Productivity in the Planned Economies of Eastern Europe [1]

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In recent years a number of articles in the International Labour Review *have been devoted to various aspects of productivity in different countries.*[2] *The present study, however, is the first to appear on the subject as it concerns the planned economies of Eastern Europe. It is based, as will be seen, on official statements and standard works published in the countries concerned and gives a general survey of their approach to the problem of raising productivity and of the place*

[1] The sources used in the preparation of this article include the texts of the state economic plans; reports on fulfilment of the economic plans; official statements made by the government, Party and trade union authorities of the countries concerned; and several studies and articles published in specialised periodicals and newspapers during the post-war period in the U.S.S.R. and other countries of Eastern Europe. Standard works on economic planning, drawn upon in the first part of the article, include: *Экономика социалистической промышленности*, edited by Е. Л. Грановский and Б. Л. Маркус (Moscow, Академия Наук, 1940); С. М. Кутурев: *Анализ баланса доходов и расходов хозяйственной организации* (Moscow, 1948); Л. Маневич: *Заработная плата и ее формы в промышленности СССР* (Moscow, 1951); Н. Н. Ровинский: *Организация финансирования и кредитования капитальных вложений* (Moscow, 1951); Н. Сонин: "О балансе рабойеч силы в социалистическом хозяйстве", in *Вопросы экономики* (Moscow), No. 6, 1948; Г. Сорокин: *Социалистическое планирование народного хозяйства СССР* (Moscow, 1946).

The main sources used in the second part of the article are identified in footnotes.

[2] See, for example, Jorge FRANCO: "Productivity and Economic Development in Latin America", Vol. LXXII, No. 5, Nov. 1955; "Productivity Trends in European Manufacturing", Vol. LXXI, No. 5, May 1955; Hy FISH: "Raising Productivity in Israel", Vol. LXVIII, Nos. 4-5, Oct.-Nov. 1953; R. RICHARD: "Productivity and the Trade Unions in France", Vol. LXVIII, No. 3, Sep. 1953; Gabriel ARDANT: "The Measurement of Productivity in State Undertakings and Public Services", Vol. LXVII, No. 5, May 1953; and "Practical Methods of Increasing Productivity in Manufacturing Industries" and Jean FOURASTIÉ: "Towards Higher Labour Productivity in the Countries of Western Europe", Vol. LXVII, No. 4, Apr. 1953.

occupied by the productivity factor in their economies. But, however great the similarity of policy throughout the region, in studying the broad picture presented by the author the reader should not lose sight of the fact that minor differences would undoubtedly emerge from a detailed analysis of each individual country.

THE continuous growth of productivity is a central objective of economic and social development in the planned economies of Eastern Europe, where it has frequently been emphasised in official statements that higher productivity constitutes the main source of both present and future improvements in general standards of living—of present improvements in that it enlarges the current flow of consumer goods and services, and of future improvements in that it enlarges the stock of productive capital.

According to Marxist theory, which is the basis of economic and social thinking in the countries concerned, a close relation exists between forms of social organisation and productivity. It is maintained that the supercession of one social system by another is determined by the superior productive power of the new system, and that socialisation of the means of production promotes more rapid increases in productivity, since the growth of productivity is recognised by everyone to be in the interest of the community as a whole ; a favourable attitude towards productivity is stimulated by the fact that the products of the economy are appropriated collectively, and only those who have contributed to production or are unfitted to do so because of their age or for other reasons can claim a share in the wealth produced.

It is also argued in Marxist theory that planning ensures a balanced development of all branches of economic activity, and that the economy thus avoids any danger of loss and wastage of material and human resources that might otherwise result from the disproportionate development of certain sectors of the economy in response to market fluctuations. As a result the attitudes of the working population towards increased productivity are not affected by the fear of unemployment. It is further maintained that in a socialist economy managerial and scientific attitudes are such that the growth of productivity is liberated from the restrictions otherwise created by secrecy, market competition and monopoly.

It is not within the scope of the present article to attempt a theoretical or practical appraisal of these claims. They show, however, why the increase of productivity is regarded in the countries of Eastern Europe as one of the most reliable indicators of the success of their social system and as a pre-eminent task of their economy.

Economic Planning and Productivity

Because of its particular role in the theory and practice of their national economies, productivity is one of the most important factors in economic and social planning in the countries concerned.

The planning of investment, production and consumption, which is inevitably inter-related, is based on estimates of the expected increase in the productivity of the factors of production in the various sectors of economic activity during the period concerned. The income of the population and the market supply of consumer goods are both planned in the light of contemplated increases in productivity, within the limits of the proportion in which it is decided to allocate resources to capital investment on the one hand, and the production of consumer goods on the other. Costs of production are planned on the basis of planned savings in unit costs of labour (which in turn depend on contemplated increases in the productivity of labour) and planned savings of materials and equipment. It would be possible to illustrate, in a similar way, the role played by the productivity factor in the planning of economic and social targets and measures in all the component parts of the state economic development plans.

One of the most important tools of the planning mechanism at the national and industry levels is an estimate of all available resources and needs of the economy in the form of material, financial and manpower " balances ". " Material balances ", which correspond to the concept of input-output analysis, indicate the inter-relationship between production and consumption of a given product or group of products. Their purpose is to provide a basis for (1) estimates of the relationship between material resources and the needs of the national economy, which will reveal bottlenecks and other maladjustments between supply and demand ; (2) correct distribution of material resources ; (3) fullest possible use of resources ; (4) elaboration of inventory policies ; and (5) export and import policies. The " material balances " provide the planners with the necessary elements for decisions regarding the allocation of resources for capital investment and consumption. Detailed consumer goods " material balances " deal with the allocation of resources made available for consumption and the magnitude of consumers' demand for them. The productivity factor enters into the estimates of both the demand for each item of the material balances and the supply of it. These estimates are made having regard to the additional resources expected to be released through increases in productivity, resources required for the achievement of such increases, and additional consumer demand created by the larger incomes resulting from the higher productivity of labour.

The productivity factor also plays an important role in the " financial balance " in which financial resources are allocated for various types of production, and for expenditures on social services, cultural measures, management and defence. It is particularly vital for establishing equilibrium between the volume of commodities produced and the total volume of wage payments (including salaries). The planned national wage bill is computed on the basis of estimated labour requirements (which depend upon productivity per man-hour) and of estimated incentive payments for increased productivity under the prevailing systems of payment by results. On the basis of the balance of income and expenditure of the population the State Bank plans the volume of money in circulation.

Past and contemplated increases in productivity are also a major consideration in the " manpower balance " indicating the nation's available labour resources and the demand for additional manpower in all branches of economic activity. The " manpower balance " provides the main elements for elaborating the interrelated policies regarding production and consumption. The need for—and the possibilities of allocating—labour and financial or material resources to the different branches of production (including such productive services as vocational training) and to the different kinds of consumption (including social services and housing subsidies, as well as goods that consumers purchase with their wages) in accordance with the established priorities are closely linked with actual and planned increases in production and productivity. Productivity indices give the planners the necessary guidance in estimating possible increases in output of a given product and the additional labour required to achieve them. They also show to what extent such additional labour requirements in one trade may be met by labour transfers from other trades.

