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USSR ACADEMY OF SCIENCES

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THE POSSIBILITIES OF USING SMALL-SCALE INDUSTRY IN THE PROCESS OF ECONOMIC DEVELOPMENT

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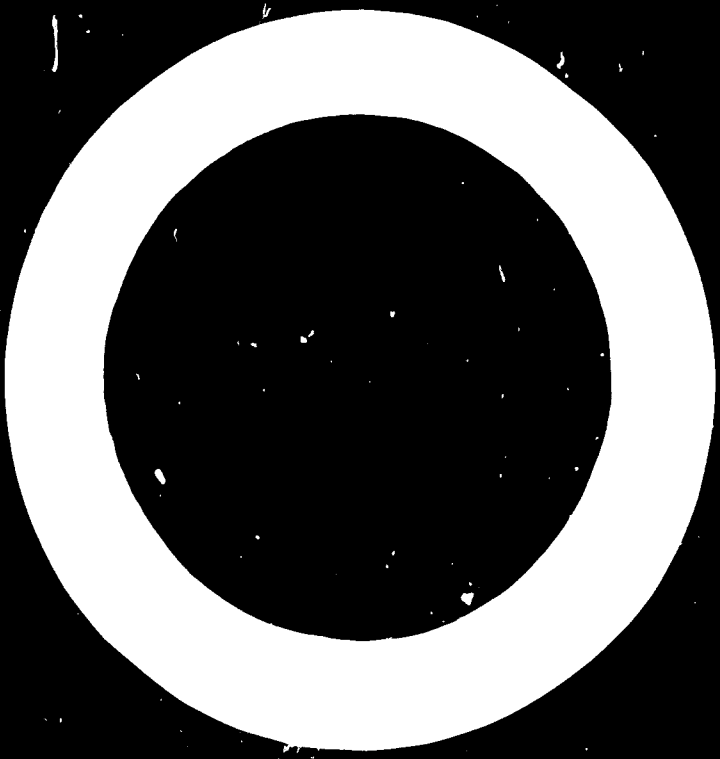

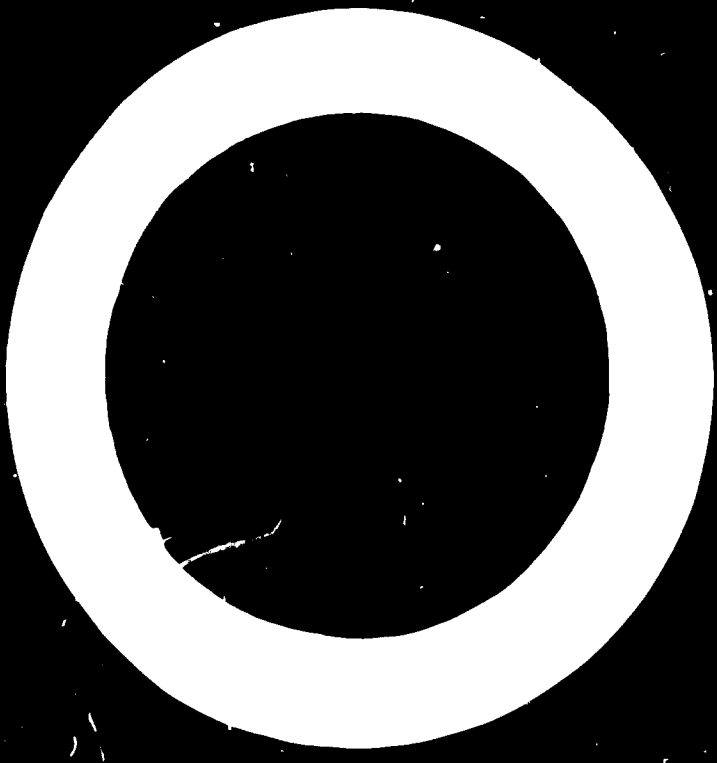

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Moscow 1967

1. Although big modern factories play the decisive role in promoting industrialisation, the problem of employing labour-consuming production methods in transitional economies has not lost its significance today. It is particularly pressing for countries with very limited resources for capital investments and with excess labour force, primarily for Asian and some African countries. But not only excess labour force makes it imperative to use production methods envisaging greater employment per unit of capital; there are also other factors such as lack of adequate resources for large-scale production, lack of necessary personnel for modern enterprises and the generally low level of technical knowledge.

The Role of Small-Scale Production in the Economies of Developing Countries

2. Definition of small-scale industry. Most of the existing definitions of small-scale industry are based on one or two indices—the number of people employed and the size of capital (sometimes on both). Evidently, in practice this is the easiest way for collecting statistical information, although in this respect there is one requirement which is very urgent: unification of the given definition for all countries, thus making it possible to compare the economic characteristics of small-scale production on an international scale and to draw up recommendations to raise its efficiency.

3. In effect, however, both indices do not mirror the real differences between small-scale production and

highly mechanised industry, as unlike types of industrial production. According to current definitions, modern, highly mechanised enterprises with a relatively small scale of production are sometimes included in the category of small enterprises, and contrarywise. This causes great confusion when it comes to characterising small-scale production.

4. Today, small-scale industry is regarded as labour-intensive production as a rule. In contrast to it, large-scale production is capital-intensive. In our opinion it is this that forms the basic difference between these types of production.

