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**SOME REMARKS ON NATURAL DISASTERS AND THE SOCIAL  
AND ECONOMIC DEVELOPMENT**

In the recent years a continuously growing interest in the role the natural environment plays in the social and economic development can be observed. Despite a new terminology it is difficult not to see the analogies between, for example, "the limit of growth" and the classic determinists' expressions, or between the ecodevelopment ideology and possibilism. The studies, in turn, attribute a more and more limiting role to natural disasters, especially in relation to the Third World countries.

The geographers for a long time have been interested in the problem; the IGU devoted much attention to it. Thanks to the work of the IGU commission already in 1974 a complex study, edited by G. White, was made possible. The succeeding years brought numerous studies on "the geography of natural disasters" in many countries (e.g. in France, a special issue of "Herodote" No. 24), while the disasters themselves, especially the African droughts, remain a favourite subject of the mass media.

In spite of rich information there is a lack of general methodological conception. It is held that a limiting role of natural disasters is great but difficult to define. The occurrence of natural disasters must have been the criterion for including the countries heavily afflicted by them (especially by the droughts) into the group of "the poorest". Other criteria were of more social or more economic character.

The rough briefs of news permit a conclusion that the developing countries are exceptionally often affected by natural disasters. The irregularity of rainfall is especially characteristic: great droughts are followed by excessive rainfalls, which inevitably end in floods. The 1975 estimation made by N. Ball states that these countries accumulate 90% of total natural disasters on Earth. Although it would be risky to state that natural disasters occur in the Third World more frequently than elsewhere, the irregular changes are as easily leading to natural disasters as they are difficult to foresee, and the changes in the natural conditions in general, are greater in some parts of our globe than in others.

It seems that the recent droughts in Sahel, Ethiopia, Mozambique, or Brasil belittle the one of Australia, not to mention the earlier ones of Dust Bowl or Kazakhstan. Moreover, the very variability of natural environment may be treated as a factor stimulating and not hampering the development.

It is, nevertheless, highly probable that some "natural anomalies" possibly causing disasters occur more often in the Third World than in the developed countries, and, what is more, occur more frequently now than in the past. It is the result of many factors, one of them being the fact that agriculture of these countries, unable to meet the ever-growing demand for food by the increase of productivity, developed through extension of cultivable land. This was largely achieved by clearing the land of the inaccessible forests, or by propagating cultivation on marginal lands of only small use for agriculture, but of great variability of weather in the particular years instead, mainly threatened by droughts. Here are some examples: clearing the forests at the south forefront of the Himalayas, in the Atlas mountains, propagating the cultivation of grain with no artificial watering system on the borders of the Sahara desert (presently the cultivation is above the 200 mm isohyet in the Mediterranean steppe, and above 300 mm in the Sahel). Thus agriculture entered the areas of high risk of natural disasters, and, at the same time, it increased the probability of disturbances caused by impairing the ecological balance. For example, the unusual frequency of floods in Bengal in the 20th century was noted, among others, by G. Etienne (1972).

The term "natural disaster" refers not only to the occurrence of a certain "anomaly" (very often it is only an apparent anomaly, as it is rather difficult to consider unusual a flood in a monsoon climate, or a drought in the semi-arid lands), but also, or rather most of all, to casualties, to the tragic economic and social effects, etc. Without some loss to man there is no natural disaster, but only a natural phenomenon, interesting though grim. Dust storms on Venus, or volcanic eruptions in Antarctic region (unless they affect some polar research stations) are never seen as natural disasters. Nevertheless, even here, it is necessary to remember that the mechanisms of connections with natural environment are sometimes very complex. „*Toute géographie des risques naturels ne peut être qu'une géographie humaine*" states positively, though too categorically M. Foucher (1982, p. 42).

The truth is that in the developed countries the "anomalies" rarely have such tragic effects and on such a scale. In the 1970s the climatic conditions in Western Europe were very unfavourable for agriculture: the annual rainfall was far from normal. The winters of 1978/79 and 1984/85.

were very severe in most European countries. The effects of these phenomena, though also tragic, are substantially smaller, practically uncomparable with, for example, the effects of the African droughts or with the flood which afflicted India in 1978.

Why then, are the natural disasters in the Third World so tragic in consequences? Although many authors are satisfied with only fragmentary explanations, three types of interlinking causes are most often given here (Lacoste 1976; Sirinanda 1978):

(1) Agriculture, which supports the majority of population, is the main sector of economy in the developing countries. It is, more than other branches, dependent on natural conditions, including weather (this dependence, or rather a direct influence is distinct and thus easier to observe). The winter of 1984/1985 in Europe demonstrated though, that even here the transport, the exploitation of quarries and industry are greatly dependent on weather.

(2) The economy of the Third World is usually little varied, thus it is more difficult to compensate the losses of one branch with the output of others, less affected by a disaster (only on a national or regional scale, not on a scale of, for example, a village, where the cultivation is usually greatly varied and the population has other sources of income).

(3) Poor financial reserves and poor technological means limit the undertakings aimed at prevention of natural disasters (the creation of flood control, of irrigation system, of storage water-tanks, etc.), as well as the rescue and relief operations in the afflicted areas (for example, in case of bad crops) these countries not only have no food reserve, but cannot afford to buy food abroad and then deliver it to the disaster area (the Ethiopian example is almost a model case here).

