

*A section of the Amazon forest in Para State, which is known to be rich in mineral resources (top).  
Adana Mersin area in southern Turkey.  
A farmer with the wheat harvest (bottom).*





# The socio-economic determination of the natural resource category

By Klaus Ahrends  
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**What is a natural resource? What is a raw material? And how are they related to each other? These are some of the questions raised by Klaus Ahrends in this article, in which he analyses the natural resource category from a Marxist perspective.**

Klaus Ahrends is a researcher at the Institute for the Economy of Developing Countries, University of Economic Science "Bruno Leuschner", Berlin, GDR. Address: 1157 Berlin, Hermann-Duncker-Strasse 8, GDR.

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A striking feature in the present-day economic literature on natural resources is the attempt to define the concept of natural resource. The many ways in which this term is used shows the lack of clarity about its content. There are in particular contradictory statements on the socio-economic aspect of natural resources, some of which go to the extreme of completely denying the existence of a socio-economic content.

This theoretical problem is of practical significance as shown, for example, in the Club of Rome reports and in the proposals for a reorganization of the world economic system. It was the almost total neglect of the socio-economic aspects of the problems involved that prevented most of these reports from realistically reflecting the development processes in the utilization of resources on a world scale. This inadequate theoretical penetration of the resource question is now recognized by some bourgeois economists, as one of the reasons for which the negotiations around a new economic world system have failed to lead to any practical results.<sup>1</sup>

In our opinion, even some Marxist economists fail to take into account the fact that natural resources are also influenced by social relations. If a natural force or a raw material has the property of being a resource is not just a natural, but also a socio-economic problem.

## The relation of natural conditions to natural resources

The concept of *natural conditions* is directly connected to the natural resource category, although they are often used synonymously. What, in fact, are then natural conditions, or more correctly, what are *natural conditions of production*?<sup>2</sup>

To use production as the methodological starting point makes it possible to turn to the essential relations between nature and economy. This level of abstraction does not in any way deny that the

processes of distribution, circulation and consumption are influenced by natural conditions. But many definitions take into account only some of the specific natural-economic features, and are thus too narrow. However, if the full diversity of relations between human beings and nature are to be subsumed into one category, this category must do justice to the complexity of *all* these relations.

In our opinion, natural conditions of production express the property of nature and are *the material basis for the conversion of matter and energy*. This means that certain natural elements can appear not only as objects of labour and as means of labour, but also as forces directly encouraging or impeding the productivity of labour. Natural conditions determine whether, and if so to what extent and with what intensity, nature provides conditions for the development of human life. Therefore they, more or less, constitute the natural foundations for the development of human society. In other words, the various regions of our planet have different amounts and types of natural elements. This applies to energetic, climatic and materialized elements of nature.

As regards production, i.e. the expenditure of human labour for the purpose of satisfying social needs, the existence of different amounts and types of *natural forces and raw materials in the various regions, zones and areas make up the natural conditions of production*.

Natural conditions, however, are not only quantitatively registerable, but can also be *qualitatively* determined. Therefore, the intensity of their quality is important for characterizing natural conditions. The intensity of quality of many natural elements is in fact a decisive factor for determining their utilization in the production process.

Besides, in characterizing the natural conditions of production, *changes in space and time* have to be taken into account. These changes and the workings of the natural conditions are caused by:

- the qualitative and quantitative development of the productive forces,
- the expenditure of non-regenerative natural conditions,
- the destruction of non-regenerative conditions through exhaustion, and
- the developments of nature.

Marx and Engels considered natural conditions to be very important for the historical development of society. For them, social development without taking into account the natural basis and the inter-relationship between the natural basis of production and the productive forces was unthinkable:

"All historical writing must set out from these natural bases and their modification in the course of history through the action of men."<sup>3</sup>

This brief survey shows that the concept of natural conditions must be very complex. From the viewpoint of social production, natural conditions subsume *all natural* influences on social development. Therefore, in the final analysis, the expanse and usefulness of a natural resource make up the natural conditions of social production.

