monitoring, the essential role of regular labour market signalling in this respect, and the corresponding orientation of analysis to problem-solving rather than quantitative measuring. Indeed, the main message which the study has tried to convey is that formal mechanistic models and forecasting techniques must not retain the predominant role which they have played in the past. They should rather form part of a pluralistic approach which is flexible in practical application. With this proviso they should – and they will – continue to make a useful contribution to training needs assessment and monitoring in various combinations.

The following review of the main methods and techniques practised will include the better-known, traditional manpower planning tools, those which have developed in the recent past and are still evolving, as well as the more recent approaches and methods of labour market signalling and manpower analysis.

With respect to conventional methods and techniques, major attention will be paid to methodologies concerned with manpower demand forecasting/projection, their main features and their relative advantages and disadvantages. Some brief references are also made to the supply side of the manpower equation. With regard to the newer approaches, a summary is provided of their nature and scope and their contribution to training needs assessment.

The following presentation and discussions are not meant to provide an exhaustive treatment of each technique, but rather an introduction which needs further study with the help of the topical literature provided in Chapter I (References and notes).
(a) Demand side

(i) The manpower requirements approach

This approach, pioneered by Parnes in the Mediterranean Regional Project (MRP) is the fixed coefficient method of manpower planning which has developed in a variety of forms with various contents. It attempts to relate economic growth to the required educational/training output based on a number of assumptions.

The method, also called the MRP approach, moves step by step from a national output/income target in year x determined by economic development planning, to a supply of qualified manpower necessary for reaching this target.

While the assessment procedure, as first developed and adopted by Parnes, comprised altogether eight stages, these have since been condensed to four, as follows:

- forecasting of or setting targets for the rate of economic growth over a given period, broken down by economic/industrial sectors;
- application of labour/output coefficients to the growth targets to derive additional requirements of labour by sector;
- conversion of the additional labour requirements into occupational categories by type of work or educational qualifications required (sectoral occupational requirements);
- translation of additional requirements by occupation into demand for graduates/trainees to be met by existing, modified or new education and training programmes and projects.

Advantages

The techniques involved are straightforward, logical and transparent. They are readily comprehensible and are preferred by various groups of policy-makers and planners at operational levels.

The method has varying data requirements depending on the variation of the model with regard to different levels of disaggregation. On the whole, however, data demands are relatively modest.

Disadvantages

Accuracy and reliability diminish rapidly with longer-term forecasting horizons and at higher levels of disaggregation (greater occupational detail). Its use for policy simulations is limited and it relies heavily on either fixed labour coefficients or variable ones which make unrealistic assumptions.
With these (important) limitations kept clearly in mind, the manpower requirements/projection approach can be a useful instrument of analysis for short- and medium-term training needs assessment exercises, together with other methods and approaches. This applies in the first place to developing countries which are working within a planned development framework and which have huge public - in comparison to private - sectors, with formal labour markets playing a very limited role. Subsector and sector development targets can then be directly related to specific requirements for the various categories of skilled manpower. Professional and technical categories are cases in point.

(ii) Rate-of-return analysis

The basic principle underlying this method is that manpower development implies an investment in human capital formation with resultant benefits to the individual (private return) and to the society (social return). One of the primary benefits is seen in the increased productivity of the individual as reflected in an increase in his earnings. Investment costs include expenditures for teaching/instructor personnel, building, equipment, material, and so on, and also the indirect costs incurred by the income/wages foregone by the person concerned during his education or training.

One of the earliest attempts to examine the contribution of education to human capital formation was made by Strumlin in his study of metalworkers in Leningrad, identifying human capital with skill level (measured by wage levels). Since then many studies have been undertaken on the subject, though apparently not much use has been made of them in guiding decision-making in educational/vocational training planning.

Advantages

Instead of stipulating requirements, the method seeks to provide indicators for a necessary expansion or contraction of certain education and vocational training streams, programmes or courses. The guiding principle in this respect has been expressed in this way; "the greater (smaller) the rate of return found for a given type of manpower development, the greater (smaller) priority in funds allocation should be devoted to it". Unlike the manpower requirements approach it permits comparison of the rationales of different manpower development options.

Disadvantages

There is a fairly long list of objections which have been raised against this approach as a guide for decision-making in
manpower development. A main objection is that, although education and training costs can be measured comparatively easily (budgets of educational or training institutions) considerable difficulties in terms of concepts and data arise in measuring social returns. Other disadvantages include the following:

Noted differences in earning profiles between those with and without "extra" training are not only due to training, but can also be accounted for by personal faculties or abilities, family background and individual motivation or commitment. Moreover, there are inadequacies in the samples used to estimate earning profiles for smaller manpower categories, though there is no problem with primary and secondary education. In addition, problems exist in determining the quantitative implications for manpower development of different rates of return, in the sense that the latter do not indicate how far and how quickly the manpower development programmes/projects concerned should expand or contract. Finally, the data requirements are considerable. A series of rigorous assumptions is necessary and a substantial amount of time required for the calculations. Nevertheless, rate-of-return analysis will remain one of the instruments of analysis for training needs assessment. It has a role to play in decision-making about investment priorities among different levels of education or between alternative methods of skill formation.

(iii) Normative methods

One such method is based on the ratio between a specific occupational group and a task- or service-related parameter. For instance, the number of agricultural extension workers required can be related to the number of farm families which one extension agent could be expected to assist and supervise effectively. The same ratio principle can be applied to determine the need for teachers (teacher/pupil ratios) and for doctors (doctors per head of population). A variant of this method consists of relating the needs for one group of manpower to another. A forecast of one group's requirements will automatically lead to a prediction of the needs for another. This approach of computing manpower requirements is widely used in countries with centrally planned economies. It is also used for determining the ratio of specialists required to manage a particular volume of work and for working out job descriptions (classification of occupations). In preparing job descriptions, the ratio of specialists with secondary education to those with higher education is thoroughly examined and evaluated.

Advantages

Like the manpower requirements approach, the normative method appeals with its logic and straightforwardness as well as
with its relatively modest data demands and the transparent calculations involved. It is the method most appropriately applicable in economies with a centralised planning system in which the main resources allocation decisions are taken according to planned socio-economic objectives and where there is, by definition, a close correspondence between planned targets and actual outcome, though deviations do occur. The method is less suitable for market-oriented economies, except for that range of occupations for which demographic, density or similar norms can be established.

The use of norms can also ensure that, as far as possible, a comparatively equal workload or measure of responsibility is assigned to each worker in the same category or at the same skill level.

Disadvantages

Ratios and norms tend to reflect conditions of the past and, unless they are constantly adjusted, make rigid and inappropriate yardsticks for the future. They have little relevance to situations where decisions are taken as a result of or in response to market transactions.

(iv) The employer survey method

Possibly the oldest and most direct method of inquiring about training needs consists of asking employing establishments what kind of manpower in what numbers they expect to require or they intend to recruit within a specified period.

These inquiries produce forecasts from which attrition estimates and turnover rates need to be subtracted. The forecasts are then aggregated to indicate the projected net total job openings by occupation (and skill levels) for the relevant target year.

Employer surveys can be conducted as a full count or on a sample basis, requiring a complete and up-to-date listing of employing establishments. The survey can be administered by postal questionnaire, the personal interview method, or a combination of the two.

The inquiry method assumes that the interviewed employing establishments do, in fact, possess the knowledge and capacity to look into future market prospects, industrial growth rates and the corresponding manpower implications.

Advantages

The survey/inquiry of enterprises or employers is straightforward and goes to the very source of the issues connected with training and skill requirements and needs. It
produces results which are immediately available for training needs assessment and planning. Moreover, it is virtually the only practicable method in the case where severe data constraints exist.

The survey of employers can be adapted and adjusted to meet local information needs. It also permits the tapping of detailed knowledge of technological changes in progress, of market and enterprise expansion (or retrenchment) trends, and other insights and experiences which have a bearing on manpower demand. Finally, regularly and competently conducted employer surveys can be helpful in building up confidence and greater willingness on the part of the employing establishments to divulge other information of relevance to training needs assessment and monitoring, such as information on the structure of internal labour processes (hiring practices, promotion procedures, etc.). In such an atmosphere of confidence it might also be easier to have the considered opinion of employers on the interpretation of manpower projections and training needs estimates obtained through other methods, and on the effectiveness of existing manpower development programmes and projects.

Disadvantages

Employers are not all willing to provide reliable and detailed estimates of target-year occupational demand or need. Some are simply not in a position to estimate future requirements, especially those beyond the immediate future. Answers to the questionnaire are therefore often based on mere guesswork, on personal ways of classifying jobs (which may deviate from official classifications), and on personal bias. Moreover, newly founded enterprises are often not included in the survey. All these factors make for a generally low level of accuracy and reliability of this method in terms of statistical rigour. Finally, the cost of the survey is not negligible if the personal interview method - and not the mail survey - is applied throughout.

It needs to be pointed out that these problems and disadvantages are less likely to occur in centrally planned economies where questioning of employing enterprises about their needs for various occupational categories of manpower constitutes a basic element of the whole planning exercise. Some of the disadvantages listed above might also be considerably attenuated in more market-oriented economies if questioning of employers about their training needs were part and parcel of a comprehensive, service-oriented and well co-ordinated manpower development system; in other words, if employers were involved directly in training needs assessment activities based on regular contact to explore and monitor their skill needs rather than on the on-off survey.
(v) The international comparison method

This method undertakes manpower forecasting work for a given country by borrowing historical and current manpower data from countries at higher stages of development. The premise underlying this method is that different countries follow similar manpower growth paths so that at the same level and composition of output they will have rather similar occupational and educational structures. Two approaches can be used to derive occupational structures from international data; (a) the comparative approach and (b) the statistical approach. These are presented and discussed in detail in Zymelroan's pioneering work in this field.**

Advantages

With a basic employer survey, this is a method applicable to countries in which data conditions are extremely poor...but it might also be used as an instrument for supplementary analysis for manpower planning using other forecasting techniques.

Disadvantages

There is such a wide variety of educational and occupational structures for a given level or stage of development that no exact relationship is observable between the two. The method also ignores the large array of cultural, institutional and geographical differences among countries at similar levels of development. In addition, the method neglects the time element in the historical process. Moreover, national occupational classifications are similar but not identical. Caution is necessary in order to avoid running correlations for occupational titles which are not strictly comparable. In spite of these disadvantages, international comparisons in manpower and occupational structures relating to economic performance and outlook are popular instruments of manpower analysis in planned, market-oriented, and mixed economies.

(vi) Econometric models

These models represent a set of equations describing the behaviour of the economy, i.e. the complex economic relationships among the different sectors, or between particular sectors and the "rest of the world". By taking into account these relationships, an econometric model can consider and explore the impact of numerous determinants of future employment levels. The relevant output of these models is a set of estimates of levels of employment in various sectors for the target year. A technique for converting this set of employment projections must
be appended to the core econometric model. In other words, the econometric model is an alternative only to the first step of the occupational or manpower forecasting operation or of the system as a whole, as already described under the MRP or manpower requirements approach. The following presentation of the advantages and disadvantages pertains therefore to the core econometric model only and not to the manpower requirements approach whose relative advantages and disadvantages were discussed earlier.

