Manpower Planning in Eastern Europe

The word planning inevitably has a special connotation in countries with centrally planned economies. In those countries the economy is preponderantly under the direct control of the State rather than under its general guidance, and planning means not only thinking out the chain of social and economic measures that are to be applied to achieve a desired result but also the implementation of those measures. This article attempts to describe the methods of planning in the Soviet Union and in Eastern European countries, with special reference to manpower.

After a description of the general planning system, with its multiplicity of possible long-term and short-term plans, of economic sectors affected, of levels and scopes, and even of units in which a plan may be expressed, the article deals with the Labour Plan, that link between the State Plan and the budgets or accounts of the manpower situation known as " balances ". Labour productivity planning is next considered at the national, sectional and enterprise levels. Questions of manpower balances and a discussion of the methods of distributing available manpower to the best advantage lead to a final section on planning the training and use of specialists.

MANPOWER planning is an integral part of the systems of central planning used in Eastern Europe. There are differences in the organisation and methods of planning as between the individual countries ; but they all rely to a large extent on a network of decisions by a hierarchy of public authorities, on matters that include, for example, the volume, methods and composition of production, disposal of the output, and price fixing. The system of planning used in Eastern Europe requires the authorities both to set (after extensive consultation) fairly detailed production tasks for various economic units (regions, industries, enterprises) and to allocate many of the resources needed for performing these tasks. Other economic systems tend to leave it to the units themselves to fix their production programmes and to find their raw materials, equipment and manpower through transactions in markets.

Methods of planning in Eastern Europe are first briefly described below. But it may be clear from the general characterisation given above that these methods call for a systematic and fairly detailed budgeting of resources—material as well as human.

Tasks in terms of precise output plans cannot be set without a reasonable assurance that the labour and materials will be there; conversely, the expected availability of resources is a starting point for fixing production targets. Furthermore, resources planning has to be undertaken for each unit for which output plans are drawn up: the economy as a whole (sometimes subdivided into regions), industries, and individual enterprises. Accordingly, in the discussion below, problems of planning are examined separately for these various levels of planning.

For various reasons manpower planning within this framework is of some special interest. One reason is the difference between human labour and physical commodities. Thus the productivity of labour is, of course, not a known constant but varies with both the ability of the workers and the effort they are willing to make. And in certain industries and regions incentives are necessary to attract and retain workers. Training and incentive plans therefore play an important part in the manpower planning of Eastern European countries. Several references to these questions will be made below.

Another reason why manpower planning is of special interest has to do with the trend in the availability of labour in certain Eastern European countries, including the Soviet Union. In the Soviet Union during the early long-term plans, and in most other Eastern European countries since the Second World War, economic expansion has been based in large part on the absorption of previously untapped labour reserves—women, older workers, and (especially) surplus rural labour.[1] Even in 1959 nearly 39 per cent. of the working population in the Soviet Union was still engaged in agriculture, and on the collective farms (which employ 32 per cent. of the total working population) there is generally a surplus of manpower.[2] But it has been observed that the prospective increase in the industrial labour force is rather slower than has been the case in the past, largely because of the effects of the war. In addition, the usual labour reserves (women and older workers) now seem to have been used up to a large extent and cannot be drawn upon to the same degree as in the past. Thus more careful planning of manpower and greater emphasis on raising labour productivity have become necessary in order to maintain high rates of growth.[3]

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[1] UNITED NATIONS, Economic Commission for Europe: *Economic Survey of Europe in 1959* (Geneva, 1960), Chap. III, pp. 6 ff.

[2] According to Mr. N. S. Khrushchev quoted by B. МОСКАЛЕНКО in *Экономическая газета* (Moscow), 7 Feb. 1961.

[3] UNITED NATIONS, Economic Commission for Europe: *Economic Survey of Europe in 1957* (Geneva, 1958), Chap. VII, pp. 11, 36, 48 ff.

This article will consider, first, the general methods and organisation of planning in Eastern Europe, and introduce the basic concept of " balances ". Then that part of the over-all plans known as the Labour Plan is discussed, special emphasis being given to productivity planning.

Against this general background, manpower planning at the bottom of the pyramid, i.e. in the individual enterprises, is discussed in some greater detail. And on this basis regional and national " manpower balances " are examined, and the progress of the discussion from planning at the top down to the bottom and up again to the top is a reflection of the basic fact that planning in Eastern Europe involves two-way traffic.

Once plans have been drawn up, measures must be taken for implementing them. In the case of manpower plans this means that workers and employees must be channelled towards the industries, enterprises, and regions where they are needed. A discussion of administrative and other arrangements for this purpose concludes the article.

The Planning System

The word planning, as understood in Eastern European countries, has two distinct, although closely related meanings. Planning is the preparation of a series of blueprints which serve as a guide for action in the economic life of the country. And planning is also the action itself. In the words of Nemchinov it is " a very complicated chain of social and economic measures carried out in Socialist States ".[1] Touretski says :

> The preparation of the plans represents merely the first stage in planning ; the decisive phase consists in supervising the carrying out of the different tasks and working out measures to eliminate any difficulties that arise while the plans are being implemented. One of the essential functions of the planning organisations is to supervise and ensure the implementation of the plans adopted—for the plans are made in order to be carried out.[2]

In practice, these phases of planning are hardly separable. Planning bodies not only plan measures, but also supervise their execution.

The inseparability of the target setting and the executive functions of plans in Eastern European countries does not mean that all plans are equally " binding " ; indeed, some are not binding

[1] V. S. Nemchinov : " Application of Statistical and Mathematical Methods in Soviet Planning " ; paper presented to the International Conference on Input-Output Techniques, Geneva, Sep. 1961.

[2] Ch. Touretski : " Regional Planning of the National Economy in the U.S.S.R. and its Bearings on Regionalism ", in *International Social Science Journal* (Paris, U.N.E.S.C.O.), Vol. XI, No. 3, 1959, p. 385.

at all.[1] There is a hierarchy of plans, not only according to the level at which they were prepared, but also among plans prepared at the same level. Some plans, the " informative indicators ", are not binding at all; others—the " directive indicators "—are. The former are prepared only for guidance in fulfilling the latter.

Plans differ also in their degree of precision, or rather concreteness. Usually (though not always) general directives emanating from the highest level are translated into more and more concrete terms during their passage down the hierarchy. The degree of concreteness also varies with the time span of the plans.

The short-term plans are usually elaborated in great detail. Their basic unit is the calendar year, but this is usually broken down into quarters, or sometimes into months, ten-day periods or even days. Time units shorter than one year usually are not more detailed than the annual plan from which they derive. On the other hand the long-term plans are vaguer and less detailed in their contents than the annual plans. This is true of the five- to seven-year plans, and even more so of the " perspective " plans, which are now being prepared in all Eastern European countries for the period ending 1980.

There are several other criteria by which we can classify plans in Eastern European countries : by object (gross production, labour productivity, wages, manpower, etc.), by sector (plans concerning industry [2], or transport, or agriculture, etc.), by the level at which they are prepared and by their corresponding scope, or by the units in which they are expressed (material, monetary, or manpower units). As far as these classifications are relevant to manpower planning or for understanding the general functioning of the planning process, we shall notice them later, after describing the most important planning bodies at all levels and the flow of figures, directives, requests, etc., which constitutes the planning process.

Speaking very broadly there are three main levels of planning : but there is a great variety of organisational structures from country to country, and from period to period. The highest level is that of the central planning bodies [3] which work out target figures according to the directives received from the Government

[1] Non-fulfilment of binding plans entails adverse consequences for those held responsible—principally in the form of lower earnings (which may or may not be scheduled in advance as in the case of payment by results schemes), but other sanctions may also be applied.

[2] In Eastern Europe the term " industry " covers manufacturing and extractive industries.

[3] The State Planning Commission *(Gosplan)* and the State Economic Council *(Gosekonomsoviet)* in the U.S.S.R., the Economic Committee of the Council of Ministers and the Planning Board of the Council of Ministers in Poland, the Central Planning Board in Hungary, the State Planning Commission in German Democratic Republic and Czechoslovakia, etc.

