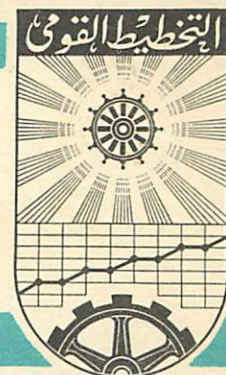


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### INVESTMENT PLANNING

(Part I)

By

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### Investment Planning

#### (Part I)

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## Investment planning

### Chapter I

#### General aspects of investment planning

##### I. Definition of investment and investment planning

Investments are a main concern of economists and likewise of planners. Activities in this field are, therefore, given great emphasis both from the theoretical and practical point of view. And we shall endeavour to discuss the problem of investment planning with due respect to all essential issues involved in it, because it affects the national economy as a whole. A one-sided or narrow-minded way of studying the problem would give interesting details but no full picture a planner urgently is in need of when drawing up and implementing the national plan. We should, therefore, be well aware of the point of view from which we are starting our study. Taking into account the experience of planning in the U.A.R. or in the G.D.R. and in other socialist countries as well, this point of view can only be the national aspect. We do not regard investment as a means of profitable employment of capital with a view to receive a return but rather as a means of making the national economy more rational and more advanced economically and socially. This attitude, general as it may seem, will help us to find the right solutions of all general and special problems that are to be discussed in this course. Practice in socialist planning shows us that even this general aspect proved a good criterion in cases where planners faced rather special investment problems on a low level as e.g. on the enterprise or village level.

We have answered so far the question how to look on the problems of investment planning in general. We must now explain the substance of investment and, consequently, of investment planning. What are investments and what is investment planning.

Investment means to use part of the national productive labour, represented by goods, in order to



create new and to renew available productive and non-production capacities.

The word "use" indicates that investment is a process implying measures to supply investment goods and to set up a new capacity (or to renew an existing one) in a certain span of time. This process starts with the supply of these goods and it is completed at the moment when the new capacity comes into action. In other words: investment is a process which begins after the output of investment goods has finished, and it will end when the newly built up capacity became part of the fixed assets of the national economy. As a matter of fact, investment represent an increase in the national wealth.

After having formulated a definition of investment we should try to find out the practical consequences of it because any definition has no ends in itself; it is meant, anyway, to give an idea for practical activity in the respective field.

The first consequence we have in mind has been stressed already, namely: investment is a process. It should be conceived as a complex of measures affecting several parts of the national economy. Investment as a process and, consequently investment planning are, therefore, linked with many other economic processes and planning activities.

The second consequence can be derived from the very wording of the definition. As investment is the process of using (investment) goods with respect to increase capacities we can state that investment are, primarily, a material (physical) process, financial problems involved being of secondary importance.

The third consequence will lead us to a definition of investment planning and, simultaneously, to a principle of socialist planning. Taking into account both consequences already mentioned, it will be obvious that investment planning aims at an increase of (productive) capacities by means of supply of investment goods and by putting them into action. Investment planning includes, therefore.

analysis both quantitative and qualitative of capacities available and of the necessary increase of them



analysis of investment goods' demand and supply, activities for supplying and establishing those investment goods including the final stage of putting them into action and including the process of financing all these activities.

Investment planning, conceived in this way, reveals that it is not limited to mere analytical work. It goes beyond economic calculations or drawing up a plan. Investment planning and planning in general has two sides: to work out plan and to implement it. In socialist countries planners are accustomed, therefore, to call this phenomenon the "unity of planning and managing (implementing) activities". It should be stressed that this principle of socialist planning implies certain consequences with respect to the responsibility and competences of the different authorities of the planning machinery as well as with respect to the skill a planner must have gained. It will be, perhaps, appropriate to inform the reader, briefly, that a result of this general principle is the regulation that he who works out the plan is regarded responsible for its follow-up and implementation. This, of course, asks for the ability to be a good planner and organiser. Planning and executive work is to be done by any planning institution and by any planner.

Having defined the very subject of our study we shall now ask the question concerning the significance of investment planning.

## 2. The significance of investment planning

It had been already mentioned that investments increase national wealth. This statement should be amplified by saying that they extend that part of the national wealth which enables us to expand production and services. Investments and investment planning are a process of increasing the productive potential of the national economy. They are the basis for further growth and for the improvement of the technical and economic level as well as of the structure of national economy. To investment planning, therefore, great attention is to be attached.



Economic growth depends upon the economic potential conceived as a quantitative category, and upon the level and the structure of the national economy. Investments are the means to improve them. It is needless to say that economic growth is, usually, the faster the greater investments are. Planning experience in socialist countries tells us that this is not true at any case. Growth is not only a function of the investment volume but even of the way in which a given volume is used. The best way to use a given investment fund is (i) to invest modern techniques because they will increase productivity, i.e. the economic level and (ii) to distribute the investment fund rationally, i.e. to improve the economic structure of the country.

In order to make these general remarks applicable to practical planning in the field of investments it will be useful to resort to some problems which emerged in socialist planning experience and which in particular induced the planners to work out some kind of general principles of investment planning for the various branches and sectors of the national economy. They are basic to all planning activities in the field of investments so that we shall refer to them later very often.