Advantages

The method is sensitive to a large variety of factors which affect the structure and the levels of employment and it is able to take into account indirect and local inter-sectoral effects. It is also capable of performing policy simulations, i.e. the construction of alternative scenarios.

Disadvantages

There are considerable data requirements involved, as well as substantial model and data base maintenance costs. The use of large capacity and thus expensive computers is a must. Moreover, and in contrast with the approaches set out earlier, due to the highly technical form and content of the model's documentation, the techniques involved are of limited accessibility and comprehensibility to policy-makers and practitioners. Finally, econometric models are also struggling with the problems of aggregation, and their econometric structure is often judged to be rather fragile.

(vii) Input-output model approach

This method sets out in detail the inter-sectoral linkages (purchases and sales) within the economy and the trade relations with the "outside world". Based on an exogenously estimated target-year demand for goods and services produced, the model establishes the target-year level of output for each economic sector. These outputs are then converted into employment requirements. The latter are determined with the use of exogenously estimated industry-specific labour/output ratios. Thus, like the method previously discussed, input-output models constitute the first element of the occupational forecasting system.
Advantages

The method is capable of producing highly detailed employment forecasts, taking into account detailed inter-industry relationships among sectors. These are then fed into separately estimated staffing patterns (matrix) to obtain occupational forecasts. Specification errors do not occur since all economic relationships within the model are empirically determined. The model is equally appropriate for short-term forecasting and impact analysis.

Disadvantages

Considerations similar to those described under (vi) above for the econometric model approach apply to the input-output model approach as well. Moreover, the data requirements for constructing a sufficiently detailed input-output table (technical coefficient matrix) are extremely severe and are likely to pose insurmountable problems for the useful application of this model in the majority of developing countries.

(b) Supply side

In general, methods to project the supply of manpower have received comparatively less attention than those concerned with demand projections. To some extent, this is due to the fact that the basis for projection work, i.e. information on population, school-age population and labour participation rates, is less fraught with uncertainty than forecasting future paths of economic growth, the development of occupational patterns, and technological changes.

The majority of the supply of skilled manpower comes from the educational and training system of a country, though in making projections of future manpower supply through this system a distinction has to be made between:

(i) projections for short- and medium-term periods resulting from the completion of educational/vocational training programmes by students presently enrolled; and

(ii) longer-term projections concerning the expected completion of education/vocational training of graduates and trainees who have not yet entered institutes of learning.

Short-term projections of the educational/vocational training systems are based on statistics of enrolment of students and trainees. They must make allowance for wastage rates on the initial intake of students. These rates are derived from promotions, and repeater and drop-out records.

Longer-term projections are based on projections of the population of appropriate age groups and assumptions made regarding the proportion of this population which is likely to
enrol, especially at each level of university or equivalent education. After determining possible wastage rates, projections can be made for periods of up to 15 to 20 years, provided, of course, that census data by age and sex are available for covering such periods. The accuracy or reliability of such forecasts will depend on the extent to which current development trends prevail, and on student preferences and choices in response to technological innovations and the evolution of the employment situation.

More comprehensive manpower supply models involve the application of demographic accounting to population, migration, and the educational and training system. Their main objective is to project the future volume and composition of the labour force. They may be subdivided into sub-models;

(i) a demographic model to define the population stock by region, urban area, sex, and age; and
(ii) an educational model to specify total enrolments for each educational level.

To give an example, the labour supply model of the Bachue approach relates the demographic structure rationally to labour supply and explores thoroughly the following key factors: fertility, mortality, marriage, migration, education, skill, and labour force participation rates. Most of the models developed under Bachue have rather elaborate educational accounting systems which keep track of students as they graduate from level to level, drop out, and repeat levels.

The relevance of these supply projections to training needs assessment and monitoring is not always easily discernible. Their value as a framework or as background information is not in doubt. However, they often lack the required detail and do not provide enough disaggregation concerning the current and projected output of the various training institutions, whether formal or informal, and whether provided by public or private facilities or a combination of the two.

2. New approaches in labour market signalling and manpower analysis

The recent shift of emphasis in manpower planning from formal projection/forecasting modelling to the capturing and analysis of labour market signals has by no means implied reduced data requirements. On the contrary, the necessarily constant flow of labour market information for signalling purposes also places heavy, albeit different, demands on data generation, analysis and dissemination. Regularity in capturing signals and their prompt relaying to the consumers are of the utmost importance. Data volume will also be augmented by the fact that labour market signalling covers both formal and informal sectors, urban and rural areas, and regional and local levels.

The existing statistical apparatus in the overwhelming majority of developing countries is far too weak to sustain the
classical statistical underpinning of such a comprehensive manpower signalling system. Nor could it be expected to be brought up to an adequate level in view of the exhorbitant costs involved. Quite apart from these considerations, classical statistical surveys are usually not disaggregated enough and require too long a time span between survey conduct and the release of results to qualify as an adequate tool for training needs assessment and monitoring.

It is mainly for these reasons that in recent years a number of developing countries has been looking for new, cost-effective approaches towards labour market signalling and analysis which could make an appreciable contribution to training needs assessment as well as monitoring.

A selection of these approaches—which are in different stages of experimentation and application—will be discussed in the following subsections.

(a) Assessment of job advertisements

In many developing countries notification and filling of vacancies, especially those concerning the higher- and medium-skill occupational categories are only partly handled by employment services. Therefore, regular employment service reports provide no more than a partial picture of supply and demand imbalances in different occupations in the formal sector.

On the other hand, in a number of developing countries many vacancies in both the public and private sector are advertised in major newspapers*and other national journals. Yet little use has been made of this potential source of labour market information, albeit one that might yield information of a very limited nature, i.e. a few key occupational categories in the formal sector.

However, as simple and straightforward as such ideas might appear at first sight, there are certain precautions to be taken to ensure that the signals obtained convey an accurate picture of labour market reality. A project undertaken in an African country will be briefly discussed to illustrate this point.

The first step of the exercise consisted of registering all vacancies requiring certain educational levels or skills which were advertised during a specified period in two national newspapers.

The total number of advertisements registered during the specified period (a quarter) was 539. They covered 36 different occupations (two-digit level) out of a total of 63 occupations, as classified by a national manpower survey undertaken in 1980.

Only in the case of 173 advertisements did the advertising establishments respond to questions directed to them on the results of the recruitment efforts, the number of job-seekers who had replied to the advertisement, their qualifications, their current employment status, and, if employed, their wages and earnings. An analysis of the replies revealed the relative difficulties of recruitment among the different occupations.
Sixty-two advertisements led to engagements. This is slightly over 36 per cent of the total number of advertisements. Altogether 107 advertisements (62 per cent) failed to match job and worker and four were not answered at all. The majority of the applicants were already employed and were looking for an improvement of their position.

With respect to education and training levels, 43 per cent and 36 per cent of the applicants respectively had to be rated as underqualified in the light of the requirements stated by the advertising employers. The proportion of "overqualified" and "just qualifying" applicants was considerably higher in the group of applicants recruited than in the total number of job-seekers. One of the major conclusions drawn from this analysis was that most applicants responding to the job advertisement did not possess the skills required by the advertising employers. The skill gaps identified pointed to the need for more training or the upgrading of qualifications.

Of course, it has to be conceded that, on its own, analysis of job advertisements has a rather limited value for training needs assessment. It can cover only a narrow segment of the labour market and the sample for analysis might often be too small to arrive at reliable conclusions. However, it might have a place where there is a severe lack of other signalling possibilities.

(b) Selective labour turnover surveys

Labour turnover surveys inquire into rates of vacancies, engagements, resignations, and dismissals, and their inter-relationship in selected sectors or subsectors with regard to the labour force as a whole or certain (key) occupational groups. This type of periodic survey conducted at various degrees of coverage and sophistication is often claimed to be a particularly effective instrument for obtaining insights into the functioning of labour markets and, notably, the nature and scope of imbalances between labour supply and demand. The main groups covered by these surveys have been technical, middle-level occupations, but lower-skill manpower categories have also been included. Time series generated by these surveys make it possible to construct a clear picture of the trends and the dynamics of different labour markets and especially those of key significance. Private and public employers alike, as well as workers and their organisations, have displayed a great deal of interest in this type of labour market signalling device.

One of the main problems of this survey type is that in its conventional form it is quite extensive and expensive. Therefore, the challenge is to trim its scope and detail down to dimensions which answer essential questions and which minimise costs. The principle should be to put up a list of questions which usually does not extend beyond one page. •*
An example of efforts made in this direction is provided by the Labour Market Information Unit of the Ministry of Labour in Malaysia. It has developed an employment turnover survey whose main objective is:

to gauge the scarcity/availability of workers and skills and to draw conclusions regarding the tendencies in the labour markets. It is hoped thereby to provide information for jobseekers and employers and those agencies assisting them to find suitable jobs and employers. It is also an aim, to assist the organisation planning for and intervening in the labour market, and in particular those engaged in vocational training and other types of skills development and skill marketing.

Before the full implementation of the survey a number of trial runs were carried out. As a result of them, it was decided to restrict coverage of the survey to some 49 occupations, primarily in the major groups 7 to 9 (production and related workers). This initial limitation was mainly dictated by considerations of cost, as well as by the fact that the Ministry of Labour through its employment and training services had labour market responsibility for these groups. However, it is envisaged that other occupational groups will be added later when the signalling system has proved its worth.

The survey design was based on a sample of about 1,000 establishments in the private sector. These establishments were chosen from ten different labour market areas in Peninsular Malaysia in order to compare labour market situations and developments in the various geographical regions of the country for differentiated labour market intervention measures. In practice, it was found, however, that there were some regions and occupations for which the data collected were too thin to permit conclusive analysis.

The main questions asked included the number of engagements and resignations, with supplementary information requested on changes in labour demand and internal transfers, as well as on the predominant skill levels pertaining to vacancies, engagements, and resignations.

In the analysis of each labour market area the occupations surveyed were grouped into those from establishments competing for workers (Group I; Competition occupations) and into those establishments where such competition was not observed (Group II: Non-competition occupations).

The latest available survey shows that the labour market for 30 of the selected occupations was rather tight. The average rate of resignations was about 8 per cent per quarter. Presumably, workers resigned because of better prospects elsewhere. For some occupations, the rate of resignation was as high as 24 per cent.

Many establishments tried to improve the deployment of their workforce through supplementing or substituting recruitments with internal transfers, i.e. recruiting for a workplace from which the previous holder had been transferred.
The supplementary information requested on skills distinguished between basic, intermediate and advanced. The fact that the predominant skill level of those recruited was "basic" was probably due to the tight labour market, i.e. an excess of demand over supply. In contrast, workers who resigned and those who were transferred had skills of intermediate and advanced level.

