

Environment and health

Humans form a **dynamic system** with the environment, bound by the exchange of substances mediated by food and water intake as well as by the air. The environment influences man in particular by its effect on his somatic or mental health, on his economic activities, on his level of civilisation and culture and on the formation of his lifestyle.

Man is always interacting with his environment. On the one hand, he is influenced by his environment positively or negatively, and on the other hand, he is constantly changing this environment, either positively or negatively. Man interferes very actively with his environment in order to adapt it to his needs. In the long term, many of these changes are unfavourable, often with disastrous consequences, such as the gigantic waterworks which, particularly in arid areas, are losing their original irrigation value through salinisation of the soil. The same fate has befallen many irrigation systems from ancient times to the present day. Parts of the Mediterranean are marked by agricultural activity and, in particular, by the ruthless logging of the heyday of the *Roman Empire*. In *Latin America*, *Africa* and many other places, agricultural land reclamation continues with the destruction of tropical forests.

Development

At the same time, advances in technology and the shortening intervals of innovation in industrial development are changing the human environment so rapidly that virtually every new generation has to cope with new conditions for its existence. In relation to the conservative biological nature of man, these very rapid changes may become one of the limiting factors in the further development of society. The question of the limits of human adaptive capacity is becoming one of the cardinal issues of hygiene as a scientific discipline.

The threat of depletion of many non-renewable natural resources is emerging. There is an increase in individual consumption, an increase in leisure time and, as a result of the development of transport, an increase in human mobility.

Composition of the environment

The environment is made up of components (constituents):

- natural - soil, water, air, flora, fauna;
- artificial (anthropogenic) - buildings, means of transport;
- social i.e. people who interact with the environment.

We refer to **environmental factors** as:

- temperature,
- radiation,
- Noise level,
- dustiness.

From a functional point of view, according to the predominant activity, we distinguish the environment:

- residential,
- working,
- recreational, etc.

According to the presence of the predominant components, the environment is distinguished into

- natural,
- cultivated (agricultural landscape, parks, etc.),
- artificial (in satellites manned by astronauts).

The environment manifests itself in its influence on humans in many aspects (functions). It is e.g. **health, aesthetic, psychological, economic, utilitarian** etc. The health aspect reflects the negative effects caused by pollution of the basic components of the environment, in close connection with the increase in neuropsychological stress.

The level of the environment is increasingly becoming a reflection of society's concern for people and is thus becoming a political issue of paramount importance.

Care

Care for the environment takes two forms in particular:

- Protecting the environment from the negative effects of human activities and from the adverse effects of natural phenomena
- Creation of the environment by active human intervention in the landscape through construction, etc.

The application of hygiene requirements in environmental care is based on knowledge of the effects that the environment exerts on human health. Health, as defined by the World Health Organization, is understood not only as the absence of disease but also as a state of physical, mental and social well-being.

The effects of the environment are so closely intertwined with lifestyle and health that it is often extremely difficult to determine their real contribution to the condition under normal conditions. In the United States, for example, an attempt was made in the 1950s to investigate the relationship between the level of housing and the health status of the population. After two years of monitoring health status, they moved a large group of residents from substandard slums into new modern housing. A follow-up after another two years showed that their health had deteriorated compared to before the move. Detailed analysis showed that the cause was due to a change in lifestyle, where increased expenditure on rent, clothing, furnishings and some other expenses had led to such a deterioration in the nutritional status of the group under review that their health had deteriorated.

In the development of production, there is an inevitable need to put a certain proportion of resources into caring for the environment. In the 1950s and 1960s, competition from Japanese firms in world markets was increased by burdening industry in Japan with lower production costs at the expense of protecting workers from the negative effects of the production process. A consequence of this situation was that new, previously unknown diseases were given Japanese names, Minamata disease as well as alkylated mercury poisoning, itai-itai (chronic cadmium poisoning), disease yusho (poisoning by rice oil contaminated with polychlorinated biphenyls).

We have an example of what postponing investments necessary to protect the environment and to protect human health from the consequences of pollution leads to. North-western Bohemia and northern Moravia have been one of the most polluted areas, along with the territory of Germany and Poland known as the 'dirty triangle'. Many of our cities either do not treat wastewater at all or the capacity of urban sewage treatment plants is insufficient. In terms of the health of our population in this context, it cannot be overlooked that, together with the former socialist countries, we are one of the countries with the shortest life expectancy in Europe, especially for men.

The evaluation of **ecological** and **health risks** of planned industrial, transport or other construction projects becomes an essential part of their **audit** - it is carried out by district or regional sanitary inspectors as part of preventive supervision. While the initial phase of risk assessment, namely its identification and exposure assessment, is purely scientific, the actual risk assessment, which increasingly involves arbitrary aspects (e.g. safety coefficients), then its communication (*risk communication*) and, above all, its control or, better, its management (*risk management*). An essential component of this system of aspects, or simply stages of evaluation, is how the population that will be or already is exposed to the risk perceives or evaluates it.

The Skrunda Case' In 1967 the radar station in **Skrunda'** (Lithuania) was put into operation. This station, surrounded by forests, did not attract any attention for decades of operation in terms of possible health problems for the operators, the population living in the vicinity of a military area of 1 500 ha. The problems began when, at a time of growing open anti-Soviet sentiment in 1990-91, an ever-growing new building (reaching 19 storeys) appeared above the treetops to house a new generation of radar to supplement and later replace the earlier radar stations. Gradually, as it grew, so did residents' complaints - **neuropsychiatric problems, malignant neoplasms'** and **congenital malformations'** began to appear, and the new, unbuilt station was blamed. The commission that looked into the issue concluded that there was no evidence of negative effects on human health - but this conclusion was subsequently challenged politically. After the building was removed, the complaints ceased, although the old station remained in operation until 1999. This was therefore *collective hysteria over actual or perceived exposure to a toxic substance*.

Chernobyl accident' Another example is the Chernobyl accident, where, apart from an increase in the incidence of carcinoma in the thyroid gland, no other effect of this disaster on the population has been demonstrated. We see the problems of the population in question not as a result of radiation, but because of the psychological damage caused by the lack of information both immediately after the accident and in the period afterwards, in concern about possible late health effects. Their common denominator is psychological infection (here anxiety mixed with hostility to Soviet power). Both anxiety and collective rallying against the enemy set the stage for greater suggestibility - which is then responsible for the similarity to uniformity of symptoms in similar epidemics. In such cases, the symptoms can be considered objective in the sense that the patients are really suffering from them: uncertainty about the future leads to chronic fatigue, headaches, insomnia and many subacute vegetative symptoms.

The term '**somatization** introduced by ICD-10 (ICD-10: Template:MKN) describes the consequences of the '**dualistic division of man into** 'body' and 'soul'. '**Brain stem**' and limbic system are the structures where psychic processes are somatized = manifested quite materially in the form of **vegetative** and **motor** reactions. In further development, the explanatory model of the sufferer plays an important role, which in this case is **xenochthonic** (the cause of all difficulties comes from outside) and is clear to the sufferer (radar). The linear causal model then allows the reversal of causes and effects into the form: external noxa - health post. - Increasing Anxiety, but a more consistent sequence of increasing anxiety - vegetative accompaniment - outward projection.

Links

Sources

- BENCKO, Vladimír. *Hygiena : Učební texty k seminářům a praktickým cvičením*. 2. přepracované a doplněné vydání edition. Prague : Karolinum, 2002. 205 pp. pp. 202 – 204, 11 – 13. ISBN 80-7184-551-5.