- Projects (investments) are to be established with a minimum of material and financial funds. The minimum is reached when the various targets of the long-term plan can be realised with projects which ensure the smallest investment in physical and value terms in connection with the shortest construction period.

- Any project is to be drawn up and set up in accordance with the highest level of technical and technological progress in the respective field.

- Any project has to be set up only in case that there is no other possibility to expand output in order to meet demand. Demand of the respective products must be calculated before any project is to be taken into consideration.

- Investment planning has to analyse thoroughly, from the very beginning, the following problems:

- (i) The effects of the project on the respective branch (pro-



ductivity, production , manpower and raw material supply etc.);

- (ii) the effects on the adjoining branches which are to process the production of the project under consideration;
- (iii) the effects on the region where the project is to be located .

- Planning a project includes planning of all primary and secondary(direct and indirect) effects on the national economy. The latter must be balanced, too, in physical and value terms.

- Project(investment) planning must be executed with full coordination of all relevant material and financial data(targets).

- The establishment of a project cannot start unless all economic technical and technological documents etc. are available and finally approved by the responsible authorities.

It can be learned from this short list that investment planning asks for an extensive study of different problems . The first is that the planner must realize <sup>whether</sup> his project he has in mind, is in line with the general development of the national economy, and consequently, if it does fit in the political and social structure and interests of his country. The second, economic, problem is to be fully aware of the relations between the project and all other parts of the national economy. That project is best which will promote economic progress on the national scale. Planners should not pay their attention to an isolated project though it may be or become a rather profitable one. If one project seems to be rather profitable at the expenses of other projects or even establishments which are already active any society with a large nationalized sector will suffer from definite losses. Thirdly and last not least , each project must be established in accordance with the best accomplishments of modern technique and technology as well. This so because both modern technique and technology are a means of reaching a higher rate of growth.

It is obvious that investment planning is a combination of interdependent political economic and technical problems. The planner is



facing this combination in his day-to-day performance of his duty. He must be well trained to cope with the theoretical and practical problems of all three fields of knowledge and activity. This fact induced planners to regard their activities, not only in the field of investments, as a unity of politics, economics and techniques. Thus we have found, by the way, another principle of socialist planning.

### 3. The investment plan as part of the national plan

It is generally acknowledged in socialist countries and in many developing countries as well (e.g. in the U.A.R.) that planning should be (i) national planning and (ii) a comprehensive one, too. This acknowledgement involves that investment planning should be defined as part of the national planning as a whole and, moreover, that investment planning should be given a distinct role in national planning activities. This is meant to decide which priorities are to be given to it <sup>whether</sup> or such should be given, anyway, and what the investment plan itself should be like. Speaking about the role of investment planning we shall learn by the way some ideas about the parts which a comprehensive national plan must consist of.

The discussion of the problem that the investment plan represents one part of the entire national plan has to start with the question: which are the direct relations to other parts (sections) of the plan? This will be followed by another question as to the priority of any section of the national plan, with which the investment plan proves to be linked.

The general objective of a plan particularly in developing countries is to increase output. Considering the problem of growth we have in mind, first and foremost, the rate of growth of total output.<sup>I)</sup> This increase largely depends upon high efficiency of the economic potential which is a synonym for labour productivity. As the investment plan has no ends in itself it must be closely coordinated with the targets of the plan in the field of production and productivity. Even with respect to countries with less experience in planning we should

I.) It must be stressed that, of course, the problem of economic growth is not limited only to this problem. Growth is a category of a far wider scope.



nevertheless, point out that this interdependence requires a section of the national plan in the field of production and of productivity as well. If national conditions, perhaps, in the initial stage of planning make it impossible to work out a plan of labour productivity, some calculations on productivity should be exercised, at least, in order to try to get <sup>a rough</sup> idea about the effects of productivity on the national economy.2).

Anyway, investments as a means of increasing production and productivity ask for the subordination of the investment plan to production and productivity plans. This subordination must be regarded from the point of view of the final objective of planning activities, i.e. this subordination is to be conceived as the definite sequence of planning the economic and social development in general.

If we have in mind the planning and operative (managing) activities of different kinds we must be aware that things go the other way round. The final objective taken for granted (i.e. output), planning and managing or implementing work has to start at the other end by creating e.g. new capacities as a prerequisite of increasing output. Investments and the investment plan must be given, consequently, priority. This priority includes, time priority.

At this point we touch another problem. Investments create new productive capacities as one precondition of further increase in output. But to set up new capacities requires material and financial funds. We find that investment planning depends, in turn, upon production and financial planning. This is obviously true with respect to the planning of technical and technological progress which is to be introduced, preferably, by the way of investments. We can conclude from this that investment planning, though given priority, is determined greatly by the level of productivity, by the volume of output and or supply of investment goods and by the financial funds available. The level of productivity should be regarded as the basic precondition if we have in mind the final objective of planning. Output (supply) of investment goods and financial funds are the first problems to be considered if we have in mind the practical work for

2.) The author believes that the pressure of population in some developing countries is not in favour of the argument that productivity problems are no actual ones.



establishing and implementing the plan .