(Council of Ministers) and the Central Committee of the Communist Party. The second, intermediate, level consists in fact of several levels between the highest level and the lowest (enterprise) level. The number and types of this intermediate level vary from country to country ; within a country, at different points of time (because of changes in the organisational structure and in the planning procedure) ; and, at any one time, according to the different planning procedures for different types of enterprises.

By way of example, reference may be made to the U.S.S.R., and to the reform of the organisational structure which took place in 1957.

The pre-1957 structure was characterised by a functional (ministerial) organisation, where the most important level between the enterprises and the central bodies was an industrial ministry, e.g. the Ministry of the Textile Industry or the Ministry of Ferrous Metals. The number and types of intermediate levels varied according to the type of enterprise (Union, Union-republic, republic, or local enterprises). There were also authorities (kombinats, trusts, *glavki*) between enterprises and their ministries.

The decentralisation of 1957 radically changed the structure of the intermediate levels. Instead of ministries, regional economic councils—*sovnarkhozy*—(105 of them) became the most important intermediate level. Since 1957 there have been some further (less radical) changes, such as the introduction, in 1961, of 17 " large regions " (dividing the larger republics and grouping the smaller ones) between the republic and *sovnarkhoz* levels. In addition to the basic organisational and planning channels, there are other bodies such as the Central Bank, or the Central Statistical Office, with ramifications at different levels which also play some part in planning through the collection of statistical information, financial control of enterprises by banks, etc.

In the other Eastern European countries the organisational structure is similar, although simpler because each area is much smaller. These countries also experienced some decentralisation after 1957 : some of them (e.g. the German Democratic Republic) also introducing a form of *sovnarkhoz,* while in others there was a transfer of certain powers from ministries to lower intermediate levels and a transfer of some enterprises from the jurisdiction of ministries to that of local authorities.

The planning process is a continuous flow of information and directives from one level to another. The basic tool of this process is the system of balances. Essentially, the concept of " balances " as understood in Eastern European planning is fairly simple. A " balance " contains, on the one hand, a statement about the future availability of some resource (which may be lorries or money or

manpower) and, on the other hand, an indication of the way in which it is to be distributed among various uses. As it is impossible to distribute more (nor, if " uses " include accumulation of stocks, less) than is available, the two sides of the statement must balance.[1] There are material, synthetic, and manpower balances. The material balances are expressed in physical terms (tons of steel, number of lorries, etc.), while synthetic balances are in terms of money (the term synthetic indicating that financial statements enable heterogeneous objects to be considered together for certain purposes).[2]

Basically, a material balance has the following form, which of course may be expanded according to need [3] :

Resources	Utilisation
Stocks at the beginning of the period.	" Productive utilisation ", i.e. use as input (but not for capital construction) in production processes.
Production.	"Investment requirements", i.e. use for capital construction.
Imports.	Utilisation for consumption.
	Allocation to state reserves.
Other sources.	Exports.
	Stocks at the end of the period.

All balances are of two basic forms, which correspond to the task-setting and the control aspects of planning : *(a)* reporting (or achievement) balances, which facilitate review of past achievements and serve as a basis for the preparation of *(b)* planning balances, which set tasks for the future. If planning balances can be regarded as budgets, reporting balances play the part of accounts (in Eastern

[1] Confrontation of desired or planned results with the resources expected or planned to be available for achieving them is, of course, not uncommon in other countries. In some of these " national budgets " have been drawn up indicating what, during some future period, the economy is expected to have at its disposal (as a result of production and imports) and how it is expected, or desired, to use this availability (for example, for public and private investment, public and private consumption, and exports). And in market economies the use of " budgets " (financial and non-financial) for purposes of planning is no more limited to the national level than is the application of " balances " in Eastern European countries. In private enterprises " the budget is an instrument used by management in planning its future activities . . . for any given period of time such as one month, six months, one year, or five years. " (Lawrence L. BETHEL and others : *Industrial Organization and Management* (New York, London, 3rd edition, 1956), p. 597).

[2] The most comprehensive collection of balances is that used for preparing the Seven-Year Plan in the U.S.S.R. Presented by a Vice-President of the Gosplan of the U.S.S.R. to a group of visiting French economists, it is reprinted in " Le Plan septennal soviétique, Etudes et documents ", in *Cahiers de l'Institut de science économique appliquée* (Paris, I.S.E.A.), No. 107, supplément, série G, No. 10, Nov. 1960.

[3] See *Reply by Hungary to the Questionnaire on Long-term Projections*, Economic and Social Council document E/3379/Add.7, 10 Nov. 1960.

Europe the latter term is, however, used in a somewhat special sense, cf. table V below).

Balances of all kinds are prepared at every level. For example, at the highest level, the planning balance of the whole economy is prepared by the State Planning Commission on the basis of a reporting balance prepared by the Central Statistical Administration.[1] The planning balance of the whole economy, however, is not yet the full plan itself. It provides a comprehensive view of the whole economy, and together with directives issued by the Council of Ministers and by the Central Committee of the Communist Party serves as a basis for the elaboration of the State Plan of Development of the National Economy (referred to hereafter as the State Plan).

On the basis of the production targets shown in the State Plan, plans at lower levels are elaborated. In the current Soviet Seven-Year Plan, plans at the republic level were also prepared on the basis of each republic's balance of its whole economy. At the lowest level enterprise plans are prepared, and sent back (up the line of command) for consolidation and for the elimination of any inconsistencies that may have arisen between the plans of various enterprises and sectors. This process may be repeated several times, with each repetition bringing the conflicting demands of upper and lower levels into closer harmony.

The Labour Plan

The link between the State Plan and the manpower balances showing available manpower and its distribution is the Labour Plan. This comprises a group of mutually interdependent plans concerning labour productivity, manpower and wages. The Labour Plan is an integral part of the State Plan and as such is elaborated also at lower levels, particularly at the enterprise level, where it forms part of the " technical, production and financial plan " *(tekhpromfinplan)* which guides the enterprise's operations for the planned period. There is no uniformity in the labour plans, even within the same country. Labour plans of enterprises are usually more detailed than those at a higher level, and they include " informative indicators " in addition to " directive indicators ". Their content also varies according to the type of enterprise.[2]

[1] On the balance of national economy see М. З. Бор : *Вопросы методологии планового баланса народного хозяйства СССР* (Moscow, издательство Академии наук СССР, 1960) and the article by М. З. Бор and А. Ноткин on methodological problems of the balance of the national economy in *Вопросы экономики* (Moscow), May 1961.

[2] As regards planning at the enterprise level there is, of course, again a parallel between Eastern European and other countries. For example, according to management textbooks, in private industrial enterprises with

(footnote continued overleaf)

The content of labour plans at all levels depends also on the length of the period covered by the plan. As a rule, one-year plans are more precise than longer-term plans even when, as is now the case in Eastern European countries, the main stress is put on five- and seven-year plans and the yearly plans are only a stage in the realisation of the long-term plans. The Czechoslovak State Labour Plans may serve as an example of the scope of the five-year plan and of yearly plans at the national level.[1]

The five-year Labour Plan includes a number of " informative indicators " showing the planned growth of labour productivity, the number of workers and other categories of economically active population, and the average wages and wages funds [2] in the various sectors. More important, this plan also includes five groups of directive indicators :

(i) the maximum number of workers in the last year of the five-year plan for the sector or industry covered by each ministry ;

(ii) the norm relating the growth of average wages to the growth of labour productivity, for each year and each branch of industry [3] ;

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a manufacturing division " in general, it may be said that six basic budgets are needed : (1) the production budget which outlines the schedule of product units to be manufactured, (2) the materials budget which specifies the direct material needed to produce the number of units scheduled, (3) the plant and equipment budget that sets forth the requirements of space and machinery, (4) the maintenance budget, (5) the manufacturing expense budget which includes the overhead or burden charges for the period, and (6) the labor budget specifying the productive personnel needed to meet the production schedule ". L. L. BETHEL, op. cit., p. 607.

[1] See J. PRŮŠA : *Příruční Slovník Ekonomiky Práce* (Prague, 1960), p. 108.