For example, the annual rainfall or amount of sunshine are as much part of the natural conditions of social production as the consistency of the productive forests. For this reason it is justified to consider the concept of natural conditions generic to natural resources.<sup>4</sup>

In our opinion, it is only possible to grasp the relation between natural conditions and natural resources completely if these differing levels of abstraction are taken into account, levels on which these concepts obviously operate. The abstraction provides the key for an understanding of both categories. For the concept of natural conditions of production, it is the relation between nature and the (material-realistic) productive forces, that comes to the foreground. This means that it in its nature is an internal relation in the system of the productive forces. The issue

here is thus the relation between the production process and nature as a labour process.

For an investigation of the essence of natural conditions, the socio-economic conditions under which they should be used and the economic interest and aims of the using process are irrelevant. Only the extent and intensity with which nature influences the social production process as a labour process is of significance. The differing intensity and the differing existence of the natural elements are not connected to the social relations. In general, it is not possible to judge the level of development of the production relations on the basis of the intensity and the existence of natural conditions. Also it would not be true conversely. In all social formations, there appear favourable and inhibiting natural conditions for the development of the production forces. Therefore, the socio-economic factors for utilizing and mastering nature can be largely abstracted.<sup>5</sup> The category of natural conditions serves to define relations that emerge between nature and the development of the social production process.

Defining natural conditions as the natural forces and material that influence the extent and effectiveness of the social production process means that their quantification must take place above all from the viewpoint of the natural sciences and raw materials economy. In the GDR this is done with the help of the category of the spatial potential of nature.<sup>6</sup> It is a "category of physical geography".<sup>7</sup> According to the aspects of geography and natural science the extent and effectiveness of the influence of the natural forces and raw materials on the development of the material and technical basis of the society can be judged with the help of this category. It can also be used to quantify raw material economic processes on a territory.

A spatial quantification of natural conditions is a prerequisite for balancing out the very differing economic demands made on a natural space with the existing

natural potential of this space. Registering the raw materials and forces in the form of spatial potential of nature can provide the first reference points for the optimum utilization of nature. And this applies particular to the spatial distribution of the productive forces. However, the economic validity of this category – and this is a logical result of its function – is limited. It cannot express the concrete forms, the methods and period of utilizing the natural conditions. To solve this problem, further economic and technical categories and indicators are needed.

The natural conditions of production are the result of biological, chemical and physical forces. The human being is unable to create natural conditions. In his dispute with Bulgakov, Lenin expressly stated that social and natural forces are incommensurable.

He stated that, generally speaking, it was impossible to replace natural forces by human labour just as it is impossible to replace a yard by a hundred weight. He stated further that in industry, as well as in agriculture, man could make use of the natural forces, insofar he has come to know their workings, and facilitate their utilization by machines, tools, etc.<sup>8</sup>

The building of a dam or an artificial lake does not create "humanized" natural conditions, as is sometimes stated, but existing conditions are merely used. It is the means of production (dam) that is created with the help of which the natural conditions (river) is better used.

It must also be taken into consideration, that the natural conditions utilized by mankind largely takes on the form of resources. For example, a dam is not merely a utilized natural condition, but at the same time a source of the satisfaction of various needs. It can serve as the storehouse for energy and food, as well as a means of transport and recreation. The use of natural conditions without the natural elements appearing simultaneously a resource is the exception.

If the waste of human labour is here ruled out, this case assumes that society is

not yet capable of further including a used natural condition into the social reproduction process. Only when technology has reached a higher stage of development such waste can be included into the categories for resources.

### Natural resources as the subject-matter of political economy

The majority of Marxist economists use the concept of resources to mean the material means for realizing certain socio-economic aims. In their totally resources make up the economic starting conditions for economic development in society. The quantity and quality of the resources largely determine the performance of an economy.