The formulation of plans regarding manpower requires particular skill on the part of the planners in inducing labour, by means of adequate material incentives, to take up employment and to increase productivity in given trades (and areas) in accordance with the planned objectives. The material incentives must, however, be fixed within the limits of the estimated costs of production and volume of resources available for consumption.

It may appear that the establishment of an appropriate balance is substantially more difficult in the case of manpower than in the case of material or financial resources. The response of workers to economic measures seems less accurately predictable than the effects of the allocation of additional material or financial resources on the volume or value of production. Human behaviour does not depend entirely upon the environmental factors of the present

but is conditioned by those of the past, embodied in customs and traditions, and by standards of education. Relatively high wages, fellowships for studies and preferential living conditions may or may not induce workers in the expected numbers to take up a given profession or job in a given area. Similarly it is generally considered that better conditions of life have a positive effect on labour productivity ; but it is not easy to predict the exact response of different groups of the population in different areas to improvements in living standards, e.g. better housing conditions.

Recognition of these facts seems to be reflected in the planners' approach to the problems of the distribution and productivity of labour. While considerable importance is attached to material incentives, other factors also play an important part in labour and productivity policies, and the probable response of workers to various non-material incentives, including those provided by the socialist emulation movement, workers' suggestion schemes, and patriotic appeals, have also to be estimated and taken into account.

Planning Procedure

In most of the countries of Eastern Europe economic planning progresses through a number of stages between the formulation of a general outline of economic and social objectives and priorities and the final composite plan allocating specific tasks and resources among individual enterprises. During all these stages there is a continual interchange of information and suggestions between all levels—enterprises, industries, central organisations responsible for production and procurement of materials, equipment and financial resources, and the central planning commission—on the basis of which the various drafts can be revised and amended. In the last stage, managements draw up their final plans subject to the approval of the central organisations.

Throughout this procedure contemplated increases in productivity are an inherent part of planning from " above " as well as from " below ". The preliminary plan elaborated at top level includes directives concerning productivity policies as well as general directives regarding priorities in allocating resources, data on approximate increases in output, and the proportion of output to be earmarked for capital accumulation. The directives concerning productivity policies cover general objectives in regard to the reduction of costs and the input of labour and material, and indicate in a general way the means by which such objectives should be attained. The latter may include changes in the allocation of financial and material resources ; programmes of mechanisation and the introduction of new technological processes ; projects

of integration between (and within) various branches of economic activities ; and suggestions for the inauguration or discontinuation of certain types of manufactures.

These indications provide guidance for planning productivity (and production) at industry levels, and are reflected in the specific tasks allocated to individual managements. Both the preliminary and final plans submitted by individual enterprises include targets of productivity increases and suggested measures to secure higher efficiency. Moreover, the estimates of required materials, equipment and liquid capital prepared by the managements include productivity data justifying them. These indicate the standard norms of use of materials per unit of output, and suggest possible revised norms to take account of contemplated allocations of new equipment, better quality materials, or the introduction of new technological processes. They also describe measures aiming at saving materials, utilising waste products, or substituting some materials for others. Requests for working capital, particularly in regard to the enterprise's wage bill, show the contemplated unit costs of labour based on standard norms of output and indices of average labour productivity. They also contain a statement of the measures to be taken for increasing the productivity of labour and economising expenditure on labour, and suggest possible adjustments of standard norms of work allowing for contemplated improvements in materials, manufacturing processes, equipment, organisation of work and labour skills.

Technical Considerations

A technical plan, which is a component part of the state eco-comic development plan, serves as a basis for planning production and gives a detailed programme of productivity policies and measures. It covers such subjects as mechanisation of labour-intensive processes ; introduction of advanced technology in production ; scientific research work ; technical training ; and development of pilot plants and research within industry. The top-level scientific institutions are largely responsible for the elaboration and execution of this technical plan.[1] It guides the central production organisations at industry level in the elaboration of their programmes of increased productivity, and in fixing " ceilings " on the quantities of material and financial resources put at the disposal of managements for executing their production

[1] For example, in the U.S.S.R., these powers are delegated to the Academy of Science, which is responsible for all basic scientific research, controls the research institutes of the country, and co-ordinates activities in the field of science and technology.

tasks. Moreover, the technical plan assists the central procurement organisations in revising their " material balances " and in establishing standard norms of use of given products in various branches of production.

Standard norms of use of materials and fuel serve as a basis both for their allocation to central production organisations and for their distribution among particular enterprises, as well as for actual production. Standard norms of industrial consumption of materials are an important factor in promoting productivity. Their direct function is to ensure economy of materials and fuel and thus to promote full use of equipment capacity. However, their impact on increased productivity seems to be much more substantial: the necessity to fulfil the production programme by means of resources allocated within the limits of standard norms is a powerful stimulus to the management to apply all available methods conducive to higher efficiency in the enterprise. Furthermore, the application of standard norms assists the economy as a whole in its search for higher efficiency through standardisation of products. It also encourages the use and production of uniform types of equipment. Consequently, the standard norms of materials per unit of product are among the most important tools in determining productivity objectives in the production plans, which set the targets for the volume, quality and assortment of output. The role of standard norms in the planning of higher productivity through economy of materials is also reflected in prevailing systems of payment. Indeed, in several countries and industries individual workers are instructed to use not more than certain quantities of materials per unit of output, and bonus payments depend upon the quantity of materials saved.

Financial Considerations

Financial planning determines targets for cost reduction and also gives data regarding planned changes in the profits of the different industries. Moreover, it determines the nation's wage bill and the wholesale prices of goods produced by all industries. The financial plan of an individual enterprise has to be established within the limits imposed by the centrally fixed prices of its products, and of the materials and equipment consumed.

It appears from available information that relatively high prices of certain producers' goods have induced managements to improve the organisation of the plant and the efficiency of labour with a view to decreasing the quantity of such goods used in the manufacturing process. In several cases as a result of high prices manufacturing processes and methods have been evolved and

applied especially to permit the use of relatively cheap substitutes. On the other hand the fixing of higher prices for products of better quality has served as a powerful stimulus to managements to increase efficiency with a view to obtaining high-quality end-products. The incentive payments provided to individual managements for achieving " planned profits " seem to play a substantial part in making the pricing system an effective instrument for attaining productivity targets.

Productivity Norms

Targets for increased productivity of labour are expressed in terms of the expected reductions in labour costs per unit of product, or in terms of expected increases in the volume of output per worker. The planned indices of productivity and cost of labour are reflected in the norms of work, and in the wage and bonus rates to be applied under the prevailing systems of payment by results.