[2] The wages fund is the sum of remuneration paid in wages, salaries, premiums, etc. Since 1959, the wages fund in Czechoslovakia has been divided into two parts, the wages fund proper and the premiums fund. Roughly, the latter comprises premiums for non-manual workers and premiums payable to all categories of personnel for saving material, improved quality of work, outstanding performance, etc., while the wages fund proper comprises all other types of remuneration. Both funds are in two forms : the planned fund and the actual fund. The planned wages fund proper is the estimated sum of non-premium remuneration which will be paid if the plan of production is fulfilled 100 per cent. If the production plan is under- or over-fulfilled, the planned wages fund is changed accordingly (" recalculated fund "). The actual wages fund (the sum of non-premium remuneration actually paid out) should correspond to the planned or the recalculated fund. (If it exceeds the planned or the recalculated fund, measures are taken to prevent repetition of this error in the future.) The premiums fund is planned on the basis of some other success indicator, such as " planned rise in profits ", and the sum paid out in all premiums (the actual premiums fund) cannot exceed the sum of the planned premiums fund corresponding to the success achieved. (This description of the important concepts of wages and premiums funds is necessarily greatly simplified.)

[3] Such a norm might stipulate, e.g., that for each 1 per cent. increase in labour productivity average wages will increase by 0.2 per cent.

(iii) the norm relating the size of the premiums fund to some success indicator for each year and each branch [1];

(iv) " broad directives " for distribution of manpower, particularly for inter-regional redistribution of manpower;

(v) " economic-political directives " stipulating the rate of growth of labour productivity separately for industry, construction and transport, for each year.

The yearly labour plans include four basic groups of obligatory indicators:

(i) the total annual wages fund (exclusive of the premiums fund);

(ii) the total number of the labour force;

(iii) the manpower requirements to be secured by inter-regional transfers;

(iv) " economic-political directives " stipulating the rate of growth of labour productivity in industry, construction and transport.

The range of informative indicators is wider than in the five-year plan, as the yearly State Labour Plan includes such indicators showing, for the sector or industry covered by each ministry:

(i) labour productivity;

(ii) total labour force with a breakdown into various categories—workers, engineering-technical personnel, others working in the " main activity " and those engaged in " other activities " [2];

(iii) average wages (with the same breakdown);

(iv) wages fund proper (with the same breakdown); and

(v) the premiums fund.

The State Labour Plan, together with other parts of the State Plan, serves as a basis for the elaboration of plans at the lower levels, particularly at the enterprise levels. Table I shows how the main indicators are planned in Soviet industrial enterprises, together with the kind of data necessary for their preparation.[3] Column 4 shows the suppliers of these data, which come from higher level authorities or from the records of the various departments of the enterprise.

[1] This norm is usually expressed in the form of a percentage of the planned increase in profits, which will be allocated to the premiums fund.

[2] The classification of the labour force is explained below.

[3] Concepts in the table which may not be clear immediately are discussed later in this article.

TABLE I. ELABORATION OF THE LABOUR PLAN IN AN INDUSTRIAL ENTERPRISE (U.S.S.R.)

Planned indicators	Department within the enterprise having direct responsibility	Basic data necessary for plan	Suppliers of these data
1. Planned growth of labour productivity.	Labour and Wages Dept.	1. Targets covering growth of labour productivity.	Superior authority.
		2. Plan of organisational and technical measures.	Technical Dept., Labour and Wages Dept., Office for Inventions and Rationalisation Proposals.
		3. Actual and planned time-utilisation account per worker.	Labour and Wages Dept.
		4. Data on losses of working time (through timing and self-timing of a work day).	
2. Planned number of workers in basic and auxiliary shops.	Labour and Wages Dept.	1. Plan of production.	Superior authority.
		2. Estimate of labour productivity growth.	Labour and Wages Dept.
		3. Plan of working time per worker.	
		4. Plan of fulfilment of output norms, in percentages.	
		5. Norms for auxiliary personnel.	Superior authority.
3. Planned number of engineer-technical personnel and other categories of personnel.	Labour and Wages Dept.	1. Structure of enterprise management.	Superior authority.
		2. Approved limits on the strength in engineer-technical personnel and employees.	
4. Estimate of additional need for manpower and of methods to satisfy this need.	Labour and Wages Dept.	1. Planned number of workers.	Labour and Wages Dept.
		2. Data on replenishment of vocational manpower from schools, enterprise schools and through organised recruitment.	Superior authority.
		3. Account of departed workers.	Labour and Wages Dept.

TABLE I *(concl.)*

Planned indicators	Department within the enterprise having direct responsibility	Basic data necessary for plan	Suppliers of these data
5. Plan of training and of qualification improvement of workers.	Dept. of Staff Training or Staff Dept.	1. Account of need for workers, by qualification and by wage category. 2. Data on the replenishment of manpower from vocational and enterprise schools.	Labour and Wages Dept. Superior authority.
6. Account of the planned wages fund of average wages, by categories of workers.	Labour and Wages Dept.	1. Labour content of the production programme. 2. Manpower account. 3. Wage-scales and wage-schedules. 4. Scales and regulations concerning the system of premiums. 5. Approved salaries.	Production Planning Dept. and Labour and Wages Dept. Labour and Wages Dept. Superior authority. Production Planning Dept. and Labour and Wages Dept. Superior authority.
7. Elaboration of measures for cultural and material services for workers.	Planning Dept. and social organisations.	Data on housing needs, on the necessary number of places in kindergartens and crèches, on the level of workers' general education, on the sanitary and hygiene work conditions, etc.	Planning Dept. and social organisations.

Source : А. С. Кудрявцев : *Экономика труда* (Moscow, Профиздат, 1957), pp. 331-332.

Of the seven groups of planned indicators in table I, three concern the size of the labour force, one training, one labour productivity, one wages, and one cultural and other services for workers. Column 3 gives some idea of how the various planned indicators are interconnected. For example, indicator 2, " Planned number of workers in basic and auxiliary shops ", depends on item 2 in column 3, " Estimate of labour productivity growth ". Even indicator 7, " Elaboration of measures for cultural and material services for workers ", which prima facie might seem irrelevant to the other plans, influences both productivity and

number of workers: for example, the recruitment of married women is often directly dependent on the establishment of factory crèches, and the construction of housing for workers often plays an important part in recruiting workers of scarce skills.

The system of the labour plan varies somewhat in other countries, but as a rule there are three basic components in every Eastern European labour plan: the plan of labour productivity, the plan of manpower, and the plan of wages. Together with the production plan they provide the backbone of the *tekhpromfinplan*. As each of these plans depends on the others, there are many interrelationships between them. The two most important equations are:

(a)	Planned labour productivity per worker	×	Planned number of workers	=	Planned volume of output
(b)	Planned average wage	×	Planned number of workers	=	Planned wage fund

Labour Productivity Planning

Above Enterprise Level

Great importance is attached to the problem of labour productivity by economists and politicians in all Eastern European countries. Studies of measures to increase it are a major feature of Eastern European economic literature. Figures on planned and achieved labour productivity increases on the national level, in the various sectors and in enterprises appear daily in newspapers, broadcasts, and political speeches. This emphasis on productivity is likely to continue and even to become greater because, as noted above, the growth of output will depend more and more on increased productivity than on increased labour force.

The definitions of labour productivity in Eastern Europe are many. Different concepts are used for different purposes, and they have in common only one thing—they all express the relation between output (in whatever way measured) and labour input (again measured in a number of ways).[1] A distinction is, however, made between individual labour productivity and social labour productivity. Individual labour productivity is generally measured by taking labour input at the particular stage of production where productivity is to be measured, without regard for labour expended at a previous stage, and linking it with gross production, i.e. the

[1] For a description of methods used for measuring labour productivity in industry and construction in the U.S.S.R., see М. В. Дараган, Н. В. Рутковская and П. Б. Бронштейн: *Статистика труда в промышленности и строительстве* (Moscow, Госстатиздат, 1960), pp. 53-93.

value added at all previous stages as well as at that particular stage of production where labour productivity is measured. Social labour productivity, on the other hand, usually takes into account past labour; it is the relation between labour input and the value that has been added (net production) at any, including the final, stage of production. Although some Eastern European economists argue strongly for the use of the social labour productivity concepts[1], it is those of the more easily calculable individual labour productivity that are generally used, mainly by taking as a measure of production the gross output rather than the net output. There are several other unsettled problems of defining and measuring labour productivity, as regards both input and output, and some of these are quite similar to the problems encountered in market economies.

