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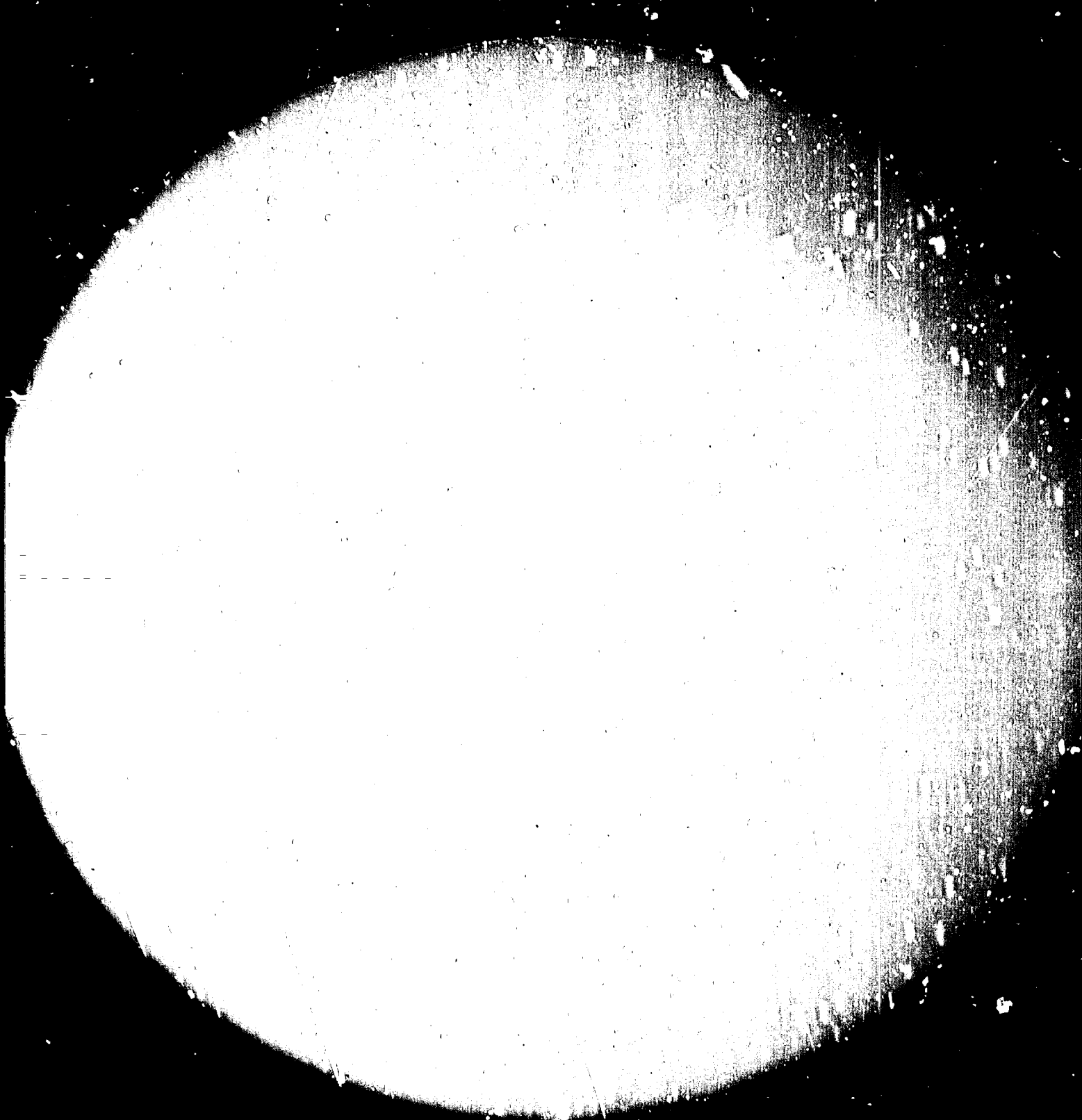

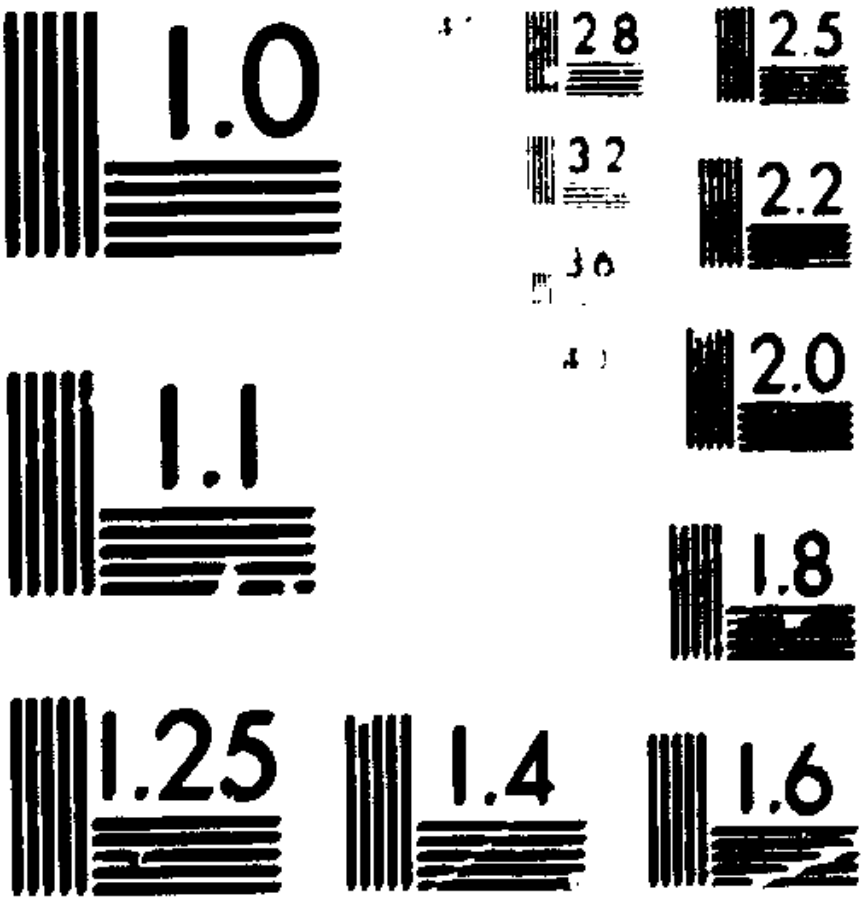

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Some Problems and Possibilities for improving industrial planning in Developing Countries

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Some problems and possibilities for improving industrial planning in developing countries

Introduction:

The experience and the results of planning industry show in developing countries the importance of setting well founded targets and objectives which are substantiated and real as well as the co-ordination of plans of industry with the plans of the other sectors of the economy the development of the living standard of the population and with the various components of the industrial plan. For, the possible economic and social effects of industrial planning are influenced to a great extent by the quality of this determination of targets. There are therefore close correlations and mutual conditioning between the elaboration of the plans of industry and the co-ordination of these plans.