Experience indicates that the most valuable and useful feature of this kind of labour turnover survey with limited coverage is its cost-effectiveness and its promptness in identifying important labour market imbalances, while at the same time providing time series information on a comparable basis for the various sectors and regions of a country. This permits immediate and differentiated monitoring of main changes and trends in different labour markets.

The selected labour market turnover survey in Malaysia appears to be in an experimental stage, with the scope and the periodicity still to be decided.

There has been some discussion recently on changing the frequency of the survey to biannual rather than quarterly reporting on a number of the questions asked. Perhaps this modification of the survey might yield a more thorough appreciation and understanding of the causes and the incidence of labour turnover. However, such a change would detract from the original purpose of the survey.* to obtain a regular and cost-effective signalling instrument for the speedy identification of manpower shortages in particular sectors and occupations, and for pinpointing those for which training could help to ease pressure.

(c) The key informants approach

The labour market signalling devices discussed in the preceding parts of the paper cover only formal labour markets. They do not work in the informal sector, and in particular in the rural areas where self-employment in small-scale units predominates.

In some rural areas, (limited) labour markets in the formal sense do exist, as in plantations and larger commercial farm areas, and in the central rural towns. In others, seasonally operating labour markets can be identified. However, most rural areas in developing countries are not affected by labour supply and demand interactions as they occur in the formal labour market. Accordingly, other signalling instruments need to be found to identify regularly and promptly the manpower and employment problems and issues in that sector, and their implications in terms of manpower development and utilisation, especially with regard to various rural development programmes and projects.

One possibility in this respect is offered by the so-called key informants approach.* Briefly, this is based on general
experience and observation that some people, due to their profession, residence and personal interest, possess a more detailed knowledge than others on prevailing and prospective manpower and employment patterns in a given area. Local administrators, village elders or leaders, progressive farmers, agricultural extension agents, school headmasters, to quote only a few, would seem to be potential candidates for "storing" such knowledge. To tap it systematically and periodically through structured interviewing and making a comprehensible mosaic out of the bits and pieces of information obtained is the primary objective of this approach.

Opponents to this approach point out quickly that the information it produces is not sufficiently accurate and representative and that it is laden with personal bias. To this, proponents reply that, despite the well-known dangers and the necessity of cross-checking, key informants are a major source of information when knowledge of orders of magnitude and directions of change is often all that is needed or that will be used. They also emphasise that the key informant approach is not a substitute for statistical surveys of the traditional type, but that it complements them. And where such statistics do not exist or do not supply needed manpower and employment information in sufficient occupational detail and local disaggregation, the key informants approach may well constitute the only source of information useful for the operational purposes of both planners and practitioners in rural areas and at local levels.

In order to test the pros and cons of the key informants approach, the ILO sponsored an experimental programme during 1979 and 1981 in which seven developing countries, mostly Asian, participated. The results of this test programme were evaluated by an expert group in a seminar which was held in Bangkok in November 1981.

The seminar concluded that the experiment was largely positive and that in any case there was no cost-effective alternative in sight to close the existing information gap in the field of manpower and employment in rural areas and at the local level.

Briefly, the seminar listed the specific purposes for which information obtained from key informants would be particularly relevant and useful, namely:
(a) to identify locally expressed needs for, and the potential of, specific employment-creating activities, such as land improvement works and construction of roads, schools, etc.;
(b) to identify the nature and scope of possibilities for promoting and upgrading local self-employment activities;
(c) to detect local problems and bottle-necks which obstruct development of local employment potentials, such as transport problems, lack of raw materials, energy, equipment or spare parts, credit, etc.;
(d) to amplify, interpret and update the manpower, employment and unemployment data obtained from other sources and to identify and explain imbalances in local labour markets, such as shortages of skills and related training needs, including the upgrading of existing skills;
(e) to follow up and monitor promptly the local impact of employment creation and vocational training programmes.

While the key informants test programme was mainly directed at probing into the suitability of this approach as an operationally useful signalling device for the informal sector and the rural areas, there was one project (Antigua) which used the key informants approach primarily as a source of labour market information about training needs in the formal sector. A brief overview of the Antigua experiment may therefore be useful in order to demonstrate the value of the key informants approach for the formal sector as well.°

The project selected 72 key informants from government agencies, the private business sector, and employers' and workers' organisations; 80 per cent were from the private sector. More than half of the key informants were employees, about one-third employers and 11 per cent self-employed. Managers and managing directors accounted for 42 per cent of the total.

The questionnaire, which was constantly improved during the four quarterly test surveys, consisted of four parts:
(a) general characteristics of the key informants,*
(b) labour and skill requirements;
(c) supply of selected skills and vocational training programmes,
(d) employment generation.

The first part, the key informants record, provides background information on the main socio-economic characteristics of the key informants. The second part contained a list of some 30 selected occupations of known importance in the island. Key informants were asked which of these were in short supply, over-supply or approximate balance in supply and demand. It also inquired about the training facilities available for acquiring these skills and possible ways and means of improving them.

With respect to the skill and training part, the questions about manpower shortages and over-supply in different sectors and occupations were progressively defined in closer ranges so as to improve precision of the quantitative indications given. Thus, the third survey introduced three orders of magnitude (10 or fewer, 11-25, and more than 25 persons) which proved fairly satisfactory and were maintained in the fourth survey.

The fourth and final part asked the key informants to indicate areas in which they saw good possibilities for promoting employment.

One of the four key informants survey reports summarised succinctly the various uses to which the information gathered and the results of the analysis built on it could be put;
New on-the-job training programmes could be established; effective criteria for granting overseas training awards could be introduced; a set of relevant priorities could be determined by the training institutions; suitable career guidance programmes and apprenticeship schemes could be implemented; an in-depth analysis of work application could be considered; more accurate feasibility studies and evaluation criteria for the existing and foreseen investment projects could be fostered; special incentives to stimulate training programmes for the most critical skills could be designed; a better monitoring and assessment of the employment impact of the national development plan could be effected; and a closer integration of manpower aspects into development strategies, policies and programmes could be achieved.

A detailed discussion of the pros and cons of the key informants approach has been provided elsewhere. Certain limitations are obvious and the problem of personal bias needs careful handling. On balance, however, the test programme has shown that the key informants approach can be applied in various designs ranging from the relatively sophisticated to the rather simple and that it yields information for decision-making purposes which at present cannot be met otherwise. Therefore, the potential of the key informants approach as a tool of manpower development planning merits wider attention than it has received hitherto. Perhaps the current situation and outlook is best summarised in these words:

For better or worse, narrative reports submitted by key informants are likely in many countries to be the most effective source of enrolment guidance, as well as a cheap one. As yet, the technique has been tried in a limited number of countries and even in those not all the possibilities have been explored.50

This positive verdict on the key informants approach does not seem to be easily acceptable to manpower development authorities in developing countries who continue to believe in quantitative, single-value forecasts. Subjective judgements and trend reading done by key informants remain highly suspect and are looked down upon as unprofessional utterances. Associated with this is the feeling that labour market information generated through the key informants approach represents the lowest level of manpower and employment data, befitting a country at the lowest level of development.

In order to dispel this prejudice and breathe some realism into the discussions on the pros and cons of the key informants approach, it might be useful to summarise the recent experience which New Zealand has had with the key informants approach to provide information on possible trends in demand for key skills.31

The rationale for adopting this approach stemmed from the recognition - already referred to in this guide - that past efforts to generate information on the future demand for skills
and occupations have proved to be less than satisfactory. The practical application of the key informants approach proceeded through the organisation of studies on key skills trends. The latter seek to tap informed industry opinion about trends in the demand for key skills. Only those occupations in a particular industry are included in the study, the normal training time of which, as above, is of two years. The emphasis is on qualitative assessment, as indicated by the following statements: a moderate increase in the demand for skill A; a slight weakening of demand for skill B; demand for skill C would remain more or less in balance.

Selecting key informants and gathering and collating their opinions is a three-stage process. The first stage consists of the selection and interviewing of non-employers in the industry, including representatives of employers and workers' organisations, industrial training boards and technical institutes and colleges. In addition to being asked for their views on future trends, these people are also requested to name employers of the industry likely to be knowledgeable about manpower and occupational problems. The list of names obtained may be supplemented by suggestions from the department of labour district staff. The second stage is the contacting and interviewing of the employer informants so identified. The third stage comprises the preparation of reports based on these interviews which are subsequently sent to headquarters for collation into a national overview.

The interviews are carried out by district officers of the department. They follow nationally uniform, semi-structured interview schedules containing six broad questions. These are:

(a) Which skill categories are currently characterised by over-supply or shortage?
(b) Which skill categories are likely to face over the next three years an increase or a decrease in demand?
(c) Which skill categories are likely to have a balanced supply and demand relationship?
(d) What are the factors contributing to any increase or decrease in demand for particular skills?
(e) How would an increase in demand be met or a decrease accommodated?
(f) Are there likely to be changes in the nature of skills required or in the way they are acquired?

It is left to the discretion of key informants to comment and elaborate on the questions put to them.

In an explanatory note attached to the surveys conducted so far, it is emphasised that the programme of studies on skills trends differs from other methods of collecting labour market information in several important ways. Three points are made up in this respect:

First of all, the "bottoms-up" key informants approach is based on the opinions of knowledgeable people working in a particular industry and does not rely only on information from officials associated with that industry or on the
forecasting/projection ability of government staff. Studies of key skills trends are, moreover, concerned with both quantitative and qualitative demand trends - and not with specific numbers. Secondly, the programme focuses on information provided by a selected group rather than by a wide sweep of people. Thirdly, key informants interviewed have been identified as knowledgeable about the industry in question. In this sense they are hand-picked, not selected by sample survey techniques.

The studies on key skills trends are mainly intended for industry consumption. In some cases they may trigger off more detailed and specific investigations by industry training organisations. In others they may provide sufficient indications for industry groups to develop training responses to the trends identified. In general, the studies are meant to assist all groups and sections of the industry surveyed in planning their human resources.

The key informants approach, as adopted by the New Zealand Department of Labour, was tested by pilot projects in the engineering industry in two districts in 1982/83. The first full-scale (national) exercise of the engineering industry followed in 1984. More of these surveys are scheduled for other industries. A regular cycle of these surveys is projected with each major industry group studied on a rolling basis at roughly biannual intervals.

The studies are published in 20-30 page documents in a uniform pattern. They have four main chapters:
(a) information on the background and significant aspects of the industry under survey;
(b) current labour demand for skills in that industry;
(c) future trends in demand;
(d) training for skills needs, including the content of training and changes in the type of training (off-the-job training, apprentice training and retraining), with a summary of the major trends discussed in these surveys.