It is of great importance also to distinguish between the hourly, daily, monthly or yearly productivity of labour. The importance of the difference between these concepts has increased in recent years with the introduction of shorter working weeks in many Eastern European countries, making the planned increase of monthly (or yearly) labour productivity entail a considerable increase in hourly productivity. The hourly and daily productivity concepts are of particular importance at the enterprise level, where they are elaborated not only for the whole enterprise, but also for departments, shops, etc. On the other hand, plans above the enterprise level are naturally much more concerned with monthly and yearly labour productivity concepts.

The State Plan includes the targets for the growth of labour productivity in industry, construction and transport. These targets are given as economic-political directive indicators, both in the annual and in the five (or the seven) year plans. Planned increases in labour productivity for the individual branches within the industry, transport and construction sectors take the form of informative indicators, to aid in calculating other planned indicators. The estimated growth of labour productivity (whether in the form of directive or of informative indicators) is calculated at the national level with the help of data showing the recent trend of productivity growth in the sector, of data on the highest levels of productivity achieved in the most successful enterprises and in the most developed foreign countries, and of an analysis of the long-

[1] See the article by С. Струмилин on the social productivity of labour' and the methods of measuring it in *Вопросы экономики*, No. 5, 1960. See also the article by Л. Альтер, Б. Гончаренко, М. Петрушин and А. Толкачев. in *Экономическая Газета*, 24 Jan. 1961, who state, *inter alia*: " Serious improvement is needed in methods of calculating the level and rate of growth of labour productivity and in the related system of determining the number of workers and the wage fund. The shortcomings in methods now used in this sphere originate in defects in the index of gross output."

term conditions under which the highest levels of productivity were achieved. Account is also taken of planned technical and organisational measures, as well as of increases in the workers' initiative (through the introduction of new methods, the presentation of rationalisation proposals, etc.).

Estimates of labour productivity growth are made even for periods longer than five or seven years, at present mainly for the 20-year perspective plans of Eastern European countries. The perspective labour productivity plans are necessarily vaguer than the short and medium range plans, but at the same time they are, of course, a more basic hypothesis for planning than the one- and the five-year plans. For while in a period of less than five years many factors (e.g. most of the productive equipment capacity) must be taken as given, and labour productivity planned within this framework, in a 20-year period there is much more choice in regard to the direction and rate of development. Perspective labour productivity plans thus acquire more of the nature of goals to which other decisions are subordinated.[1] For example, the recently published " Programme of the Communist Party of the Soviet Union " [2] mentions a rise in industrial output of approximately 150 per cent. in the next ten years, and of not less than 500 per cent. in the next 20 years through the increase of labour productivity in industry by more than 100 per cent. in the 10 years and by 300-500 per cent. in the 20 years. The programme then goes on to describe the measures, including capital investment in various branches, that are necessary to achieve these output and productivity goals.

Labour Productivity at the Enterprise Level

Labour productivity planning below the national level, whether at the industrial or the regional level, on the whole resembles national planning. At the enterprise level, however, it is somewhat different ; and from the point of view of labour productivity planning that is the most important level of all.

The first step in labour productivity planning at the enterprise level is the analysis of the trend of productivity in the past, particularly during the immediately preceding year. The analysis consists mainly of a comparison between the planned and the actual growth of labour productivity, and of pinpointing the factors causing differences between them. This is done for the enterprise

[1] Cf. G. CUKOR : " Some Problems of the Long-Range Planning of Labour Productivity in Industry ", in *Periodica Polytechnica* (Budapest), Vol. 4, No. 1, p. 40.

[2] Part Two, I.1. There are several English translations, see for example *Moscow News*, 5 Aug. 1961.

as a whole, and also for the individual departments, shops and other units.

The next step is the analysis of the various elements affecting labour productivity. They are usually divided into two broad groups. The first comprises what are called technical factors, such as the degree of mechanisation and automation, questions of investment, repairs and maintenance, problems connected with the supply of raw materials and power, reduction of waste, etc. The second group comprises what are called organisational factors, such as the introduction of new production methods, better distribution of manpower within the enterprise, improvement of vocational qualifications of workers, questions connected with wages and output norms, reduction of labour turnover, better labour discipline, introduction and widening of " socialist emulation " and many other factors.[1]

These factors are discussed by special teams composed of workers, technicians and economists of the enterprise and by workers concerned with this or that factor in order to find means of raising labour productivity and to estimate the effect of any suggested measure. On the basis of these discussions, a plan of technical and organisational measures is prepared, and the responsibility for introducing specific measures is allocated. The combined effect of all these measures is then calculated in terms of savings in man-hours, man-days, etc., and this leads to the first estimate of labour productivity growth. This estimate is next compared with the target set for the enterprise in the carrying out of the State Plan. If the estimate falls short of the target, a new search is undertaken for possibilities of increasing productivity. When the estimate equals or exceeds the target given from above, it becomes the final labour productivity plan of the enterprise and of its various departments, shops, etc., and the most important measures of this plan are incorporated into the collective agreements between management of the enterprise and workers.

The labour productivity plan greatly influences the other parts of the labour plan of the enterprise. For example, there is a close connection between productivity and earnings, through premiums, bonuses and various funds.

Manpower Planning in Industrial Enterprises

The labour force in an Eastern European enterprise is divided into a number of categories. This classification is important for the purpose of manpower planning because this has to be done for

[1] For a detailed list of factors, technical and organisational, which affect labour productivity, see J. Průša, op. cit., pp. 194-195.

each group separately. But in addition this classification plays an important part in planning labour productivity and in wages policy. For example, wages are planned not only for the enterprise's personnel as a whole; average wages are also planned for each group separately, some premiums are payable to certain groups but not to others, and so on.

The basic division of the labour force in an Eastern European enterprise is into those engaged in the main activity of the enterprise and those engaged in other activities. In an industrial enterprise this dichotomy takes the form of a division into industrial production personnel and non-industrial personnel.

The industrial production personnel is further divided into six groups: (i) Workers; (ii) Engineer-technical personnel; (iii) Employees; (iv) Learners; (v) Junior service personnel; and (vi) Factory guards and fire-fighters.

The first group, workers, is subdivided into basic workers, who are directly connected with production, and auxiliary workers, whose task is to facilitate the production by basic workers, for example by supplying them with materials and tools (this group includes toolmakers and maintenance staff). Group two, the engineer-technical personnel, is subdivided into those working in departments, shops, etc., and those working in the enterprise management. The employees, the third group, comprise administrative, professional and clerical personnel. Learners include only future workers. The fifth group, junior service personnel, includes all other personnel categories (for example messengers, cleaners) except guards, who are classified separately in group six.

The non-industrial personnel consists of people whose work in subsidiary departments of the enterprise does not contribute to the enterprise output. They work in the enterprise's kindergartens and crèches, medical services, schools, canteens and transport (in so far as this serves other non-industrial units; transport workers serving production activities are included among industrial production personnel).

Industrial production personnel and non-industrial personnel form the enterprise's registered staff. There is also non-registered staff, which includes personnel temporarily transferred to other enterprises, students doing their practical training in the enterprise, personnel hired for less than five days for work unrelated to the main activity of the enterprise, and several other categories. Non-registered staff is not subject to the enterprise's manpower planning, although allowance for their remuneration is made in the wages plan.

As already noted, this classification of personnel is important for manpower planning because the enterprise plans each category

separately, and also because the directives given to the enterprise often change the proportions of the different categories.[1]

The most important part of manpower planning at the enterprise level is planning the number of workers, particularly of basic workers. As may be seen from table I above (column 3, section 2), the basic data for planning the number of basic workers are (i) the plan of production, (ii) the estimate of labour productivity growth, (iii) the plan of working time per worker and (iv) the plan of fulfilment of output norms. The contents of the last two plans need some explanation.