Co-ordination in industrial planning means to gain consistency of all the partial targets and tasks of the plans and ensuring the necessary activities to implement them. It implies the consideration of various aspects and that it takes place at and between the different levels of the management system or the economy. Some of these are, amongst others,

- industry with agriculture, with the material-technical infrastructure, domestic and foreign trade, building and construction, the craft trades and with general education, etc.,
- the industrial branches and the various industrial enterprises,
- aspects according to use-value and quantitative magnitudes of the planned development,
- the planned targets with the available resources, etc.

The content and the concrete tasks in plan co-ordination differ in a developing country according to whether comprehensive planning is tried or partial planning predominates. It is influenced by the

prevailing concepts or policy outline with respect to the content of the tasks and the role of industrial planning generally.

The hitherto development of state economic planning in general and industrial planning in particular in developing countries have shown that a whole bundel of intricate problems of co-ordination is tied with planning activities on all managerial levels. The economic and social results of this state planning is able to bring effects to a high degree depending on how these problems are dealt with. Because co-ordination of goals, targets, tasks of plans and activities in industrial planning mainly has to be done by the state authorities and managerial bodies on different planning levels the respective quality of this co-ordination mainly is a function of the abilities and knowledge of management and planning personnel engaged in the institutional planning set up. Therefore we hold the view that it is more or less under the command of developing countries to better and increase the efficacy of their industrial planning by a conscious and target-oriented approach for a continuous improvement of the co-ordination aspect of industrial planning.

In this special field of planning activities we'll find - in particular also in LDCs - a lot of up till now untapped possibilities to raise the efficiency of industrial planning. Based also on our own experience in several developing countries, on information gathered in international seminars and training courses on industrial planning as well out of the fast growing international literature on planning in developing countries we believe it would be advisable and useful, in the coming years to concentrate the attention on questions of plan co-ordination in these countries. In this special field of theory and practice of industrial planning it is possible to our mind to gain

fairly high yield with comparatively small efforts.

For this very reason this paper deals with some few aspects of this general problem of industrial planning in developing countries:

- the need of closer connection of production plans and investment plans;
- the use of indicators and balances as main instruments in industrial planning in developing countries.[1]

1. Some aspects of the general situation in the field of industrial planning in developing countries at the beginning of the Third Development Decade of the United Nations

In the "Declaration on Industrial Development and Co-operation" concluded at the Second General Conference of UNIDO in Lima in March 1975, Paragraph 28 demands that the share of developing countries in world industrial production should be increased to at least 25 per cent by the year 2000. This aim includes also, as stated in the same paragraph, "that the developing countries should increase their industrial growth at a rate considerably higher than the 9 per cent recommended in the International Development Strategy for the Second United Nations Development Decade". This general goal has been confirmed by UNIDO III in New Delhi 1980.

The approach to this aim requires, in our view, amongst others a continuous improvement in planning the development of industry at the national, branch and enterprise level in developing countries. Only in this way will it be possible to mobilise and organise the existing human, material and financial resources and those to be developed in

these countries, so that there can be a substantial acceleration in their pace of industrial development.

In the majority of developing countries, attempts are being made since a long time to regulate, to steer and especially to stimulate the development of national industry with the help of state plans. The efficacy hitherto of these plans varies from country to country considerably.

Despite different conditions and prerequisites, from a study of th historical development in planning industry in socialist countries, instructive and stimulating knowledge can be gained for the further improvement in planning at the level of enterprises and branches of the state industry in developing countries.

Investigations by UNIDO and other institutions and organs of the United Nations family as well as researches by staff members of our institute carried out recently have shown, that in the attempts made in the majority of developing countries to plan the development of

state industry, particularly at the national economic level in the past decade, extensive experiences could be gathered in planning. This applies especially to drawing up investment programmes in the majority of the developing countries. On the other hand, planning production and other important aspects of the reproduction process (e.g. material supply, manpower development, marketing, quality, efficacy, finance etc.) have lagged behind both at the level of overall industry and especially at the level of branches and enterprises. Any real progress in the conscious and planned mastery of industrial development will extensively depend on, to what extent they succeed in a step by step solving this problem and by this strengthening the effectivity of planning. It is essential, in our view, to improve both the quality of the various main sections of the plan of industria development at these levels and to establish their correlationa connections with one another and with the other main sections of the state development plan.

In a number of developing countries which is still in the initial stage of industrial development, that means the LDCs, a view is being advanced that as improvement in planning industry, in the first place, requires an improvement in the process of project evaluation. The significance of this factor is obvious. However, in our opinion, it would be an illusion to believe that by this alone, a new quality in the overall planning of industry can be attained in these countries. It is necessary, therefore, to adopt a more complex approach which would increasingly facilitate in a step by step advance the comprehension of all essential components and phases of the industrial reproduction process in planning and in this way to better master consciously the aims of the society of the given country. Even in the early periods in the development of planning in industry, attempts should be made for a harmonised approach as comprehensively as possible between

the state and the economic management organs.

Based on experiences of socialist countries, the development of industry at branch and enterprise levels is one of the most important main parts of the plan:

(i) the production plan (the production programme),

(ii) the plan of material-technical supply,

(iii) the manpower plan,

(iv) the plan of scientific-technical development,

(v) the investment plan,

(vi) the marketing plan,

(vii) the finance plan (prime costs, prices, profits, efficiency, wages and salaries, payments or transfers to the budget),

(viii) the plan of social development.

With these plans, all essential sides and phases of the reproduction process can be comprehended, planned and managed at the level of branches and enterprises. Their content, their scope, their indicators and the methods in elaborating them differ in the various stages of industrial planning. The differences stem from the concrete technical-economic character of each production. Apart from this, the questions posed in these partial plans have to be provided with answers distinctly:

(i) What, how much and at what period should be produced?

(ii) How can the envisaged production be ensured by an appropriate material-technical supply (raw materials, semi-manufactures, supply of accessories , spares, energy, water, transport, etc.)?

(iii) How much and what kind of manpower will be needed to fulfil the production programme?

(iv) What scientific-technical measures have to be realized in the plan period in order to safeguard the best possible efficiency and the required quality of production?

(v) What replacement and expansion investments must be prepared and realized to secure the planned and future production programme?

(vi) Where and under what conditions should the products be marketed?

(vii) How should the prime costs, the price of the enterprise product, the efficiency of production, the wages and salaries and payments of transfers to the state budget develop?

(viii) What measures have to be carried out to improve working and living conditions of all employees in the plan period?

There are close correlations between these individual plans of the enterprise. They have to be carefully made to conform to one another. In principle the same questions have to be answered at the level of branches. The difference lies in the higher aggregation of the various indicators. In addition there are, at this level, to guarantee the conformity and safeguard of the required proportions between the various enterprises of the branch and the branch as well as with other sectors of the national economy.