The norms of output used as a basis for payment by results are set and revised centrally in order to ensure that the relationship laid down in the plan between increases in labour productivity and increases in wages is maintained in practice. The national economic plan fixes targets for increases in labour productivity and wages. The provisions for the adjustment of norms and the extent of such adjustments are intended consistently to reflect past results and contemplated developments in the production of equipment and materials, the application of which is expected to bring higher efficiency. Adjustments of norms may also be related to wide-scale vocational training. Norms of work make possible the allocation of the production among individual workers and teams of workers, and the conversion of the plan of an enterprise into a sum of tasks faced daily by all workers.

Although the general principles regarding all systems of payment are elaborated at national and industry levels, managements of individual enterprises are largely free to choose and adjust a particular system of payment, and to set norms of work suitable for local conditions.

Workers' Participation in Planning

Substantial emphasis is laid upon the participation of the workers in planning activities in general and, in particular, in the productivity programmes. The management of the enterprise, the Party organisation, and the trade union concerned, are all charged with encouraging and assisting such participation. The workers directly participate in the elaboration of plans at the level of the enterprise, plant department, or workshop. Their main contribu-

tion seems to be to indicate sources of waste of materials, to suggest preventive measures, to elaborate methods for organisational and technical improvement, and to establish schedules for the repair of equipment.[1]

In all the countries concerned workers participate in establishing the principles of systems of payment by results, and in setting norms of work and piece and bonus rates. This participation, which is both direct and indirect, takes place at all levels at which wage and productivity policies are elaborated, and at all stages of their application. Representatives of trade unions have a part to play in the activities of wage-determining authorities; they are also consulted on the elaboration of policies regarding manpower organisation and costs of production, vocational training, etc.

A direct and indirect influence by workers on these matters is also exercised by means of suggestion schemes and the socialist work competition movement discussed later in this article.

Supervision and Evaluation of Results

It is a major concern of the planners to provide for adequate means of control over the institutions and individuals responsible for the execution of the plan. The direct function of the organs of supervision is to check the results achieved against the planned targets, and to show up disproportions in economic planning and development, as well as deficiencies in the executive mechanism. Indirectly, the purpose of supervision is to combat existing shortcomings by the revision of current plans and to elaborate future programmes.

The results obtained in the field of productivity are subject to a continuous and ramified control by various bodies responsible for allocating material and financial resources. Among the bodies supervising individual enterprises, a substantial part is played by the central procurement organisations, which are responsible for checking the stocks of individual enterprises and their consumption of materials and fuel per unit of output. If an enterprise applies for materials in excess of the amounts fixed by the plan, it must justify its application by a corresponding increase in actual production over the originally planned targets. Production of goods of a quality higher than originally planned may also constitute a justification for an additional supply of materials. A demand for additional equipment has equally to be backed by increased pro-

[1] В. Горин: *Борьба партийных организаций за высокую производительность труда в промышленности в годы четвертой пятилетки* (Moscow, 1954); and K. I. Klimenko: *Wege zur Steigerung der Arbeitsproduktivität im Maschinenbau der U.d.S.S.R.* (Leipzig, Fachbuchverlag GmbH., 1953).

duction or by a reduction in total or unit labour requirements. Data on the volume of output and payrolls have to be attached to all requests for materials and equipment.

Within individual establishments the consumption of materials is checked by comparing the planned and actual input and output of the various plant departments and workshops, and also by comparing the planned and actual wage bill. This is done, for example, in all establishments applying a wage system relating the bonus payment to the quantity of materials saved. Aggregate expenditure on incentive payments is checked against any savings achieved in materials in order to reveal possible irregularities in the firm's consumption of materials, cost accounting and system of payment.

The current needs of establishments for working capital within the limits fixed by the plan are covered by the respective central production organisations. On the other hand, working capital in excess of the planned amounts can be provided only out of credits granted by the State Bank, which is responsible for the execution of the financial plans and maintenance of financial discipline in the whole economy. But a demand for credit must be properly justified by data throwing light on the actual efficiency of the undertaking. These data make it possible to check whether the results obtained by the undertaking tally with the over-all planned targets, and with the planned requirements for labour, materials and equipment. Requests for loans to cover seasonal fluctuations in expenditure, e.g. for transportation of finished products, or for the purpose of stocking raw materials, throw light on the efficiency of the management in scheduling production. Credits are generally granted in accordance with regulations governing the amount of money that may be advanced against materials on hand, or fuel in stock. One of the purposes of these regulations is to prevent the accumulation of materials in excess of those required for the planned targets.

The most important function in the Bank's supervising activities is, however, its control over the firms' expenditure on wages. In the majority of the countries of Eastern Europe the Bank keeps a check on the sums paid out to undertakings to cover wage expenditure to ensure that they are not used for other purposes (or that funds destined for other purposes are not used for wage payments). Payments to undertakings for wages may be made only up to the amount of the wage fund as modified by changes in the production programme of the undertaking with the approval of the respective central organisation. The Bank is in a position to call the attention of the central production organisations or higher bodies to irregularities in the financial situation, particularly in the

field of wages, of individual undertakings or central organisations respectively.

The Bank's role in the control of expenditure on wages is to prevent inflationary increases in the income of the population, i.e. a state of affairs in which, given the resources set aside for capital formation, too much money chases too few consumer goods. Moreover, by cross-checking the expenditure of undertakings on other factors of production, it has to ascertain that, in general, absolute increases in average wages are accompanied by decreases in labour costs per unit of output.

This ramified control exercised by the central production and procurement organisations, as well as by the State Bank, imposes on the managements of individual enterprises an obligation to supervise and improve levels of productivity continually. Data derived from the application of payment by results seem to play an important part in testing the productivity of an enterprise, e.g. in calculating the number of man-hours or man-days gained or lost as a result of changes in various factors influencing productivity, and hence in establishing the percentage rise or fall in productivity attributable to each particular factor.

It has often been emphasised that the measurement of productivity in terms of quantity of output produced per man-hour (or of working time spent on production of a unit of output) does not fully reflect the efficiency of all factors engaged in the production of a given output, and hence cannot be considered as a sole and satisfactory index of the efficiency of an enterprise. Managements may increase efficiency by decreasing the amount of raw materials or fuel used ; by increasing utilisation of equipment ; by decreasing the proportion of waste in the end-product ; or by improving its quality. A rational choice between producing more of lower quality output and less of higher quality output, between the use of certain raw materials instead of others, or between the acquisition of new equipment and the repair of old, to mention only a few examples, cannot be made without measuring all factors of input and output in terms of one common unit. Several efforts have been made to find an optimum solution to the problem of presenting a composite index of efficiency by expressing heterogeneous factors of input and output in terms of one comparable unit. However, most of the concepts of efficiency measurement suggested by various economists have been considered arbitrary, or too complicated to be used as a guide to practical managerial decisions.