The plan of working time per worker is the estimate of the average number of hours (or shifts) a basic worker will work during the planned period, usually one year. The plan is prepared in the following way. From the number of days in the year (" the calendar fund of working time ") are deducted the number of Sundays and state holidays and the average number of days (per worker) lost through annual leave to arrive at the " planned nominal fund of working time ". From this is deducted the " planned average absence from work ", which is based on the previous year's records of absence from work because of maternity leave, sickness, accident, various civic duties, outside training courses, and of other authorised absence from work; due allowance is made for changed conditions, such as an increase in the proportion of married women. By deduction of the planned average absence from the planned nominal fund of working time, the " planned real fund of working time " (plan of working time per worker) is obtained.

The plan of fulfilment of output norms is more complicated. The concept of output norms, expressing standard rates of work in terms of standard times allowed for operations, is one of the most important in the management and planning of Eastern European economies, not only in the field of wages but also in production, labour productivity and manpower.[2] The number of output norms goes into millions, and includes not only output norms per individual

[1] For example, to increase industrial production personnel relatively to non-industrial personnel, or to increase the proportion of workers or of engineer-technical personnel in the industrial production personnel, or to reduce the proportion of employees. In recent years much stress is being put on reduction of the number of auxiliary workers relatively to that of basic workers.

[2] See, for example, A. C. Кудрявцев: *Экономика труда* (Moscow, Профиздат, 1957), p. 133. Output norms are " the most important element in socialist organisation of labour... [they] create the basis for planned division of labour of workers in socialist society. At the same time they aim at the economy of working time in every way and through that at the increase of labour productivity." On the importance and purpose of output norms see also H. Arnold, H. Borchert and J. Schmidt: *Ökonomik der sozialistischen Industrie in der Deutschen Demokratischen Republik*, 6th revised edition (Berlin, 1961), p. 539.

worker but also norms per group of workers, per production process, per machine, etc. There are a number of methods of fixing output norms, which fall into one or the other of two main categories: *(a)* " technically based norms ", based on work study, or *(b)* " empirical norms ", based on past performance in the enterprise, department, shop, etc. The second category is on the whole the more usual, although efforts are being made to increase the use of technically based norms.[1] Output norms are reviewed (" strengthened ") from time to time in order to take account of new technical and organisational conditions. In the absence of revision of output norms, the planned increase of labour productivity takes the form of " planned higher overfulfilment of output norms ". For example, if in the base year output norms were, on average, overfulfilled by 10 per cent., and if the plan of labour productivity calls for a 5 per cent. productivity increase in the planned year, norms in the planned year should be overfulfilled, on average, by 15.5 per cent.

$$\left(\frac{110 \times 105}{100} = 115.5\right).$$

Reports on, and plans for, fulfilment of output norms are expressed as averages, and also in the form of frequency distributions of norm fulfilment: for example, what percentage of workers did not fulfil output norms in the base year, what percentage overfulfilled norms by less than 10 per cent., by more than 10 and less than 20 per cent., etc. On this basis, planned productivity increase is then to be achieved by a planned reduction of the percentage of workers not fulfilling their norms and a planned increase in the percentage of workers achieving high overfulfilment of output norms.

Thus the planned number of basic workers is determined by the plans of production, of output per man-hour, of working time per worker, and of fulfilment of output norms. For each product the necessary input of labour is calculated in " norm-hours " (by occupation and by wage group), on the basis of past experience and of productivity increases envisaged in the labour productivity plan and in the plan of fulfilment of output norms. By adding together the number of norm-hours for all products, the time necessary for the fulfilment of the production plan is determined, and then translated into terms of manpower by means of the plan of working-time per worker. The process is illustrated in table II.

[1] For an account of the question of " output norms " in Soviet industry see С. Х. Гурьянов : *Организация оплаты труда в промышленности СССР* (Moscow, Профиздат, 1960). The distinction between standard times that are, and others that are not, based on work measurement (e.g. for the purpose of setting piece rates) is, of course, also familiar outside Eastern Europe.

TABLE II. AN EXAMPLE OF CALCULATION OF THE NUMBER OF WORKERS NEEDED IN AN UNDERTAKING, WITH BREAKDOWN BY TRADE AND BY WAGE GROUP

Trade	Wage group	Number of " norm-hours " for the whole production programme	Saving of "norm-hours" through the Plan of Technical and Organisational Measures	No. of " norm-hours " after saving through P.T.O.M.	Planned coefficient of fulfilment of output norms	Actual number of hours needed for fulfilment of the production programme	Real working-time fund per year per worker (hours)	Required number of workers (rounded)
Turner	III	14,300	—	14,300	1.25	11,400	2,100	5
	IV	256,600	43,000	213,600	1.25	170,720	2,100	81
	V	346,100	92,000	254,100	1.25	203,280	2,100	97
	VI	111,200	9,600	101,600	1.25	80,130	2,100	38
	VII	24,600	2,200	22,400	1.25	17,920	2,100	9
	VIII	12,200	1,400	10,800	1.25	8,060	2,100	4
Locksmith . . .	III	18,400	—	18,400	1.30	14,150	2,210	6
	IV	372,000	42,000	330,000	1.30	253,850	2,210	115
	V	504,600	84,500	420,100	1.30	323,150	2,210	146
	VI	172,300	40,200	132,100	1.30	101,610	2,210	46
	VII	114,200	—	114,200	1.30	87,850	2,210	40
	VIII	40,100	—	40,100	1.30	30,840	2,210	14
Welder	IV	18,200	1,700	16,500	1.40	11,800	2,000	6
	V	46,400	5,400	41,000	1.40	29,300	2,000	15
	VI	293,400	40,100	253,300	1.40	180,700	2,000	90
	VII	16,700	1,500	15,200	1.40	10,900	2,000	5
Etc.	.....	.....	.....	.....	.....	.....	.....	.....
All trades		10,000,000	1,200,000	8,800,000	1.305	6,742,000	2,099	3,212

Source : A. C. Кудрявцев, op. cit., p. 366.

This method of planning manpower requirements is used not only for the various categories of basic workers, but also for some auxiliary workers, whose work permits fixing of output norms. The number of other auxiliary workers is planned by other means, for example, according to the number of auxiliary workers needed for the smooth running of the production process, having regard to the planned number of shifts. But such methods of estimating requirements of auxiliary workers (and of some other categories, particularly junior service personnel) are not considered very satisfactory and efforts are being made to find better criteria.[1]

The number of engineer-technical personnel is determined by the number of established posts, which is based on the organisational structure of the enterprise. The number of established posts is confirmed by higher authorities, who also approve applications for its increase when higher production tasks make this necessary, and the personnel are available.

The number of learners is determined by estimates of future requirements of skilled workers, taking into account other sources of recruitment.

The size of the labour force needed by the enterprise, calculated by the methods described above, represents the average number of workers, employees, etc. during the planned period. On the basis of this average, and of the production programme, manpower requirements are then calculated for each quarter of the year. At the same time, estimates are made of losses of existing manpower (due to retirement, departure for schools, military service, etc.) and additional needs for different types of manpower are calculated for each quarterly period. The enterprise manpower balance thus shows the actual labour force in the past year, the labour force needed in each quarter of the planned year, the estimated losses of manpower, and the resulting need for additional manpower in each quarter. The balance also shows the planned sources of additional labour force. This aspect of enterprise manpower planning is further examined below, in connection with manpower distribution at the national level.

Manpower Balances at Higher Levels

Manpower balances at higher levels are prepared primarily on an area basis (for example, province, region or republic in the U.S.S.R.) and for the country as a whole. However, the planning of balances at higher levels involves more than a simple consolidation of enterprise balances, because different social sectors (state, collective, private) are treated differently, both in the method of

[1] See, for example, A. C. Кудрявцев, op. cit., p. 370.

preparing balances and in the kind of information required. Methods also vary a little from country to country, mainly in their treatment of the collective and the private sectors (particularly in agriculture).