(d) **The signalling potential of tracer studies**

Forecasting or projecting skill requirements has been in the centre of attention until fairly recently. It is therefore not too surprising that looking back at the performance of institutionalised training, as measured by the experience of ex-trainees in the labour market, has received far less interest. However, this kind of *ex post facto* assessment of training needs is rapidly gaining ground. It has become known as tracer study.

Since literature on this subject is growing, there is no need to go into it in any detail in this guide. However, a few general remarks may highlight the labour market signalling potential and relevance of tracer studies. There are several reasons why tracer studies might make a more useful contribution to training needs assessment than
present-day manpower projections and forecasting. First of all, there is what might be called a captive population, i.e. a batch of ex-trainees who finished their courses at the same place and at the same time and who started looking for work under similar conditions. Secondly, a register of addresses of the ex-trainees can be quite easily maintained by the training institution/establishment so that a question card (postage paid) can be sent to them at certain intervals inquiring about their labour market experience. One great danger with tracer studies is that questionnaires may become unduly inflated; this may have an adverse effect on the response rate and the quality of the answers. To serve as a labour market signal, the questionnaire should preferably be as short and simple as possible. With this in view, it might be sufficient to ask for:
(a) occupation in which employment was found;
(b) length of job search;
(c) wages and salary levels.
Even such a simple approach may not always yield a high response rate. However, this should not pose serious problems since it is usually possible to weigh the overall results by factors based on the rate of response for particular institutions and/or occupations.

The qualitative information potential of tracer studies is also important, although it cannot be easily interpreted and followed up. In many developing countries, responsibility for the evaluation of the quality and the relevance of the training imparted lies with the training institutions rather than with the labour market information/manpower planning units. The obvious interest of employers in the quality and relevance of training should offer good prospects of a high response rate to a simple questionnaire.

Results of tracer studies need careful analysis since the employment and unemployment rates of trainees, waiting periods, and wages and salaries do not indicate on their own the success or failure of a training programme. The employment or unemployment rate among traced trainees needs to be compared with the national employment picture of similarly skilled workers and with regional rates. In addition, it must be compared with employment or unemployment rates of whatever control or comparison group is utilised for the follow-up study itself.

For example, a high employment rate of trainees might indicate a severe manpower shortage situation in which employers had no alternative but to engage the programme’s output in spite of its insufficient quality. This needs to be substantiated by comparison with national statistics on skilled manpower shortages, by employers’ interviews, or by studies of the patterns of utilisation of the trainees from other programmes.

In turn, high unemployment rates may not demonstrate an unsuccessful outcome of a training programme. These can also be due to: worsened economic conditions in comparison to the time when training requirements were assessed; engagement practices based on other criteria than skill possession; the labour market
attitudes of the trainees; inadequate placement and vocational guidance services; etc.

Similarly, there is no direct cause and effect relationship between the length of the waiting-time and the success of a training programme. The aspirations of the graduates and their willingness to hold out for the "right" job must be considered and separated from the consequences of weak manpower services (placement and guidance) and the fortunes of the labour market. Thus, waiting-time by itself is an inadequate indicator for determining training programme modifications.

Also with regard to wage and salary data collected from graduates or ex-trainees, caution has to be applied when using them as post-programme measures. The major problem in using earnings data is to determine what effect the programme itself had on higher levels of earnings, since these are determined by many other factors as well. Therefore, if wage and salary levels are used to measure the degree of success of training programmes, the underlying assumptions need to be clearly spelled out. Data on earnings must be used carefully and in conjunction with other tools of measurement.

In summing up, tracer studies should be regarded as one form of labour market information, though it should be pointed out that they are the only form oriented towards labour supply rather than demand. They reveal what actually happened, i.e. whether ex-trainees of a particular course or programme found employment for which they were trained, whether a particular training programme for a specific group was successful, and whether there were inadequacies in the way training was delivered.

Beyond this and even more important, tracer studies fit well into the pluralistic techniques approach advocated in this guide, and integrate well with other sources of labour market information. They also respond to the requirements of short-term and locally based labour market signalling to which the guide has directed its main attention.

These inter-relationships and their expected achievements are well stated in the following quotation:

The objective of these various kinds of labour market information used in conjunction is to link up supply and demand information, to allow a more complete picture of the dynamic state of the occupational structure, the real outcomes of training in relation to this structure and the prediction of future job offerings for the planning of further training (or other forms of labour market intervention). Another objective of gathering this data, which may appear subsidiary but which is nonetheless important, is the provision of guidance and counselling for those contemplating training or re-training."

Perhaps tracer studies might have little to say on new training areas in need. On the other hand, they do provide a powerful instrument for keeping existing training programmes in line with labour market requirements.
An analytical framework for manpower development issues

1. Major occupational groups (public and private sector)

After the brief exposition of traditional and new versions of manpower planning methods and approaches, it is appropriate to present a framework for the kind and range of analysis and planning activities which have a bearing on the process—nature and problem-solving perspective of training needs assessment advocated by this guide. While the general principles and criteria underlying this orientation as well as their implications for an annual plan of activities have already been discussed in preceding chapters, the main focus of the following section will be on how the job could be done.

Table 1: Manpower development issues

<table>
<thead>
<tr>
<th>Skill level</th>
<th>Public sector</th>
<th>Private sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Separate subsector analyses for professional and technical staff, wage scales</td>
<td>Wage scales, employment of expatriates</td>
</tr>
<tr>
<td>Middle</td>
<td>Wage structure</td>
<td>Wage structure, labour turnover</td>
</tr>
<tr>
<td>Low</td>
<td>Agriculture, poverty groups</td>
<td>Population, labour force underemployment</td>
</tr>
<tr>
<td>Special</td>
<td>Economic subsectors and sectors</td>
<td></td>
</tr>
</tbody>
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| Construction | Project | Agricultural/ rural development |

While an illustration must be given of the range of issues to be covered, overburdening and complicating the discussion with too many subjects and too much detail must be avoided. It is therefore proposed that the most important issues and problems be discussed in a simplified classification according to major skill level (high, middle and low) in the public and private sector; and according to economic sectors and subsectors, including the special task of training needs assessment in training project preparation and in planning manpower development in agricultural and rural development. Table 1 provides an indication of some of the issues and areas to be treated within that cross-classification.

(a) **High-level manpower**

(i) **The public sector**

In many, if not the majority of developing countries, high-level manpower is principally employed by the public sector. Therefore, governments in developing countries have a major interest in achieving a better knowledge and understanding of the functioning of the demand/supply relationship in the professional and technical categories, and detecting the nature and scope of labour supply and demand imbalances in this sector.

A primary task of governments in this respect should be to establish, keep current and make accessible to analysts a comparable set of data on public sector manpower by occupational groups, their levels of skill and their salary/wage levels. This information should be as disaggregated as possible, i.e. it should go down to the micro levels.

The analysis should proceed by subsector, or ministry by ministry, since the nature and scope of manpower development problems are bound to differ among the different subsectors. For instance, the health sector deals with manpower development issues related to: demographic factors; the density of health facilities and their geographical distribution; the relationship of the number of doctors to auxiliary personnel and to the number of population; the level of skills needed for basic health services; and, in many developing countries, the outmigration of health professionals. In the public works sector, manpower development questions of concern relate in particular to plans, programmes and projects for improving and expanding a variety of public services and utilities, and ensuring proper maintenance work. Here, different capital/labour ratios must be stated clearly, as they will require different proportions of higher-level engineering and managerial manpower. The concentration of huge work sites in certain areas will pose problems regarding the availability of executive managers in sufficient number and quality, especially in outlying areas. However, the problem here is more one of proper incentives than of appropriate training. The agricultural sector will face...
manpower development issues of its own. In view of the predominance of small-scale farming in many developing countries, governments usually take a large responsibility for the development of this sector through various research and advisory services and other public support services. The intensity with which these services are provided and the technical/occupational composition of these services will vary widely depending on the types of farming.

For these reasons, it will be necessary to envisage different analysis techniques and procedures for different sectors and subsectors. A few detailed examples drawn from the construction sector and the agricultural/rural sectors will be discussed later. It should be emphasised that in building up such analytical capacity, projection work on future high-level manpower supply and demand should not be given emphasis. All too often special labour market studies have revealed that problems in recruiting and retaining high-level manpower categories in specific public subsectors have arisen more from distorted incentive structures than from a shortage due to inadequate training. In any case, the widely observed tendency of governments in developing countries to fix wage scales uniformly across specialisations and according to educational attainment has proved to be a handicap for the public sector in competing with the private sector for the requisite manpower.

A related issue is the problem of relative earnings and benefits of secondary/technician-level professional manpower compared with that of the highest-level group. In many cases the disparity is so large that the public sector, and sometimes even the private sector, find themselves unable to recruit and retain personnel in this manpower category. Strong incentives operate to motivate the secondary-level technicians to acquire the necessary qualifications to move into the highest-level group.

(ii) The private sector

In view of the position of predominance of the public sector in the developing world, its influence on determining the extent of critical shortages (or surpluses) of higher-level manpower categories is also considerable. For most high-level skill groups the private sector has to compete at the margin of the relevant market dominated by the public sector. Accordingly the main areas of concern and interest are relative wages/earnings scales practised in the two sectors, and the speed and extent to which professionals in the category react to differentials by changing their employes.

Engineers are among the few high-level manpower groups of which a substantial proportion is employed in the private sector. Past forecasts of demand for this category of manpower have turned out to be particularly off-target. At the same time, it has been demonstrated that for several types of engineer there is a considerable degree of substitution between engineers and
technicians in response to fluctuations in demand. This suggests that there is a greater flexibility in the requirements for formal engineering training than has been commonly supposed.

Another important manpower development issue regarding high-level manpower categories revolves around the replacement of expatriate manpower which this sector still employs in sizeable quantities in a number of developing countries. Their replacement is a major goal of public policy practically everywhere. In this connection, major attention must be paid to synchronising the rate of replacement with the provision of the necessary training facilities to meet replacement requirements. But domestic capacity should not be developed on too large a scale in relation to the long-term flow of demand for the manpower needed. In other words, in attempting to replace expatriate engineers (and other high-level groups) at a rapid rate, there is a risk of establishing training capacity which may produce graduates/trainees in far greater numbers than the long-run absorptive capacity of the labour market for these groups.

(b) Middle-level manpower

(i) The public sector

The central manpower development issue for this manpower group in many developing countries appears to be the development of an appropriate remuneration and career structure. As in the case of higher-level manpower in this sector, there is a strong incentive for middle-level manpower to gain higher levels of qualification which permit them to move up to higher income brackets.

Also, as in the case of high-level manpower, lack of differentiation in wage scales which do not take specialised functions and responsibilities sufficiently into account seems to be widespread. The reverse of the medal is the lack of an appropriate incentive structure for middle-level manpower. In view of the importance of middle-level manpower for translating and carrying out the various development programmes and projects in developing countries and of imparting to them the requisite qualifications and skills, questions of incentives and career possibilities are posed with particular acuity. However, the transparency of these problems is largely deficient in many developing countries for lack of relevant data. The remedy is the same as already suggested for high-level manpower categories employed by the public sector; systematic personnel records/establishment statistics have to be kept and made available to analysts. If more rapid progress could be made along these lines, it should be possible to obtain a much better knowledge of the problems of manpower development pertaining to middle-level personnel in the public sector. Better information is foremost required on; recruitment methods and utilisation...
patterns; wage differentials and career/promotion patterns; and source of skill acquisition and upgrading. To date, such problems are largely judged on very fragmentary evidence.