In capitalist economies, managerial decisions are based on the market prices of each factor of production. Market price serves to measure and compare the quantities of labour, capital and raw materials used for manufacturing a given product. It has been

frequently argued that, for a number of reasons, the pricing system does not necessarily indicate the most appropriate measures conducive to higher efficiency, especially at national and international levels, i.e. does not ensure the full employment of all useful resources available to a community for the production of goods and services, and their allocation among the various possible kinds of production in the way that will most fully reflect the needs and tastes of the community. Nevertheless, in capitalist economies the productivity policy of an entrepreneur depends mainly on adjusting his factors of production to obtain the most favourable relation between the price he pays for them (or will pay in future) and the price that is (or will be) paid for his output.

It appears, in the light of available information, that the planned economies do not apply any single criterion to evaluate efficiency. A number of criteria are used at all levels and in all stages of planning increases in efficiency, carrying out the plans and evaluating the results obtained. These criteria may be roughly divided into two main groups, namely financial and non-financial. One financial criterion is cost of production expressed in terms of money. Thus one of the means of planning and measuring efficiency is the use of a composite index of the cost of all factors of production, and the degree of success is judged on the basis of the over-all cost reduction per unit of output. Another financial criterion is represented by profitability: the progress made by an enterprise in increasing productivity is evaluated on the basis of profits actually achieved in comparison with those planned.

It seems that growing attention is paid to the indices of costs of production and profits, particularly in business accounting designed to determine and check the financial and productive activities of individual undertakings. Consequently, the evaluation of alternative measures to increase productivity and the choice between them are guided to a substantial extent by relative levels of wages and prices of goods determined centrally according to established priorities. The financial criteria of efficiency reflected in the business accounting allow relatively more freedom in taking specific production decisions. The emphasis laid upon costs of production and profits as criteria of managerial efficiency is particularly apparent in recently adopted measures to delegate more powers to managements of individual enterprises.[1]

However, for a number of reasons, non-financial criteria of efficiency continue to be applied at national and enterprise levels: the objectives and results of economic plans are expressed by means

[1] *Bulletin du Bureau hongrois de presse et de documentation*, 9 Apr. 1956; *Правда* (Moscow), 3 Feb. 1956; *Rabotnitchesko Delo* (Prague), 14 Mar. 1956; and *Życie Gospodarcze* (Warsaw), No. 8, 22 Apr. 1956.

of physical indices as well as in terms of monetary values. According to one U.S.S.R. economist no single index, whether physical or monetary, however well constructed, can constitute the sole criterion of efficiency in a planned socialist economy, nor can it make possible the answering of the complex problems brought forth by reality.[1]

Measures to Increase Productivity

It may be seen from the foregoing discussion that the general and detailed objectives of the productivity policies embodied in the economic plan are closely linked to all decisions regarding investments, production, wages, consumption and manpower. An attempt is made here to describe the practical measures taken in these inter-related fields to facilitate the achievement of the productivity increases fixed by the economic plan.

Allocation and Use of Resources

It appears from the economic plans of Eastern European countries that their system of allocation of resources is, to a substantial degree, guided by conscious efforts to increase efficiency of production. Several examples might be given to illustrate this policy, viz. the location of new industrial centres near sources of raw materials in order to curtail irrational costs of transport or, in overpopulated areas, to provide full employment of labour and avoid the economic and social burden of population transfers. However, the most salient feature of their search for higher efficiency through allocation of resources may be found in the allocation of financial and material resources for the development of labour-saving processes and the production of labour-saving equipment. For example, in Czechoslovakia the amount of mechanical equipment per worker in the building industry nearly doubled during the period 1948-53.[2] In Hungary the stock of fixed capital in industry, measured in terms of horsepower, was increased by nearly 60 per cent. over the 1949-54 period.[3] In Poland the annual utilisation of electric power per worker in industry increased from 3,100 kWh in 1937 to 5,200 kWh in 1954.[4]

An analysis of national budgets and reports on the fulfilment of plans indicates that in all the countries concerned priority is given

[1] Д. Черномордик : " Эффективность капитальных вложений и теория воспроизводства ", in *Вопросы экономики* (Moscow), No. 6, 1949, p. 80.

[2] *Zemedelske Noviny* (Prague), 21 Jan. 1954.

[3] Report on fulfilment of the 1949-54 plan.

[4] *Gospodarka Planowa* (Warsaw), No. 9, Sep. 1955.

to the development of capital goods industries, which benefit from substantial capital investment and increase their production at a relatively high rate. In the U.S.S.R. the share of capital goods (" means of production ") in the whole of the country's industrial production was 34 per cent. in 1924-25 ; 58 per cent. in 1937 ; and about 70 per cent. in 1953.[1] During the period between 1918 and 1955 the U.S.S.R. constructed 300 electric power stations. The annual production capacity of the Kuybishev power station, which was on the way to completion in 1955, is assessed at 11,400 million kWh, i.e. six times more than the country's total production of electric power in 1913.[2]

The expansion of production capacity through additional modern labour-saving equipment has facilitated the introduction of new technological processes, permitting more economic use to be made of various factors of production. Substantial improvements in efficiency through mechanisation and application of automatic controls in manufacturing processes are reported from the U.S.S.R. and other countries of the region.[3] Undoubted advantages have been obtained from increased specialisation and concentration of production in large units. In Poland, for example, the number of undertakings employing over 1,000 workers increased from 101 in 1938 to 344 in 1953.[4] Moreover, great attention is paid to standardisation of manufacturing processes and end-products, and particular efforts are made to produce standard types of mechanical equipment. For example, in the German Democratic Republic special regulations of 25 June 1955 provided for the introduction of nation-wide standards of production in the heavy and medium engineering industries.[5]

However, according to official statements the results obtained in the field of increased efficiency by means of mechanisation and changes in techniques of production are not considered satisfactory. Although continued efforts to eliminate existing shortcomings and to improve the financial situation in industry by means of a more efficient utilisation of equipment and by expanding modern techniques were made on earlier occasions, the campaign which was started in all or most of the countries of Eastern Europe at the beginning of 1955 seems to be much more intensive than previous

[1] K. V. Ostrovitianov: *Scientific Principles of Planning the National Economy of the U.S.S.R.* (Moscow, Academy of Science, 1954).

[2] *Правда*, 7 Nov. 1955.

[3] Report on fulfilment of the state economic plan in the U.S.S.R. in 1954. *Труд* (Moscow), 19 June 1955 ; *Scânteia* (Bucharest), 23 Aug. 1955 ; Report on fulfilment of the state economic plan in Bulgaria in 1955 ; Report on fulfilment of the state economic plan in Czechoslovakia in 1955.

[4] *Gospodarka Planowa*, No. 4, Apr. 1955.