In conformity with long years of practical experience and theoretical conclusions of socialist countries as well as with the experiences gathered by developing countries

basic principles of an effective planning of industrial development should be:

(i) a committed approach to planning of industry. This approach requires such a development of industry which serves above all the needs of the working people of the country;

(ii) a scientific substantiation of all plans, i.e., the plans should

take into consideration the requirements of economic laws operating in the country; they should proceed from the objective possibilities (internal and external) avoiding subjectivism and should take into account the potentialities of scientific-technical progress and the creative activities of all engaged in elaboration, implementation and evaluation of industrial plans.

(iii) the binding and directive character of planning. This implies that the plan tasks should be formulated precisely and defined for those executing them so that they become statutory laws and those executing plan tasks should be held responsible for their fulfilment;

(iv) the continuity and unity of plan elaboration, implementation and supervision;

(v) the unity and coincidence of planning materially and according to value;

(vi) the application of democratic centralism.

For planning industrial development, this means especially comprehensive information and active participation by the immediate producers in enterprise in elaborating plans in order to stimulate their conscious participation in fulfilling plan tasks. The principle requires also a strict and an absolute fulfilment of tasks of the plan concluded

(vii) there couldn't be any "ideal" state of planning. In accordance with changing objective and subjective conditions of industrial planning it should be and can be improved and developed in a continuous process.

It would be useful, in our opinion, to examine in these developing countries as to how the objective and subjective conditions mature or can be created consciously in order to be able to observe these principles increasingly in planning industrial development. Under conditions of predominance of so-called "mixed economies" in developing countries in our understanding it should be possible - despite their different objective and subjective conditions - to try to apply these proven principles of successful industrial planning to a growing extent in planning their state sectors industry.

Planning of production (the production programme) is also the most important partial plan at the level of industrial branches and enterprises. This plan is the core of the overall plan. All other partial plans at this level are to be derived from it (or are to conform to it) That is why the quality and the efficiency of overall planning at these levels depend a great deal on the standard of elaboration and the fulfilment of the production plan. Our investigations show that planning of production in state industries is still in the initial stage in many developing countries. A solution to this problem requires especially the elaboration and application of an appropriate methodology of production planning in line with the special conditions of the given countries state industry.

The main aim in planning industrial production lies in providing the economy of the country with individual consumer goods in the plan period, whilst maintaining a possible favourable proportion between expenditures and results, so that a large degree of conformity is attained between the purchasing power demand structure of broad sections of the population and production and a possible high degree of provision of industry and other sectors of the economy with replacement and accumulation funds for the required means of production. With the help of

the elaboration and realization of their production plans, the various industrial enterprises of branches have to make their contribution in attaining this aim. This can take place either directly by a possible profitable production of the respective means of production or consumption or indirectly by exporting their products.

The points of departure for planning the production of branches and enterprises are the starting points of the material structure and the volume of consumption and accumulation funds of the country investigated by the central planning authorities for the plan period as well as the exports and imports calculated by these authorities currently. From this evaluation of the economic requirements stem for the various industrial branches and enterprises the general starting points for the volume, the structure, the quality, costs and prices of products manufactured by them. The tasks of branches and enterprises lie in the fact that the production tasks given by the central planning authorities are planned in detail and that a possible favourable proportion is realized between expenditure and results. In the process of this elaboration of the production plan, defining the given tasks may prove to be necessary. This in turn could have effects on other industrial enterprises, branches or economic sectors. That is why particularly in this phase of elaborating a plan, close cooperation is indispensable between the central planning authorities, the industrial branches and enterprises. The procedures of this cooperation must be fixed by the planning regulations.

We are convinced, that one of the main tasks for improving the industrial planning in developing countries, especially in LDC's, during the eighties will be the prior development of planning the industrial production.

Planning investments and coordinating them with other parts of the plan are among the main tasks of planning economic development. These are also true of medium-term and annual planning - if existing already at all - in developing countries. Long years of experiences of socialist countries show that especially the continuous observance and the correct formation of correlations and dependencies between investment and production plans are a necessary prerequisite for the full use and development of all the natural resources for the expanded reproduction of the given country.

Accumulation and investments on its basis for fixed capital assets and circulation funds (materials and working capital) are the most important tools for a progressive transformation of the branch and regional structure of the economy. With their aid, social labour productivity as well as the material production including also their national economic, branch and enterprise efficiency can be raised and their socio-economic structure can be changed purposefully. The volum of investments, their branch and regional structure, the technical level and efficiency determine to a great extent the future economic development of the given country.

Planning and implementation of investments are identical with real accumulation which Friedrich Engels described as the most important progressive function of society. Here stems the significance of the investment programme as a part of the plan. A characteristic feature of development planning in many developing countries hitherto has been its main or complete orientation and restriction to planning investments. This is especially true of those chapters and parts of the pla document which refer to the development of industry, agriculture and infrastructure. That applies in particular to most of the LDCs.

This kind of approach to the planned influence over the reproduction process of the economy in general and industry in particular is understandable in view of the role of investments in the process of industrialisation. In most developing countries it was, however, a more or less isolated investment planning, i.e., the investment programme was not sufficiently or sometimes practically not linked to or balanced with other important parts of the reproduction process. Thus, there were inevitably many problems which, in the last analysis, led to loss of pace of growth, disproportions and waste of economic resources.

As a rule, the chapters on medium-term plans for extractive and manufacturing industries, agriculture and infrastructure contain an enumeration of envisaged or desired investment projects and estimates of the required financial resources. Questions of securing the implementation of these projects with regard to their material and technical requirements, the supply with the necessary manpower and leading personal, energy, water, material, transport, problems of regional linkage, covering investment and current costs of their construction and their operation later, the possible marketing of products after completion of projects - all these have been frequently not yet given sufficient consideration and elucidation both in medium-term and annual plans. Planned investments are often inadequately balanced. Here lies - by the way - one of the main causes of manifestation of under-utilised industrial production capacities in developing countries.

State investment plans are among the parts of medium-term plans in these countries that have been worked out in a fairly great detail. But with a few exceptions, in the majority of countries in general, they have not been fulfilled even approximately quantitatively and according to schedule. The reasons for non-fulfilment are many and are partly stated in their following plan documents. Thus, in Iraq, non-fulfilment

of investment plans is especially attributed to weakness of the contract partners who are involved in planning and implementing the projects and also to inadequate coordination between organs carrying these out.[2]

The reasons for deficiencies in Fiji are given as lack of firm concepts in the government departments responsible for certain projects in the case of public investments, although there were budget allocations for these, delays in drawing up projects, inadequate information on costs, uncoordinated or ill-defined location of production centres.[3] In the case of Tanzania, the reasons given are, apart from the factors stated, neglecting cost components in planning and the underestimation of local costs, etc.[4]

The reasons for non-fulfilment as stated in the plan documents show several unsolved problems of investment planning in these countries. Some of these are the lack of coordination of all participating and responsible organs in investment activities as well as insufficient efficiency of the state sector (ministries, state industrial companies, state enterprises) in carrying out their specific responsibility for preparing and implementation of investments. The lack of efficient coordination of investment activities was, in turn, the cause of disproportions which emerged in the past in the process of the reproduction of many developing countries and led to considerable economic losses. These are reflected in the insufficient capacity utilisation, long delays in starting production, losses and closure of newly built enterprises as a consequence of inadequate marketing possibilities for the products, lack of provision of raw materials or spares, etc.