5. Proceeding from this basic difference it may be suggested that the definition of small-scale and factory and works production should rest on the amount of capital at their disposal or the size of the fixed capital per productive worker. Considering that statisticians might encounter difficulties in determining the boundary between one or another type of production, the following supplementary indicators might be of use:

a. Employment of mechanical forms of energy.

b. Degree of employment: in conformity with the recommendations of the United Nations Economic Committee for Africa /1/ it is more expedient to consider 100 workers as the upper limit of employment in small enterprises (in developing countries).

6. The principal indicator of the size of the fixed capital per worker must be calculated differentially for every branch.

And, on the contrary, for each branch it has to be standard on the world production scale, or if more convenient, on a regional scale, or on the scale of several regions or a large group of countries.

7. An essential difficulty arising in this connection is that of estimating the capital of an enterprise. There are at least three methods of doing so: (a) on the basis of the initial cost of fixed assets; (b) on the basis of the cost of fixed assets with an eye to their re-appraisal; (c) on the basis of the cost of replacement. Whatever the method, it is obvious that it has to be the only one for all enterprises, all branches and for all, or at least, for a large group of countries. In our opinion the most convenient is the third method which creates opportunities for comparing the market value of the assets which, in this case, will give a clear picture of the condition of the assets--their actual wear and obsolescence and their operational condition, i.e., everything that in the final count makes it possible to link up the value of capital per worker and compare it with the labour productivity of this worker.

8. The role of the small-scale industry in the economies of the developing countries. In many of them it accounts for 25 to 50 per cent of the gross and net product of the manufacturing industry and also for a large part of the people employed in it.

It will not be an exaggeration to say that the small--scale and domestic industries in the developing countries are still a principal source of manufactured consumer goods. With each passing year a part of the small

enterprises disappears under the onslaught of large-scale production and their owners become either wage workers or paupers. At the same time many new small or even tiny enterprises appear and consequently the general process of curtailment of small-scale production assumes an extremely slow and protracted nature.

9. Some organisational questions. For planning purposes the following classification of the principal types of small-scale production may be suggested:

a. "Traditional crafts". This includes, both the production of original hand-made articles, and the production of commodities which can also be manufactured by large-scale industries but are valued higher when made by hand.

b. Production of hand-made consumer goods. It embraces enterprises based primarily on the employment of hand labour and manufacturing consumer goods (fabrics, foodstuffs, shoes, clothes) which are also produced by factories.

c. Modern small enterprises to one degree or another using new, although not the latest, machinery in the production of both up-to-date consumer articles and goods for production purposes. In contrast to group "b" enterprises employing basically manual labour and producing consumer goods which, however, differ from those made at factories; the enterprises of the given group have a higher level of mechanisation, sometimes use a motor

and manufacture articles which correspond, or at least, have to correspond to factory standards. At the same time, if compared with qualified factories*, these enterprises are poorly mechanised and widely employ manual labour, and their equipment is usually outdated.

10. Group "a" enterprises—"traditional crafts"—have a twofold connection with the general industrial complex of these countries. First, they use a part of factory-made semi-finished articles (small pieces of rolled non-ferrous metal, metal thread, casts and woolen and cotton yarn). Second, their products are sold on foreign markets for currency which can be used to purchase plant and industrial materials. Moreover, today not only individual craftsmen turn out original handicrafts, this is also done by enterprises employing wage labour. The domestic demand for such wares is considerably undermined by the competition with cheaper factory-made as well as imported goods, but there is an upward trend in the demand for these wares abroad which is conducive not only to the preservation but also to the expansion of this type of production.

11. Group "b" enterprises—domestic industry producing primarily hand-made consumer goods—are widespread both in towns and in the villages of the majority of the developing countries. The bulk of their output is designed to meet the demands of the local market, and in an overwhelming majority of cases is produced at home by members of the family.

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* Enterprises included into the censuses of large-scale manufacturing industries.

12. Although less widespread than the above enterprises, group "c" enterprises have been rapidly acquiring great significance in recent years.

Small factories are rising alongside modern large-scale industry and to a certain extent are following its footsteps. Their rapid growth in the pre-war and post-war years in the countries under review was due to the shortage of large capital, on the one hand, and to the mounting demand of the home market both for consumer goods and other items which the large-scale industry could not satisfy. Small factories are set up more often than not on the basis of worn out and outdated equipment which had served its term of exploitation at qualified enterprises, and extensively employ manual labour. The most important sphere of activity of these enterprises in India is the production of soft drinks, jute wares, chemicals and perfumes, small mechanisms, electrical equipment and all sorts of spare parts. The most widespread small factories in Pakistan are those turning out farm implements, hardware, spare parts for industrial equipment, chemical goods, and so forth. Most of them are sited in towns so as to be closer to large-scale industry.

13. A very important feature of small-scale industry is the existence of a ramified system of intermediaries. Small commodity producers are greatly dependent on commercial and usurious capital in purchasing implements of labour, obtaining the means for existence, raw materials and in the matter of selling their produce. The numerous strata of intermediaries between the small commodity

producers and the market sucks the blood out of small-scale production, keeps it at a low material and technical level. At the same time, however, it preserves this type of production and helps it to survive.

14. Alongside the sharp competition between small--scale production and large-scale machine industry there is a clearly defined tendency towards a symbiosis. First, it is expressed in that the handicraftsmen are beginning to use semi-finished goods manufactured by large-scale industry. This is particularly manifest in the production of hand-woven goods out of factory-made yarn. Second, in that the small enterprises manufacture various kinds of semi-finished goods and individual parts for articles turned out by the large-scale industry. It cannot be claimed that this integration bears a fully organised or mass character; nevertheless, it does have definite economic significance. It has to be noted that certain opposing factors are retarding the co-operation of the small-scale with large-scale production. These factors include the scattered state of small-scale production making factory control over them little effective; its dependence on usurious capital and brokers; and finally, the energetic resistance of the handicraftsmen themselves against being swallowed up by the factories.