[5] *Gesetzblatt der Deutschen Demokratischen Republik*, No. 58, 15 July 1955.

attempts. The problems of increased efficiency of production and reduced costs are being tackled from several angles. A policy to increase the attention devoted to improved technique in industry was formulated in the U.S.S.R. at the January 1955 meeting of the Central Committee of the Communist Party and at the All-Union Conference of Industrial Workers held in May 1955.[1] In accordance with a decision of the Conference a state committee for new technology was established in order " to improve the introduction of advanced science and technique into the economy and to intensify scientific and technical propaganda ". At the present time scientific research institutes, and especially the Academy of Science, appear to play an important part both in the general system of planning production and in solving practical problems of productivity.

A similar policy was adopted by other Eastern European countries, and some of them provided substantial funds for technical and scientific research. In the German Democratic Republic, for example, 500 million marks, equivalent to 10 per cent. of the value of all state investments, was to be spent in 1955 on technical and scientific research. In Poland the number of scientific research institutes dealing with problems of improved technology and efficiency in various branches of industry increased from 15 in 1945 to 75 in 1954.

The search for higher efficiency by means of rational allocation of resources, mechanisation, specialisation and simplification of production, as well as the introduction of new techniques, is facilitated by the integration of national economic policies and mutual technical assistance among the countries concerned. This serves to speed up economic development in the relatively backward countries of the region, and to promote standardisation of certain types of production for intra-area trade expansion. The standardisation of products and equipment, as well as of widely publicised methods of production, contribute to the further development of economic integration and higher efficiency. Indeed, the production norms laid down by the planning authorities in Eastern Europe show that increasing efforts are made to use similar quantities of raw materials and labour for a given unit of output, not only within national boundaries but throughout the area. Such developments indicate that the authorities wish to increase productivity by an interchange of experience. It appears from the data on existing agreements for technical economic co-operation and exchanges within Eastern Europe that the most important

[1] See *Industry and Labour* (Geneva, I.L.O.), Vol. XIV, No. 9, 1 Nov. 1955, pp. 412-414.

role in this field is played by the U.S.S.R. Many important undertakings in the area, such as the Nowa Huta steel combine in Poland, hydro-electric power stations and basic chemical and agricultural industries in Bulgaria, petroleum-based industries in Rumania, and heavy engineering industries in Czechoslovakia are dependent on the U.S.S.R., not only for credit and capital equipment but also for expert advice in planning and production.[1] Moreover, other countries in the region also provide technical assistance under a number of bilateral and multilateral agreements for technical and economic co-operation. Among projects of particular importance in the efficient utilisation of resources, mention may be made of the joint construction of the Danube Canal by Bulgaria, Hungary and Rumania and of electric power stations by Czechoslovakia and Poland. Changes in the operational plans made in the course of 1955, and the official statements of the planning authorities, seem to indicate that further steps to promote closer integration of economic policies in the region have been envisaged under the 1956-60 plans.[2]

Vocational Training

Vocational training, and the raising of the general educational standards of the working population play an important part in programmes to promote productivity. The pressing need for extensive educational and training campaigns will be more readily understood in the light of a brief examination of the socio-economic structure and policies in all countries of the region. In the majority of the countries concerned the decision to develop industry was taken while there was still a relatively high degree of illiteracy among a predominantly rural population.[3] New industries had to be built rapidly, using modern equipment and techniques, by workers who in many cases had never handled a more modern tool than the wooden plough. In a short space of time these workers had to be transformed into modern producers and consumers.

The initial stages of industrialisation entailed the economic, social and psychological problems—comparable to those encountered during the Industrial Revolution, but in a twentieth-century setting—of adapting a backward agricultural population to in-

[1] *Trybuna Ludu* (Warsaw), 17 Apr. 1955 ; *Życie Warszawy* (Warsaw), 16 Apr. 1955 ; *Scânteia*, 1 Feb. 1955 ; *Rude Pràvo* (Prague), 18 Mar. 1954 ; *Bulletin économique tchécoslovaque*, No. 291, Apr. 1956, p. 17.

[2] United Nations : *Economic Bulletin for Europe* (Geneva), Vol. VII, No. 2, Aug. 1955.

[3] The census of 1913 in Tzarist Russia revealed that only 211 people per 1,000 could read or write ; the rate of illiteracy in the eastern provinces was still higher, the corresponding figure being five literate people per 1,000 persons. (*Трудъ*, 6 Nov. 1955.)

dustry. But this was not all. The decision to industrialise the economy rapidly was closely linked with the decision to change the social structure of the countries concerned. The problem faced by the authorities was thus not only to train an industrial worker who would manufacture goods at a given rate of pay but to educate, in the broadest sense, and to train a worker who would act and feel like a co-owner of the enterprise in which he was employed ; who would try not only to produce more but also to economise materials and equipment and assist his fellow workers and management in their attempts to promote the efficiency of the whole enterprise ; and who would do so not only with a view to improving his present standard of life but also of " investing " for the purpose of future increases in wealth.

Clearly something more than a conventional approach to the problems of vocational training and productivity of labour in general was needed. An acute shortage of skilled industrial manpower and managerial personnel was recognised throughout the area and intensive educational and vocational training campaigns became an integral part of productivity policies. According to national sources these campaigns, carried out continuously and at all stages of skill, gave outstanding results. Substantial funds were allocated for building schools of all types and grades, particular attention being paid to technical medium-level schools and colleges. Free compulsory education was introduced in all the countries concerned, the minimum schooling period ranging from six to eight years. In the U.S.S.R. an educational reform of 1953 extended the minimum compulsory schooling period from eight to ten years.

Growing numbers of industrial workers and technicians graduate yearly from numerous vocational and technical training schools. For example, in Rumania 43,000 young workers graduated from such schools in 1954 and took up jobs in industry, construction, transport and agriculture.[1]

Similar efforts are made in the field of high-level education. In the U.S.S.R. the number of university students in 1954 reached 1,732,000 and the number of persons with university or high technical degrees employed in the national economy in the same year was 9 per cent. higher than in 1953.[2] In the course of the period 1950-54 high grade industrial personnel in Poland was augmented by 65,000 engineers and highly qualified technical and research staff. As a result the number of persons of this professional group per 1,000 industrial workers increased from 69 in 1950 to 109 in 1954.[3]

[1] Report on fulfilment of the state economic plan in Rumania in 1954.
[2] Report on fulfilment of the state economic plan in the U.S.S.R. in 1954.
[3] *Gospodarka Planowa*, No. 4, Apr. 1955.