During the Second Development Decade of the UN attempts were made in many developing countries to improve the quality and efficiency of investment planning. The possibilities and limitations in this respect are fixed by the given objective and subjective factors and conditions

of planning in various groups of developing countries. Especially in those which have opted for a socialist orientation, these possibilities are, obviously, not yet being used to the full. These possibilities will grow considerably with the development and consolidation of their state sector in industry, the reflection of the revolutionary-democratic character of the state superstructure as well as the deepening and expansion of the democratic participation and co-determination of the working people in state enterprises. As facts have shown, improvement in investment planning in these countries is possible to the extent, if and how the degree of the other components of planning are likewise improved. As practice has shown, isolated attempts at raising the quality of investment planning cannot bring about durable results. This is especially true, e.g., with regard to linking investment and production plans. The lack of coordination of both partial plans, the insufficient derivation of the aims of the investment plan from the production programme has shown to be one of the most important unsolved problems of planning of investments in these countries.

Planning investments in industry is a part of planning fixed capital assets. It differs from production planning by the relatively long period of preparation and implementation of investments, the fact that there is no repetition of each investment project generally (apart from the prototype), the fact of the specific localisation of each project, the particular magnitude and range of labour of the enterprises responsible for carrying out the investment and the specific technology of the construction of the project to be applied (e.g., hydro-electric power plant, steel works, heavy engineering factory or sugar refinery). Thus, such investment project has a particular feature which has to be considered in planning.

From these features of the investment process stem specific requirements in investment planning at national economic, branch and enterprise levels. In the past decades socialist countries have gathered experience and knowledge particularly in this field of planning which can provide useful ideas in considering the different objective and subjective conditions in each developing country for further development also in planning. For the sake of convenience we would like to place it here. Some of these can be stated as follows:

(i) Owing to the manifold correlations between investments and all other sectors of the economy and social life, the investment plan has to be carefully coordinated and balanced with other parts of the plan. An insufficient regard paid to these relationships will inevitably lessen the efficiency of the investment process and hence economic growth and will also lead to waste of material and financial resources. In this regard there are still considerable reserves in developing countries which can be used for a greater consideration of the economic complexity of investments by an improvement in investment planning in industry.

(ii) The volume, the branch, regional and time structure of the investments have to be derived and substantiated both from the given as well as from the long-term development of social needs and the structure of the purchasing power in the domestic market In planning these investments greater consideration can and should be given to this principle than hitherto. This can reduce the frequent misinvestments there.

(iii) One has to observe the specific conditions and possibilities of the country in line with the favourable allocation of the available accumulation resources to projects to be realised in a

short-term and to one that requires a long construction time. A one-sided orientation to one or the other type of investments in the productive and non-productive sectors and neglecting the other have to be avoided because, as experience shows, they lead to severe disturbances and disproportions in the reproduction process of the country concerned.

(iv) The simultaneous commencement with a large number of investment projects which cannot be mastered materially, technically and with inadequate management leads to ineffective dispersal of the accumulation resources and to the growth of incomplete investments as well as to an extension of the time in implement ing each project. Such a course can impose a severe strain on the economy and cause internal political difficulties. There are enough examples of this in a number of developing countries

(v) Planning investment projects must encompass all important aspects of the construction and the subsequent operation. This requires among other things, the simultaneous creation of the necessary material, technical and economic prerequisites (supply of energy, water, material, spare parts, manpower, transport, marketing of the products, etc.) so as to ensure a good functioning of the project after completion of construction.

(vi) Of particular importance is the realisation of a technology policy in planning the type of equipment of new and replacement investments consistent with the specific, in the course of time changing conditions of the country.

(vii) It is important to have consistency between material and financial planning in investment planning. Should this not be the case, then there are bound to be efficiency losses in utilising the available accumulation resources.

These principles of an effective investment planning in industry derived from decades of practice in socialist countries cannot, in any case, be fully observed or implemented at present under the particular political, socio-economic and economic conditions in developing countries. But their observance and endeavour to implement them step-wise consistent with the existing objective and subjective possibilities in the respective developing country can contribute substantially to improve the quality of investment planning there.

The further development of the efficiency of investment planning requires the verification of the possibilities and limitations in applying it in various sectors of the economy of developing countries (state sector, sector of semi-state enterprises, the sector of domestic and foreign capital, cooperative sector). In principle it is true that for investment planning in these sectors, there are the same possibilities and conditions as for planning generally. A direct binding investment planning is possible in the state sector and to a limited extent in the semi-state and cooperative sectors. In the other sectors investments can be influenced indirectly by economic policy measures of the state like licences for investments, for import of equipment, import duties, taxation and price policy. With the growth of the share of the state and cooperative sectors, there are increasing possibilities of direct binding investment planning.

2. The use of indicators in industrial planning

The main task in elaborating a plan of development of an industrial branch or an industrial enterprise is the substantiation of quantitative magnitudes of indicators of the overall plan and the partial plans. From here stems the significance of the system of plan indicators applied in this field of planning. As experience shows, these indicators must have certain features in order to meet the requirements of an effective planning of industrial development and production.

The plan indicators should reflect the main targets and guide lines of the plan, its economic and political tasks and the relations between the various enterprises and branches of the country, and make possible the co-ordination of all plan goals and targets. With the aid of this system of indicators, the targets should be stated in a quantitatively assessable and comparable form. It should have a stimulating effect on all concerned in plan fulfilment.

In order to safeguard these, this system should:

(i) stimulate the interests of the collectives in enterprises in elaborating ambitious plan targets and their complete fulfilment;

(ii) be uniform for the whole branch and stable for certain periods, let's say a medium - term plan;

(iii) facilitate the coordination and conformity of the goals and targets of the various enterprises of the branch, of the branches with the whole industry and of the industry with the other sectors of the economy;

(iv) permit the fixing of responsibility for fulfilment of the various plan tasks;

(v) conform to the indicators of the enterprise accounting system and the statistical service with respect to methodology and be comparable;

(vi) foster and bring about an economic use of material and financial resources as well as a rational and effective use of the economis resources;

(vii) reflect both the material sides as well the value sides of the reproduction process in industry.

Normatives (material consumption norm, shift coefficient, fixed assets utilization norm, period of reflux of investments, depreciation rates etc.) play an important and an indispensable role in the quantitative calculation of plan indicators. An analysis of the present situation in the field of work with indicators and normatives in planning industrial development in many developing countries shows that there is still a broad field for further improving the planning of industrial production.