(ii) The private sector

Training for middle-level manpower categories covers time spans for which shorter-term labour market signalling and analysis must be fully exploited. Unclear, incomplete and faulty signals would make training needs assessment and monitoring suffer from the same - if not worse - constraints as those experienced with projection work. Therefore, what matters most for this kind of manpower in the private sector is an improved understanding of the functioning of the labour market in question. Knowledge of the movement of vacancies; the number and qualifications of job-seekers; engagements, resignations and dismissals; and prevailing wage rates; or, in brief, better labour market signalling holds more promise as a tool of training needs assessment and monitoring than formal conventional forecasting work.

Training for middle-level manpower, especially for industrial development, has received considerable attention in many developing countries, including support with ILO vocational training technical co-operation projects, for quite some time. A fair amount of training needs assessments of various sorts has been undertaken preceding the organisation of relevant training programmes, though these have mainly been of the on-off survey type. On the other hand, there has been comparatively little ongoing analysis for monitoring purposes. Assessment work for this manpower category is, of course, rather complex. While some of the training, especially basic training, is provided by government-run training centres or courses, a great deal of the specific and upgrading training is offered by private training facilities and through in-plant training. Therefore, the nature and scope of the complementarity between formal and non-formal, public and private, as well as in-service or on-the-job training are not easily determined. Naturally, this makes training needs assessment a rather complex operation. However, the various issues and constraints involved could no doubt be handled in a more satisfactory manner all round, if the partnership and routine arrangements discussed and strongly proposed in two previous chapters could be fully implemented.

Regular contacting of employers is imperative. The reason for this is not only to learn about their manpower requirements. Equally important are the views they hold on (a) the quality and usefulness of the training received through public institutions of their newly recruited workforce, (b) how such training could be improved and (c) to what extent the private sector would be able to take an active share in the training effort. Lack of such contact is primarily responsible for the fact that many training courses and programmes tend to provide the same scope
and content over many years without regard to changing labour market situations. In this case, the supply of trainees is likely to become off-balance with labour market requirements rather quickly, and the training imparted is at odds with the set of skills which employers expect. In fact, employers are often reported to be rather critical of the performance of government-sponsored training institutions. These views are usually associated with arguments in favour of tax reliefs to be granted by the government which would enable the private sector to organise the more specific, job-oriented forms of training itself. Training needs assessment has little to offer for or against these arguments. However, it might usefully analyse any experience with the granting of tax relief for the organisation of training by the private sector, including its incidence on large-, medium- and small-scale enterprises (the latter having little capacity of benefiting from such concessions).

For many developing countries the out-migration of middle-level manpower categories poses important manpower development problems. One of the most sensitive and not easily foreseeable problems relates to the fact that the migration flows back and forth to sending countries and tends to be pro-cyclical: rates of emigration intensify when world economic conditions are favourable, and return rates accelerate during periods of recession and depression. In the first case, severe skill shortages are bound to occur, while, in the second case, oversupplies build up when economic fortunes and consequently labour demands are on the downswing. As the volume and composition of emigrating and returning manpower can and does change quickly, regular monitoring of movements is essential. Moreover, there are differences in public policy with regard to the encouragement (or restriction) of emigration of different manpower categories and to the readiness and ability of emigration countries to provide stepped-up training for skill groups in great demand in immigration countries. Training needs assessment and monitoring need clear signals as to what the official government position is in this respect.

(c) Semi-skilled and unskilled manpower

(i) The public sector

The skills needed for this category of manpower are mostly acquired on the job and through traditional, self-oriented modes of learning, and less by institutional training. However, analysis of their training needs is as important as that of the other categories. The usually large number of totally unskilled workers in developing countries, especially in the large informal sectors, and the persistence of the paradox of underdevelopment, on the one hand, and underemployment of the overwhelming majority of the labour force, on the other, make it necessary for training
needs assessment to devote a great deal of attention - if not priority - to this large and heterogenous group.

A case in point is the determination of requirements for the skills used in large-scale government development projects such as road, access-road and feeder-road construction; dam and other important earth-moving constructions; land reclamation, irrigation and afforestation work; labour-intensive public works, in general; and related activities. Many of these projects are reported to have suffered from the lack of high- and medium-level manpower categories, while their requirements for lower skill occupations have often gone unnoticed. And yet, many special surveys and investigations have demonstrated that inadequate skill levels of these workers have negatively affected many of the above projects, their rate of progress and the quality of the work undertaken. This has, in particular, pertained to the many community-based projects.

In general, the completely unskilled labour gangs needed for these projects could be constituted without great difficulties, except in those cases where the incentive system practised obviously did not make it worth while for this category to come forward and seek employment in sufficient numbers. However, more important difficulties have been encountered in meeting certain basic skill needs for specific activities such as minor bridge and culvert building, certain types of road construction work, sheet and gully erosion controls, and afforestation, for which an input of some skilled labour is necessary. Similarly, in specifically agricultural projects and programmes, higher-skilled manpower has often been handicapped in its effectiveness and output by the lack of sufficiently trained lower-level staff. Accordingly, the work usually carried out by this category had to be taken care of by the higher-level manpower, in addition to and beyond their proper tasks. This represents a particularly pernicious waste of skills generally in short supply in developing countries.

Manpower information flows need considerable upgrading for this large group of lower-level workers, including; their varying needs in different types of development projects; the level of skills to be imparted in relation to existing modes of skill acquisition; and the possibilities for "mass training" prior to the initiation of large-scale development projects. Relevant work has been undertaken and developed in this respect for the benefit of large-scale public works programmes of the labour-intensive type to provide employment outlets to the poor in the informal sector and at the same time to build up production-supporting infrastructure. More feedback of experience is required, especially with regard to planning the synchronisation of the proportionate requirements in these projects of high-, medium- and basic-level manpower, in order to avoid creating bottle-necks in one group which diminish the efficiency and effectiveness of the others.'
While the provision of lower-level manpower to formal private sector enterprise does not seem to pose any major manpower development problem — for reasons similar to those already discussed for the public sector — this is not the case for the large informal sector in both rural and urban areas. With the prominence of self-employment and subsistence activities in this sector in most developing countries, it is essentially a sector of private ownership patterns. However, in view of the large numbers involved, the heterogeneity of the employment patterns encountered (multiple job-holding, seasonal switches between occupations) and the continuing overflow of rural surplus population on to an already very tight urban and formal labour market, the analysis of this sector must have different features from the categories previously dealt with. In addition, manpower allocation systems or practices, the corresponding skill development requirements, and the use of skills operate outside formal labour markets. Thus, they pose different problems and requirements for training needs assessment and monitoring. At the same time, the latter's importance for a proper assessment of the broad structure and development of the national labour market and the national training effort required cannot be over-emphasised.

The more recent shift of world-wide concern from growth policies to those aiming at more equitable income distribution and the fulfilment of basic needs has been instrumental in bringing about a greater concern with the employment and training problems and issues of the informal sector. Subsistence farmers and landless agricultural workers, on the one hand, and craftsmen, artisans, street vendors, service workers, and similar groups in the informal sector in both urban and rural areas, on the other, have become the main target groups of development policies and planning in many developing countries. To come to grips with their employment and training problems, experience with many past rural development programmes and projects offers useful counsel. The impact of these projects has in most cases been far less than planned, and has often been judged a failure. Many causes for this disappointing performance have been put forward: and foremost among them are managerial and financial constraints. Yet raising the skill level of the "target population" itself to enable them to make the best possible use of the promotional services and facilities made available through various rural development programmes and projects was generally neglected.

This point needs stressing since the main target group in pre-basic needs days was said to have been the better-off (and better-educated) sections of the agricultural and rural population. In contrast, present-day policies are mainly targeted at the rural poor. These people have little economic potential, are mostly illiterate, occupy a weak social position, and possess little — if any — knowledge and skills.
Consequently, they will require more time to come forward with their own perceptions of wants and needs. They will also need intensive promotion and support services to enable them to participate with success in the planning and implementation of policies and programmes set up in their favour, more so than did the well-to-do farmers to whom previous development efforts were mainly directed. All this implies that if the poor, in both rural and urban areas, are to be reached effectively and if they are to make good use of the promotional efforts undertaken in their favour, requirements for the requisite administrative and technical personnel will necessarily increase dramatically. Some estimates of the skill requirements involved have been attempted. They indicate that in most developing countries a four- to five-fold increase in existing trained agricultural personnel would be called for - and this in the agricultural sector alone.\footnote{Any useful training needs assessment exercise in developing countries cannot neglect this complex of considerations and issues. It is, therefore, somewhat surprising that the skill requirements of this large population group in relation to the planning and implementation of agricultural/rural development programmes and projects have received so little attention at the national level though considerable conceptual and practical work has been done at the international level concerning rural manpower assessment and planning and the determination of agricultural/rural skill needs. This will be discussed in greater detail in the last subchapter of the guide.}

2. Special, sectoral and subsectoral analyses

The manpower development issues discussed above call for continuous analysis and monitoring. They should figure prominently in the annual routine programme as described earlier. However - as has also been pointed out previously - this general analytical framework needs to be filled in with more focused and in-depth assessments of current major manpower development issues for important sectors and subsectors, as well as for specific purposes. A few examples of these will be presented in the following subsections.

(a) The construction sector

The construction sector in many developing countries is often faced with manpower imbalances and especially with shortages of certain skill groups. In a number of countries, these problems have been exacerbated by large-scale emigration of construction artisans and technicians to oil-producing countries.

The way the construction sector is organised and operated varies quite considerably between countries. However, much work is being done by private contractors of various sizes under government guidance and control.
The availability of operationally useful information to pinpoint when, where and what kind of labour supply and demand imbalances are prevalent in the construction sector is invariably inadequate. Yet improvement in the situation is difficult to achieve. A lot of construction manpower is employed by a large number of small entrepreneurs who are not accustomed to keeping records of the manpower they employ. In any case, employment is often of a temporary, seasonal or casual nature for certain jobs and in certain places. Also, the manpower profile of the construction sector varies a great deal according to the type of construction and the technology adopted. For these reasons, making the dynamics of the construction sector and its skill requirements transparent, and monitoring them, is a protracted task.

Given the lacuna of adequate data relating to requirements of skilled manpower in the construction sector and its seasonal/conjunctural features, the key informants technique may have a useful role to play in filling in the most important gaps, especially in those developing countries where no previous attempt has been made to assess skill requirements in this sector.