The principle of free education covers schools of all types and levels, including universities, and a substantial proportion of students receive fellowship during the period of their studies and are housed at the expense of the State in special student homes. The age limits for admission to technical schools, colleges and universities have been removed in order to enable adults of all professions, and in particular industrial workers, to raise their vocational qualifications. Fellowships for high-grade technical training are granted to outstanding industrial workers, innovators and winners of socialist work competitions. Some of these workers are sent to universities after completing special preparatory courses for adults. During the whole period of studies family allowances and other social security benefits are granted to these worker-students. Time spent in study is taken into account in the calculation of old-age pensions and other social security benefits. The great efforts made by governments and trade unions to encourage industrial workers to continue their vocational training and general theoretical education in high-level schools are dictated not only by the need for immediate increases in efficiency but also by the objectives of social policies aimed at eradicating the difference between intellectual and manual labour.

Because of the urgent requirements, training within industry occupies an important place in vocational training policies. In several countries foremen and team leaders who train or assist their fellow workers in raising their qualifications and applying new methods of work are granted special bonuses. Great attention is paid to the technical and theoretical training of the workers through close co-operation with the professional staff of enterprises. Moreover lectures and courses by scientists and research workers are regularly organised in enterprises. While such contacts with the scientists help the workers to understand the theoretical production problems of their enterprise and industry and often stimulate them to participate in various workers' suggestion schemes, they are reported to be particularly valuable to the scientists themselves in their search for practical solutions to problems of industrial production in general, and higher efficiency in particular.

An important part in vocational training within enterprises is also played by the introduction of improved methods and organisation of work by individual " innovators " and as a result of work study. This type of training, which is the particular concern of the trade unions, takes the form of technical assistance given to workers and managements by the originators of outstanding suggestions not only in the enterprise where the innovation was first introduced but often in an entire industry. In several cases

training by the originators of suggestions or by special instructors has been extended to several branches of industry at national and international levels. At the international level intensive training activities were, for example, carried out to extend improvements in work organisation and methods evolved as a result of work study projects associated with the name of the U.S.S.R. engineer Kovalov.[1]

Changes in work organisation or methods and the introduction of new equipment or material are always accompanied by intensive vocational training, particularly when they result in setting new norms of work. In such cases training is not limited to the trial period but is commonly continued until the majority of workers are sufficiently familiar with the new techniques to reach and exceed the revised output targets.

It appears from the official statements and national economic plans that the intensity of the vocational training programme is not likely to diminish. Indeed, funds allocated under national budgets for the construction of new schools of all types and for education in general seem to be relatively substantial, and the expenditure on education in relation to the total expenditure from national income is generally increasing.

Payment by Results

As has already been indicated, payment by results has been for a long time an integral part of wage and productivity policies in the U.S.S.R. and other countries in Eastern Europe. All legislative Acts regarding wages, at national and industry levels, call for the extensive use of payment by results and for the provision of adequate technical and safety conditions to facilitate its introduction. Special bodies are constituted to carry out work study; to determine standards of performance (" norms of work ") and corresponding wage and bonus rates; and to supervise the application of existing systems with a view to increasing the productivity of labour and workers' earnings, and reducing costs of production.

There is a general trend towards a higher degree of uniformity both in systems of payment and in the setting of norms of work. A number of measures have been taken to eliminate differentials in earnings arising from factors other than skill and labour productivity within a given industrial group or category of skill. However, different systems of payment by results and norms of work are often applied within a given industry. This is due mainly to disparities in conditions of equipment, layout of plants and

[1] For an account of work study in Eastern Europe see " Payment by Results in the Building Industry in Eastern Europe ", in *International Labour Review*, Vol. LXVIII, No. 6, Dec. 1953, pp. 524-541.

methods of work organisation, and differing degrees of efficiency resulting therefrom.

In recent policies of work organisation, substantial emphasis is laid upon teamwork, and norms (standard times or output targets) are often fixed for a team of workers. Such systems are mainly applied in the building industry and in the assembly departments of automobile and engineering plants. Individual bonuses are, however, paid wherever individual output can be measured. Certain systems combine rewards for quantitative results with merit rating or rewards for punctuality, co-operation, general conduct, etc.

In some systems quality indices are determined together with the standard times or output targets. In such cases the bonus is paid only if the quality of output comes up to the prescribed standard. Other systems provide for rewarding workers according to different levels of quality of output.

Individual or collective, straight or accelerating premiums are also granted in several industries for efficient utilisation of equipment, keeping of time schedules, and the maintenance of costs within or below the limits set by the plan, etc. Bonuses are payable in certain cases to workers remunerated by time who succeed in reducing costs. This is the case in several industries in which the quantity of materials used in the manufacturing process is not technically predetermined but depends to a large extent on the efficiency of individual workers. Individual (or collective) norms of work fix not only the minimum quantity of output but also give general indications of the maximum quantities of materials that may be used per unit of output under adequate technical conditions of work. The bonus rate varies with results as evaluated in terms of a composite index. By virtue of such provisions each worker may become, in a sense, an individual entrepreneur having the responsibilities and benefits ensuing from cost reduction of " his " output. In other cases, instead of or in addition to direct incentives for individual efforts in this direction, an enterprise receives a collective premium as a reward for an over-all success in cost reduction.

Schemes rewarding economy of materials and general reduction in costs of production appear to be increasing in popularity within the framework of existing systems of payment by results. Their importance is particularly emphasised in the recent campaign to reduce costs of production rapidly and to link wages closely to productivity in its broadest sense.[1]

[1] *Arbeit und Sozialfürsorge* (Berlin), No. 11, 1955; *Gospodarka Planowa*, No. 9, Sep. 1955; *Życie Gospodarcze*, No. 56, Mar. 1956; *Вопросы экономики*, No. 6, June 1955.

Norms of work used as a basis for systems of payment by results, whether related to quantity or quality of output, or to the use of raw materials, appear to be of three main types. The first are norms based on statistical average results of past work. Secondly, norms generally called " progressive average norms " may be arrived at by combining the statistical averages of the past results of all workers and of the results of particularly outstanding workers. The third type of norms (so-called " technically based norms "), expressed mainly in terms of standard times, are based on the capacity of equipment in the hands of a competent worker using the best methods of operation and are usually set only after special detailed work study has been carried out.

Some work study projects are centrally directed and are carried out for the purpose of setting nation-wide norms of work for a given industry, but projects are continuously carried out within individual enterprises. Great importance is attached to training experts to carry out work study and set norms, and special courses are given to engineers and technicians for the purpose.

A number of projects in individual enterprises are reported to have resulted in considerable increases in efficiency. Some of them are connected with the trial or introduction of suggestions for rationalisation made by the workers and the technical staff.

Special provisions regulate the periodic adjustment of norms in industries and individual enterprises. Norms in individual enterprises may be adjusted only in the case of a lasting and substantial change in the production process, or in the technical conditions of equipment and work.[1] It is frequently emphasised that, irrespective of the method used for setting norms, the mere fact of overfulfilment of norms shall not be considered as a reason for adjustment. Indeed, managements of central organisations and individual undertakings are instructed to provide conditions in which workers will be able to exceed the prevailing norms of work.