The Principal Features of Small-Scale and Handicrafts Production in Comparison with Large-Scale Industry

15. A study of the structure of the capital of small handicrafts enterprises shows that they expend the

greater part of their fixed capital to purchase land, or to buy or lease premises. These outlays, which lower the economic efficiency of a given trade or manufactory, are quite natural for all scattered tiny enterprises. The structure and the size of the working capital are, on the whole, likewise unfavourable for the small handicrafts industry. But objectively the latter can economise on the working capital inasmuch as it produces output in small batches, fulfils orders using the materials of the customer, and so forth.

16. On the basis of figures for India, Burma and Pakistan, a comparison can be made of the basic economic indices of small-scale and handicrafts production and large-scale industry. These figures show that in most branches the small-scale domestic industry has higher indices of output of gross and net product and lower indices of the output of surplus product per unit of the capital invested. This means that for a period of several years the initial capital invested in the small-scale domestic industry can yield greater gross and net product than the initial capital invested in large-scale industry. If, on the other hand, a lengthier period is considered, then the advantage in this respect will gradually pass over to the large-scale industry which yields greater surplus value and can accumulate and increase production capital at a quicker rate.

17. The correlation gross product--capital is one of the most important for comparing the efficiency of the small-scale with that of the large-scale industry.

In determining the efficiency of capital investments, an individual entrepreneur is primarily concerned with the profit they yield, whereas from the point of view of social reproduction it is sometimes most important to manufacture the given product in the amount designated. Such an approach is particularly expedient when it is a matter of producing a commodity which a country will otherwise have to import.

18. It should be taken into account that the coefficient output-capital just as other coefficients, is different in the initial years when capital is being gestated and in the subsequent years when the capital is wholly invested and partially depreciated. When assessing the capital intensity of one or another technological method, it is essential to single out the capital intensity of the initial period of production and the capital intensity when production is wholly organised and capital investments have been made operative (or the incremental operational effects of capital investments).

19. What role will this difference play in determining the efficiency of capital investments? When the invested capital has to be recouped within a short span of time, the first thing that has to be taken into account is the index of the capital intensity in the initial period of its recoupment. The longer the term of recoupment, the more significant becomes the index of

the capital intensity for the subsequent period. In the opinion of the Indian economist Bhatt, when an investment has to be recouped within 15 years or more, the incremental effect may be disregarded or, in the extreme case, minor corrections will have to be introduced into the corresponding operational index. If short-term investments are made (say for a period of 5-10 years), they are, as a rule, more advantageous to projects requiring less capital and where the differences between the incremental and the operational effects are less prominent. In planning short-term investments, this is yet another factor in favour of the small-scale industry with a low level of mechanisation.

20. The advantage of small-scale industry in the output of the gross and net product per unit of the invested capital (in those cases where it does have this advantage) and the resulting relative efficiency of the replacement of capital by labour have their limits. The replacement of capital-intensive by labour-intensive processes can reach a certain crucial point below which not only the registered advantage disappears but labour itself becomes absolutely inexpedient.

21. In most cases the rate of profit is usually higher in the large-scale industry. Yet, the employment of the most modern machines in conditions of the developing countries will not always yield the highest rate of profit. Facts and figures about the Indian textile industry show that there is wide scope for choosing a more efficient technological method, which among others

can be selected in accordance with such an indicator as the rate of profit. These data reveal that the highest rate of profit is obtained not in production requiring the highest investments (automatic lathes) but in production which needs less capital (non-automatic mechanical lathes). Finally, slightly improved hand-operated equipment--semi-automatic lathes--shows a profit slightly lower than that yielded by mechanical equipment requiring incomparably greater capital investments.

The Problem of Efficiency and the Planning of Capital Investments in Diverse Technological Methods of Production

22. It also has to be underlined that in small-scale industry there is a great variety of the basic indices of production activity. What we have pointed out as the basic characteristics of small-scale industry are not inherent in all small enterprises without exception. On the contrary, there may be exceptions in many cases. But what is important is the fact that according to statistics a group of enterprises with the above-mentioned characteristics does exist and is large enough to be taken into account when planning inter-branch capital investments.

23. From the point of view of the indices of the size of the gross product, value added, and the size of the surplus product per unit of invested capital, the principal branches of industry of the developing countries may be divided into three groups: a.) branches in which

small-scale production has higher indices of gross output and of value added per unit of capital but a lower rate of profit than large-scale production; b.) branches in which small-scale industry has higher indices of both gross product and the newly-created value and also rates of profit; c.) branches where, on the contrary, these indices are higher in the large-scale industry. All our recommendations concern the first group since the situation in the other two groups is absolutely clear.

24. In view of the fact that labour productivity is, as a rule, lower in small-scale industry, it is clear that it is of little interest to the planning agencies. The utilisation of labour-intensive processes with a low level of mechanisation or the replacement of capital by labour is expedient only in those cases when it is necessary to obtain the maximum gross product, or value added, or surplus product in the condition of sharply limited capital investments and relatively unlimited labour resources, especially low-paid unskilled or low skilled labour.