A survey of middle-level and unskilled manpower in construction projects (irrigation, hydroelectric works and road construction) carried out in Nepal in 1984 might serve as an example.5°

Because of the quasi-total absence of any documented information on manpower and employment in the construction sector, the main objective of the survey was to obtain quickly and cost-effectively some information on the prevailing situation and trends to provide a sound basis for practical policy measures to deal with the problems identified by the survey.

The number of key informants selected was 41. These were project managers and engineers (19), contractors (14) and officials from different ministries, departments and local authorities.

A semi-structured questionnaire was elaborated including the following questions directly relevant to training issues:

(a) Which are the main middle-level manpower categories employed in construction work? (These were found to be mason-concreters, carpenters, equipment operators and vehicle drivers);

(b) Which occupations experience shortages? (No serious shortages were reported. However, indications were numerous about low efficiency of the manpower group surveyed. Most respondents attributed this to lack of technical skills);

(c) For which manpower categories was there a priority need for training? (Highest priority was assigned to mason-concreters and carpenters. A slightly lower priority was given to ironworkers and mechanics);

(d) What kind of training should be envisaged? (Most respondents stressed the need for training in all practical aspects of the crafts in question. However, the importance of some theoretical training - basic arithmetic,
measurement, reading drawings, use and care of material and tools - was also stressed by many of the key informants); (e) What methods of training should be followed? (There were differences of opinion as to whether institutionalised i.e. at a centre, or on-the-job training should be preferred. Most respondents considered, however, that training should be initially at a training centre, i.e. theoretical instruction, to be followed by on-the-job training by suitable contractors. In this respect, most respondents supported the establishment of an apprenticeship scheme.)

Within the context of a set of policy measures recommended to resolve other important manpower issues identified by the key informants survey (non-Nepalese workers in the construction sector are more easily employed than Nepalese workers, high labour turnover rates, differentials in wage rates paid in the market and set by public wage-fixing, lack of geographical mobility of Nepalese workers), the major recommendation of the survey concerning training related to the setting-up of an apprenticeship system. This should cover, in the first instance, those crafts identified as numerically most important and as being in particular need of better training. For the operation of the system, detailed suggestions were made based on the views and proposals put forward by the key informants.

In addition, short training courses were proposed for contractors whom most key informants considered to be very inefficient, particularly with regard to tendering properly, reading maps and blueprints, managing workers and using technical skills in general.

(b) Project preparation

The special on-off survey method of training needs assessment has generally been associated with the preparation of large national vocational training programmes or projects for which international aid and technical assistance is solicited. In fact, the granting of foreign support has generally been made conditional upon the conduct of such an exercise, and on the statement of numerical requirements for different categories of skills to be met by a corresponding training programme. Considerable one-time efforts have usually gone into such determination of training needs for project formulation, but the necessary follow-up and updating have been rare.

The question has been raised whether this kind of training needs assessment is not antithetical to the development of a process-oriented analytical capacity for manpower development planning in developing countries. After all, conventional projection procedures used in project preparation to deduce training requirements have often been used simply to justify investment decisions already taken. In other words, such assessment exercises have been merely cosmetic, and the real reasoning has been completely replaced by make-believe.\textsuperscript{0}
This practice can lead to two further disadvantages. First, those who really understand how decisions are reached in project preparation and justification prior to approval may be led to underestimate the contribution which formal manpower planning and analysis can make to vocational training planning. In this case, manpower planning and analysis are viewed as mere window-dressing. Secondly, those who are not fully familiar with decision-making processes in project justification and approval and the role of training needs assessment in this process might have excessively high expectations of the value of the formal survey method of training needs assessment and analysis, and might react negatively towards efforts to treat them as a well co-ordinated routine process, as advocated in this study.

All this does not imply, of course, that special surveys of training needs assessment for the preparation of vocational training projects have no place and no useful role to play. On the contrary, there are important tendencies discernible which favour the initial survey type of training requirements assessment. These include the facts that economic development planning is increasingly oriented towards priority setting at the sectoral levels (where manpower information necessary for regular analysis is usually particularly deficient); that programming is taking on more importance vis-a-vis planning; that investment allocations, financial aid and technical assistance are more and more geared to sectoral and subsectoral levels; and that manpower development issues are increasingly examined together with those of manpower utilisation, leading to the often heard view that training should be primarily done in industry itself and in close relation to sectoral development.

However, two basic requirements seem to be necessary to counteract the known disadvantages which a survey method of training needs assessment may entail. The first is that all available manpower and employment information, both published and unpublished, must be fully tapped, and that essential gaps must be narrowed by structured interviewing of selected enterprises and institutions, thus avoiding the organisation of costly surveys. The second is that the survey undertaken includes specific recommendations of the measures required to develop a step-by-step, priority-oriented manpower management information system, as an integral part of the sectoral or subsectoral manpower development programme or project.

An example of this new orientation in initial training needs surveys is provided in an appraisal report of the manpower and training requirements in the electric power sector in Ethiopia.° It might therefore be useful to present here a brief description of the main approach adopted and the main conclusions reached, though this cannot be a substitute for a closer examination of the report itself.

The exercise starts out with a review of the present staffing patterns of the electricity sector, examining key problems in the organisation of the workforce as well as the consequences of rapid rates of growth in the staff
establishment. It also addresses itself to an analysis of prevailing allocation systems and mechanisms, and of major skill shortages and bottlenecks in critical subsectoral activities. The findings are related to the results of an examination of the main training problems encountered, making a distinction between in-house training efforts and external supplies of skilled manpower.

On this basis a training needs assessment is undertaken which does not involve itself in a numbers game, but tries to trace plausible options in the planning and acquisition of needed skills. It is pointed out that manpower requirements might differ considerably according to the levels of technology adopted, and a case is made for the development of job-related training to produce workers with the required range of skills in the shortest time. This is primarily based on an analysis of the tasks performed by different workers to determine main training components, followed by a study of the production system with a view to finding out whether and where there is room for modification to restrict the range of activities carried out by the various workers. The assessment also includes the review of a number of options open to the electric power sector.

It is at this stage that a few basic assumptions are stated regarding projected staff increases in the main manpower categories of engineers and electro-mechanics (craftsmen, operators). The implications for training programmes are set out, recommending changes in the "in-house" training institute and in on-the-job training practices as well as modifications in the career development patterns of technical staff. The establishment of instructor training facilities and the further training of engineers and managers in a large electric supply utility of good operational efficiency outside Ethiopia are also recommended. In line with the objectives of the Ethiopian Ten-Year Plan, these recommendations aim at enhancing the capacity of the electric power sector to serve effectively the development programme of the country and to provide a more equitable distribution of electrical services.

(c) Manpower development planning in agricultural/rural development

For reasons already alluded to earlier, particular attention should be devoted to training needs assessment and monitoring in agriculture and rural development in general. Though efforts at the national level in this field leave much to be desired, a great deal of relevant work has been undertaken at the international level. This has mainly followed two different, but closely related, directions. One has led to the publication of an outline of rural manpower assessment and planning in developing countries, followed by several reviews of the practical application of this outline and the problems encountered; the other, based on particular country studies
of agricultural manpower profiles, summarised the experiences and insights gained and led to a manual on trained manpower for agricultural and rural development.\(^d\)

(i) An outline of rural manpower assessment and planning

Among the four key questions addressed in the outline the following two are of direct relevance to training needs assessment and monitoring:
- What manpower is available and required for rural development; and
- Which training and other facilities are needed to provide the requisite skills?

The outline deals with these questions within the framework of overall rural development planning. It does this in four distinct, but closely inter-related stages. The first consists of an assessment of the current rural manpower situation. The second involves participation in the formulation of the draft rural development plan, and the third the revision of this draft plan. The fourth stage is concerned with a constant evaluation of the implications of plan implementation for rural manpower.

The first stage starts with the collection and analysis of whatever relevant information is available and accessible, including the search for unpublished material such as ministerial and departmental memoranda, field workers' notebooks, and so on. These often contain important information on patterns and issues of development and utilisation of manpower in rural areas.

In the majority of cases, however, available information is likely to be inadequate for a comprehensive and continuous rural manpower assessment and planning programme. Therefore, the outline discusses a wide array of desirable studies and surveys, in a step-by-step approach, to yield the information necessary to highlight the situation and trends of rural manpower supply and demand. The main purpose of the exercise is to establish sufficient baseline data on stocks of rural manpower, including the performance of training institutions and other training facilities, and the incidence of any skill shortages in rural areas.

To develop further a rural manpower assessment and planning programme, when more resources can be allocated for this purpose, signalling information concerning manpower flows and processes should be sought, perhaps relying first on key informants or similar cost-effective sources of information.

At the second stage those entrusted with rural manpower assessment and planning actively participate in the setting of the overall objectives of the draft national development plan. The most important task in this respect is to relate estimated stocks of rural manpower (aggregate supply determined by natural growth rates, rural out-migration, and levels of and changes in labour force participation) to expected aggregate demand for each
economic activity as proposed in the draft plan. The comparison will indicate orders of magnitude of the rural manpower balance which in most developing countries — as already mentioned earlier — will most likely be characterised by surpluses in the lower-skilled and unskilled categories, and by shortfalls at higher levels.

Disaggregation is then sought for likely future supply and demand by occupation. On the supply side, rates of migration, wastage of trainees from skill-generating institutions, the different possibilities of training for specific occupations/skills, substitution between them, changes in the incentive structure, and so on, must be carefully considered.

Assessing disaggregated manpower requirements will necessarily rely on a pluralistic approach — as advocated earlier in this guide, in view of the absence of a generally accepted and workable methodology.

The most practical approach for such an assessment might be to break down the requirements by economic activity, distinguishing between requirements in the public sector and in the private sector. The general analysis framework adopted in this guide which encompasses rural manpower assessment and planning activities also makes the distinction between public sector and private sector, though it places emphasis on different skill levels. Confrontation of these assessments will provide indications as to where and how great shortages and surpluses in rural manpower are likely to occur if no modifications or adjustments are introduced into the first draft of the rural development plan.

In the third stage rural manpower assessment and planning should assist in the revision of the first draft made necessary by the imbalances brought to light in the second stage, especially those relating to manpower supply and demand at the aggregate and occupational/skill levels.

The most basic means to overcome occupational/skill shortages for agricultural and rural development is to expand the turn-out of training institutions. However, the possibility also exists of transferring skilled personnel from places where they are not needed or used effectively to those where they are in high demand, usually at local levels. In close co-operation with those concerned with vocational training planning, those responsible for rural manpower assessment and planning should examine a number of policy measures to overcome shortages in the skill levels of the target population. Such possibilities include the extension and upgrading of various in-service, on-the-job and pre-employment training schemes for farmers; of farmers' training centres; and of the training and instruction provided by the agricultural or non-agricultural rural extension services. Such joint examination should include the search for shorter, simpler, more practical, and more cost-effective methods and techniques of training.