It is generally recognised that the application of norms based on technical indices is conducive to rapid improvements in efficiency. However, their extension is often rendered difficult by shortages of experienced technical personnel and the relatively long period of time necessary for carrying out work study.

The practice of linking wages to workers' performance has in many cases been accompanied by outstanding increases in output. Reports on the fulfilment of national economic plans and various official statements indicate, however, that the wide application of payment by results has failed in some cases to have satisfactory

[1] М. Янпольский: " Планирование труда ", in *Плановое Хозяйство* (Moscow), No. 5, 1951, pp. 81-91; *Dziennik Ustaw* (Warsaw), 27 May 1951; and *Monitor Polski* (Warsaw), 15 Apr. 1951.

effects on costs of production.[1] This appears to have been partly due to a tendency on the part of some managements and central organisations to neglect the cost factor in favour of increases in production, as well as to certain inadequacies of systems of payment. In some systems undue emphasis was laid upon quantity of output as the only criterion of increased productivity ; in others, difficulties were involved in setting and inspecting standards of quality. In certain cases costs were affected by a shortage of labour trained efficiently to handle modern equipment. A more widespread application of systems rewarding economy in the use of materials and high quality output is advocated as a partial remedy in several cases.

In analysing the effects of the prevailing systems of payment on the costs of production it seems necessary to distinguish cases involving an unwanted increase in costs (or insufficient reduction of costs) from cases where relatively high costs result from a conscious policy of relatively high incentives for increased labour productivity. The first may be due to shortcomings in the output targets and wage and bonus rates set or to a number of factors not directly related to any given system of payment, such as an inadequate organisation of work. The second provide a means of executing the plan of allocation of manpower and production and are applied *(a)* to encourage movement between different areas, branches of economic activities and trades ; *(b)* to discourage unwanted labour turnover ; and *(c)* to encourage workers to raise their skill and to rationalise and intensify their work. Relatively high rewards have frequently been offered for these purposes, especially in industries (and periods) in which the quantity of output was the overriding criterion of success, or when bottlenecks developed in the course of a production process.

While policies designed to raise productivity emphasise the importance of cost reduction, unit costs of production are not the sole criterion of success nor the main principle in formulating productivity and wage policies. In many instances the planning authorities intentionally offer rewards equal to or exceeding " the value " of output produced, particularly in projects such as afforestation, the irrigation of deserts or cultivation of virgin lands, and the development of industries in which work is particularly irksome because of climatic or other conditions. The social value of such developments is considered to justify the relatively high costs of production entailed by payment of the high wages provided by the incentive schemes. In judging the use of such schemes as

[1] Г. А. Пруденский : *Внутрипроизводственные резервы* (Moscow, Госполитиздат, 1954) ; *Die Arbeit* (Berlin), No. 5, 8 May 1955 ; *Práce* (Prague), 1 Apr. 1955 ; and *Życie Gospodarcze*, 6 May 1955.

a means of attracting labour to particular trades or areas and of strengthening labour discipline it should always be borne in mind that the market mechanism which performs these functions in a capitalist economy is valid only to a limited extent in the planned economies of Eastern Europe, where labour shortages, rather than unemployment, have been the characteristic features of the manpower situation.

Role of Management and Workers

It is clear from the above analysis that in the planned economies of Eastern Europe governments assume considerable responsibility for promoting higher productivity. This does not mean, however, that the role of managements and workers is limited to mechanically carrying out the decisions taken by the central authorities. Indeed, progress is recognised to depend largely on the closest and most far-reaching collaboration of managements and workers. Consequently, great emphasis is laid not only on the efficiency of managements in adopting the measures proposed by the government to increase productivity, and their willingness to benefit from the economic, technical and institutional facilities created by the government for the purpose, but also on any individual or collective initiative conducive to higher productivity.

In conclusion, therefore, it may be useful to consider the forms taken by these individual and collective initiatives on the part of management and workers.

Management

The powers and responsibilities delegated to the managers of enterprises cover all phases of productivity policy, namely programming, the adoption and application of practical measures, and the supervision of results. Since all plan components are based upon contemplated increases in productivity, the main responsibility of management in this field is to fulfil the economic plan of the enterprise, in the determination of which it has itself played a part.

In executing its duties management is assisted by the economic and institutional arrangements provided by the authorities. However, the success of managerial policies in an enterprise depends upon the skill and initiative of the management in benefiting from existing facilities. The effectiveness of labour-saving equipment and new techniques depends upon its efforts to raise the skill of the workers by all the means provided by authorities for promoting vocational training. The effectiveness of the financial incentive

provided by the prevailing system of payment by results depends upon how the management schedules production, organises the place and methods of work, and sets norms of work within the general framework described above [1]; it also depends upon the management's efforts to publicise and train the workers in rational methods of work. The success of any productivity measure is, moreover, conditioned by the capacity of the management to create an atmosphere of close co-operation with all members of the staff. This requires the utmost care in the provision of adequate conditions of work and welfare with a view not only to achieving a proper application of technical and organisational improvements but also to promoting among the workers a spirit of participation in the drive for the general success of the entrepreneurial policy. The workers must also be assisted in carrying out the management's instructions and in searching for further improvements.

From recent announcements it appears that managements are being given wider powers in allocating manpower and material resources.

Workers

The role of the workers in productivity drives is not limited to carrying out the jobs assigned to them by the management, nor even to participating in the formulation of wage policies and the setting of productivity targets. The structure of many of the systems of payment applied in the countries concerned shows the degree of responsibility and initiative that is delegated to an individual worker not only regarding the intensification of his intellectual and physical effort but also in the entrepreneurial approach to the handling of equipment and utilisation of materials. Workers also play a substantial part in increasing productivity within the framework of training within industry; but their outstanding contribution appears to be made through suggestion schemes and socialist work competition.

Suggestion Schemes.

It appears in the light of official statements and a substantial body of legislative Acts that, in all the countries concerned, great importance is attached to the development of workers' suggestion schemes as a means of increasing productivity at the level both of the undertaking and of the industry. These schemes, generally known as " rationalisation movements ", are encouraged by trade unions, managements of undertakings and governments. They

[1] See p. 153 above.

extend to industrial undertakings, the building trades, services, administration and agricultural production. The improvements proposed in individual or collective suggestions relate to equipment and layout of workshops and work sites; the design of tools; working environment and safety measures; the simplification of work and the reduction of fatigue; more efficient use of materials, equipment and labour; the invention of new types of equipment and tools; and other measures that may help in increasing productivity.

In all the countries of the region managements are instructed to give the workers all the facilities they need to encourage the development of suggestion schemes. The workers may obtain free technical and scientific assistance from highly skilled staff, either by requesting it themselves or through seminars organised by the undertaking in co-operation with specialised scientific institutions. In some of the countries concerned the managements of larger enterprises set aside special laboratories, workshops or experimental sites where workers can try out their ideas in co-operation with highly qualified technical staff.