It is not our intention to give full account of the relations between investments and the investment plan on the one hand and the other parts (sections) of the national economy and the national plan <sup>the</sup> on other. No is it envisaged to work out a philosophy on these relations. What we have in mind is a rather practical problem. The fact that the investment plan is related to many other sections of the national plan resulted in the existence of two different kinds of planning data (or coefficients.<sup>3</sup>). The first kind comprises data which represent binding targets of the respective investment plan, i.e. they are binding for the planning authority which is responsible for a certain branch etc. of the national economy and by which this plan had been worked out. Taking into account what has been said about the priority of plans we can conclude that the investment plan.<sup>4</sup>) should have, at least, the following main groups of data (targets):

- total financial fund
- single projects (most important ones only)
- new capacities.

Even a superficial study of these data reveals why they must be binding. If e.g. more financial funds are used for a certain project other ones cannot be carried out or the state Budget has to reduce other planned expenditures. The main projects, furthermore, must be set up according to the plan because they exert a certain influence on e.g. the region where it is located, on the technical level of the branch it belongs to etc. As far as the new capacities are concerned, they must be established, anyway, because the increase of production which is to be reached by means of them is part of the production, consumption and or export plan.

In order to complement or to work out the target data of the investment plan planners use a series of other data, coefficients etc. These are not binding but used for calculation only. As an example we wish to quote some of this kind:

- analysis of the utilization of the existing productive capacities (number of shifts, continuity of raw material supply
- 3.) This is valid, of course, for all kinds of plans and planning ~~org~~ activities.
- 4.) We have in mind the central investment plan only. The respective plans on the branch, regional and enterprise level are more amplified.



- investment output ratio (its serves to choose the best variant out of a number of proposed projects on the branch level )

Without going into detail we can generalize these statements in the following way: Binding data are those which express economic processes which must be influenced and controlled by the respective planning authority <sup>directly</sup>. If some of these processes and the respective data are of national importance they will be included in the central plan. If not, they are part of the plans on the other levels (branch, regional etc.) . All other economic processes and the respective data which are not of national importance belong to the second kind of data (coefficients) which are used for calculations. They, usually, are an appendix to the plan.

We should stress that this distinction between binding and calculating data is not an academic one. We must conceive planning as a means of promoting social and economic progress. But this asks for responsibility of all organisations, institutions and individuals engaged in economic activity. Planning means to carry out definitely what has been calculated before. It is therefore, not a contemplative but rather an active job . To have binding data or targets is only one practical consequence of this general consideration.



4. The basis of the investment plan

We must return to one problem discussed in section 3 in connection with the relations between the investment plan and other sections of the national plan. It had been put forward that investments are to be subordinated to certain objectives of the national plan which will be fulfilled by investment activities. Such objectives had been stated production and productivity targets. Generally, objectives like these are a starting point for investment planning. We are now going to study this problem concerning the basis of investment planning in a more amplified way.

Investments themselves are, usually, a process lasting a more or less long span of time. Taking into account, too, that they are the means of improving (i) the economic level and (ii) the economic structure of the country we see that investment planning is a kind of long-term planning. Moreover, investments as such require a well-balanced long-term national plan indicating the main targets to be reached even by means of investment. This general statement should be stressed because if planning is going this way, the utilization of the given investment fund will be the most rational one. Growth implies a rapid development of a series of economic data, the growth (or rate of growth) of output being the most outstanding one. But output is not an anonymous category, though, expressed in value terms, it does not tell us which concrete products it consists of. As general data output and growth of output must be used and calculated in planning. The higher the rate of growth of output the better the result of planning activities. This, however, does not mean that it does not matter what the concrete output is like. To set up a plan with the view to reach a high rate of output irrespective of the various rates (and volumes) of output of concrete products cannot be called planning. This would be some sort of economic calculation without reference to an effective control of the different concrete economic processes. Moreover, this would leave the use of the concrete output only to the



market machinery; consumption of product, including raw material and investment goods, would happen to be, practically, off the competence of the planning authorities.

Consequently, a good investment plan can be worked out only if an outline of production targets is available broken down by

- (i) branches and by
- (ii) single products which are of national importance.

This outline should cover a period of several years.

Studying planning activities in this respect in different countries we shall observe that, usually, concrete production targets as a guide-line for investment planning are available. They are the result of concrete considerations and calculations so that, perhaps, it might have been not worth mentioning what has just been said about the necessity of concrete production targets as a precondition for a qualified investment planning.

Investments change the economic structure of the country by creating new capacities thus contributing to an increase in output. If this is true, the problem of drawing up concrete production targets prove to be the problem of planning the structure of the national economy. This, obviously, cannot be executed neither by mere concrete production planning on a more or less isolated branch level, nor with respect to industrialization in general. No country can go straight away into development, industrialization and detailed production planning. There must be worked out, first of all, a conception of the economic structure the respective country intends to set up in the long run. This is part of the perspective planning (long-term planning). In this work all important political, economic and social conditions and aims are studied, balanced and, finally, transformed into a set of interdepending data representing the "skeleton" of a detailed long-term national plan. This general conception must be binding for all planning and other economic authorities and organisations. It becomes binding by being approved by the respon-



sible authorities (in socialist countries e.g. by the parliament).

Practically, to work out the general conception or general prospects means to preconceive the national economy in its main proportions and relations (both internal and external) and to anticipate the political and economic future of the country.