The basis of higher level manpower balances in all Eastern European countries is the balances of enterprises in the state sector, particularly in manufacturing (and extracting) industry, in construction and in transport. It is with this sector that general economic planning is most concerned, and for which more detailed manpower information is also required. This will become clear from the following outline of the seven stages in the preparation of general manpower balances at the regional (or republic) level in the U.S.S.R.[1]:

1. The first stage is an estimation of the probable number of all personnel in the state sector at the beginning of the planned period. The estimate is prepared from quarterly reports of the enterprises on manpower and other aspects of the Labour Plan. These reports are also used, in the cases of the most important enterprises, for investigation of the effectiveness with which manpower is used in such enterprises.

2. In the second stage, total and additional manpower requirements in the state sector during the plan period are ascertained, with a breakdown by industries. Total requirements represent the total number of workers, etc. needed at the end of the planned year; additional requirements are the difference between total requirements and the estimate of manpower at the beginning of the year, plus the estimated manpower losses. All these figures are obtained by a consolidation of manpower balances of enterprises. Table III shows an example of a consolidated table of manpower and of manpower requirements, in the state sector of a region or republic.

3. In the third stage the first, partial, balance is prepared, showing on the one hand additional manpower requirements, and on the other hand resources from which these requirements can be met. The scope of this balance is, however, narrower than that of the table prepared in the second stage, as it covers not all manpower in the state sector, but only that in manufacturing and extracting industry, construction and transport. Requirements and resources for the most important enterprises in industry and construction are specified separately.[2] This balance is also confined to workers only,

[1] Based mainly on M. SONIN: *Die Arbeitskräftebilanz* (Berlin, 1953) (translated from the Russian) and on A. C. Кудрявцев, op. cit., Part V, Chs. 1 and 5.

[2] These are considered the branches of basic importance. Other branches within (and without) the state sector are, however, included in the " final consolidated balance " drawn up in the sixth stage, outlined below.

TABLE III. FORM OF TABLE OF MANPOWER AND MANPOWER REQUIREMENTS IN THE STATE SECTOR OF A REGION OR REPUBLIC, SOVIET UNION

Total labour force	Number of workers and employees as at the end of the year						Additional manpower requirements in the planned year		
	Current year—planned number		Current year—estimate of actual number		Planned year				
	Total	Of which in towns	Total	Of which in towns	Total	Of which in towns	To increase the labour force	To replace losses due to age, departure to the armed forces, to schools, or for other legal reasons	Total
Sector [1] . . .									

Source : M. SONIN, op. cit., p. 121.

[1] The sectors for which figures are given in the table are : industry, construction, transport and communications, state farms, trade, housing and communal services, public food provision, state institutions and social organisations, medical care and education and miscellaneous.

omitting other categories of industrial production personnel (engineer-technical personnel, etc.) and all non-industrial personnel. The manpower requirements side of this balance is based on enterprise planning balances supplemented by results of investigations made (in the first stage) into the use of and need for manpower in the more important enterprises. The manpower resources side shows how many workers can be supplied from various types of schools, how many from " organised recruitment " in the countryside, how many from integration of non-working town population, etc. (These methods of recruitment are described in the next section.)

4. The fourth stage in the preparation of manpower balances at the regional level is the calculation of total and additional manpower requirements for industries needing seasonal labour, such as timber felling, peat extraction, sugar refineries, etc., and of sources from which these requirements can be met. The balance shows the duration of the working season and production during the quarter or month when most labour is needed. With the aid of output norms per worker, the manpower needed in each of these industries during the peak quarter is calculated, and from that the number of permanent workers is deducted. This determines the need for additional manpower during each industry's peak period. As these periods do not coincide, some transfers between seasonal industries are possible. The remaining seasonal requirements are met from two sources: *(a)* by recruitment of family members of permanent workers, of private farmers, urban population, etc., and *(b)* by " organised recruitment " in the collective farms.[1] Each seasonal industry has to cover its requirements as much as possible from the former source. Collective farms are, however, a much more important source of manpower for these industries. The fact that in the combined manpower balance of a region the manpower requirements of seasonal industries are stated for the period of maximum manpower requirements in the collective farms, is evidence of the importance of the latter as a source of manpower for seasonal industries.

5. The fifth stage of the process is the preparation of a manpower balance of collective farms for the planned year, and for the peak month. The manpower balance of collective farms is one of the most important parts of manpower planning in the U.S.S.R. (and

[1] On the other hand, collective and state farms receive assistance from the non-agricultural sector during their peak periods. This assistance is given by students, army units, and groups of workers in addition to their normal activities, so that these groups are not shown in the consolidated manpower balance. Some allowance for their help may, however, be made in the calculation of agricultural manpower needs during the peak period.

in several Eastern European countries), as it enables an estimate to be made of the possibilities of manpower transfer from agriculture to industry or, in the case of the U.S.S.R., to agriculture in newly cultivated territories (" virgin land "). Manpower balances are prepared not only for each region but also for each district.

One side of the manpower balance of collective farms, manpower resources available, is found from registration figures and accounts of movements of the rural population. The manpower resources are calculated as the sum of able-bodied persons of working age (that is, all men between 16 and 60 and all women between 16 and 55, minus registered invalids) and of minors and over-age people who in fact do work.

The other side, manpower requirements, is calculated for the whole year and for the peak month, usually July or August. This starts with an analysis of data (in the previous year) on the number of labour-days [1], on the number of members of collective farms who took little or no part in the work of collective farms, on the number of labour-days worked per one man-day, and on the degree of utilisation of agricultural machinery. From these data are elaborated plans of measures for the better utilisation of manpower in different branches of collective farms. On the basis of these plans and of production plans are planned output norms per labour-day and the number of labour-days needed. By converting the number of labour-days into man-days the number of workers needed during the peak month is calculated.

In the combined manpower balance of a region appears only the number of collective farmers working during the peak month. The difference between this number and total manpower resources calculated is the number of persons " working in households and in private auxiliary economy ", i.e. on private plots of collective farmers, which constitutes a pool from which manpower may be drawn for seasonal labour, resettlement or transfer to industry.

6. The sixth stage of the process is the actual drawing up of the combined manpower balance of a region (or republic). An example of such a balance is given in table IV. The manpower resources side of the balance comprises all able-bodied people of working age plus actually working minors and older people. The manpower distribution side shows manpower in the state sector, seasonal workers and collective farmers, according to balances

[1] A labour-day *(трудодень)* is a measure of labour input in collective farms. It does not represent a unit of time (man-day) but a unit of work and pay—it is a task, which it may take much less than a man-day to perform, especially in the case of skilled work. Labour-days are converted into man-days by means of a conversion ratio fixed by the Central Statistical Administration.

TABLE IV. AN EXAMPLE OF A COMBINED MANPOWER BALANCE OF A REGION (REPUBLIC), U.S.S.R.

(In thousands) [1]

Manpower	Beginning of planned year	End of planned year
Manpower Resources :		
Able-bodied population	1,719	1,834
Older people still at work	184	184
Working youth (under 16)	3	3
Total	1,906	2,021
Manpower Distribution :		
1. Workers, etc. in the state sector	615	703
Industry	295	310
Construction	45	74
Transport	102	120
Communications	18	19
State farms and forestry	65	83
Trade	40	45
Medical care and education	39	42
State institutions and social organisations	11	10
2. Seasonal workers working in the month of maximum labour requirements of collective farms	40	31
3. Members of handicraft co-operatives	36	38
4. Collective farmers working in collective economy of kolkhozes in the busiest month	898	870
5. Students of 16 years and more	120	190
6. Other working population (private farmers and handicraftsmen)	3	2
7. In households and in private auxiliary economy	194	187
of whom able-bodied persons among whom might be effected organised recruitment, resettlement, etc.	20	19
Total	1,906	2,021

Source : A. C. Кудрявцев, op. cit., p. 468.