25. In this case estimates and the comparison between small-scale and large-scale industry are made on the basis of calculating the index of gross product and other indices for a period of several years during which the self-growth of the initially invested capital will be taken into account. If these indices over the planned period will be higher for the small-scale industry, it is consequently included in the planned estimates. In the opposite case only investments into the large-scale industry are considered. In this connection it has to be borne in mind that small-scale industry yields the maximum product only if a limited period

of time is designated. Beyond this time limit, due to faster rates of accumulation, the product is maximised already in large-scale industry, while small-scale production begins to lag more and more.

26. When using constant technological coefficients (output-capital, rates of profit, etc.) the changes in the indices of the gross output, profits, and so forth, take place in time and are connected only with a change in capital. Taking into account temporal lags in the recouping of capital investments, the formula of the growth of capital would resemble a recurrent ratio*

$$K_t = K_{t-1} + p \cdot K_{t-1-l}$$

where:

p is the rate of profit

l is the gestation lag of capital investments.

27. The introduction of gestation lags of capital investments into calculations considerably changes the picture, in this case in favour of small-scale industry. In case of a lag, the effect from investments is naturally obtained over a longer period and the critical points at which the differences between technological methods are levelled out are delayed for a few years.

28. In determining the effectivity of capital investments in one or another technological methods of production it is very important to estimate expenses and the foreign currency receipts coming from investments. In this case, if

* For simplicity's sake we take that (1) the whole sum of the surplus product is accumulated, (2) lags have equal intervals and are the same for all parts of the invested capital.

we use the known formula for finding the "combined effect of capital investments on the payments balance" /2/ the formula for gross product at the moment t will be:

$$P_t = a \cdot K_t + r \cdot B,$$

where B is the combined effect of capital investments on the payments balance, and

r is the coefficient which takes into account the difference in the purchasing power of currencies.

29. The comparatively few advantages which small-scale industry has over large-scale production are, naturally, of a temporary and very relative character. Yet, we believe that these advantages, too, can be employed successfully to promote economic development. In this connection it is most important to take into account the entire complex of economic, and, sometimes, of social conditions under which a decision has to be taken. Below we shall discuss a situation which is most typical for the developing countries. It is worth while to dwell on it in somewhat greater detail, for the conclusions which its analysis permits us to draw are subsequently used in formulating constructive suggestions.

30. Let us presume that the principal goal of the economic policy of a developing country is to ensure a balanced growth of its economy. Consequently, it has to create branches and industries whose output will replace imported commodities and guarantee the functioning of the principal industrial complexes. In this case the chief task is to see to it that the gross product reaches a level high enough to satisfy the requirements of internal production or mass consumption. Let us further presume that

a plan for investing capital into the main economic branches has already been worked out. In this case it may happen that the capital allocated under the plan for investment in a given branch is large enough to produce the required amount of output. Then large factories will be given the priority because they yield the greater share of the surplus product. But it is also possible that modern factories cannot ensure the necessary output level on the basis of a given amount of capital investments. Thereupon a combination of various technological methods can be used in such a way as to achieve the planned level of gross output and to maximise the surplus product. Alongside solving the principal task (bringing the growth rates to the maximum and ensuring the output of the planned volume of production), the combination of various technological methods, including those requiring the most intensive labour outlays, offers the possibility considerably to raise employment in comparison with its level when only modern capital-intensive types of production are used. Considering that the matter in question concerns production of critical commodities, it is necessary to compare the effect of capital investments on the output of these commodities with the cost of their import (taking into account the shortage of foreign currency and the necessary increase in its cost in these conditions) throughout the planned period.

31. During the solution of the given problem, it is possible to tie up one or another stage in the production process with a concrete technological method. This offers ample opportunities for promoting co-operation between a large factory and small handicrafts enterprises under

which small-scale production will supplement the factory and not compete with it. Then the need to ensure a balanced production will harmoniously merge with the interests of attaining rapid and stable rates of growth of the accumulation fund.

Combined Industrial Estates

32. Consequently the organic co-operation of small-scale and handicrafts production with the factory is the most promising form of its further development. It is possible to envisage the growth of one or another form of production precisely along the lines of a horizontal complex in which the leading role will be played by modern industries while the poorly mechanised forms of manufacture will guarantee the functioning of the separate links of the production process--manufacture of parts, conditioning of raw materials and putting the finishing touches to the manufactured goods. This form of co-operation between highly mechanised forms of production and poorly mechanised manufacture makes it possible to combine the interests and requirements of social reproduction at a specified moment with the need to maximise (in given conditions and under specific limitations on capital and other resources) the output of the surplus product, thus ensuring accelerated growth rates of a given branch in the future.

33. Today small-scale production in the developing countries has to be thoroughly reorganised. Its scattered character, poor organisation of sales, inadequate supply with raw materials and the dependence of the handicrafts and manufactory on numerous brokers sharply decreases its

economic efficiency. It is also essential to take into account the rising demands to improve the socio-economic conditions of the small-scale commodity producers and to emancipate them from the onerous commercial usurious dependence. Although in present-day conditions a handicraftsman is not always guaranteed the same level of consumption as a factory worker, the elimination of debts to usurers and the big losses incurred as a result of the commercial "operations" of the brokers can considerably improve a handicraftsman's position.

34. Today private industrial capital in these countries is trying to put poorly mechanised manufacture at its service. But this, often enforced, symbiosis of the factory with small-scale and domestic production may prove to be ineffective for the national economy as a whole if it is farmed out to private capital. The capitalist entrepreneur cares little for the needs of the whole branch, for the requirements of the economy in one or another commodity, for ensuring stable inter-branch links which would bring the greatest benefit to the entire economy. Consequently, only the state can radically reorganise small-scale handicrafts production and guide its further development in accordance with the interests of both the society as a whole and the small-scale producers themselves.