This work, which is to be done in general as well as in concrete form, is the first basis of investment planning. It will, by the way, indicate to which branches or regions priority in planning should be given.

We have answered so far the question that investments are a method of changing the structure of the national economy and that they are, therefore, subject to the general targets of the long-term national plan. Investments contribute, too, to an improvement of the economic level of the national economy. From this statement a second question can be derived: What is the basis for investment planning as far as it affects the level of the national economy? Asking this way it is assumed that there is such basis. If we discuss the problem with special reference to planning experience in socialist countries, this proves to be no question at all; in these countries such a basis definitely does exist.

This close relation between investment and the structural changes of the national economy should be stressed from another point of view, too. Rational utilization of the investment is possible only in the long-run because new capacities as a result of investment activities can be used over a long period of time. This simple fact, therefore, requires accurate studies and calculations so as to avoid any serious error in branch (sector) allocation of funds which would lead to a highly inefficient investment. This would mean waste of productive labour in a double sense: wrong (not necessary) investment and new efforts (i.e. allocation of new investments) in order to remedy the previous misallocation.

Economic growth is the general aim of planning with special



account of the political, economic and social conditions of the respective country. This growth presupposes to keep up with technical progress, anyway. Backwardness is caused to a great extent by lack of modern techniques as well as of the according technical and technological know-how. This barrier must be overcome if growth is to be reached. Investments are a means of doing so. Planning of investments, therefore, is to be preceded by planning technical and technological progress. This will necessarily be executed, at least, by branches and by minor units of techniques and technologies.

Planning of technical and technological progress is necessary, principally, in all developing countries though, at present, it does not matter, really, whether most modern<sup>or modern</sup> production techniques are being applied. Sooner or later, these countries will face the problem mentioned fully. They have to be well prepared in time, consequently, to manage production techniques as well as planning of technical and technological developments.

In the USSR, the German Democratic Republic etc., planning, usually, starts with thorough studies of the technical development. These studies are compiled in special documents describing the main lines of technical progress and outlining the different variants of research, developing and investment activities (i.e. projects) which can be derived from these lines. Such studies cover a long period which may exceed the long-term plan already in action or being worked out. They are not yet part of the final plan i.e. they offer variants on which a decision is to be taken when the plan is being mapped out and approved. They must be called, therefore, a preparatory stage of planning which represents, above all, a solid and exact basis for investment planning. (c.f. Memo. No. 262).

Our first discussion of some general aspects of investment planning can be summed up as follows: Investment planning proved to be the most important and complicated kind of planning activities. It is the process of using that part of national productive labour which increases the economic potential.



Investment planning can design the most rational pattern of using this labour only on the basis of a clear conception of the future structure of the national economy in general, as well as of the technical progress in detail.



## Investment planning

### Chapter 2

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#### Planning of the investment fund

##### 1. Planning of the volume of investments

Investment planning has to carry out different tasks. One of them is to estimate overall data in this field and the second one concerns special problems as e.g. projects in detail, technical and technological studies etc. We shall start in this chapter with overall problems of investment planning. They will be studied, of course, from the national point of view.

The first question is that of total investments in the planning period under consideration. As investment planning is a kind of long-term planning we should discuss the issue with respect to long-term arrangements. In the following chapters we shall pay more attention to the problems of annual investment planning. The latter, of course, cannot be understood unless the long-term aspects have been investigated.

From the very beginning of the elaboration of a plan the planner has to calculate, though tentatively, the volume of total investments. This is necessary because investments are the most important means of executing economic growth and progress on the one hand and they are, alternatively, subject to certain preconditions (total output, productivity etc.) on the other hand. This had been mentioned already in chapter 1. By the way, this hint on a two-sided problem should be kept in mind for the purpose of discussing later on the problem of balancing the plan including, naturally, the investment plan itself.



The determination of the volume of investments must start with a study on the origins (sources) of investment. Such are two:

- (i) compensation fund and
- (ii) net product (national income).

We should remind ourselves of the definition of investment given in chapter 1: Investment is the using of a part of national productive labour, represented by goods, ..... etc. The question is now: which part? To answer this question socialist planning is proceeding as follows. First of all, the whole national product which is to be produced within a certain planning period will be estimated tentatively. This activity includes the elaboration of several variants. The result of each will be a certain volume of the national product. This volume is now to be studied as regards its components. There are, principally, two components from the point of view of production activities. The first component represents the physical result (expressed, of course, in value terms) of that part of productive national labour which is to reproduce (replace) raw material, semi-finished goods, buildings and equipment as well which had been used in the production process and, therefore, consumed totally. This compensation (reproduction) is apparently necessary in order to maintain the material substance of further production on the same scale. This physical result is called compensation fund. Part of it is the first resource of investments. This part equals the volume of used and productively consumed equipment and buildings. It is known, usually, as depreciation or amortization.

Substantially we have arrived, by this way, at the estimation of one part of total investment.

After having calculated the first component of the national product and the first element of total investment, too, our study of the structure of total output is to be completed with respect to its second component. This is the physical result, also in value terms, of the other part



of productive national labour which has produced all kinds of goods in excess of the compensation fund i.e. in excess of the demand of goods for replacing raw material, equipment etc. which had been available before being consumed totally for production. We call this fund net-product<sup>1)</sup>. Its volume is equal to the volume of the national income. If we use symbols we have to write:

$$P = E + N.$$

(P = national product

E = compensation fund

N = net product)

This simple equation is the basic formula for planning production investment and consumption on the national level. It is, too, the first balance of the national product which in practical planning is amplified by an analysis of the structure of P by branches and sectors.