[1] The figures serve only as an example and are not related to any region (republic) of the U.S.S.R.

prepared in the previous stages. To these are added data on co-operative craftsmen, students over 16, and private farmers and craftsmen. Item 7, persons working " in households and in private auxiliary economy ", referred to above, is a residual item (total manpower resources minus manpower listed under items 1 to 6 in the distribution side). People listed under this item are those left

out from the balances of collective farmers as well as non-working people in towns.[1] A calculation is then made of how many of these people can be made available for resettlement to new territories or for transfer to industry, transport, and other sectors.[2]

7. The last stage of manpower planning on the regional (republic) level consists of an elaboration of specific measures for effecting the changes envisaged in the planning manpower balance.

Apart from the manpower balances described here, there are others concerned with more specific problems. Of particular importance are balances for skilled occupations, for young persons, and for graduates of universities and secondary technical schools.

Channels of Manpower Distribution

The purpose of drawing up manpower balances is to achieve effective distribution of manpower in accordance with general economic and social policy. Balances at enterprise and intermediate levels show the actual situation, as well as needs during the planned period. To satisfy these needs of enterprises, redistribution of manpower may be necessary. Such redistribution may involve shifts between social sectors (state, co-operative, private undertakings), between industries, between town and countryside, and between the various areas (districts, provinces, regions, etc.) of each country. This is achieved both through a redistribution of the existing labour force and through channelling new entrants into the labour force (youths, housewives, etc.) into the sectors, industries, regions, etc. where they are needed. It is not possible to draw a sharp line between the two methods, as the division between the labour force and the rest of the population is not very clear.[3] For this reason the various methods of channelling manpower into branches, regions, etc., described below (except the first) cannot be considered as dealing exclusively with either distribution or redistribution of manpower.

1. One of the most important channels of manpower distribution in Eastern Europe is the vocational training system for youths. This system plays an important part not only in the

[1] An example of a combined manpower balance of a region (republic) given by: И. А. Лясников: *Планирование труда в народном хозяйстве СССР. В помощь экономисту и плановнику* (Moscow, Госпланиздат, 1959), pp. 50-54, shows a breakdown of all items into urban and rural population.

[2] See, e.g., А. С. Кудрявцев, op. cit., p. 469, and И. А. Лясников, op. cit., pp. 52-53.

[3] For example, as noted above, part of the labour force (number 7 in table IV) is a mere " balancing item ". Indeed, for several countries (including the Soviet Union) no continuing information on the total economically active population is made available.

sectoral, but also in the geographical, distribution of manpower, as for some youths there may be places in vocational training institutions only in other districts or regions. Furthermore, each training institution has a plan for the distribution of its graduates, in fulfilment of which it may persuade some of them to take up employment elsewhere. The total number of young people admitted to vocational training and the type and place of training are the results of two partial manpower plans :

(a) the balance of juveniles plan, which plans the distribution of all young people of each age-group in a region into those who attend secondary schools, who undergo vocational training, who work in industry, etc. or in collective farms, or who may be made available for other regions [1] ;

(b) the training plan, showing the expected future requirements and the resources from which these will be met (youths leaving vocational training institutions, unskilled workers to be trained by their own enterprises, etc.).

The system of vocational training in Eastern Europe is being reorganised. For most of the post-war period the bulk of the system was formed by the state labour reserve system. In the U.S.S.R., according to a statement made in 1957 :

> In recent years, of the total number of workers allocated by the State Plan to industry, construction and transport, 50 per cent. came from the state labour reserve, 44 per cent. from organised recruitment, 4 per cent. from enterprise schools and 2 per cent. from resettlement. The share of the state labour reserve system in the main occupations of the metalworking industry amounts to 72-86 per cent., in construction 72-85 per cent., and in coal and ore mining 63-73 per cent. [2]

The system, established in the U.S.S.R. in 1940 and in the Eastern European countries in the late forties and early fifties, worked through a wide net of residential training establishments of different types. Broadly speaking, these establishments may be divided into trade schools, with two to three years of training, and factory-and-workshop schools, which provided only a six-month course. Later a third type was added, providing skilled labour for agriculture. Both rural and urban youths were recruited, although the main sources of supply, at least in the U.S.S.R., have been the countryside and in particular the collective farms. Manpower distribution through the state labour reserve system took place

[1] Cf. an example of a balance of boys in a region of the U.S.S.R. in А. С. Кудрявцев, op. cit., p. 421.

[2] А. С. Кудрявцев, op. cit., p. 417. On state labour reserves in the U.S.S.R. see the article by Г. Зепенко on training a skilled labour force, in *Вопросы труда в СССР* (edited by Г. А. Пруденский) (Moscow, 1958).

only in the case of juveniles coming to the trade and the factory-and-workshop schools. These schools were attached to manufacturing, building, and transport enterprises, and to mines, in which trainees worked as a part of their instruction, and where they often remained afterwards. On the other hand, trainees in the agricultural mechanisation courses returned to the collective and state farms from which they came.

State labour reserve schools generally taught skills usable in more than one industry, highly specialised skills being taught in various schools outside the system. The bulk of skilled labour, however, came from the state labour reserve schools.

In recent years the importance of the system has declined considerably. In 1955 the Supreme Soviet of the U.S.S.R. abolished compulsory drafting for labour reserves [1], and in 1958 Czechoslovakia abolished the whole system altogether. In October 1960 it was reported that the U.S.S.R., too, was abolishing the system within the framework of a reorganisation of the whole vocational training system. [2]

2. The second most important channel of manpower distribution in many, though not all, Eastern European countries is the " organised recruitment of workers " *(orgnabor)*. Under this system a worker is offered a contract for a fixed period of one to three years, after which he can remain in the new job. It is stated that the worker may, however, also return to his previous place of residence.[3] As organised recruitment caters also for seasonal industries, contracts are made also for shorter periods.

The main purpose of this system is to effect transfers from the agricultural labour force to industry, construction, and transport, not only within the region but also from one region to another.[4] In the post-war period, about five million Soviet workers were transferred from one region to another through organised recruitment.[5] On the other hand, in the Czechoslovak manufacturing and

[1] Compulsory drafting for labour reserves was introduced at the start of the state labour reserve system, but its importance declined in the early 1950s with the increasing number of volunteers for the labour reserve schools. It is not known what use is still made of the provision in section 10 of the Edict of 2 Oct. 1940, which stipulated an obligation for graduates of labour reserve schools to work for four years at assigned places of employment. (For the text of the Edict, of which parts were later repealed, see *Ведомости Верховного Совета СССР*, No. 37, 1940.)

[2] See the article by Г. Зепенко on the problems of training skilled workers in the U.S.S.R., in *Социалистический труд*, No. 10, 1960.

[3] See А. С. Кудрявцев, op. cit., p. 422; and Ф. И. Котов: *Вопросы труда в семилетнем плане* (Moscow, Госпланиздат, 1960), p. 117.

[4] However, organised recruitment is used also in connection with town population either from non-working groups or from less important branches of work.

[5] Ф. И. Котов, op. cit., p. 116.

extracting industry the proportion of all new entrants that was due to organised recruitment did not exceed 10 per cent. in any year between 1953 and 1959.[1]

The activities of the organised recruitment system in the U.S.S.R. are directed by the councils of ministers of the republics through departments at the regional level, according to plans of organised recruitment prepared for each of the republics. When organised recruitment involves transfer from one republic to another, this is done in accordance with plans prepared on the national level by the State Planning Commission.

3. " Resettlement " is similar to the organised recruitment scheme. Its main purpose is to transfer collective farmers from places where there are manpower surpluses to other collective farms in areas where the expansion of agricultural production is hindered by lack of manpower. Resettlement also provides labour for other rural activities, such as timber felling and fishing. Volunteers for resettlement receive removal allowances and financial help for themselves and their families, and long-term credits for building houses and purchase of cattle for their private plots, as well as some other inducements.

The organisation and planning of resettlement is done by the same authorities as in the case of organised recruitment.