35. One of the most effective forms of state support for small-scale and handicrafts production in our opinion is the establishment of industrial estates which have already become widespread in some countries, in India, for example.

36. The industrial estates in the developing countries are to achieve the following principal goals:

1/ accelerate the development of small-scale production,
2/ ensure favourable conditions for maintaining the productivity of enterprises within the estate at a high level,
3/ help set up a system of inter-branch ties and to make different branches of industry mutually supplementary /3/.

37. Still, as may be judged from the already existing estates, many of them cannot achieve even a single one of the above tasks and are less profitable than even the scattered small-scale production. Thus, figures characterising some industrial estates in India disclose that the size of their fixed capital per worker is much greater than in the scattered small-scale industry and only slightly lower than in the large-scale industry. At the same time, the basic indices of the work of the enterprises in an estate, particularly its gross and net product per unit of capital invested in them, are lower than the corresponding indices for the scattered small-scale production and for large-scale industry /4/.

38. Some investigators attribute the low economic efficiency of the industrial estates to the following causes:

a. extremely high cost of construction of industrial estates, the big share of the cost of land, production premises and other long-term overhead expenses in the value of the fixed capital; b. shortage of technical personnel resulting in considerable under-capacity production; c. shortage of raw materials, absence of adequate opportunities for technical consultations and training facilities for the personnel, high rent, etc.

39. But what is most important, however, is probably the fact that industrial estates have either inadequate connections or none at all with the production complexes of

a given region, and do not have before them a clearly defined production task. In such cases the estates are primarily concerned with increasing employment and not with achieving the maximum utilisation of the actual production advantages of small-scale industry, or bringing down to the minimum whatever shortcomings it may have. But if they do set themselves a clearly defined production goal they will be able to make use of the additional advantages stemming from the very association of small enterprises:

improvement and cutting the costs of supply and sales;

relative decrease in some capital expenditures and improvement of the composition of capital on a functional basis (decreasing the share of land and premises in the general capital expenses);

improvement in the training of personnel; greater opportunities for raising the professional skill of the workers;

opportunities for raising the efficiency of small-scale production;

standardisation of production, improvement of its quality and the manufacture of commodities according to standards;

more efficient state crediting of small-scale industry.

40. Two basic types of industrial estates are known. The first is simple co-operation of small enterprises (homogeneous associations). The greatest economy and the improvement of production conditions are achieved by paring down general expenses—auxiliary services, organisation of supply and sales, and so forth. The second type is the association of small enterprises closely co-operating with

one or several large factories (combined estates). In addition to possessing production ties between small and large-scale enterprises they are also linked territorially.

41. In specific conditions it is precisely homogeneous industrial estates that may be successfully used. Those conditions include the following:

when the local market is too small for large-scale production of certain consumer goods, let alone for setting up a big combined industrial estate,

when the local resources are inadequate for a combined industrial estate; at the same time it is clear that it is more expedient to manufacture a given assortment of commodities locally than to bring them in from other places,

when the production of some commodities, particularly traditional or original articles, requires hand labour and does not need a very high increase in capital-to-man ratio.

In these conditions even a simple merging of small-scale producers on the basis of the existing equipment may be economically expedient. It can be concluded that remote, backward and chiefly agricultural regions offer the most favourable conditions for the establishment of homogeneous industrial estates. One way of paring down the construction costs of these estates is to use cheap local building materials and cheaper equipment. Consequently the infrastructure of these estates, whose output is designed primarily for local consumption, will also require smaller outlays. The demands on the quality of their output are less strict or rigid.

42. From the point of view of industrialization of the developing countries the combined industrial estates unquestionably have the best perspectives. Some of the

advantages of the big industrial estates are described in a UNO publication /5/ and we shall not dwell on them in detail.

43. The combined estates can be operated in particular in the specific conditions described above. The principle purpose of combining any large factory or several factories with many small poorly mechanised enterprises in this case will be that of bringing to the maximum the total profit (which in the main will be ensured by the large factory) conditional on the production of the required gross output by the given estate. Small enterprises yielding high gross product per unit of productive capital would in this case account for the necessary components of a given industrial complex. In this way they will take part in the manufacture of both the intermediate and the final product. This means that heterogeneous small enterprises of varying sizes united by a common production goal can co-operate in a combined industrial estate.

44. <u>The problem of sales and supply</u>. It is easy to see that one of the advantages of such co-operation between large factories and small enterprises is that it substantially facilitates the organisation of supply and sales. A considerable part of the demand and supply will be satisfied within the estate itself. In this way the problem of markets completely ceases to exist for some of the commodities manufactured by the small-scale industry as well as for part of the output of the large enterprise because these items will have a stable, guaranteed demand within the estate. Furthermore, the combined demand and supply of the estate itself with regard to the outer world will be more concentrated and less varied, thus largely

facilitating and reducing the cost of the organisation of supply and sales. Undoubtedly this will be conducive to raising the profitability of an estate's small enterprises as compared with scattered production.

45. No small economy in this case might be also obtained by socialising certain types of equipment on the basis of joint utilisation of some general types of equipment and appliances by both small and large enterprises.

46. The problem of standardisation. This is problem No. 1 for the majority of small enterprises. To establish standards and manufacture products conforming to standards it is necessary to set up fairly involved and expensive services and also to have a guaranteed supply of conditioned raw materials and measuring instruments. It is easier to organise such services in a large estate which includes a large modern enterprise. UN experts and organs studying the problem of standardisation of industrial production, particularly in the developing countries, could have also investigated the problem of ensuring standardisation of the products manufactured by these industrial estates.

