

INTEGRAL SAFETY

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INTEGRÁLNÍ BEZPEČNOST

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ABSTRAKT

THE PAPER DEALS WITH RELATION BETWEEN SAFETY AND SECURITY. IT SHOWS THE ADVANTAGES OF INTEGRAL SAFETY AND REASONS WHY IT HAS BEEN SLOWLY APPLIED IN THE DAILY PRACTICE.

KEY WORDS: *safety; security; complexity; society; vulnerability.*

ABSTRAKT

PŘÍSPĚVEK SE ZABÝVÁ VZTAHEM MEZI BEZPEČNOSTÍ A ZABEZPEČENÍM. UKAZUJE VÝHODY INTEGRÁLNÍ BEZPEČNOSTI A DŮVODY, PROČ JE TENTO KONCEPT POMALU APLIKOVÁN V KAŽDODENNÍ PRAXI.

KLÍČOVÁ SLOVA: *bezpečnost; zabezpečení; složitost; společnost; zranitelnost.*

1. Introduction

Globalisation, on the one hand, and regionalisation or decentralisation (e.g. the idea of 'Europe of the regions') on the other hand mean mutually complementary processes that are often expressed by the slogan "think globally, act locally". However, their implementation requires that the attitude to security and safety might be reconsidered, on the one hand in the context of the growing complexity and vulnerability of contemporary society (critical processes, critical elements, critical objects, critical infrastructure and its functions) and on the other hand in the context of the undeniable changes that we observe (and may expect) in the human system, e.g.:

- in the environment, it goes on climate changes, landscape changes, etc.,
- and in the human society, it goes on dehumanization, great dependence of individuals on property, loss of such values as friendship, etc.

2. Safety and security

Considering the contexts mentioned above, it is clear that security and safety need to have a wider social dimension, i.e. they need to express social, economic, cultural and ethno-political factors, and all government offices need to deal with them. This pays not only for central public authorities, but also for local public authorities and, in fact, for all those involved [1]. The public administration's position on security and safety for the citizen legitimizes its activity. The public administration is responsible for security and safety in the entrusted territory, namely for all facilities inserted in it, i.e. the safety should be continually a public service that does not deregulate or privatise. Thus, the starting points for the concept of safety have a much broader basis than previously formulated safety on the state level.

At present, the division of safety into external and internal is no longer sufficient, but safety needs to be understood from a systemic point of view [1]. From the system viewpoint, ensuring the safety is the basic requirements on system as a whole, not only demands on its components; system scheme of safety management at certain situation is shown in Figure 1. From the process model of building the safety and security in Figure 1, it is clear the relation between safety and security; their often-discussed conflict is removed.

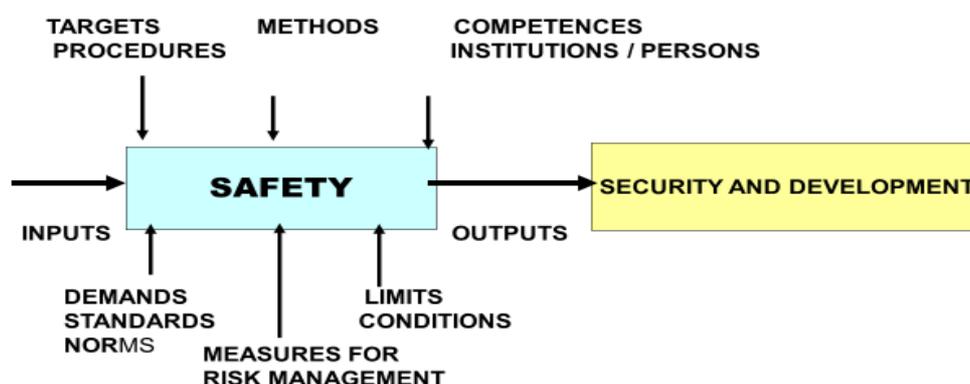


Figure 1. Process model for ensuring the security and development of entity.

1. Security policy should cover a causal chain that solves the safety issues. The integral safety is not limited to unilateral solutions in the event of problems such as repression, but it deals with situations affecting a certain level of safety through so-called "the safety chain", which consists of the following parts:

- proactivity (it eliminates the structural causes of uncertainty that undermines the safety, i.e. they threaten security and sustainable development),
- prevention (it eliminates direct causes of precarious situations infringing the present safety, if possible),
- preparedness (it addresses to situations in which safety is impaired),
- repression - response (it manages faults of safety, stabilises the situation and ensures conditions for recovery and growth of safety).

2. The level of danger is territorially dispersed, and this dispersion is not even. Some safety problems are concentrated in certain areas, with types of safety problems (i.e. in terms of work [1] (disasters)) may not be and in practice are usually not the same.

3. Public administration often faces ineffective and inefficient solutions to safety problems. This fact is the result of the so-called "safety bureaucracy", which does not deal at all with the causal chain of safety. It is the result of a lack of understanding the concept of safety in reality (in a given case), i.e. it is the consequence of misunderstanding the links associated with the creation of safety and security as shown in Figure 1, which shows that the level of safety predetermines the level of security of the system (i.e. the territory or technical facility which we monitor).