Indicators used in developing countries for industrial planning greatly vary from one country to the other with regard to their number, quality and function. The use of indicators relating to resources, output and efficiency on the level of national economies, industrial branches or industrial enterprises is rather different owing to the prevailing conceptions of planning, the level of development in industry, the structure and qualification of managerial bodies and experience made so far.

Despite these differences, however, an analysis of plans covering industrial development in many developing countries also shows certain similarities. The development plans of these countries contain growth rates of overall industrial production, or manufacturing industry at least, for the period covered by the medium-range plan and for the respective years frequently.

An evaluation of such growth rates requires taking into account the levels of industrialization achieved, the internal structure of growth

rates in industry, the social-economic structure of industry, the size of the domestic market and other factors. The scope of such planned growth rates alone cannot be used for making conclusions in terms of assessment. This is only possible when they are compared to actual growth rates that have been achieved during the plan period concerned.

Table 1. Annual growth rates in the production of processing industry of selected developing countries at constant prices in per sent

Country	planned[x)]	actually achieved
Algeria	14,7	10,3
Brazil	10 - 12[3]	12,2[3]
Ivory Coast	15,6	11,1
India	7,7	4,8
Iraq	11,2	8,3
Iran	13,0	15,5[3]
Kenia	4,5	5,8
Nigeria	14,3	15,8
Sri Lanka	10,0[3]	15,3[3]
Sudan	9,5[3]	2,0[3]
Syrian Arab Republic	15,8	7,2
Tanzania	13,0[2]	7,7

x) Data apply to plans valid in the first half of the 1970s.

1 including mining, energy production and building
2 with the exception of tea processing and sisal processing
3 including mining

Source: Centre for Development Planning, Projections and Policies of the Department of Economic and Social Affairs of the United Nations Secretariat, Implementation of Development Plans: the Experience of Developing Countries in the first half of the 1970s, in: Journal of Development Planning, United Nations, New York 1977, No. 12, p. 28.

One can see that planned growth rates in manufacturing industry are essentially higher than those of other national economic branches and, in most cases, considerably higher, than the planned growth of the gross domestic product mentioned above. This also shows the purposeful efforts of these developing countries aimed at making manufacturing

industry the major motive force for their economic progress. These objectives are also shown in the indicator "Share of manufacturing industry in the production of the gross domestic product".

In addition to indicators relating to processing industry, indicators are greatly important that are relating to the share of mining, production of electric power and other services in the gross social product - indicators that are of vital importance for the development of manufacturing industry. They also cover a relatively broad scope in respective national development plans.

Developing countries that made progress in mining were able to achieve relatively good results as to the fulfilment of their plan targets in manufacturing industry; the non-fulfilment of plan targets in extractive industry essentially contributes to the fact that plan targets in manufacturing industry were not achieved.

Thus, a comparison of indicators relating to annual growth rates in mining, the production of electricity and other service centres and utilities in connection with plan targets and their implementation is also important.

Table 2. Annual growth rates of production in mining, electricity and other service centres and utilities in the first half of the 1970s in per cent

Country	Mining		Electricity and other service centres and utilities	
	planned	actually achieved	planned	actually achieved
India	8,0	2,7	9,3	6,5
Iraq	1,8	3,4	11,4	11,3
Iran	15,3	...	16,8	12,6
Kenia	6,6	11,0	8,0	6,8
Nigeria	36,8	37,9	8,5	20,7
Paraguay	14,1	28,1	9,7	17,0
Saudi Arabia	9,2	21,0	13,2	14,9
Tanzania	- 2,5	- 9,0	12,0	9,5

Source: ibid., p. 35/36

Indicators mentioned above may be found in almost all developing plans of these countries whereas indicators relating to the development of production in various industrial branches and the production of essential industrial products occur only in some of these plans. We can state, however, that growing attention is being attached to more concrete plan targets in the industrial planning of many developing countries.

The analysed plans of Algeria, for example, contained production objectives for six industrial branches and ten to twenty-five products and indicators for more than twenty-five products per industrial branch.

As far as development plans contain indicators relating to the development of production in specific industrial branches or products, an analysis made by the Centre for Development Planning of the UN Secretariat shows that growth rates in the production of intermediate products and investment goods as well as durables tend to be much higher than those of other industrial consumer goods[5]. Examples are respective growth rates in the Algerian development plan 1970-1973: 9 per cent in

branches producing non-durable consumer goods, 18.3 per cent in branches producing intermediate products and 25.5 per cent in branches producing investment goods.

Methods used for the quantitative determination of indicators relating to the growth of industry, specific industrial branches and industrial products varied and continue to vary.

In a number of developing countries, the main objectives of industrialization strategy, projects of structural changes mainly, and the general strategy of economic development are the starting points and orientation for indicators relating to the industrial growth. In other countries, they use extrapolations of development trends in industry in the past as the basis for determining these indicators.

In developing countries where private capital prevails in industry, state planning bodies make inquiries in private enterprises in order to be informed about future developments in production, or specific bodies subordinated to planning bodies in which private enterprises cooperate and are consulted, elaborate regulations of no binding character. This method is linked with the assessment and development of private industries in the preceding period frequently.

Investments planned to be made within the plan period in the state and private sectors of industry belong to the most important factors that are used for determining these indicators in all developing countries.

Despite all particularities in determining indicators relating to growth rates and production targets in the industries of developing countries, two major ways are perceptible when methods used for industrial planning in this context are analysed. On the one hand, they proceed from general growth rates and production targets of economy and

industry and derive from them partial objectives of industry, industrial branches and industrial products; this is made in the form of gradual disaggregation. On the other, they start by assessing production possibilities during the plan period on the level of industrial enterprises and planned new investment projects; then they aggregate these results on the level of industrial branches and the overall industry, examine their consistency as far as possible and use them as growth rates in the part of the plan that deals with industry. Frequently, these two methods of determining the indicators mentioned above are used together. This is made, for example, in India.

In elaborating the 4th and 5th Five-Year plans of India, plan targets in industry were determined by proceeding from target projects based on the fulfilment in the preceding plan period and additional conditions like a minimum growth rate of the gross domestic product that is necessary in view of employment necessities, limited financing from abroad or the acceleration and expansion of investment activities. At the same time, they discussed about possible plan targets for specific products that have to be taken into account in particular for economic, social or political reasons.

These objectives are based on precise assessments of the relationship between supply (probable domestic output and import) and demand (semi-manufactures and manufactures) with regard to a number of processed products and other commodities. Assessments of possible domestic production, derived from these material balances, were compared to demands resulting from an overall disaggregation of demands as shown by the preliminary projecting of the gross domestic product and its major elements. Differences in relevant estimates were eliminated through a process of successive approximation and thus they achieved a coordination of plan targets on the aggregated, sectoral and product

levels[6].