47. The problem of training personnel. In our opinion, the establishment of combined industrial estates will help solve one of the most urgent problems confronting the developing countries, namely, the training of professional workers and medium-level technical personnel. In this connection it may be useful to draw on the experience of the Soviet Union. One of the most widespread methods of training personnel in the USSR, as a result of which a large number of skilled workers were prepared in a relatively short time, was that of training them in the process of production. Now, if we consider the combined estates, it will be safe to say

that it is precisely in these types of industrial associations where the most favourable conditions will be created for training personnel in the process of production. On the basis of the experience of the Soviet Union, where the problem of training qualified workers was in many respects similar to the one now facing the developing countries, we could recommend the establishment of vocational schools or courses in the estates where the students would get a knowledge of the labour process alongside being trained directly in the course of production (for a set period as apprentices). The estates under review with their diversity of production processes and equipment and the qualified technical personnel they employ will be in a position to launch the training of qualified workers for a given branch of production on a fairly extensive scale.

48. Some of these problems also stand before the homogeneous estates and the scattered small enterprises. But we believe that the combined estates will be able to solve them more constructively and at a lower cost.

49. The creation of the essential infrastructure is a most urgent problem facing the industrial estates and one that directly bears on their construction cost and consequently on their profitability. With regard to industrial estates the concept of infrastructure acquires very broad meaning. In other words it consists of two groups of facilities (a) facilities directly designed to service production (transport, electricity, gas, water, storage premises, sewerage, settling tanks, and so forth) and (b) facilities for the workers of the estate (housing, public utilities, medical stations, shops, and the like).

50. Usually a considerable part of the outlays for the

construction of a modern enterprise is used to cover the cost of the infrastructure. A combination of a large factory with scores of small ones allows the latter to use this infrastructure, too. This is one of the most important features of the combined industrial estates.

51. The construction of a large industrial estate of the type under review makes it possible to co-ordinate municipal expenses for the organisation of public services and facilities and the industrial outlays for building up the infrastructure. This can also considerably reduce the cost of establishing an industrial estate. In this case the industrial estate is not viewed as a separate autonomous unit, but as an integral part of an inhabited locality.

52. It is in the interests of the industrial estate to be closely bound up with an inhabited locality also because this gives it a more guaranteed source of labour, a better satisfaction of everyday needs of its workers, and so forth.

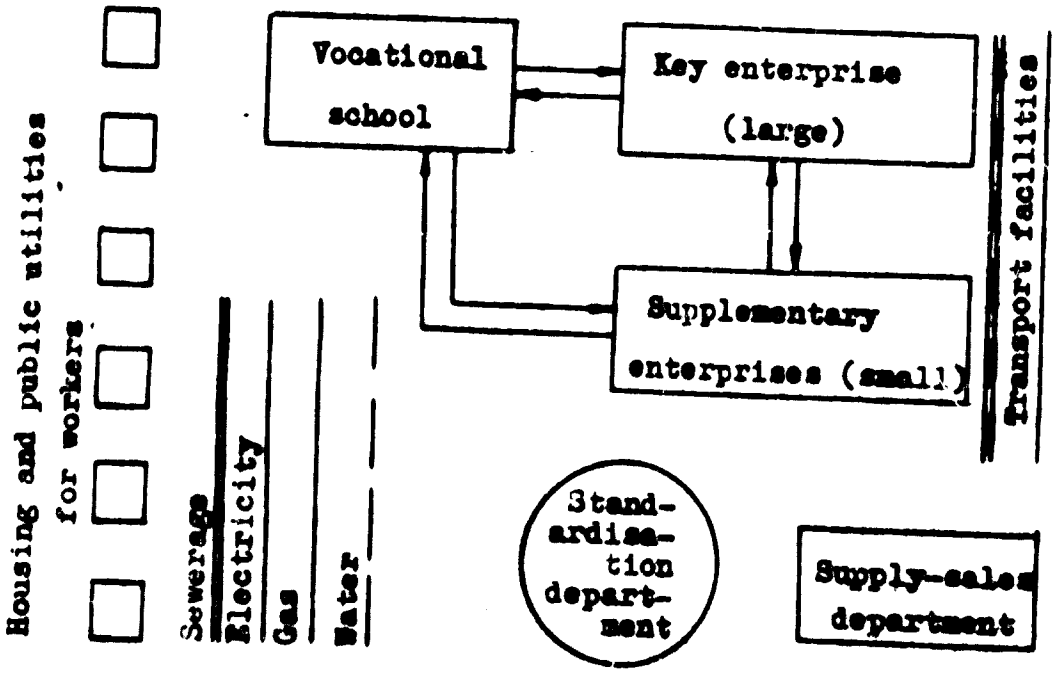
53. The establishment of a large-scale combined production particularly in the backward regions of a country will, undoubtedly, produce a multiple effect. The construction of any industrial project is usually accompanied by the appearance of many diverse joint enterprises, auxiliary services of trading and catering establishments, etc. In the given case the diversity and the scale of production in an industrial estate afford broad opportunities for the local capital, whatever its size, degree of organisation or technical level, to take part in industrial construction. In other words, the estate gives additional stimulus for the development of other branches and trades in a given region through extensive utilisation

of the local resources and may result in the region developing into an industrial zone.