In general, the resources of a society are divided into three basic elements:

- natural resources
- labour power resources and
- material (physical) resources.

While it is generally accepted that labour power and material resources can be subsumed under the heading of political economy it is disputed whether natural resources can be included in this field. The reason is that natural-economic relations are seen too onesidely as something material only, and not as a natural resource, as defined at the beginning.

By including material-realistic natural conditions into the social reproduction process, they are given a social purpose that they do not have naturally. They serve to satisfy social needs and thus become bearers of social relations. Without losing their natural properties some natural conditions at the same time gain a social form of determination. They become the source of existence of human society and therefore turn into a resource. In our opinion, natural resources are both the raw materials and forces of nature that can be utilized to satisfy social needs at a given level of scientific and technological development.<sup>9</sup>

At this point it becomes obvious that the concept of resources gains a double

character, which becomes the key to understanding this category.<sup>10</sup> On the one hand, these are forces and material of nature:

”so that their distribution and properties are determined by the laws of nature that are investigated by the natural and technical sciences.”<sup>11</sup>

As such natural resources cannot, of course, be the subject-matter of economic sciences because:

”political economy delves not into things, but into the relation between persons and, in the final analysis, between classes.”<sup>12</sup>

On the other hand, it also becomes obvious that the existence of natural conditions as resources stands in close connection to the social process of development. *The historical and social character of the concept of resources expresses itself in the direct dependence existing between the level of development of the productive forces and social needs.*

It is above all social needs — a socio-economically determined category — that turn the natural elements into resources. At a certain stage in the development of the productive forces, it is these needs that determine whether natural conditions take on the property of being a resource or not. Qualitatively, too, it is the needs that influence the existence of natural conditions as resources. Among those factors that regulate the extent to which nature is utilized, the structure and manner of needs-satisfaction are very important. Out of the socio-economic determination of the structure of needs and the manner of their satisfaction arise very concrete demands made on the utilization of nature and thus on the existing resources and of the natural conditions.

As a consequence, under different social relations, the same natural condition can exist once as resources and another time as a non-resource. In fact, where there are different levels of scientific and technological development this is even

the rule. On the basis of Engels' definition of the subject-matter of political economy as the ”science of the conditions and forms under which the various human societies have produced and exchanged, and on this basis have distributed their products”<sup>13</sup>, natural resources belong to the categories of political economy. In the sense of Engels' definition they are conditions of production, distribution, circulation and consumption. However, they are also different from the traditional political-economic categories.

### The interaction between productive forces and production relations

These categories of political economy reflect production relations, i.e. relations between people in the social production process. In this respect there is as yet no difference. Also the category natural resource reflects the relations between the people in reference to the utilization of certain natural conditions of production. The property of raw materials as an economic relation could hardly be explained if the general interpretation of the socio-economic content of the term resource will not be accepted. On this basis, the definition of the natural resource category expresses the fact that socialist society is capable of utilizing the elements of nature to ensure its existence, to use them economically, to regenerate them where possible and to prevent their destruction. This characterization refers not only to the technological level of the utilization, but also to the level that results from the interaction between technological factors and needs of a society.

The inter-action between productive forces and production relations is, therefore, an essential element in the existence of natural elements as resources. Therefore, it cannot be concluded that the extent and the manner of utilization of nature are identical at the same level of the productive forces under differing production relations. The differences between the capitalist and the socialist forms of

utilizing nature, for example, are becoming increasingly obvious, despite comparable technological levels. Under socialist production relations, the natural resources fulfill not only a specific social purpose determined by the production relations, but other considerations are also taken into account. Under socialism the reproductive viewpoint is increasingly stressed in order to leave behind an environment for coming generations in which they can live in harmony with nature.