In Indian planning, partial input-output-tables are used comprehensively for determining and calculating plan targets in industry. As far as methods used for determining these indicators in the plan of industry are concerned, the Indian planning system is a fairly advanced one compared to the great majority of developing countries. The implementation of this country's plans in practice, however, shows frequently that such methods of the quantitative determination and coordination of plan indicators are a necessary but not yet sufficient precondition for their fulfilment in the process of implementing plans.

In most developing countries, input-output-tables or partial input-output-tables could not yet been used for the determination and coordination of the indicators mentioned above due to the insufficient basis of information. They apply the following method frequently: First they elaborate a "balance" between the "total savings" and total investments and between export and import; then they determine aggregate objectives for the growth of the gross domestic product and targets for the manufacturing industry by means of output-coefficients. The growth rate of manufacturing industry is determined in relation to the growth rate of the gross domestic product in the past or a comparable coefficient is taken from empirical studies in other countries with similar industrialization stages[7].

Then these indicators for processing industry are further specified in an iterative process with taking internal and external factors into account. When the growth rate of processing industry is elaborated in this way, its disaggregation to industrial branches is made. For determining growth rates of production finally, statistical data relating to the flexibility of demand for respective products on the domestic market, essential investment projects to be completed in the plan

period etc. are taken into account.

The general statement can be made that in comparison with developing plans of preceding periods, indicators relating to the planned development of production in various industrial branches (annual growth rates, value of production in the basis year and in the last year of the plan period) in the plans of many developing countries for the 1970s are more comprehensive and detailed. This applies, for example, to five Arab countries where the plans contain such indicators for nine industrial branches[8].

Additionally, indicators relating to the planned growth of production of essential industrial products are incluced increasingly. This new trend towards involving and using indicators of industrial production more strongly is especially evident in some socialist-oriented developing countries like, for example, Algeria. This refers to both value indicators and physical indicators[9].

Owing to specific objective and subjective preconditions for determining these indicators and concrete methods applied for their determination, the predictive value of these indicators greatly varies from one country to the other. To a great extent, these are forecasts of the probable or desired development of industrial production and not binding and clearly adressed plan tasks. Nevertheless, one can say that their increased involvement in the industrial plans of a number of developing countries is a first step towards overcoming the already mentioned prevailing fact that production planning more or less was neglected and underestimated so far.

The investment programme is the core and major part of the plan; this applies to development plans of developing countries generally but also to those parts that cover the industry. Despite new trends towards

attaching more importance to production planning, this also applies to present-day medium-term plans of industry in all developing countries. The most important indicators as contained in the investment plans of industry in the majority of developing countries are as follows:

- The total sum of investments in industry within the plan period, divided into years, extractive and processing industries and specific industrial branches, expressed in prices,
- The development of the share of industrial investments in the total amount of investments, divided into extractive and processing industries,
- The shares of state, private and partly "mixed" sectors of industry in the total amount of investments planned to be made in industry,
- The share of planned investments for specific industrial branches in the total investments in industry,
- The most important investment projects of industrial branches,
- The planned ratio between the amount of investments and the production output in industry and industrial branches (investment-output ratio),
- The planned employment effect of investments,
- The share of imports in equipments to be provided with investments,
- The financing of investments in industry from domestic and external sources.

In most of developing countries, the objectives relating to the development of investments in the overall industry and in specific industrial branches are determined in a way that is similar to that applied for indicators of production. In various industrial branches in almost all developing countries, comprehensive capacities existed that were not used; this is a fact that is taken into account in the elaboration of present-day medium-range plans more strongly than in the past. Therefore, the necessity of using existing capacities in a better way is indicated frequently in the plan component "Industry" in develop-

ment plans covering the 1970s. However, concrete plan tasks in the form of indicators are determined only rarely.

In the planning practice of many developing countries as applied to the determination of indicator relating to the distribution of investments to various industrial branches, the "shopping list approach" continues to play an important role. All state bodies make lists of investments, projects and programmes in view of their demands and try to adapt them to existing resources[10]. As to final decisions upon the use of state investment means, the persuasive power of reprensentatives of respective bodies, personal relations or other subjective factors are more important in many cases than taking objective national economic criteria into account. Most of the state bodies that are responsible for specific projects protect their interests with suspicion and neglect the interdependence of different economic sectors[11]. Thus, this determination of indicators in investment plans, still widely used, brings about disproportions and a waste of resources frequently.

Another group of indicators in the analysed development plans refers to the export of industrial products. This applies to the planned growth rate of exports of processing and extractive industries, changes in the share of exported goods of processing industry in total export and the ratio between exported and imported goods in processing industry.
A great number of development plans contain value indicators relating to the planned export of goods produced in extractive and processing industries. Detailed plan targets for groups of goods or products of industry are stipulated frequently. Their determination is made on the basis of assessments and extrapolations of trends in preceding plan periods and by means of forecasting. As far as this concerns planned exports into capitalist industrialized countries (with the exception of oil or other strategically important minerals), such indicators can

only be of a not-binding and orientating character due to the spontaneous development of the capitalist world market. This is especially evident in crises of over-production in developed capitalist industrialized countries.

A characteristic component of many development plans for the 1970s is that the objectives of employment policy as stipulated in the general part are specified by indices relating to the development of employment in extractive and manufacturing industries. Indicators used for this purpose are the growth of the number of employed persons from the basis year to the end of the plan period, the average annual growth rate of the number of employed persons, changes in the share of persons employed in extractive and manufacturing industries as compared with the overall number of employed persons. The determination of these indicators is based on the number of persons employed in the basis year, the planned development of production and labour productivity and the number of investment projects to be initiated within the plan period. Proceeding from such calculations, the number of persons employed in the manufacturing industry is to grow (in 1,000)[12] in

Algeria (1970-73)	from 112.0 to 178.8
PDR Yemen (1971/72-1973/74)	from 3.6 to 6.3
Iraq (1970-1974)	from 148.0 to 233.1
Libya (1972/73- 1974/75)	from 35.4 to 44.9
Syria (1971-1975)	from 226.0 to 368.0

Additionally, a number of developing countries elaborated long-term plans for the development of the number of persons employed in industry. In Algeria, for example, it was planned to increase the number of persons employed in industry from 145,900 to 359,700 from 1969 to 1980. This total number was complemented by concrete data relating to changes in the number of persons employed in eleven industrial branches in

1969, 1973 and 1980.

Tanzania planned an increase in the number of persons employed in industry from 42,000 in 1968 to 63,000 in 1974. Peru planned an increase in the number of persons employed in industry from 191,111 in 1970 to 255,400 in 1976, divided into the production of consumer goods (from 113,700 to 139,000), intermediate products (46,000 to 68,800) and investment goods (30,800 to 47,500)[13].

In view of objective conditions existing in the industries of developing countries mentioned above - the development of the number of persons employed in the private industry cannot be planned in a binding manner, for example - these indicators can be only of a indicative and forecasting character.

With taking the actual predictive power of indicators relating to the growth of the number of persons employed in industry into account, their increased involvement in present-day industrial plans of many developing countries can be considered to be a progress in the planning by these countries.