54. Once again it is appropriate to recall the experience of other countries, particularly of the Soviet Union. The development of industrial regions of the USSR, including its formerly backward borderlands, was described in UNO publications /5/ and we shall not dwell on it in detail. True, in view of specific historical conditions, enterprises of the industrial estate type were not set up in the USSR. Nevertheless, the basic idea behind the establishment of industrial regions can be successfully translated into life in the developing countries too. It boils down to a complex, diversified development of the future industrial region in which different enterprises of country-wide, republican or local significance are created jointly with the infrastructure complex, with the construction of modern inhabited localities and in accordance with a joint plan of utilising local natural resources, and particularly power resources. Experience shows that such planned establishment of industrial centres is an effective means of industrialising the country.

55. Summing up all that we have said about the combined industrial estates we can visualise its basic structure /see diagram/. The diagram shows the chief enterprises and institutions making up the estate and the links between them.

Basic Structure of the Combined Industrial Estate



56. Before commencing the construction of a combined industrial estate it is important:

a. to determine the type and volume of production and the type of enterprises for a given estate;

b. to compare the expected results of the estate's activity with alternative production methods (say with capital investments only into modern large enterprises manufacturing analogous commodities).

57. In order to accomplish this the entire complex of enterprises of the planned estate have to be divided into three groups:

a/ enterprises manufacturing the end product,

b/ enterprises manufacturing the intermediate products,

c/ auxiliary enterprises /repairs, conditioning of raw materials, storage, packing, manufacture of boxes, crates, and other receptacles for packing, etc./.

58. In this short report it is impossible to give a detailed description of methods for solving these problems. What has to be done is to choose the optimum variant from the various types of combinations of a large enterprise with the small ones within the estate with the view to fulfilling the principal requirement--the manufacture of the planned end /produced for export from a given estate/ product. The solution of this manifold problem may be facilitated by employing mathematical methods, particularly linear programming. After the optimum variant is found it has to be compared on the basis of various indices, beginning with cost of construction and outlays for infrastructure, with the alternative methods of manufacturing the planned product.

59. In conclusion we shall mention another important factor. Industrial estates offer exceptionally favourable conditions for extensive co-operation of small commodity producers. The idea for their uniting will be fostered by the operational experience of the estates themselves. The association of small commodity producers may take the form of supply and sales, credit and finally producers' co-operatives. The first two types of co-operative associations of small commodity producers and handicraftsmen already exist in some developing countries. Soviet experience /6/ shows that the most progressive type of a co-operative association, which considerably enhances the efficiency of small-scale production, is the producers'

co-operative society. Naturally, artisans and handicraftsmen in different countries have their own approach to the establishment of co-operative associations and the forms they should have. Still it has to be underlined that industrial estates can play a very important role in promoting their appearance.

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POSSIBILITIES OF UTILIZING SMALL-SCALE INDUSTRY IN THE PROGRESS OF ECONOMIC DEVELOPMENT

SUMMARY

Submitted by

The Government of the Union of Soviet Socialist Republics

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1. Although the main role in the process of industrialization of developing countries belongs to large-scale industrial enterprises, the use of small-scale industry is still important, especially during periods of transition.

2. Identification of small-scale industry is usually based on the number of workers or size of capital involved, but sometimes both are used. Because there are several definitions of small-scale industry, it has become important to establish a universal definition. The difference between small-scale and large-scale enterprises as different types of industries should be clearly expressed in their definitions. The basic difference between these two types of manufacturing is that small-scale industry, as a rule, is based on labour intensive processes while medium-scale and large-scale industries are mostly capital intensive.

3. Bearing in mind this main difference, it is logical to suggest as a basic factor for definitions of small-scale and large-scale industries the volume of capital investment per production worker. Additional factors may be used such as:

(a) Number of production personnel (for small-scale industry this figure should not exceed 100 workers);

(b) Use of mechanically powered production tools and machines.

One serious difficulty that can be experienced in estimating capital is the choice of calculation method.

4. In many developing countries as much as one-half of net national income from manufacturing is produced by small-scale industrial enterprises. They also absorb a considerable part of available manpower.

Small-scale cottage and handicraft industries still retain their role as major suppliers of consumer goods in developing countries. Although many small-scale industrial firms are disolved every year, or are merged with bigger industrial firms, many new firms are established during the same period. As a result, the process of modernization of the small-scale industrial sector develops very slowly. This type of industry therefore is usually important to developing countries until they attain full economic independence and prosperity.

5. For industrial planning the following classifications of basic types of small-scale production is suggested:

(a) Cottage production. This type of production is based on hand-made traditional products produced by members of families at home;

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(b) Handicraft. Production is based mostly on hand labour and produces consumer goods such as clothes, shoes, castings and food products. These types of products can be produced simultaneously by large-scale enterprises.

(c) Modern small-scale industrial enterprises. This type of enterprise uses new but sometimes not up-to-date equipment and technological processes. It produces consumer goods as well as industrial products and relatively simple pieces of equipment.

6. The enterprises of group (a) are connected with the entire industrial complex of a country in two ways. First, they often use semi-manufactured goods that are produced by large industries for example: non-ferrous profiles; metal castings; thread and wool, cotton and plastic yarn. Second, production of these enterprises usually has traditional national color. Most of the goods are exported and the foreign exchange received is used for investment in new equipment and raw materials. Internal demand for the product manufactured by these enterprises is relatively small and cannot compete with large industrial enterprises. However, an increase in foreign demand for this type of national product stimulates the volume of production in this sector of small-scale industry.

7. Enterprises of group (b) produce consumer goods that are sold in cities and villages. Their production is based mainly on the demand of the domestic market of the developing countries.