Therefore, it can be said that natural resources are not natural conditions as such, but those that serve a socially determined aim, e c, serve the needs of certain classes, strata and social groups. In this function, the content of the natural resources is determined by technological as well as by socially relevant factors. Now it is no longer possible to abstract from the production relations or the inter-action between the productive forces and the production relations, as was still the case with natural conditions, because the concept of resources implies that their utilization serves to fulfill definite socially relevant aims. The question of "for whom" and "for what purpose" the natural resources are used are integral parts of this category. And this is why the essence of the natural resource category cannot be solely determined by the relationship between the human being and nature when utilizing the natural conditions.

For the dispute with bourgeois-theoretical constructions, this realization is of fundamental importance, because it proves that the existence of natural elements as resources and their utilization is determined not only technologically, but also through the socio-economic relations of society.

In the final analysis, the technocratic conception that the ecological crisis is a general human problem of utilizing nature, can be disproved only if it is accepted that the concept of natural resource contains not only the relation between nature and human beings, but also the relation between human beings in reference

to the natural conditions. The crucial methodological issue in bourgeois ecological conceptions lies in the assumption that there exists an imaginary, socially indifferent, relation between nature and human beings.

### **National sovereignty and natural resources**

It is from the socio-economic content of the resource concept that the principle of national sovereignty over the natural resources is derived. This principle is a historical phenomenon based on the existence of national states in human society. If the socio-economic content in the existence of raw materials and natural forces as resources is denied, then the principle of national sovereignty over natural resources loses its economic, i e, its objective function. It then appears as a relationship of political will which is determined solely by ideological factors. This would lead to the conclusion that sovereignty over national resources is above all the question of consciousness, which has little or no relevance to the economic situation of a country. The socio-economic side of raw materials and natural forces existing as a resource condition the re-organization of the utilization of resources on a world scale which presupposes socio-economic changes in the interest of all countries on the basis of equality. We cannot support such thinking, if only for the reason that it contradicts the actual political and economic situation existing in the world.

The principle of full national sovereignty over natural resources, as demanded for years by the socialist countries, is in contradiction to the imperialist conception of so-called economic inter-dependence. The principle of sovereignty is in the interest of developing countries because, in the final analysis, only full national sovereignty over natural resources can ensure equality and independence of all nations which, in turn, are two elementary prerequisites for stabilizing

world peace. The idea propagated in the RIO report that natural resources are a "joint heritage of mankind" resulting in the "voluntary abandonment of national sovereignty" cannot, in my opinion, in any way guarantee a utilization of the natural resources on the basis of equality. If any part of national sovereignty is given up, such as the utilization of natural resources, there exist at least a latent danger that the economic co-operation needed between states — because of the different territorial distribution of the sources of raw material — would not take place on the basis of mutual advantage. The different social and economic prerequisites existing in each country participating in the international division of labour, makes possible the transformation of formal equality into inequality.

The way in which national sovereignty over natural resources is expressed, is determined through the nature of the economic relations existing in that country. Just as different as these relations are, just as different must be the forms for expressing national sovereignty over natural resources. In socialist countries most of the natural resources are the property of the whole society. Nationalization of natural wealth is usually one of the first measures carried out in countries where socialism takes power. Such nationalizations make it possible for the socialist countries to exercise national sovereignty over the natural resources. It guarantees a highly efficient utilization in the interest of all members of socialist society. In the industrialized capitalist countries, however, the natural riches are almost solely the private property of individuals or social groups. Under these economic conditions the natural resources are misused for their interests with the help of an indirect state regulating mechanism. The environmental discussion shows the practical result of such a policy. Environmentalists in western countries stress that the state has not been able to prevent private firms from wasting and plundering nat-

ural resources and destroying important areas of the natural environment.

If we consider how the developing countries approach this problem we can observe a clear tendency to nationalization of the natural riches. This process is most advanced in the field of oil. In the last few years state ownership of other natural resources has also increased markedly. This form of exercising national sovereignty is obviously best suited for utilizing resources in the national interests.