It was our intension to study the sources of the investment fund. What we call net product or national income proves to be the most important and extensive source. Investments coming from it represent activities for increasing productive and non-productive capacities while investments on account of the compensation fund will replace or renew existing capacities. We can distinguish, therefore, replacing and new investments accordingly.

Before going on in estimating total investment another problem should be discussed which is bound to the fact that each national economy has manifold international relations. With respect to them, usually, non-balance exists in exports and imports. It is not intended to consider the reasons for this phenomenon; it should be taken as a fact and studied with regard to its

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<sup>1)</sup> It may be termed also value added, excluding money equivalent of depreciation of fixed assets.



effects on our problem. An excess of imports definitely increases the volume of the net product. A greater volume would be available than it had been produced by the national economy itself. Export surmounting imports will have the reverse result.

One must, consequently, take into account both net product or national income produced, as well as the difference between exports and imports shown in the trade balance. The balance of the national product,  $P = E + N$ , will not explain this fact. Another balance, therefore, is used in socialist planning. Its pattern will be, briefly, like this:

$$N + Ws = Nd$$

or

$$N_p + Ws = Nd$$

( $N_p$  = net product or national income produced)

$Nd$  = dto. available

$Ws$  = balance of the foreign trade.)

The national income (net product) available ( $Nd$ ) is the main economic fund from which the major part of total investment will be derived. These investments are called new investments because they expand productive and non-productive capacities.

Before we are going to discuss the next problem we should resume the findings which had been pointed out up till now. The first was that the national product is to be analysed by its main components representing the sources of investment. This work resulted in a balance of the national product which in practice is an amplification of the basic formula  $P = E + N$ . The balance used e.g. in the German Democratic Republic looks like this:



National product	Compensation fund		Net product
	Production requirements	Depreciation	
Industry (branch A B :)			
Construction			
Handicraft			
Agriculture			
Transport			
Trade			
TOTAL			

The second result was that the net product from this balance is to be transferred to another balance, called balance of the national income. Our discussion covered the first part of it, sources, whereas the second part, uses, can be omitted now. We shall consider it later. Our investigation of the sources was made to find out the total of national income which is definitely at the disposal of the planners in a certain planning period.

It can be stated that one of the sources of investment, the depreciation as part of the compensation fund, is a fixed amount. It depends upon the real use (consumption) of equipment and buildings. Consequently, it is not subject to any decision whether it should be below or above the calculated total. We come to the conclusion, therefore, that planning of the volume of investments is rather a problem of planning that part of the national income which is to be used for this purpose.



The next question, therefore, will be how to distribute the national income. Generally, it is used for accumulation and consumption. In symbols this is to be written:

$$N_d = A + C$$

A = accumulation

C = consumption

In socialist planning both A and K are amplified by their main elements. Accumulation is the use of goods for increasing the material substance of any further expansion of production. It consists therefore, of three elements or funds:

- (i) new investments which extend capacities ( $I_n$ );
- (ii) increase in stocks which provide the production requirements for further growth of output (i.e. raw materials, fuel, electricity, semi-finished goods etc.) ( $P_s$ );
- (iii) increase of reserves (i.e. stocks of raw materials and, partially, of consumer goods which are not allocated for the current production of the respective planning period; they form a rather permanent stock in the long run) (R).

Consumption is divided into two groups: social consumption ( $C_s$ ) and individual consumption ( $C_i$ ).

The equation of the national income

$$N_d = A + N, \text{ therefore, now is:}$$

$$N_d = I_n + \Delta P_s + \Delta R + C_s + C_i$$



We call this the basic structure of the balance of the national income. It is the general numerical result of the detailed planning activities in the field of distribution of the national income. This outline will do when going on in our discussion of the volume of investments. Its estimation depends on many calculations and decisions concerning the other forms of using the national income. We shall try to study our problem without extensive investigations of the complementary funds of the national income but we must have them, nevertheless, always in mind.

After these general remarks concerning the context in which the total of new investments is to be discussed we shall consider the problem itself:

The first question is whether the share of the accumulation in the national income should be higher or not (or even lower) than in the previous period. This share  $\frac{A}{N} \times 100$  ( $A'$ ), is the accumulation rate. It is true, that its calculation, principally, entails some difficulties because it is rather the result of planning than one of its starting points. This coefficient belongs to that group of planning data which generalize each many detailed economic processes and coefficients with respect to their general effect on the national economy. We should be aware, therefore, of the limited value of such coefficients. In practise they are used as some kind of orientation and always in connection with many other data in the respective field in order to study any problem of planning in a rather complex way.

The previous rate of accumulation gives the planner a first idea about that part of the national income which can be used for productive purposes. If the total of the national income is given, the planner will get a first information on the volume of accumulation, too. This volume will increase steadily because in socialist countries the national income and, consequently, its components are increasing every year. We may assume therefore, that total accumulation will grow, anyway. This assumption holds good because economic progress requires remarkable efforts, both physical and financial,



which in turn ask for considerable investments.