In order to deal with estimated shortages in the middle- and higher-level skill categories, remedial action should be proposed
after an assessment of the extent of wastage. Yet facilitating desirable occupational and geographic movements may encounter intractable difficulties. A prerequisite for improved mobility is the availability of better information on the functioning of rural labour markets, and the regular and prompt dissemination of such information to actual and potential users.

The fourth stage includes the constant checking of the extent to which the rural manpower plan, i.e. the availability and proper utilisation of the required skills, is actually implemented. Such an evaluation is not only an important management tool and plan control instrument but it also helps to identify new approaches to training which effectively and efficiently turn out the two main categories of rural manpower: the target population of rural development programmes and projects, and the promoters/implementers of this process.

All those involved in rural manpower development planning also need constantly to review the adequacy of the existing machinery for co-ordinating rural manpower assessment and planning functions. In this respect, most of the principles discussed earlier are applicable. Rural manpower assessment and planning cuts across the responsibilities of several ministries and departments. Therefore, the full collaboration of all must be ensured. None the less there is no ready-made blueprint for bringing this about. In each individual case, those concerned with rural manpower assessment and planning, in whatever ministry they are placed, will have to ascertain how responsibilities are actually distributed among different ministries, departments or agencies and how all could best contribute, in their respective areas of competence, to a concerted and continuous rural manpower assessment and planning programme.

(ii) A manual on trained manpower for agricultural and rural development

Parallel to the development and application of the above discussed "outline" under a specific ILO programme of work, the Food and Agriculture Organisation of the United Nations (FAO) sought to find acceptable answers to manpower planning questions (in agriculture) and to hammer out some working principles and practical methodologies. One product of these attempts was a manual published in 1979 which focuses on assessing the needs of agriculture and agriculture-related sectors for trained personnel and examines ways and means to meet these needs.

The first three parts of the manual cover roughly the same ground as the outline, and thus need no detailed presentation. They examine the methodological problems involved, the potential significance of manpower planning and the role of government in this respect, as well as the various elements that enter into the different stages of developing a national strategy for trained agricultural manpower. They also review the essential data which are required for agricultural manpower assessment and planning,
emphasising that for the comprehensive range of data called for, "the manpower planner has to be both tireless and ingenious: he has also to be reasonable and realistic".

The main part of the manual deals with methodologies for assessing manpower requirements. It distinguishes four main areas for which trained agricultural manpower is required:

- agricultural extension services;
- technical/administrative services;
- agricultural research and education facilities;
- private sector, commercial agriculture.

With respect to the determination of skill needs within the agricultural extension services, the same norm approaches (cropping area approach - production oriented, and agricultural population approach - development oriented) are presented and assessed as those already discussed by the guide. The manual then adds other factors to be taken into account in assessing skill needs. These factors include: the proportion between extension work proper and a variety of non-extension tasks with which extension workers are also entrusted in various ways and degrees in different countries; the varying scope of extension work itself; the relationship between numbers and quality of extension workers; and the relative degree of difficulty which "served" farmers encountered in trying to reach a set production target.

As far as the non-extension types of services are concerned, the best that can be done, in view of the variety of services involved in different countries, is to express requirements as a percentage of extension worker requirements. In earlier work for the manual, it was estimated that from 20 to 60 non-extension workers would be required for every 100 extension workers, but subsequent field experience indicated that a more realistic estimate would be a ratio of one to one.

With respect to the needs for manpower in agricultural research and training, the manual points out that there were no readily applicable standards, ratios or norms to use. For the local level, however, some tentative ratios were suggested. These concerned the ratio of one level of research staff to others, the minimum research groups or team components in different subject areas, and the relationship between staffing and the budgetary allocation. Such an estimate requires the availability of complete staff lists or manning tables of existing research and training personnel as well as good knowledge of future research and training policy objectives.

Full consideration is then given to the difficulties involved in obtaining an adequate picture of the extent to which trained personnel are employed in the private sector and in estimating possible future requirements. It is suggested that where there is little or no data to start from, at least a token allocation be made for the sector.

Finally, the guide discusses staffing ratios and other factors affecting agricultural manpower assessment and planning, and presents an illustration of all the steps necessary in the
application of the methodology discussed. It arrives at the net total requirements for each category of personnel and their conversion into the required annual intake and output of training institutions, if net requirements are to be met.

Experiences with the practical application of both the manual and the outline have shown that the set of principles and practices as well as the acquired body of knowledge set forth in these documents should not be rigidly adopted toto in each developing country. On the other hand, it should be stressed that both offer an arsenal of approaches, methods and practices from which developing countries can choose for the assessment and planning of their agricultural and rural manpower resources.

H. Summary and main orientations

The third chapter of the second volume of the ILO World Labour Report is devoted to training. Its introduction contains the following observations:

In the past, efforts to develop human resources paid too much attention to the parts - institutions with their curricula - and not enough to the whole - a training system linked to education, on the one hand, and to employment needs, on the other. Now, however, training is increasingly looked upon as a concerted effort emanating from policy and supported by institutions and programmes that are effectively run, properly co-ordinated and financed, and produce a relevant output of trained resources. Various steps have been taken in many countries to enact appropriate legislation and amplify signals on job requirements with a view to a better assessment of training needs, the continuous evaluation of training efforts and the introduction of the necessary mechanism to improve the cost-effectiveness of the whole process.5

This statement recognises that past training planning approaches, and with them their important component of training needs assessment and monitoring, demand a new focus and orientation. These are necessary to respond more effectively and efficiently to economic requirements in terms of skilled manpower, and to the demands of the labour market in order to balance manpower supply and demand.

The considerations and discussions of this guide have revolved chiefly around (a) a review of the performance of past approaches and practices of training needs assessment and, in particular, the role of conventional manpower forecasting in this respect, and (b) on the basis of the insights gained from experience, exploring promising directions, features and implications of new orientations and emphases. The main aim of the guide is therefore not primarily to put forward and justify specific methods, techniques and blueprints, but rather to examine, explain and plead for new viewpoints and approaches.
These are less concerned with projections and forecasting and more with labour market signalling, i.e. the regular recording and analysis of imbalances in manpower supply and demand and their underlying causes in different economic sectors, occupational groups, and geographical areas.

Such a process of change, as heralded by the ILO World Labour Report, will need some time to take firm roots and gain widespread acceptance. Too many of those concerned with vocational training needs assessment continue to believe in the more conventional mechanistic, quantitative forecasting models from which alone training needs can be derived with certainty. The guide has argued that this bias needs to be dispelled and replaced by a more realistic and practical orientation of training needs assessment work.

The essential points made in this respect may be recapitulated as follows:

Forward-looking decision-making for planning and priority setting in the manpower development sector is necessary for balanced progress and efficiency. Assessment and monitoring of training needs are important components of this process. This pertains foremost to developing countries where the resources are very scarce and opportunity costs high. Financial resources to be allocated to training are still in competition with many other investment possibilities.

The main objective of training needs assessment and monitoring is to work towards the ideal situation where the right worker is provided for the right job at the right place at the right time. Unfortunately, experience over the years and all over the world has demonstrated that the apparent straightforwardness and simplicity of this objective is not matched by easy realisation. In fact, the past record of training needs assessment tells a story of disappointment, disillusionment and controversy.

Numerous criticisms were levelled against manpower forecasting as the most frequently used tool of training needs assessment. This was condemned on several accounts: it had relied unduly on manpower input-output norms which became rapidly out of date; it had failed to take into account substitution; it had placed too much emphasis on high-level manpower requirements; it had largely ignored the manpower development and utilisation issues in the vast informal sector; it had paid no attention to the costs of training of one type of manpower relative to another; and, last but not least, it had produced inaccurate and misleading forecasts.

Vocational training planners also criticised past manpower planning activities for producing forecasts at too high levels of aggregation and for being too long-term oriented to serve their more specific requirements. The general inadequacy of available manpower data and the absence of well-defined and effectively functioning co-ordinating mechanisms were also deplored.

With the effects from this "critical bombardment" becoming apparent, several lessons have emerged. The first is
that sights have to be lowered about the capability of manpower forecasts/projections to provide vocational training planners with accurate point-forecasts of total training needs. What forecasting can usefully do is to make range or alternative projections by varying the different parameters that enter the manpower equation. The results are indications of orders of magnitude and directions of change. Their value for decision-making in the formulation of national strategies in manpower development and in setting general priorities is not in doubt.

None the less, for those skills which are or could be based on density ratios and norms, projection work retains its relevance and usefulness. This is also true for manpower forecasting throughout centrally planned economies where the setting of specific manpower targets and the determination of training needs to meet them form an integral part of the mandatory planning exercise and where close monitoring and control take place.

The second lesson is that training needs assessment and monitoring have to be viewed as a process and not as an on-off or at best sporadic survey function. Knowledge of how labour markets function and how manpower allocation systems operate is likely to be more useful for training needs assessment than projection work. To provide such knowledge is the essential task of labour market signalling. Its main rationale lies in the fact that labour markets are in constant movement - not to say disarray or even chaos. ' The emerging imbalances in manpower supply and demand have to be signalled regularly to the vocational training planners and programmers in order to respond to labour supply and demand imbalances as expeditiously as possible.

Vocational training planners might not find labour market signalling very convincing or to their liking. It adds another tool to their trade - and a quite demanding one at that. Labour market signals need to be constantly captured and analysed, which requires effort, interpreting ability, and alertness. Signalling does not provide planners with the total figures which they may be accustomed to expect. But once a signalling system is well established and made routine, they ought to appreciate the timeliness, relevance and cost-effectiveness of labour market signals and the new approaches through which they are obtained.

The third lesson is that the improvement of labour market signalling capacity must start with a fuller exploitation of the sources of manpower and employment information already available. Most developing countries do conduct censuses, surveys and special studies which, though often of long intervals, have some signalling potential regarding manpower development issues at the national and thus highly aggregated level. As a national frame of reference and a basis for national manpower accounting they aid in formulating the broad strategies and priorities of the national vocational training effort, a part
of overall human resources development policy. For occupational and local signalling they need better exploitation, analysis and interpreting.

A most important, but almost universally underestimated and underutilised, potential source of emission of labour market signals are public employment and manpower services in developing countries. Both manpower and vocational training planners have a stake in widening the coverage and upgrading the quality of the regularly published manpower and employment information emanating from these services. The widespread practice of most existing employment services in developing countries of treating the labour market information function as a by-product, rather than an actively pursued task of its own, needs to be changed urgently, especially in the interest of providing appropriate signals for training needs assessment and monitoring in a prompt and regular manner.