For evaluating the efficiency of industrial production in the industrial plans of developing countries, they use the development of labour productivity predominantly. With the exception of the "capital output ratio" or the reciprocal expression of this ratio that is used in some development plans as an indicator for the efficiency of investments, other indicators relating to efficiency occur in these plans only rarely.

The development of labour productivity is indicated in these plans as the value of production per person employed and as annual growth rates. In the Algerian plan 1970-1973 for processing industry, for example, it was stipulated to increase labour productivity from 4,611

to 5,351 Dollar (annual growth rate 3.7 per cent) and in extractive industry from 22,496 to 26,074 Dollar (annual growth rate 3.6 per cent). As to the processing industry of Libya, these data were 2,079 to 2,979 Dollar (11.9 per cent) and 118,633 to 120,970 Dollar in extractive industry (0.6 per cent)[14].

The quantitative preciseness of the respective indicators used in the industrial planning of developing countries depend, among other things, on the system and quality of accountancy and book-keeping in industrial enterprises. There still exist a great number of respective problems not yet solved especially in those countries that are at the beginning of their industrialization. This is partly due to the fact that enterprises in the state sector of industry do not yet use a uniform and binding general system of accounts. Book-keeping made in enterprises was influenced by experts from various countries frequently. Thus, specific results of this book-keeping could not be aggregated on branch or national economic levels. The results of this book-keeping were also influenced by the fact that persons employed in enterprise book-keeping were not trained sufficiently in many cases. The effect of incorrect and wrong elaboration and reflection of enterprise data being of importance for planning is even more important on branch or national economic levels. This brings about difficulties in determining plan indicators on branch and national economic levels. On the other hand, these remarks relating to the fact that problems in terms of methods and organisation in connection with industrial planning are not yet solved in some developing countries indicate reserves that can be used in a relatively speedy manner for their further development.

The substantiation of plan indices mentioned above is also affected by the fact that in the majority of developing countries, industrial planning is developed most weakly on the enterprise level. The analysis

of state industrial enterprises in some developing countries, however, shows that many economic data existing there are not used for the determination of plan indices relating to branches and the industry as a whole due to an insufficiently developed central state service of statistics. Such data are already collected in many of those enterprises more or less precisely; this applies to the following ones:

1. Production of main products in physical units,
2. Consumption of raw materials, intermediate products, auxiliary materials, energy etc.,
3. Number of persons employed and their qualification,
4. Use of capacities installed,
5. Total turnover,
6. Production cost per product unit,
7. Wages and salaries,
8. Amortization,
9. Operating profit,
10. Allocations from or to the state budget.

The basis of information necessary for a central state industrial planning in the developing countries concerned could be improved essentially by elaborating uniform and binding state stipulations for the determination of these or similar indicators in state industrial enterprises or their aggregation on branch and national economic levels.

Although developing countries made considerable progress as to the use of indicators in the 1970s, the qualitative improvement of a purposeful system of indicators is and remains a main task in the further development of their industrial planning. Effective activities in this direction would be essential, to increase the possibilities for co-ordinate the different goals, objectives, targets and components of plans of industrial development.

The careful selection, substantiation and application of suitable indicators and their combination to a unified system workable on the different hierarchial levels of state management and planning of industry belongs to the most important tasks in organising industrial planning.

In order to add some more aspects of requirements in this respect as already mentioned above (page 18) one has to stress:

Indicators should be exactly defined, absolute and relative values of the level, structure and development of social phenomena and processes. For the purpose of industrial planning, they are to be determined and used in a uniform manner in the process of management, accountancy and control.

The following demands should be satisfied as to the quality of indicators used in the industrial planning of developing countries:

- Indicators have to correspond to specific national conditions and objectives of industrialization. They are to be derived from respective demands of planning and accountancy and have to reflect those elements of various socio-economic and economic processes that are of vital importance according to the plans in the given period .
- Plan indicators should be comparable over longer periods. Therefore, they have to be related to the same economic phenomena and to be

elaborated according to uniform stipulations.

- The aggregation and disaggregation of plan indicators should be possible. This is a necessary precondition for the coordinated activities of bodies on various managerial levels in industrial planning.
- Plan indicators should be largely identical with those indicators that are determined by offices working in the field of statistics.

These methodological demands show that the determination of appropriate indicators for industrial planning in developing countries has to be a process that is always determined by specific objectives and stages of industrialization and the growth of the planning potential

Instruments and methods mentioned above and applied in the industrial planning of developing countries especially serve the preparation and substantiation of plan decisions on the qualitative and quantitative tasks and objectives of plans. Thus, always a direct relationship exists between the quality and efficiency of these instruments and methods on the one hand and the implementation of plan tasks and objectives formulated by means of these instruments and methods on the other.

Examples for decisions of industrial planning that are necessary for determining plan objectives (aggregated differently on the levels of enterprises, industrial branches and overall industry) and their sufficient co-ordination are:

- Which products or groups of products and which amount of them are to be produced and which is to be the share of the state sector of industry in their production?
- Which is to be the share of the state sector in new capacities?
- Which technologies are to be used for their production?
- Which should be the sources of raw materials, intermediate products,

auxiliary materials, energy etc. that are necessary for ensuring their production? What is to be covered by imports?

- Which capacities are to be used or must be newly established?
- Which amount and which specific items of the planned production are to be exported to which countries?
- When (fixed dates and periods) are the plan tasks to be fulfilled or the plan objectives to be achieved?

The level of industrial planning in a given developing country is shown in how these questions are answered by respective central decisions that occur in plan documents as targets, tasks and objectives.

As already mentioned above a widespread general characteristic of the present-day generation of their plans in industry very often is that central state plan decisions on the scope and structure of investments in the state sector of industry are the most advanced decisions relatively seen. Tasks and objectives elaborated in this field are addressed in an fairly clear manner so that it is possible to recognize the bodies that are responsible for their fulfilment (ministries, other managerial bodies in industry) and to control their implementation in principle.

Compared to this, insufficient central decisions on plan tasks and objectives relating to the development of industrial production and its various aspects still bring about serious problems for this planning despite the progress achieved. Attempts are made to elaborate production planning on a central level but the determined global tasks and objectives are not yet addressed to production units in a sufficiently precise manner frequently. This hampers the control of their implementation or makes it even impossible. Owing to the central role and position of production planning in the overall system of industrial planning, this fact mentioned above has negative effects on all the other partial

plans in industry. This is one reason why the objective prerequisites for planning reproduction processes as already existing in the state sector of industry in many developing countries have not yet been used fully so far. Here we see real possibilities for essential improvements of the effectiveness in this special field of state planning in the countries.

The coordination of parts (target consistenty) of plans relating to industry among themselves and their coordination with the other objectives in development plans of many of these countries have not yet been achieved sufficiently. This must bring about difficulties as to their implementation. The objective and subjective reasons for these problems that occur in developing countries generally are varied and their aspects differ from one country to the other. It will take a more or less long period of time for solving these problems, especially in LDCs, still in the first stage of industrialization.