The problem is now whether or not this increase in accumulation (and investments as the dominating part of it) should be reached by means of an equal growth of both economic funds (national income and accumulation) thus keeping the rate of accumulation unchanged. This decision, apparently, is a crucial one. Though it will be taken with special account of the national conditions in each field, practical experience of planning in the socialist countries offers some aspects or principles which developing countries, without any doubt, can make use of.

These aspects, briefly are:

- During the period of primary industrialization the rate of accumulation will, usually, increase. Consumption will, therefore, extend at a lower rate than the national income entirely;
- The rate of accumulation must also increase if a national economy which had been industrialized formerly, faces the problem of technical and economic reconstruction within a short period;
- At a given high stage of industrial development a rather constant rate of accumulation will make it possible to maintain a constantly high rate of growth in total output. The average accumulation rate in the USSR, e.g., is about 25%; the average annual increase in industrial output marks 10-12%;
- Investments can grow at a higher rate if efforts are made to keep the increase of stocks and reserves at a relatively low level; by means of this method the rate of accumulation could be kept at the same level or even below the previous level, but total of investments would increase at a higher rate; such change of the structure of the accumulation fund at the expense of stocks and reserves requires strenuous efforts to improve the efficiency of all economic activities.



Despite the fact that the decision on the distribution of the national income is the most important one which has to be taken in planning it is to a certain degree less complicated than we usually assume. Practically, there are no sudden changes in the rate of accumulation and/or consumption. They will proceed step by step with the material and financial conditions for a change being created simultaneously. Moreover, in socialist countries with national economies constantly increasing at a rather high rate of growth the volume of either accumulation and consumption will be at least the same if compared with the previous planning period. If so, the problem is not to distribute the national income as a whole but rather to decide whether or not the share of accumulation in the increase of national income will be higher than it actually is with respect to the rest of the national income. In case it is necessary to increase the rate of accumulation this will be done, practically by successively changing (i.e. increasing) the share of accumulation in the increase in national income. This way, the rate of accumulation with respect to the whole national income will grow generally.

When considering the problem of total investment we must pay attention to those projects which are already under construction. Provided they will be included in the plan, anyway, the material and financial funds which are required for their completion determine part of the investment fund we are calculating. As planning is a continuous process the results of the previous period must be transferred to the next plan.

In socialist countries it often occurs that part of the investment fund is already pre-determined and pre-absorbed by a small number of big projects which are approved almost in the first stage of the elaboration of the long-term plan. These projects are vital to the national economy. And a decision has been taken on each simply as an obvious first outcome of the general conception of the future structure of the national economy (cf. the previous lecture). The High Dam in U.A.R. may be an example which kind of projects we have in mind.



What has been said with reference to the big projects is valid, of course, even as regards smaller projects already under implementation.

To plan the investment fund in order to reach a high rate of growth does not involve that growth is only a result of investment. Growth will be reached, besides all other factors, by better utilization of the existing productive capacities. This point must be, therefore, studied thoroughly. Planners usually, should aim at a relative decrease of investments at the expense of an improving utilization of capacities. This problem is the subject of a separate lecture and we shall, therefore, abstain from any further discussion in this one.

The same result comes from another aspect of planning total investments. As it is rarely of practical significance for developing countries we shall discuss it briefly. A good rate of growth can be reached by concentrating investment activities on the modernisation and reconstruction of existing enterprises rather than to set up new projects. This is due to the fact that no expenditure or at least relatively a lower one is required e.g. for the development of the area where the project is located, for the construction of electricity transmission grids and stations as well as the construction of access roads, railways etc. This aspect is called the problem of the direction of investment activities. But even planners in developing countries should keep in mind this aspect. Sooner or later they will face this problem, too, when industrialization has been carried out to a certain extent.

If we try to check these basic considerations in practical planning of several socialist countries with different conditions and with a different level of development we shall find very interesting figures. The rate of accumulation in the Soviet economy is the most constant one over a longer period. It is, as was already quoted, about 25%. This has been caused by the relatively complex development of industry as well as by the successive re-equipment of the heavy and engineering industries after World War II. It should be stressed that this tendency has taken place after the period of general industrialization.



zation in the thirties when the rate of accumulation had been even higher.

Bulgaria has a very high rate of accumulation, about 30%, exceeding that of most other countries. This is due to the relative backwardness of her national economy if compared with the more advanced socialist countries. Though industrialization of this former agrarian country has made good progress, more efforts in this field are being made because rich mineral deposits had been found (iron and copper ore). Moreover, the Council of Mutual Economic Aid has agreed on a number of recommendations in favour of a greater share of Bulgaria in the international division of labour in industry (cf. Memo. No. 253). The high rate of accumulation will help to materialize these recommendations.

Planning covers all branches (sectors) of the national economy as well as all economic processes and relations either on the central level or within the competence and responsibility of lower planning authorities and enterprises. If so, our discussion of planning of the investment fund is not completed unless we have investigated the material possibilities of investment. Up to this point subject to our discussion has been, preferably, the problem which volume of investments proves to be necessary, with the view to a high rate of growth. We should remember the hint on the first page of this lecture concerning balancing activities. By the way, planning work rather always is linked and sometimes identical with balancing. Balances will help the planner to find out the rational and right proportions in the national economy, to weigh sources against uses, necessities against possibilities. Balances, therefore, are an important instrument to combine the numerical results of separately executed considerations and calculations.