A fourth lesson is that analysis and interpretation of manpower information for training needs assessment should be a joint activity of manpower and vocational training planners in the form of a true partnership. There has been a great deal of discussion and controversy as to which institutional framework should be established for such co-operation. However, a patent solution is not in sight and no specific recommendation can therefore be made that would be suitable for each and every country. What is certain is that some sort of a co-ordinating unit must exist which is at least responsible for promoting and facilitating the necessary working contacts and information exchange between the various components of the usually rather complex manpower development sector. It is with this in view that international debate has recently arisen on the merits of a proposed "manpower development planning unit". With regard to training needs assessment and monitoring, such a unit might not be well placed, appropriately equipped, or even expected to do the job, given the many other functions to be entrusted to it under the general label of "manpower development planning". Thus, its essential role should be that of a promoter; encouraging the flow of labour market information which is relevant for decision-making, promoting direct communication between manpower planners/analysts and vocational training planners, and monitoring the way in which training institutions and projects determine training intake (enrolment policy)."^ Moreover, a manpower development unit could also be instrumental in defining with greater clarity in each national setting the respective role and significance to be assumed by the different methods and techniques (or a combination of them) which have evolved in training needs assessment work over the years.

With these lessons in mind, an overview is presented of these different methods and techniques with special reference to vocational training needs assessment and monitoring. First, the more conventional methods are discussed. Then, a review is made of new approaches which place emphasis on signalling rather than projecting manpower supply and demand imbalances. The object is
to highlight their main objectives and features as well as the opportunities and limitations in their application. It becomes apparent that no single method or technique will do. None should take the predominant position which the manpower requirements approach used to occupy in the past. Rather a pluralistic approach is called for using a combination of methods suited to different countries, sectors and subsectors, occupational groups and geographical areas within a particular country - out of the battery of methods and techniques which are now available.

However, the selective use of these methods should not limit itself to the construction of mechanistic models of forecasting and of the on-off training needs assessment survey. It should rather support and contribute to continuous signalling and analysis work. Such work tries to obtain greater transparency of the functioning of labour markets, to detect labour supply and demand imbalances, and to help sort out problems of skill shortages (or surplus) which need handling by new, stepped-up or modified training from those which might find a more appropriate solution through other labour market policy measures.

The form such analytical work might take in practice and in a national framework is discussed in the last subchapter of the guide, which also includes a presentation of practical examples of sector and subsector manpower analysis and an overview of agricultural and rural manpower assessment and planning approaches and methodologies and their relevance to training needs assessment and monitoring. Development and progress in this respect has been rather slow and uneven in most developing countries - not commensurate with the predominance and the unexploited potential of these sectors. Nevertheless, international work in these areas during the last decade or so has built up a body of experience and a set of techniques and methods which are capable of adopting and following the manpower analysis and signalling approach to training needs assessment and monitoring in these largely neglected sectors as well.

A sobering final note

This guide does not claim to say the final authoritative word on the complex and controversial subject of training needs assessment and monitoring. In addition to the unavoidable differences of viewpoints and expectations associated with training needs assessment as to how it should be conducted and what results it should produce, there are still many open questions and doubts over the raison d'être of training needs assessment and vocational training planning, in general. But even if training needs assessment is fully accepted as necessary and useful - if only as a passive provider of relevant information for decision-making in vocational training planning - there are still many grey areas. A long list of these were set out in the Final Report at the Meeting of ILO Experts on Training Needs Assessment held in Turin in 1983. The comprehensive
A research agenda associated with this list will necessitate further substantial conceptual, experimental, clarifying and consolidating work over many years to come.

A number of questions and issues on which solutions are emerging have been taken up by this guide. More practical, problem-oriented and problem-solving approaches and activities for training needs assessment and monitoring than those followed in the past have been put forward.

Briefly, the major points made in this guide may be restated in the form of a "pocket memo" to be constantly remembered by all those who are involved with training needs assessment and monitoring. These are:

(a) Conventional manpower planning approaches and techniques are subject to strong reservations and are of limited usefulness as tools of training needs assessment. The notion that national manpower requirements/needs/demands in terms of specific occupations and skill levels can (i) be quantified over whole plan periods, and (ii) be directly met by corresponding training programmes/projects/courses has not withstood the test of reality. Looking for the magic figure of total training needs is tantamount to believing in a myth.

(b) Manpower analysis and labour market signalling must be seen as processes rather than as a soulless numbers game. They include the continuous observation, analysis and reporting of situations and trends in different sectoral, occupational and regional labour markets and, notably, their supply and demand imbalances. Thus, training needs are not derived from mechanistic projection formulae but from actual observation of manpower supply and demand imbalances and their causes, which may be remedied by training and/or other labour market policy measures. In this sense, labour market signalling is the essence of training needs assessment and monitoring;

(c) The effective utilisation of manpower analysis and labour market signalling for training needs assessment depends on the fulfilment of a number of pre-conditions or prerequisites among which the following are most important:
- The establishment of a close partnership between manpower planners/analysts and vocational training planners on the basis of a good knowledge and understanding of each other's trade;
- The institutionalised co-ordination and co-operation of all engaged in and concerned with training needs assessment as a tool of vocational training planning;
- The introduction of a routine process of training needs assessment and monitoring with a clear delineation of respective tasks and responsibilities;
- The provision for flexibility in expanding, modifying or contracting vocational training activities in response to labour market signals received and analysed. The capacity to apply incremental or decremental dosages to training efforts diminishes the need for large-scale, long-term,
resource-heavy, and therefore risky, national training programmes and projects of the grandiose type. Such capacity, in turn, makes long-term manpower forecasting unnecessary.

This being said, it should have become obvious that effective training needs assessment and monitoring depend not only on the relevance and regularity of labour market information, on the judicious combination of various approaches and techniques of manpower analysis and technical ability in this respect, but also on a great deal of intuition and common sense. A guide can call attention to the importance of these qualities but it cannot inculcate them.
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ILO: Guide-lines for the development of employment and manpower information programmes in developing countries - A practical manual (Geneva, 1980). This document was prepared to assist policy-makers and planners at the national level in the establishment and upgrading of labour market information programmes in a step-by-step approach adapted to the specific requirements and capacity of developing countries. The guide-lines present a national frame of action which may be entered at different stages depending on the present levels of development of the labour market information programme in question.
ILO: Employment and manpower information in developing countries - A training guide (Geneva, 1982). The guide was designed to help in the organisation and conduct of formal training courses, especially for middle-level, technical personnel and staff, as well as for self-tuition. It is organised in 18 learning elements dealing with the generation, analysis, dissemination and use of labour market information for various decision-making purposes.

ILO: Major stages and steps in energy manpower analysis - A practical framework (Geneva, 1985). These guide-lines develop a systematic framework for the different steps and stages involved in a significant assessment of current and prospective manpower development and utilisation issues and options in the energy sector in developing countries. They are addressed to manpower and vocational training planners in the energy sector as well as to energy development policy-makers and planners in general, in order to assist them in identifying energy skill constraints and possible remedial action. The guide-lines are also useful for sectoral manpower assessment and planning work in relation to training needs assessment.

ILO: Reporting by key informants on labour markets (Geneva, 1985). This is a guide for the systematic collection and analysis of labour market information through key informants, especially for the informal sector for which operationally useful information on manpower and employment situations and trends is either not available or wholly inadequate. The guide discusses the nature and scope of the information to be gathered from the key informants, the selection procedures, the interview schedules, the analysis of the information obtained and its use for decision-making, including the identification of labour supply and demand imbalances and their relevance to vocational training needs.

William H. Bartsch and Lothar E. Richter: "An outline of rural manpower assessment and planning in developing countries", in International Labour Review, 1971, Nos. 1-3. In addition to the ILO assessments of the results of manpower planning projects and other evaluations already referred to, see in particular the three contributory papers in World Bank Staff Working Paper No. 624, op. cit.
The discussions in this chapter borrow extensively from the analysis and the propositions made by Dougherty in favour of the development of a manpower development planning unit as a co-ordinating agency in the manpower development sector and its specific tasks, including its role in determining training needs. See World Bank: Manpower development planning from three points of view: Country, technical assistance agency and lending agency, by C. Dougherty, Staff Working Paper No. 624, op. cit.

ibid.

A good example of a combination of the manpower requirements approach, the rate-of-return technique, and labour market analysis in a project in Bangladesh is presented in "A report on manpower planning for Bangladesh Planning Commission", in ILO-ARTEP News, (Bangkok), 1981, No. 9.

The following publications on manpower planning methods and techniques have provided the basis for the discussions in this chapter:

D. Bartholomew and A. Forbes: Statistical techniques for manpower planning (Chichester^ John Wiley and Sons,


United States, Employment and Training Administration: Occupational employment projections for labour market areas - An analysis of alternative approaches, R and D monograph 80 (Washington, DC, 1981.).


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0. Fulton, A. Gordon and G. Williams: Higher education and manpower planning – A comparative study of planned and market economies, A joint study undertaken by the ILO and the UNESCO European Centre for Higher Education (Geneva, ILO, 1982).


ILO/Asian Regional Team for Employment Protection (ARTEP): Employment and manpower planning – A manual for training in basic techniques (Bangkok, 1984). This publication discusses some of the standard techniques of manpower planning and their relevance to skill development planning, illustrated by practical exercises on how to do the job.


Kossov, op. cit., pp. 11-12.

For details see ILO: Population and development, a World Employment Programme progress report on ILO research on population, labour, employment, and income distribution (Geneva, 1982).

Zymelman, op. cit.

This job advertisement analysis was undertaken by the ILO/DANIDA Government of the United Republic of Tanzania Manpower Planning Project 1981-83. The summary provided in this guide is based on an unpublished report prepared by P. Munch-Petersen, ILO expert in labour market information.

S. Cohen and A. van de Laar: Manpower development in Pakistan, Rotterdam, Erasmus University, and The Hague ISS Advisory Services, May 1983; draft report, p. 18.
These surveys are carried out quarterly by the Labour Market Information Service, Manpower Department, Ministry of Labour and Manpower, Kuala Lumpur, Malaysia.


ILO: Labour market information through key informants (Geneva, 1982).

J. Sargeant and V. Grosman: Recent manpower and employment conditions in Antigua - Findings of a follow-up key informants' survey (St. John's, Antigua, Ministry of Labour, Labour Department, 1982).

ibid., p. 55.

Dougherty: Labour market studies and manpower development planning, op. cit., p. 25.

New Zealand, Department of Labour: Key skills trends studies, printing and publishing industry, a study of trends in the future demand for skilled people (Wellington, 1984).


Mason: Some priority areas for improving labour market signalling in Asia, op. cit., pp. 11-12.

Hilowitz, op. cit., pp. 65 et seq.

The discussions in this subchapter follow and develop the analytical framework proposed by Hollister. See World Bank: A perspective on the role of manpower analysis and planning in developing countries, by R. Hollister in Staff Working Paper No. 624 (Washington, DC, 1983).


Dougherty: Manpower development planning from three points of view ..., op. cit., pp. 35 and 51.


ibid, p. 36.


Psachoropoulos and Hinchliffe, op. cit., p. 12.

FAO: The contribution of trained-manpower planning ..., op. cit.

Dougherty: Manpower development planning from three points of view ..., op. cit., pp. 35, 42-46 and 48.

Blaug, op. cit., p. 11.