In discussing the influence of natural disasters on the economies of the developing countries one more problem, often undervalued, must be remembered. The traditional land use techniques led to the rise of some methods of prevention and of lessening the negative results of natural disasters. This mainly means the adaptation of the economy to the continuous threat of natural disasters and to their frequent occurrence, as well as the diversifying of methods of food production on an individual farm scale. A farmer could, for example, cultivate a few different fields, relatively distant from one another, in various soil and topographic conditions and, moreover, the food could be supplemented with fishing, hunting, and gathering. During a famine these additional sources of food helped to provide the minimum for survival. The diversified cultivation made profiting from farm specialization impossible, but it also made a village self-sufficient to a large extent. In the Third World it was more

a "survival agriculture" than a "profit agriculture", though in some countries the market production was considerable.

The traditional agriculture in the developing countries underwent a great evolution caused by the influence of the Western civilization, and, even more, by its gradual joining the world marketing economy. The growth of the production for market is usually connected with the development of specialization, neglect of fields and crops of small yield, disappearance of gathering and other supplementary forms of food acquisition. The economy becomes more profitable, but also more exposed to natural disasters. Also some social changes in the rural communities, namely the desintegration of the old social structures and traditional forms of aid, the individual land tenure, the weakening of the chiefs authority, and, finally, the replacing of the traditional, practical knowledge of the local agriculture and living conditions and of their changeability with theoretical school knowledge, may lead to growing helplessness in the face of a natural disaster (see Swift 1973, and a very severe criticism of the occurring changes by Bonte about 1975). Naturally, the traditional forms can be replaced with the modern ones, such as loan systems or a network of state granaries, but they are usually developing slowly (not to mention their effectiveness), and the fact that the old structures are no longer sufficient becomes apparent only in the face of a particular disaster.

"The geography of natural disasters", popular mainly in the developed countries, for a long time paid a lot of attention to the problems of the Third World. It was considered a particularly risky area, but in the developed countries the opinion that the limitation of adverse effects of natural disasters is merely a matter of technology and investment was as popular as it was erroneous. The concept of a disaster, or even its objective dimension, greatly depends on the people's habits, their attitude towards nature and administrative regulations. The example of what happened in France about a hundred years ago is a good illustration: during the winter months rains damaged the dirt roads so badly that the numerous, isolated farms in the south of the country were practically cut off. It was not, however, considered a problem, the less so a „disaster", until schooling became obligatory. At that point, farmers began to view the situation in an entirely different way (Péguy 1979). Although the process of civilization and the growing technological potential make the counteracting of natural disasters more effective, man, by losing contact with nature, becomes more susceptible and more exposed to various untypical phenomena and loses the flexibility of action. A question arises, to be asked worldwide, about the degree of centralization in the decision-making on preventive measures, and about

the effectiveness of particular services and administration. The central governments usually react late, but it is easy for them to organize the proper means. The local governments perceive a danger early, but possess limited means only, and, what is more, generally approach the problem only from the viewpoint of their own district or province. Cases are known of local governments, accustomed only to perform the superiors' orders, passively awaiting the decisions from the top. The attitude and the initiative of man in the face of the threat of a natural disaster, also in Europe, depend greatly on such factors as the characteristics of a political system or religion.

"The geography of natural disasters", by bringing to attention various natural and social phenomena and their complex connections, becomes a trend in geography able to contribute significantly to the maintaining, or even constructing unity of our discipline. Practical values of the "geography of natural disasters" (the forecasting of cataclysm, evaluation of danger, co-operation in preventive undertakings, etc.) are unquestionable. In Poland, "the geography of natural disasters" is not considered a separate field of research, in spite of its long traditions (pioneer studies bossed by F. Bujak, for example a chronology of natural disasters, prepared by A. Walawender, 1932). Nevertheless, there appeared a considerable number of publications dealing with the physical geography of the areas threatened by particular calamities, or with the characterization of the courses of such calamities. There are also some works dealing with human geography of natural disasters that are devoted to the countries of the Third World.

#### REFERENCES

- Bail N., 1975. „Ninety per cent of All (Natural) Disasters Occur in Underdeveloped Countries, *Ecologist*, Dec., pp. 368—371.
- Bonte P., 1975. *Sécheresse et impérialisme en Afrique, Économie et politique*, Paris.
- Étienne G., 1972. „Croissance agricole et disparités régionales au Pakistan, in: *Études de géographie tropicale offertes à Pierre Gourou*, Mouton — La Haye, Paris, pp. 151—164.
- Foucher M., 1982. "Esquisse d'une géographie humaine des risques naturels", *Hérodote*, No. 24. pp. 40—67, Paris.
- Lacoste Y., 1976. *Géographie de sous-développement*, Paris.
- Péguy Ch.-P. 1979. „Ordre et desordre des climats". *L'Espace Géographique*, No. 1, pp. 5—14, Paris.
- Sirinanda K.U., 1978. *Climatology and Third World Development*, EADI General Conference, 19—23 Sept. 1978, Milan, Section C3, Environment and Development.

- Swift J., 1973. „Disaster and a Sahelian Nomad Economy”, in: *Drought in Africa*. Report of the 1973 Symposium, School of Oriental and African Studies, University of London, London, pp. 71—78.
- Walawender A., 1932. *Kronika klęsk elementarnych w Polsce i krajach ościennych w latach 1450—1586*. [The chronicle of elementary disasters in Poland and its neighbors from 1450 to 1586] vol. 1—2, Lwów.
- White G., 1974. *Natural disasters*, Oxford University Press, New York.