We should now think about the problem which volume of investments will prove to be possible and how this can be balanced with the necessary volume. For this purpose both parts of the investment fund, replacing and new investments, must be taken into account as a whole. We have distinguished between these two components because they have a different economic effect. What we are going to discuss now is related to the material (physical) substance of



investments of either kind.

What is the material substance of investments like? Why should the planner know this substance and its volume which makes a certain volume of investments possible?

The first question is a rather simple one. The physical substance of investment consists of:

- (i) equipment and machinery and
- (ii) buildings.

This basic structure can be amplified and more detailed in order to meet the practical requirements. For the time being we shall consider the problems only involved in this basic structure (cf. chapter 3).

If it is true that planning is executed in all fields, branches etc. of national economy subject to it must be also the sources of goods which the investments really consist of. In other words: planning of the volume of investments, broken down by both material elements, is to be linked and balanced with planning of the sources of equipment, machinery and buildings. Sources are local production as well as imports.

When the long-term plan is drafted some general calculations are executed to balance tentatively total investment and total sources of equipment and construction. The latter are called means of production (producer goods) which practically consist of two groups:

- (i) raw material, semi-fabricated goods (Ag) and
- (ii) equipment, machines, instruments, buildings etc. (Am)

As this balancing is necessary in order to reach equilibrium in this field of national economy, production planning must proceed in a way which makes it possible to indicate output of Am. and Ag. For this purpose another balance of the national product is used in socialist countries:



$$\begin{aligned} P &= P_m + K_m \quad \text{or} \\ P &= A_m + A_g + K_m \end{aligned}$$

( $P_m$  = means of production (producer goods)

$K_m$  = consumer goods

$A_m$  = materials

$A_g$  = equipment etc. )

As a matter of fact this balance consists of only aggregate data which are the final result of various detailed planning activities on the branch and enterprise level. By forming these groups it is intended to generalize all concrete products with respect to their specific role they have to play in the process of production or consumption economically. This is a precondition for further planning (balancing) in the field of accumulation with special reference to investment as well as in the field of consumption, both social and individual.

The balance of the national product will fulfill its functions, naturally, only if foreign trade will be taken into account. Planners, therefore, must analyse total imports and exports from the same points of view as they did with respect to domestic production. Both figures must be broken down in  $P_m$  ( $A_m$ ,  $A_g$ ) and  $K_m$ . The difference between exports and imports in each item must be included in the balance sheet. If these balances are indicated by  $\pm W_s$ , we now have to write:

$$P \pm W_s = (A_m \pm W_s) + (A_g \pm W_s) + (K_m \pm W_s)$$

The general aim will be to have the balance:

$$I \text{ (investment fund)} = (A_m \pm W_s),$$

which indicates that physical sources correspond<sup>to</sup> total investment. Thus, planners are given a certain framework for their further detailed work on concrete projects which, in the final stage of establishing the plan, will be summed up to check again whether or not the unnumerous detailed calculations fit in the



general frame of national proportions.

We can state generally that the consequence of our outline of planning the volume of investment is two-fold. Total investment is determined

- (i) by the total of national income, the rate of accumulation and the structure of the accumulation fund as well as by that part of the compensation fund which is equivalent to the depreciation of fixed assets;
- (ii) by the volume and material (physical) structure of total national product.

Both national income and national product are to be analysed with careful reference to foreign trade thus transforming them into national product (income) available which may differ positively or negatively from the national product (income) produced.

## 2. Distribution of the investment fund among branches (or sectors).

The allocation of investment funds to the various branches of the national economy is the result of many considerations and calculations which are executed in several stages. It is not this fact, however, which we are going to discuss now. The problem is how the investment fund is earmarked for the various branches and why a given distribution must be approved finally.

Any socialist economy is a constantly developing both in the social and technical field. At the extent of development of political and technical conditions the national economy is subject to according changes. This two-sided development proves to be the starting-point of all planning activities. First of all, it represents the basis of long-term planning. Referring to the first lecture on investment planning we remember that investment planning is the next step after the elaboration of the (i) general scheme of the future structure of the national economy and (ii) of the schemes of technical development in the different branches.

The long-term plan in its initial stage offers investment planners



an outline describing the main tendencies of production and, consequently, of the specific role which each branch will have to play. Thus, a certain priority which is to be attached to the different branches will be available when investment planning is beginning<sup>4)</sup>. Priority as such, of course, does not solve the problem which total investment should be given to a certain branch. Priority gives only a hint that the share of the respective branches should be greater than that of the other and/or that the requirements of the former must be fully met, anyway. But in practice, socialist planning acts in the following way.

Once it had been decided which branches will become the essential one within the future structure of the national economy calculations are made on gross production of these branches. This output is broken down, simultaneously, by a series of important goods. This gross production represents the estimated local and international requirements (demand) of the respective goods. It must be balanced with the existing capacities to produce them. The difference between capacities needed and capacities available must be filled in by investment<sup>5)</sup>. As the branches under consideration are awarded priority these new capacities must be created at any case. A first calculation will be made with respect to the average investment fund needed for the increase of output by, e.g., 1 million:

$$\frac{I}{\Delta P}$$

It can be calculated on the national level (where it does not help much in planning) or on the branch and enterprise level. In socialist countries planners are well aware of the rather limited value of this ratio. It is used, therefore, only as a possible one among many other coefficients on the basis of which a final decision will be taken.