8. The enterprises of group (c) are becoming increasingly important for the industrialization and development of the national economy in developing countries. Small-scale industrial enterprises of this group usually operate parallel to modern large-scale industry, and to a certain extent, follow in the footsteps of large-scale industries. The need for this type of industrial enterprise, especially in the period immediately following independence, may be explained by two factors: lack of capital for investment, and growing demand for different consumer goods in the domestic market. The industrial enterprises of group (c) often use second-hand, relatively old fashioned, simple technological processes and hand labour. The branches of industry in which these enterprises operate are limited but they include the major industries. They work in the field of chemical production to produce spare parts and equipment, in production of paper products, electrical apparatus, food products and in other fields.

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9. Small-scale industry uses an extensive network of wholesalers and dealers through which small enterprises sell their products and buy raw materials. They also depend upon banks to supply them with credit for investment and operational capital.

10. In spite of sharp competition between small-scale and large-scale industry, there is some co-operation between these sectors. Small-scale manufacturers are now using semi-finished products that are produced by large industrial enterprises. One typical example is the small-shop use of yarn produced in big textile factories to manufacture fabrics. On the other hand, small-scale enterprises very often produce components and semi-finished parts for large industrial plants and factories.

11. Study of the structure of capital investment of small-scale industrial enterprises shows that the major part of funds of these enterprises is appropriated for land or rent of working space. On the other hand, this type of enterprise usually has relatively small investment in equipment and operational expenses. The relationship between the gross product and capital invested in production is one of the most important indicators for comparison of effectiveness of small-scale and large-scale industrial sectors.

12. National planning organizations in developing countries usually plan such aspects as volume of production, manpower requirements, and economic effectiveness. However, the increase of productivity of labour, for example, is usually very small for small-scale enterprises. This increase may not be considered in the plan of labour productivity because of its small volume in over-all figures.

13. One of the most important factors to determine efficiency of capital investment in various manufacturing processes is the estimation of volume of foreign exchange received and spent.

14. Usually small-scale factories are scattered throughout a country, their system of supply of raw materials as well as the sale of manufactured goods is inefficient and their dependency on numerous dealers and on bank credit lowers the economic effectiveness of small-scale industry. One method to increase the effectiveness of small-scale industry is to encourage co-operation between small-scale and large-scale enterprises. However, large-scale enterprises definitely dominate small-scale companions. In the hands of private capital this symbiosus may not be beneficial to the national economic system.

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15. Another method to increase productivity, to decrease production costs and to improve quality of products in the small-scale industrial sector is to organize industrial estates.

16. There are two main types of industrial estates:

(a) Simple co-operative of a number of small shops engaged in production of a similar or different type of product (for example, garments, shoes, castings etc.) These shops are located on a common site where all necessary facilities are available (water, energy, gas, roads etc.) They enjoy common supply services as well as common marketing services. They use common equipment, repair facilities and other maintenance services.

(b) A system of small-scale enterprises located nearby a large-scale enterprise or a group of similar large-scale enterprises that are organically linked to each other. In this case, small-scale enterprises have stable production ties as well as the use of auxiliary facilities and other benefits from large-scale factories such as the use of a supply system, marketing services and repair and maintenance shops. Certain advantages of big industrial estates are considered in detail in Industrial Estates in Asia and the Far East.1/

17. The main factors that decrease economic effectiveness of industrial estates are:

(a) High cost of construction work of buildings and land compared to relatively small basic investment in equipment creates a burden and prevents increase of productivity and the ratio of capital-production per worker. In such cases government participation may be a solution;

(b) Lack of qualified personnel; this prevents full use of industrial equipment;

(c) Lack of qualified technical advice on such aspects of manufacturing as technical, economic, personnel training and supply marketing.

18. Probably the most important problem is that industrial estates sometimes have no firm, stable ties with the enterprises of a given industrial region, and no clearly formulated long-range production programmes. In other words, industrial estates sometimes aim to use manpower as much as possible but disregard maximum use of specific possibilities of small-scale enterprises.

19. In cases of combined industrial estates (co-operatives of small enterprises with big factories) the problem of sale and supply of products of small-scale factories is not as serious as in the case of simple co-operative industrial estates because

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1/ United Nations publication ST/ECA/73, Sales No. 62.II.B.5.

of permanent market ties between all enterprises in the industrial estate. In other words there is a sort of local market in the estate.

20. One serious problem for small-scale industry is standardization and quality control. Industrial estates working in co-operation with large-scale enterprises have an advantage because they can use quality control facilities as well as standardization services of their partners.

21. The problem of training personnel is much easier in industrial estates compared to scattered small-scale enterprises. It is even easier when industrial estates work in co-operation with big industrial enterprises because training facilities and guidance as well as in-plant training in the form of apprenticeships are easily available. In this connexion the experience of the USSR in mass training of production workers, especially in in-plant training courses, is extremely valuable.

22. Creation of industrial estates give opportunity for the development of the whole community. Big industrial estates create a complex of dwellings, shops, medical services and schools, which result in the development of many industries.

23. Industrial estates provide convenient opportunity for wide co-operation of small enterprises in various fields such as technology, marketing co-operatives, purchase co-operatives and credit unions. The publication Utilizing Poorly Mechanized Forms of Manufacture in the Economic Development,[2/] describes the experience of the Soviet Union in creating a co-operative system.

2/ United Nations, E/CN.11/INNR/Ind.CONF.3,ECAFE,Manila, 1965.


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