### **The specific of natural resources in the political economy**

To determine the socio-economic content of the category national resource it is not enough to generally indicate that it is a part of political economy. The specifics of this category must be investigated. In other words, we must put the question: in what way does it differ from other categories of political economy?

One essential feature of natural resources is linked to the formation of their physical state. In contrast to other categories of political economy the natural resource is not a product of labour. The material shape of natural elements that take on the form of resources remain products of nature. It is only through the process of utilization that the product receives its social determination that can be mediated through labour alone. These natural products can take the form of raw materials, of labour products in the first stage of processing. *Raw materials and natural resources differ above all through the former being a product of labour and the latter a product of nature.*

These features of natural resources lead to the following conclusions for determining the nature of the economic category:

- The socially relevant relations of human beings to nature appear only at the point when the resources undergo the process of utilization, i.e., at a time when natural resources stop existing as natural

resources. That is why natural resources must be classified as the bearers of production relations.

- The socially relevant relations expressed in the concept of resources are determined by the system of economic relations of society. That is why the fundamental production relation of an economic social formation determines the manner in which nature is utilized. For the same reason, it is misleading to try to set up a periodization for the development of human society in accordance with the manner of utilizing nature. The real determining factor for utilizing nature remains hidden.

- The natural resources act indirectly on the economic relations of a society. They cannot take a direct and unmediated effect on social relations because for this purposeful human activity is needed. Without reference to the level of social, and above all, socio-economic development, the concept of natural resources loses its socio-economic content.

From the above, it is seen that on the level of abstraction of the natural resource concept the production relations become an essential element for this economic category. In contrast to the natural conditions of production the resource concept contains a historically concrete content that is determined by the productive forces and the production relations. The question now arises whether the social determination of natural resources can be made visible only on this level of abstraction. Let us investigate the same question on the next lower level of abstraction.

### **Available and potential natural resources**

The definition of natural resources as a natural condition that can and does satisfy social needs at a given stage of technical development already indicates that they can appear not only as available, but also as a potentially utilizable source. What both groups of resources have in common is that they are technically uti-

lized and are or can be sources to satisfy human needs. Therefore, when dealing with the transformation from the potential to the available natural resource and vice-versa we can abstract from these two fundamental classifying features of the natural resource concept. In the following they are assumed.

With the help of this abstraction we can see that what makes up the difference between available and potential natural resources is solely the outcome of the effect of the social relations. Whether a society utilizes a known natural resource or not is immanent to the system and, although influenced by external factors, can never be determined by them. Only a complex evaluation of the natural resources will provide information on the expediency of utilization and thus on the classification of the utilization. In the final analysis results are determined by two criteria:

- economic availability, and
- political and military availability.

There are close correlations between both criteria. A schematic and simple separation and comparison of both would not be correct. Seen dialectically, politics and economy are one entity, i.e., they condition each other and at the same time exclude each other within certain limits. In the relation between both, "Politics must take precedence over economies. To argue otherwise is to forget the ABC of Marxism." Therefore, the decision to utilize natural resources cannot be taken solely from an economic point of view. Particularly now, in a period of sharpening political struggle between the two world systems, the political and the military factors involved in the utilization have come to the foreground. Related to the question being dealt with this means that political factors must finally decide whether natural resources become available or remain potential.

The primacy of politics over economy does not by any means weaken the signif-

ificance of the economic availability criterion. It serves above all to ensure a complex social evaluation of the purpose for utilizing certain natural resources.

The significance of the economic availability criterion results from the position of economic relations in the system of society. These relations more or less determine all other relations, including the political. For this reason, the social evaluation of availability can be only one result of the economic and political-military availability criterion. A great risk of wrong availability evaluations lies in not taking into account the complexities involved and above all the changing importance of both criteria. For example, it is not always advantageous to use natural resources in one's own way. From an economic viewpoint the import of certain raw materials or food may often seem better than the production in one's own country. However, political and military viewpoints could favour the utilization of local resources so that in the end, after comparing the two criteria, the best solution for society can be to utilize them. A different combination and different evaluation of the criteria may also be possible, so that finally, a different decision on what is best may be arrived.