3. Integral safety advantages

The concept of integral safety is slowly expanding in practice for the reasons set out in [1]:

- Integrity is understood more as an organizational aspect with horizontal and vertical connection among components / organs, i.e. not in the concept of a system with components, linkages and flows, and its understanding is mainly associated with police forces or the military.
- There is still no satisfactory and generally accepted definition of integral safety in legislation.

- Implementation of the concept of integral safety is in practice time-consuming (especially in domain of data collection and their analyses).
- Local public authorities do not know "to deal with safety problems" because they focus too much on local problems.

However, the safety as a quantity / measure expressing the certain system behaviour, is not and cannot be isolated from its background. Each system and its surroundings are in interdependent relationship, which is due to the fact that each system is open system. The relationship in question can be characterized by some attribute of the system, such as adaptability, durability, flexibility and reliability [4].

To the concept of integral safety, they belong life-supporting functions, the risks of which with regard to human health, ecosystems and system safety are minimized. These are, in particular, possible non-demanded and unacceptable impacts, e.g.:

- industrial agriculture with regard to food safety,
- contamination of the environment,
- climate changes,
- lack of natural resources, energy and water,
- poverty and migration of humans,
- social discrimination,
- industrialisation and misuse of technologies,
- and gene manipulation.

It is, therefore, apparent that the security (in other words the system condition and its protected assets conditions) in relation to the environment needs to be specified in the context of sustainable development, i.e. to ensure its provision, the disasters should be monitored in the concept defined at work [1].

The Johannesburg World Summit on Sustainable Development has pointed out that the development in question needs to be carried out primarily at local level and should be focused on the following objectives:

- environmental quality protection,
- quality of human life (health and human security, social justice),
- resilience to disasters,
- and economic vitality.

Sustainable development is not a static state (conditions) of harmony of society and the environment, but it is a process of changes in resource use, technologies' focuses and institutional transformations in order to avoid possible irreversible difficulties. It is just one of the possible dynamic models of the development of the human system. However, in practice, especially in public administration decisions, the concept of sustainable development is not more pronounced. Intuitively, however, it can be assumed that development requires a certain degree of sureness and stability, which are significant attributes of safety and security.

Integral safety is directly linked to the concept of sustainable development, as it can be characterised as a set of conditions under which humans are protected. By these conditions, it is strengthened the humans' ability to cope with serious and sudden threats to their survival (biological and social) and existence (health and housing), namely including the access to society's resources and the respect of human dignity [1]. Pillars of sustainable development are:

- environmental protection being related to environmental, technological and health safety,
- economic development being in relation to social, economic and technological safety,
- social development being linked to social, cultural, legislative and political safety.

4. Integral safety rating

Integral safety is measured using the indicators that already have a large number [1]. Indicators relevant to technical facilities were introduced by the OECD in 1992 [5]. In practice, it is always necessary to select indicators that are relevant to the objective of the task addressed; choice is a critical activity and the success of the solution is dependent on it. It should be noted that in practice the following types of indicators are used:

- contextual (input and output relationship),
- causal,
- trending,
- and stative (measuring the conditions).

According to the works [1,5] for the assessment of indicators, they are used the criteria for assessing:

- the validity, where there are evaluated aspects such as:
 - relevance and importance,
 - appropriate measuring scale,
 - correctness (relation to the system examined),
 - sensitivity (how system responds to changes),
 - distinguishability (resolution of natural variability from mand-made changes),
- the clarity, when there are evaluated aspects such as:
 - understanding (appropriateness of indicators for decision-making),
 - simplicity,
 - compliance with the interests of the public,
 - the possibility of presentation and documentation,
- the interpretation, when there are evaluated aspects such as:
 - robustness (the calculation is transparent and defensible),
 - interpretability (to current status, changes and trends),
 - credibility (the direction of change reflects certain experiences),
 - trend evaluation,
- the information richness,
- the data availability, when there are evaluated aspects such as:
 - sources for immediate use,
 - time series,
 - the possibility of updating,
 - updating,
 - topicality,
 - anticipation and symptoms of warning,
 - cost-check and feasibility,
 - comparison of the costs and benefits of the indicator,
 - ease of quantification
 - the cost of collecting data,
 - the ease of calculations
- the procedure of work with indicators.

This overview may be supplemented by a selection of appropriate measuring and evaluation scales and a description of the data type: time series, spatial data from GIS, relative or aggregated data, average, median, percentile, distribution function, etc.



In the main text, the procedure of integral safety classification is based on multicriterial approach using the theory of utility [6] – it is constructed the decision support system for determination of criticality rate and the relation [7] is used:

rate of safety = 1 – rate of criticality.

5. Conclusion

Safety and security are important attributes of each entity. Security is the rate of entity condition and the safety is the rate of entity measures that entity provides for ensuring its condition [1]. Integral safety is related to the whole entity and it is important entity attribute because it ensures whole entity security. The entity integral safety management enables to ensure the coexistence of entity with its surrounding [8], which is the ground for the sustainable development of the world. Understanding, rating and making up the integral safety are not easy, because they need to apply the system concept and system thinking, the knowledge of which has not been generally applied in daily practice yet.

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