4. Soviet authors give as a special type of manpower distribution channel the voluntary movement of youth to newly cultivated areas.[2] This redistribution is mainly geographical, although it involves also some movement from towns to rural areas. Komsomol (the Communist Youth Organisation) plays a great part in the organisation of this movement to Siberia and the Far East, but generally the movement is run along the lines of the organised recruitment system.[3]

5. The system of mass distribution and redistribution of manpower is supplemented, to an increasing degree, by the individual recruitment of workers directly by enterprises. In some countries this is the most important channel of recruitment : for example, in Czechoslovakia the share of free recruitment in the total number of all new entrants into the worker category in industrial enterprises has been around 70 per cent. in every year since 1953.[1]

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[1] Calculated from data in the statistical yearbook of the Czechoslovak Socialist Republic, 1960, measured on enterprise basis.

[2] E.g. Ф. И. Котов, op. cit., p. 118.

[3] See the article by Н. Кокосов on methods of improving the utilisation of manpower in Siberia and the Far East, in *Социалистический труд*, Feb. 1961.

Direct recruitment of workers by enterprises takes a number of forms, similar to those used in other parts of the world. Workers learn about vacancies through notices on factory gates, advertisements in newspapers and technical journals, and notices on bulletin boards, as well as from friends and relatives working in the enterprise. Although enterprises cannot use wage incentives as a means of attracting workers, direct recruitment is naturally easier for enterprises in key industries with higher wages.[1]

Planning of Specialists

In the distribution and planning of manpower the category of specialists raises special problems. The term refers generally to graduates of universities or of technical secondary schools. As the training of these specialists takes a longer time, requirements must be calculated for at least five years ahead.

There are two main groups of specialists from the point of view of manpower planning : (i) specialists who will be needed as engineer-technical personnel (ETP) in the enterprises, and (ii) specialists who will be needed in all other occupations.

Planning the first group is not very different from planning the number of other personnel of enterprises, except that it must be for a more distant goal. Planning is done mostly by specialised sectors within a region or republic, and is based on medium-term plans of production and labour productivity, as well as on specialist requirement norms, which show the desirable number of engineer-technical personnel per 1,000 workers. These specialist requirement norms naturally vary from industry to industry, and are changed in accordance with the stress put on the development of particular industries. A further factor in the planning of specialists is the problem of people who hold positions classified as ETP without having the required university or technical-secondary education. (Their qualification is then described as " practice ".) They are to be gradually replaced by qualified personnel.

An example of an account of specialists (in the U.S.S.R.) is shown in table V. Apart from the plan of production and from the total number of personnel (as determined by the planned produc-

[1] " The national economic significance of branches is taken into consideration when wages are being established and regulated. Higher wages in the leading branches of heavy industry are designed to create conditions there for attracting and keeping the best workers. Both the basic wage rate system and the bonus system are used for this purpose. " (Е. Капустин on some problems of further improving the organisation of the wage system, in *Социалистический труд*, No. 4, 1961.) But while wage incentives to attract workers can be applied only at the branch (industry) level, individual enterprises may offer housing, crèches, and other attractions.

TABLE V. ACCOUNT OF SPECIALISTS, U.S.S.R. [1]

	Unit	1953 Reported	1954 Expected	1955 Plan	1955 as % of 1954	1960	1960 as % of 1955
Volume of production	million roubles	26,700	29,600	33,200	112	66,400	200
Total personnel	thousands	815	835	862	102	1,035	120
of whom : workers	thousands	612	630	655	104	820	125
eng. tech. personnel	thousands	73.5	77.2	81.5	106	130 [2]	160
of ETP : university ed.	thousands	17.5	19	21	110	37	176
tech. sec. ed.	thousands	21.5	24.2	27.5	114	78	284
" practice "	thousands	34.5	34	33	97	15	45.5
No. of ETP per 1,000 workers	persons	120	122	124	102	158	128
Percentage of ETP							
university ed.	per cent.	23.8	24.6	25.8	—	28.5	—
tech. sec. ed.	per cent.	29.3	31.3	33.7	—	60.0	—
" practice "	per cent.	46.9	44.1	40.5	—	11.5	—
Increase on previous period :							
highly qualified spec.	thousands	—	1.5	2.0	—	16.0	—
medium qualified spec.	thousands	—	2.7	3.3	—	50.5	—
Departures during period :							
highly qualified spec.	thousands	—	0.44	0.47	—	3.6	—
medium qualified spec.	thousands	—	0.55	0.73	—	6.6	—
Additional req. in :							
highly qualified spec.[3]	thousands	—	1.94	2.47	—	19.6	—
medium qualified spec.[3]	thousands	—	3.25	4.03	—	57.1	—

Source : A. C. Кудрявцев, op. cit., p. 450.

[1] The figures serve only as an example and are not related to any region (republic) of the U.S.S.R.

[2] Kudriavtsev gives the 1960 planned figure of ETP as 170 ; this is obviously a mistake, and it is here replaced by 130, which is consistent with the other figures.

[3] The account of specialists is in fact more elaborate, as the last item (additional requirements in specialists) is further subdivided into various professions.

tivity of labour), the items show the changing proportions in the structure of personnel, with the planned number of workers growing faster than the total personnel, and the number of engineer-technical personnel growing even faster than the number of workers. The structure of engineer-technical personnel itself is planned to change, with the shares of university and technical secondary school graduates increasing at the expense of people whose qualification is only " practice ". The remaining items in table V are the familiar concepts of manpower needed to increase the present level to the planned level, the expected losses of manpower through retirement, etc. and the resulting additional requirements of new manpower.

In cases when it is not possible to calculate the requirements for specialists in this way for lack of data (e.g. for periods extending beyond the current long-term plan), a rough indication of the necessary growth of specialists in a particular branch is obtained with the help of three planning indices : the index of production growth, the index of rise in labour productivity and the index of planned increased share of ETP in the total number of personnel.[1] The planned number of specialists then varies directly with production targets and planned specialists/personnel ratios, and inversely with the labour productivity targets.

The method of planning specialists in the other group is more varied, as it is not linked directly with production. There is no one universal procedure for determining the needs. For example, the number of doctors is planned, years ahead, by applying the social target in medicine (expressed in this case as the desirable number of doctors per 10,000 inhabitants) to the forecast increase in population for certain years. A Polish example of this target, and its actual fulfilment, is shown in table VI.[2]

TABLE VI. NUMBER OF DOCTORS IN POLAND PER 10,000 INHABITANTS

Number of physicians *	1952	1955	1957	1959
Target figure	5.0	7.0	8.0	9.0
Real figure	4.6	6.7	7.9	8.8

* Excluding dentists.

[1] These three planning indices are targets, often available long before more detailed plans for the period in question are elaborated.

[2] Taken from *Planning for Balanced Social and Economic Development in Poland*, Economic and Social Council document E/CN.5/346/Add. 1, 9 Dec. 1960.

Another example of specialists outside the ETP class are the teachers.[1] The demand for teachers is planned within the framework of plans for the development of education. The basic sources of calculation are the data on children in particular age groups and the plan of education above the compulsory minimum, from which the expected numbers of children in particular classes are calculated. By applying the coefficient of class-loading (that is, the number of pupils assigned to a class) the total number of classes (and thus of teachers required [2]) at some date in the future is calculated. An estimate of losses is made on the basis of recent experience, and the total additional requirements are arrived at. No allowance is made in the U.S.S.R. for replacements of " practice " specialists in the case of teachers, as their number is stated to be comparatively low and is expected to diminish from natural waste.

From all these plans of future additional requirements in specialists are then prepared plans of education of specialists, which stipulate the necessary number of universities or technical secondary schools, the number of students attending their courses [3], the number of students to be admitted to the first year and the number of graduates. The last item (" the graduation plan of universities and technical secondary schools ") serves as a basis for distribution of young specialists between areas and branches. High flexibility in the allocation of new graduates to areas or branches where they are needed is obtained by the provision obliging young graduates who have studied on state scholarships to take whatever posts are allocated to them for three years.

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[1] On the methods used for estimating the need for teachers as well as for other specialists in the U.S.S.R., see *Планирование потребности народного хозяйства в специалистах*, edited by Б. И. Брагинский (Moscow, 1959).

[2] This equality between the number of classes and teachers applies to the first four grades of primary schools. In higher grades, where teachers specialise in subjects, the calculation is also influenced by general syllabus.

[3] Either as full-time students or as " students who study without leaving production " (i.e. evening and correspondence students).