It is clear that the degree of flexibility in both evaluation criteria leads to the availability criteria having a high degree of instability. The basic content of the availability statement may change within historically short periods. Therefore, it seems necessary to periodically review the evaluations. And what must be re-examined are above all the assumed economic, political and military conditions of the utilization. The fast scientific, technological, social and political developments, factors which may at first appear insignificant, can later lead to a revision of the original availability statement. The period between the evaluation and the re-examination of results is usually determined by the social significance of the natural resources concerned. In connection with the classification of the natural resources

in available and potential, I also consider interesting that many Western scientists have dissociated themselves from the prediction that the natural resources will soon be physically exhausted. This thesis, propagated mainly by the US economists, Meadows and Forester, has obviously not stood up to a serious scientific scrutiny. Michaelis, for example, describes it as pure nonsense:

"... to believe that the supply of oil will soon be come to an end. Experience, at any rate, shows that the world oil reserves have regularly been assessed too low. If the estimates made in the USA in the past had proved correct, the supplies would have been already exhausted twice over. The problem of oil is not one of physical availability but merely, and this is a very serious problem, of accessibility."<sup>14</sup>

The fact that many Western scientists are now investigating the problem of natural resource availability confirms once more the correctness of the Marxist theory that the supply of raw materials for the whole world is not a natural scientific problem, but one of politics. The availability criteria of sources of raw material are exclusively of a social nature.

### **The economics of availability**

Let us go into the economic availability criterion in greater detail. Whether a society utilizes its natural resources to satisfy its needs depends always on the interaction between the economic necessity and possibility. The concrete and historical necessities and possibilities of society in their independence form the basis for the economic availability criterion. Through which economic criterion can social necessities and possibilities of utilization of nature be expressed?

#### *1. In the social need for raw material and natural forces.*

The problem of the social requirement

has a distinct parallel to that of value. After all, value as a social relation exists only within the limits set up by social requirements.<sup>15</sup>

For this problem, too, it is the use-value on a social level that determines whether a certain condition takes on the social existence. When differentiating between available and potential natural resources it is no longer a question of satisfying any need but that specific need which has arisen through the level of economic development and the degree of maturity in the production relations. In contrast to the needs in the social demands includes the actual economic possibilities and the time aspect of their satisfaction. For this very reason, the social requirements can take over the task of being a determinant for the actual existence of resources as natural elements.

Due to the fact that most natural resources can be used for several purposes, structural changes in the demand for them occur quite often. Currently, such a change can be observed with oil. The need for oil to produce electricity and heating has decreased while the need for oil as a raw material for the chemical industry continues to grow. Related to our problem, this means that the social property of oil deposits – to be use-value for producing electricity and heating – is losing its significance compared to the suitability as a use-value for producing fuels and polymers.

The demand for natural products is also influenced by international relations. If there are favourable prospects of marketing use-values by the utilization of national resources on the international market, this factor must be considered when doing market research in the same way as the possibility of buying some or all raw material from an international source so as to reduce an intensive use of the natural resources. The international aspect of the demand for natural products is closely correlated to political and military criteria for utilizing national resources.

*2. In the social expenditure of labour needed for utilizing a known resource.*

A certain expenditure of labour is always needed to change a natural resource into a consumable product. This labour may be necessary only once or it may be continuous. The expenditure necessary depends on social and on natural conditions. Often, the natural conditions may be decisive at a certain point of time.

These quantitative factors of the problem of expenditure do not change the fact that a part of expended labour for utilizing a natural resource is determined by the social relations. For example, if the material living standards of a country are relatively low a resource can be used under bad conditions. Due to the relatively low wage levels local production in this case is more effective than in a country with higher living standard and better conditions of utilization. On the other hand a non-participation of a country with higher living standard in the international division of labour in the raw materials field can lead to an unproductive utilization of resources, despite of good conditions of utilization and a relatively small expenditure of labour.