The next question will be to decide the concrete direction of investment in the important branches. We hit this problem already in section 1 of this chapter. In the German Democratic Republic, e.g., practical planning

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<sup>4)</sup> Cf. Memo No. 253 on international coordination of plans.

<sup>5)</sup> Cf. Chapter No. 3.



is using three different directions of investment:<sup>6)</sup>

- (i) reconstruction (= modernisation) of existing enterprises (capacities);
- (ii) amplification of existing enterprises (capacities) by the construction of new sections or partial capacities;
- (iii) establishment of new enterprises (capacities).

Each project in the field of investment must be thoroughly investigated with respect to its direction. But prior to this a general decision on this problem, usually, will be taken. This decision implies a firm instruction which direction must prevail. In Germany the first direction actually is given priority because it is a highly industrialised country. Generally it is more rational to expand existing capacities by changing their technology and equipment rather than to build new factories. It is obvious that any reconstruction requires more new equipment and relatively less buildings. This will enable planners to decrease investment requirements needed for a given extension of capacities. The investment output ratio will be greatly affected by the choice of the investment direction; in this case it will be rather low.

Developing countries will put naturally, most emphasis on the establishment of new capacities due to their general shortage or absence of industrial capacities. But, partially, they could pay considerable attention to the technical improvement of certain existing capacities because this would lead to an increase of output and productivity within a rather short period and with a rather small burden on the limited investment fund. In addition to this, new capacities will help to develop backward regions of the country, what rarely can be done by expanding existing capacities if these are concentrated only in some regions.

Once a decision in favour of a certain direction of investment is taken, it will be followed by tentative calculations of the costs of the new capacities or/and the extension of existing ones. For this purpose planners use results of an analysis of similar projects which already had been built locally or abroad. Simultaneously, they take into account the level of technical progress in the respective branch because this is the basis for the deter-

<sup>6)</sup> Cf. Gesetzblatt der DDR, Teil II, No. 56/1962; p.482.



mination of the optimum size of the respective new capacity. As it is a general intension to use new techniques rationally, the long-term plan must be based on them. So, the optimum size will steadily increase. Consequently, while calculating the distribution of total investment by branches this activity becomes more and more an estimation of several key-projects. These will usually, carry out the greatest part of the needed increase of output and at the same time absorb the greatest part of the investment fund.

In the initial stage of drafting a long-term plan it is possible therefore, to calculate already rather concretely as far as the increase of output, the increase of capacities as well as the single projects for this purpose are concerned. It is practically sufficient to draft the long-term plan with taking into definite account the provisional targets of those products which determine the future structure of the national economy as well as the total investment necessary for the extension and/or establishment of the respective capacities.

Already in this first stage of working out a long-term plan the repercussions of the Key-project on the whole national economy are estimated, too. This is done on two lines. First, the central planning authority is studying the necessary investments in the adjoining branches to the respective key-projects (resp. to those branches to which the projects belong). For this purpose coefficients are used which had been calculated by means of inter-flow tables containing 22 branches. It should be stressed, however, that such calculations have a rather tentative character because they are exclusively based on data from the past and they had been estimated only empirically. They give, nevertheless, a first rough idea on the probable quantitative consequences of key-projects. Thus, it became obvious that an investment of 1 million in the textile industry requires a complementing investment of 6 million provided there is no other possibility to meet the increased raw material requirements than by investment in other branches. In mining this ratio, of course, is lower 1 : 0.15.

Secondly, calculations are exercised on the regional level. They entail studies with respect to estimate indirect investments which are inevitable. Such are e.g.: construction of roads, railways, energy systems, water supply, etc. This calculation is usually done



ply systems, social buildings etc. This activity results in a tentative amount of indirect investment which should be taken into account when the distribution of the investment fund by branches is concerned.

We have learned so far that the distribution of investment is mainly determined by the key-branches (key-projects) in accordance with the general scheme of the future structure of the national economy.

The second aspect for distributing investments is a technical one. Recalling that any investment improves both the economic structure and the level of the country we should be aware of the fact that investments greatly predetermine the future level of the economy which is rather a synonym for high productivity. Consequently, the German planners are allocating investment funds preferably to those branches which are not on an adequate technical level. Unadequate means such level which either hampers further progress of the national economy as a whole or which should be improved instantly in order to promote progress.

If we try to sum up the main aspects in the field of distribution of investment (in long-term planning!) we can point out the following priorities:

- (i) main (key-) branches and projects vital to the economy with due regard of the future structure of the respective country;
- (ii) branches which will enable to increase labour productivity rapidly and in a short span of time (e.g. chemical industry and electro-technical engineering);
- (iii) branches where much labour force can be saved by means of re-equipping them with available new techniques;
- (iv) branches which produce goods with high rates of foreign trade profitability;
- (v) branches with insufficient total output thus causing disproportions in the field of production and material supply.