3. Balances in industrial planning - the most important instrument for target setting and plan coordination

The process of industrial planning is the unity of preparing, making as well as implementing and controlling decisions. To be effective, this process requires suitable methods and instruments, adequate to the specific objective and subjective conditions prevailing in the respective countries.

A planned development of the national econory in general and of national industry in particular asks for the elaborating and keeping different proportions in a sustained way. As longlasting experience has shown, balances are instruments for ascertaining and controlling necessary material and financial proportions of the plans of industry. They are required in planning the industrial development for instance to:

- formulate plan targets sufficiently concrete, detailed and clear,
- make these targets addressable, i. e. assigned to management units on different levels in the hierarchy of central management of industry,
- take into consideration all goals set in the national economic plan in order to co-ordinate (or sub-ordinate) the plan targets of industry with those of (under those) the national plan,
- estimate the national economic effectiveness of the planned development of industry as exactly as possible,
- bring in harmony the available natural, human, material and financial resources and their development during the planperiod with the objectives and targets of the plan.

Since the Soviet Union used the GOELRO-plan for elaborating the theoretical and practical basis of socialist national economic planning, the development and application of balances has played an essential role. These balances have proved to be the "skeleton" of effective central state planning and the plan itself. That holds especially true for industrial planning. We hold that industrial planning in developing countries should further develop, in accordance with the respective conditions and the general status of planning, and based on a system of balances that covers the most important interlockings in industry gradually and that could have the following structure of balances:

1. Specific balances of essential productions and their elements; examples are balances relating to natural resources, capacities, import and export;
2. Balances relating to the population and labour;
3. Production input-output tables for essential productions that are linked technologically.

What matters is not to achieve completeness from the very beginning but to begin to attach the appropriate importance to balancing in

industrial planning and, above all, to gain experience. This applies in our view in particular to LDCs still in the first stage of planning.

The development of balancing in connection with the planning of industry in developing countries is a central task relating to an increased efficiency of this planning because balancing is also the major tool for ensuring the complexity of planning and for achieving the overal goals and targets of industrial planning.

The use of balance-sheets in industrial planning allows to compare target estimates and the possibilities of meeting them. By balancing available resources for development of industry on the one hand and of objectives on the other real and co-ordinated targets for production and development of resources during the plan period can be elaborated. This mainly has to be done in iterative processes.

Only in this way the necessary information for well founded final decisions about the targets and the tasks of the national industrial plan can be provided.

In accordance with longlasting experience in socialist as well as in many developing countries we hold the view, that the elaboration of balances on the different levels of state management of national industry also in developing countries is the major method of industrial planning.

Therefore, observing the real state of affairs in the field of industrial planning in developing countries, we are convinced about the necessity of using and improving an appropriate system of balances of different types is one of the most urgent task for increasing the efficacy of industrial planning in particular in LDC's. The introduction and spread of the balancing method in this particular field of economie management by the state can and will contribute a great deal to strengthen the impact of industrial planning in the respective countries.

Thus, e. g., the above mentioned problem of improved co-ordination of the partial plans of production and of investments can be solved only by the use of balances.

It not seldom happens that ambitious mathematical models and procedure: - linked with the import of expensive technical equipment to a large extent - are applied but a relatively "simple" method, namely balancing, is neglected. Leading officials and theoreticians in the field of economy sometimes even show an object behaviour against it. This problem, however is not only a subjective but also an objective one. In an exaggerated way, one could say that the scope and intensity of the use of the method of balancing and the development of a balancing system show how realistic industrial plans are and how efficient the central management of industry could be. Balancing requires pedantic preciseness, reveals material and financial disproportions and thus promotes a concrete and pragmatic management. At the same time, its gradual introduction shows to which extent industry develops on the basis of central decisions or is being influenced spontaneously. Its objective basis is the actual central state power over resources and capacities and their proportioning through state planning. Thus, it is a decisive instrument for limiting and eliminating such disturbance factors like spontaneous market mechanisms. This also requires, however, that the state sector of industry does not develop more or less autonomously but is under the real control by the state. This shows that social preconditions are also given in this context.

Especially during the seventies, the use of balances in industrial planning became familiar in a growing number of developing countries. After India has been the "pionier" in this respect such countries like Egypt, Syria, Algeria, Congo, Mali followed. But in general, there are still a lot of hither to unused possibilities to apply the balance-method in industrial planning in the majority of developing countries.

Their objective conditions (existence of state sector in industry e. g.) provide the real possibily to base industrial planning to a growing extent on the application of balances. It is possible to apply balances and the balance-methode in a different way. They can be adapted to particular conditions. The appropriate and suitable systems of balancing and the number and content of their respective balances can and will differ from country to country.

But nevertheless the introduction and improvement of the balance method into the practice of industrial planning in close connection with an increase of quality of the applied system of plan indicators should be a main line of further strengthening the impact of state planning of industry in developing countries in the coming years.

Notes:

1 This paper partly is based on M. Breetzmann, H. Faulwetter, J. Garscha, P. Stier "Industrie und Industrieplanung in Entwicklungsländern", Berlin 1981, the terms "manufacturing industry" and "processing industries" and "indicator and indice" are used in this paper as identical ones.

2 Republic of Iraq, Planning Board and Ministry of Planning; The National Development Plan 1970 - 1974, p. 115.

3 Central Planning Office, Ministry of Finance, Fiji's Sixth Development Plan 1971 - 1975, Suva 1970, p. 15.

4 United Republic of Tanzania, The Annual Plan for 1972/1973, Dar es Salaam 1972, p. 32.

5 Centre for Development Planning, Projections and Policies of the Department of Economic and Social Affairs of the United Nations Secretariat, Industrialization and Development: Progress and Problems in Developing Countries, in: Journal of Development Planning Nr. 8, United Nations, New York 1975, p. 70.

6 See ibid., p. 76 f.

7 Ibid., p. 77.

8 UNIDO, Comparative Study of Development Plans of Arab States, United Nations, New York 1976, p. 44.

9 See Comparative Analysis of the Industrial Development Plans of Six Countries, in: Industrialization and Productivity, Bulletin Nr. 22, New York 1975, S. 30 ff.

10 See Onyenanu, N., Nigerias Experience in Industrial Planning at Different Levels, paper INTERREGIONAL TRAINING COURSE ON INDUSTRIAL PLANNING by the University of Economic Science "Bruno Leuschner" - Berlin, GDR.

11 Ibid., p. 12.

12 UNIDO, Comparative Study of Development Plans of Arab States, United Nations, ibid., p. 57.

13 Comparative Analysis of the Industrial Development Plans of Six Countries, in: Industrialization and Productivity, Bulletin Nr. 22, ibid., p. 39/40.

14 UNIDO, Comparative Study of Development Plans of Arab States, United Nations, ibid., p. 62.