**Labour and natural resources availability**

Which factors determine the amount of labour necessary to utilize a single resource? In our opinion, there are three basic factors:

*1. The social importance of the need to satisfy with the help of the resource.*

The amount of labour that society makes available to utilize a natural resource depends on the social relevance of this resource. For the satisfaction of a basic need (such as food), the amount of social labour is important, because it represents a large amount in the overall system of needs but is also important because of the qualitative connection between primary and secondary needs. It is still true that:

" . . . men must be in a position to



live in order to make 'history'. But life involves before everything else eating, drinking, housing, clothing and various other things. The first historical act is thus the production of means to satisfy these needs, the production of material life itself. And indeed, this is an historical act, a fundamental condition of all history, which today, as thousands of years ago, must daily and hourly be fulfilled merely in order to sustain human life." <sup>16</sup>

The significance of this statement has grown in view of the need to solve the global problem of nutrition. Food – the foundation of human existence – already absorbs a fixed quantity of labour for no other reason than its rank in the system of needs, and quite independently of the concrete economic and natural conditions for utilizing the resource. In general it is clear that the objectively determined rank of a need determines the amount of socially necessary labour invested. The higher the rank of need the greater the possibility for setting the limits for the amount of labour to be used for utilizing a natural resource. The smaller the labour invested in satisfying the food needs the greater is the possibility for utilizing other resources.

There is no need to prove that the position of social needs within a system of needs is completely socially determined.

Where changes take place in the political and socio-economic basis of society the system of needs is also restructured. The hierarchy of needs corresponds to the interests of the ruling class.

*2. The natural conditions for the utilization of the resource.*

Generally, the resources are used under different natural conditions. This means that the same type of resource can demand very different amounts of labour. <sup>17</sup>

- a) The natural yield of the resource
- b) Spatial conditions of utilization
- c) Utilization under specific conditions concerning the resource.

*3. The economic conditions of utilizing the natural resources.*

The natural conditions of utilizing a resource are closely connected to the economic ones. The concrete expenditure of labour arises from the interacting influence of both groups of factors. Within determined limits, the influence of both groups of conditions of production can be substituted.

But there exists no social influence on the natural conditions of production. They exist more or less independent from the social relations. Otherwise the economic conditions of production are to a large extent socio-economically determined. They are determined by concrete historical interests and aims of a society.



This reaction will be especially obvious in the determination of the extent of the ecologically determined expenditure of utilization. Through the influence from the socio-economic interests of the ruling class of a society there can be significant changes in determined limits. The economic conditions of utilization of a resource can be described as follows:

- The performance of means of production (quality and technology)
- The level of qualification and wage
- The availability of labour power and the means of production

The determination of the economic availability of natural resources is a complex and contradictory problem. Concurrent statements on the criteria and sub-criteria are the exception. Assuming the existence of a social need, a high rank of a need to be satisfied by a resource can occur under extremely unfavourable natural conditions of production. A combination of favourable economic and unfavourable natural production conditions is also possible. For this reason, it is urgently necessary to set up a preferential system of priority criteria.

## Conclusion

Despite the large number of possible combinations of statements on economic availability, it is clear that in the final analysis the utilization of raw materials and natural forces is determined by processes internal to a system.<sup>18</sup> The lower the level of abstraction the clearer this becomes. The essence of the concept of natural conditions has largely excluded influences relevant to socio-economic factors. This is no longer the case for the concept of resources. Natural conditions that have the resource properties include a degree of socio-economic determination. This is given through the aims of society when utilizing the natural conditions. During the transition from potential to available natural resources, the socio-economic factors are primary; in the final analysis, they cause the transition.<sup>19</sup>

## Notes:

<sup>1</sup> Tulmir, J, *Die Weltwirtschaftsordnung heute – eine kritische Bestandsaufnahme*. In: Zwischenbilanz der Diskussion über eine Weltwirtschaftsordnung (The world economic order today – a critical assessment. In: An interim report of the discussion on a world economic order), Stuttgart/New York 1981, p 10.