The number of workers participating in suggestion schemes (" innovators ") is growing rapidly from year to year.[1] Moreover, substantial savings are frequently reported to have been made as a result of workers' suggestions in different sectors of the economy.

Special legislation provides that innovators are to be rewarded in the form of lump-sum grants proportionate to the savings resulting over a given period of time from the application of their suggestions, of payments due under copyright provisions, and of bonuses or premiums the size of which in relation to the workers' average wages seems to vary from one country to another. In some countries, in addition to direct rewards, innovators enjoy various privileges in accordance with the legislation regulating the rationalisation movement. For example, in Bulgaria any worker who notifies the management of his undertaking that he has a proposal to work out may, after his proposal has been examined, be excused from his normal duties so that he can undertake design and development work and attend to performance tests. The time spent in this way is paid for at the ordinary rate by the

[1] In Bulgaria the number of proposals adopted increased from 13,415 in 1952 to 25,587 in 1954. Substantial increases in numbers of suggestion schemes are also reported from other countries and in the course of 1954 40,000 rationalisation suggestions were successfully applied in Czechoslovak industry, 26,000 in Rumanian industry and 900,000 in industry, building and transport in the U.S.S.R. (Reports on fulfilment of the state economic plans; Conseil central des unions professionnelles en République populaire de Bulgarie; *Bulletin d'information* (Sofia), No. 3, Sep. 1955, pp. 17-18.)

undertaking employing the innovator.[1] In all the countries of Eastern Europe the undertaking is obliged to supply the material facilities required to develop suggestions, and outstanding innovators have a preferential claim to study-grants, housing, and free accommodation in trade union rest homes.

In several countries of the region special regulations exist to the effect that, where the adoption of a suggestion makes it possible to revise output norms previously applied in the undertaking, the earnings of the innovator are not affected for a specified period since his wage rates continue to be based on the output norms in effect before his suggestion was applied.

From the available information regarding particular industries or inventions it appears that the savings effected as a result of some outstanding suggestions justify the outlay. Apart from their direct and immediate impact on efficiency, such schemes are considered particularly important for the workers' morale and the improvement of their skill and general educational level—all conducive to higher productivity.

Socialist Work Competition.

Whereas suggestion schemes for workers are operated in a number of countries and industries throughout the world, the campaign to promote productivity, variously described as the Socialist Work Competition Movement or Socialist Emulation Movement, is a feature of the activities of trade union organisations peculiar to the planned economies. This movement, of which the Stakhanovite movement in the U.S.S.R. was the prototype, aims at promoting a spirit of emulation among individuals, teams and groups of workers, and at stimulating the sense of responsibility of all, while stressing the importance of the part that all have to play in the success of their plant, the progress of their industry, and the building up of the national economy. The popularity of the movement is spreading throughout the area, and it is reported that in the U.S.S.R. 90 per cent. of all workers employed in industry participated in 1953.[2]

In the initial stages of the movement the individual and collective work competitions were aimed mainly at increasing output per man-hour, since the fulfilment or over-fulfilment of output targets was the main objective of the economic plan and the principal means of measuring its results. Later the growing

[1] *Известия на Президиума на Народното Събрание* (Sofia), No. 96, 30 Nov. 1954 and No. 97, 3 Dec. 1954.

[2] K. V. OSTROVITIANOV: *Scientific Principles of Planning the National Economy of the U.S.S.R.*, op. cit. p. 35.

importance of costs and quality of output started to be reflected in work competitions. Since, especially in certain trades, decrease of costs and improvement of quality can be obtained mainly by the concerted efforts of a group of workers responsible for different stages of production, collective competitions between workshops and entire plants and enterprises became more popular than competitions between individuals. The direct objectives of such competitions covered a large number of factors making for higher efficiency of production, distribution and services. They included competitions to obtain the smallest proportion of scrap or waste or the largest proportion of high quality output, to economise materials and fuel, to decrease the accident rate, to reduce absenteeism, and to decrease breakdowns of equipment and increase its utilisation.

The competing teams, plants and enterprises often apply various suggestions for improvements made by workers of their own or other enterprises, thus providing an important channel through which improved methods and organisation of work are introduced and extended and a further stimulus to the popularisation of suggestion schemes.

Various services, and in particular transport, also participate in work competitions. Shops and catering places compete to obtain the " most satisfied clients ", and teams of transport mechanics or entire railway districts to haul trains with the heaviest possible tonnage per locomotive.

Besides these direct attempts to increase efficiency, the objectives of a number of competitions concern conditions of work and life, and enterprises compete to have the cleanest and most aesthetic places of work and to improve or install crèches, canteens and sports facilities.

The theory and practice of the movement, especially in its later stages, are not limited to helping authorities in their efforts to fulfil the economic plans, whatever may be the current criteria of success. Its aim is also to reveal all the latent potentialities of an enterprise, and of the economy as a whole.

Indeed, the socialist emulation movement is one of the most important tools in the mechanism of non-financial incentives to increase productivity of labour. As was pointed out above in the discussion on payment by results, considerable importance is attached to financial rewards for increased productivity and financial incentives serve as the main factor in planning and executing manpower and production policies. The yearly data on increases in productivity and in money and real earnings show the substantial effectiveness of such direct financial incentives. However, for a number of reasons, material incentives, both

monetary and in kind, have not been considered sufficient to meet all the needs of the economy. On the one hand they have been limited by economic plans concentrating on the expansion of the capital goods industry; on the other hand their effectiveness has in many cases been impaired by the consumption habits of newly employed industrial workers from agricultural areas where living standards are relatively low.

Considerable efforts have been made to increase or change the pattern of consumption of workers through extensive educational campaigns. However, the educational process, particularly in this field, is relatively slow. The possibility of acquiring cultural entertainment such as books, cinema, theatre or radio, or even additional clothing and household items, has not always and immediately been a sufficient stimulus to increase productivity. The problem is complicated by the existence of full employment, and of comprehensive social security and social services not linked to productivity.

Widely publicised social privileges accorded to individuals who perform their economic activities in an outstanding way have become a powerful incentive. The desire for public recognition for services rendered to the community seems to have proved in many cases a greater stimulus for achieving higher results in output and for raising skill than the possibility of acquiring more consumer goods. On the other hand, public disapproval of the " chronic absentee ", of a worker remaining for a long period in the same skill and wage category, and of anybody " lagging behind " for no good reason and not participating in the general drive for higher productivity, has frequently brought better results than payment of relatively low wages for bad work.

Whatever its contribution to increased productivity, the role of non-financial incentives is not limited to the economic function of stimulating fulfilment or over-fulfilment of the plan. It has a wider purpose—to assist the authorities in shaping and conveying the idea of the new social structure to the working population by developing its esteem for work, the team spirit, the idea of work for reasons other than self-interest and the identification of self-interest with the interests of the community.