<sup>2</sup> Natural-economic relations refer to the economic relations between the users or owners and the natural resources. They characterize the level of utilization and the reproduction process of the material and forces. Because of the close interlocking between economic and natural processes, they make a distinction in the social relations of other classes.

<sup>3</sup> Marx, K / Engels, F, *The German Ideology*. Moscow: Progress Publishers 1976, p 37.

<sup>4</sup> Lojter is quite right when he comments that the logical relation between these two concepts can be correctly grasped only "by seeing resources as a part of the conditions". Lojter, M N, *Naturressourcen, Umwelt, Investitionseffektivität* (Natural resources, environment and investment activities), Berlin 1977.

<sup>5</sup> This abstraction is merely conditional, due to the close interaction between the development of the productive forces and the production relations. It is justified, however, through the relative independence of both categories.

<sup>6</sup> The term "natural potential" is also used synonymously. See: *Umgestaltung und Ökonomie der Naturressourcen* (Environment creation and the economics of natural resources), Berlin 1979, p 63ff.

<sup>7</sup> Brockhaus Handbuch: *Sozialistische Landeskultur* (Brockhaus Handbook: – Environment in socialism) Leipzig 1979, p 63.

<sup>8</sup> Lenin, V I, *Die Agrarfrage und die Marxkritiker* (The agrarian question and the critics of Marx) In: Lenin's Works, Vol 5, Berlin 1976, p 105, (German edition).

<sup>9</sup> *Umweltnutzung und Ökonomie der Naturressourcen* (The utilization of the environment and the economics of natural resources), Berlin 1979, p 64.

<sup>10</sup> Minc states quite correctly: "The categories of concrete labour use-values and the productive forces are linked to the natural factors of the natural resources, while the categories of abstract labour, values and production relations are linked to their economic content." (See: A Minc, *Die ökonomische Bewertung . . .* op cit, p 27).

<sup>11</sup> Minc, A A, *Die ökonomische Bewertung . . .*, op cit, p 27.

<sup>12</sup> Engels, F / Marx, K, *Zur Kritik der politischen Ökonomie* (Rezension) (The Critique of Political Economy). In: *Marx-Engels Werke*, Vol 13, Berlin 1975, p 476. (unauthorized translation).

<sup>13</sup> Engels, F, *Anti-Dühring*. Moscow: Progress Publishers, 1975, p 173.

<sup>14</sup> Michaelis, H, (Contribution to discussion without title). In: *Brauchen wir wirtschaftliches Wachstum* (Do we need economic growth) Stuttgart/New York 1980, p 41.

<sup>15</sup> Marx, K, *Das Kapital* (The Capital), Vol 3. Moscow: Progress Publishers 1971, p 635.

<sup>16</sup> Marx/Engels: *The German Ideology*, op cit, p 47.

<sup>17</sup> At the beginning of the seventies, the difference in labour expenditure per ton of extracted oil between the various oil extracting areas in the USSR was 1:50 and for natural gas (per 1000 m<sup>3</sup>) 1:90 (See: Boev, *Soversensstvovanie zakupocnych cersel, skochosajatvennuju produkciju*, Moscow 1974, p 114.

<sup>18</sup> Under the circumstances of two different world systems, the effect of external factors cannot be excluded. These factors, however, cannot determine the utilization of natural elements in a society.

<sup>19</sup> Seen quantitatively, the chain of abstraction can be described as follows: water power reserves (natural conditions of production) were estimated at 3 300 GW for the USSR. Technically 2 100 GW could be used, but for economic reasons, only 1 100 GW are actually used. See: M N Lojter, *Naturressourcen, Umwelt und Investitionseffektivität* (Natural resources, environment and investment activities) Berlin 1977, p 30. ■