

SUSTAINABILITY ASPECTS OF DISASTER MANAGEMENT

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Abstract

The professional disaster management organization is the law enforcement body responsible for the safety of Hungary. When examining the basic objectives of disaster management, it becomes abundantly clear that applying, establishing and maintaining tools, equipment and operational conditions that may have harmful impacts on the environment are essential in accomplishing these objectives.

In this paper, the author introduces the sustainability aspects considered by the National Directorate General for Disaster Management of the Ministry of the Interior (NDGDM) in order to ensure sustainable development. The author also examines how these aspects have been applied, what activities and measures have been taken.

Keywords: Sustainable development, disaster management, sustainability program, environmental and sustainability agent

Összefoglalás

A hivatásos katasztrófavédelmi szervezet Magyarország biztonságáért felelős rendvédelmi szerv. Alaprendeltetését figyelembe véve, szükségesek olyan eszközök, felszerelések, működési feltételek alkalmazása, kialakítása, fenntartása, melyeknek vannak környezetet terhelő hatásai.

A szerző jelen publikációjában kísérletet tesz annak bemutatására, hogy a fenntartható fejlődés érdekében a BM Országos Katasztrófavédelmi Főigazgatóság (BM OKF) milyen fenntarthatósági szempontokat vesz figyelembe, illetve azokat hogyan érvényesítette, milyen tevékenységeket, intézkedéseket hozott eddig.

Kulcsszavak: Fenntartható fejlődés, katasztrófavédelem, fenntarthatósági program, környezetvédelmi,- fenntarthatósági megbízott

Introduction

By the 21st century, efforts and measures to secure a safe environment have become an integral part of the basic demands in our society. These have grown to be an ever-increasing social demand from the population – despite the technological advances of the present day (Teknős, 2015). Security has become the second most important aspect after elementary physiological needs as displayed in the Maslow hierarchy of needs. Security, on a social level, stands for a self-sustaining need that focuses on community-level survival (Teknős, 2017).

Hungary builds its security on three principal pillars: on its *domestic national means*, on the Euro-Atlantic integration and on international co-operation (Szenes, 2014). When discussing

domestic national resources, in relation to securing the protection of the population and material goods, the notion of disaster management is clearly present. Especially in the light of the fact that Act CXXVIII of 2011 clearly states “*disaster management is a national matter. The unified management of the protection is a national duty*” (URL1). Therefore, protection activities as well as the eradication of the consequences of disasters must be provided for by the continuous and strict harmonization of organs created for this purpose, the local authorities and state organs; altogether: with the involvement as well as co-ordination of all those participating in disaster management. The *professional disaster management organization* has an important task in this system, since its basic purpose is the protection of life and property of the Hungarian population as well as the security of the safe operation of the Hungarian national economy and the elements of the critical infrastructure.

Present paper examines the measures taken for the sustainability of the professional disaster management organization from the perspective of the relationship between sustainable development and state participation. With respect to this, the author anticipates the fact that tasks undertaken to further the criteria of sustainable development increase the chances for a high quality performance of the requirements incorporated in the basic objectives.

Materials and methods

Data introducing the activities of the professional disaster management organization are published in the yearbooks of 2016, 2017 and 2018. Concerning missions, the statistical database of MI NDGDM, KAP-online, has also been used. In the various years, delivered tasks in relation to the aspects of sustainable development as well as the related data were provided

by the annual sustainability report of IM National Directorate General for Disaster Management.

Results and Discussion

The National Framework Strategy on Sustainable Development defines the notion of sustainable development as follows: „*Sustainable development is aimed at enhancing a happy and senseful human life and at expanding public well-being while containing human actions within the limits of Earth’s carrying capacity, maintaining and developing the quality and quantity of expandable human, social and economic resources...*” (URL2). Based on the latter quote, we can state, that sustainable development is the mutual interrelation of all natural resources (human, social, environmental and economical) in a way that their qualitative and quantitative state, their character, status, accessibility-availability, employability do not negatively influence the natural and built environment of a given region, they do not exert harmful (irreversible) impacts, natural processes. Angéla Anda defines sustainability as follows: “*...if the economy serves the demands of the society in a way that it does not deteriorate the future generations’ conditions for life. Included in this is the notion that we do not deplete natural resources and we do not, in any way, impede the natural regeneration of our environment*” (Anda et al., 2011). According to Sándor Kerekes “*sustainable development does not require the limitation of our demands, it merely motivates us to attempt to satisfy them by the consumption of less materials and energy and to minimize the polluting effects of production*” (Kerekes, 2017). Based on the above notions, we can establish that the purpose of sustainable development is the creation of a self-regulating system that enables the operation

of the environment by eliminating the “over-use” of the environment and it helps the maintenance of human quality of life (URL3).

According to Indrajit Pal et al., the Sendai Framework for Disaster Risk Reduction (SFDRR), the Paris Agreement, and the Sustainable Development Goals (SDGs) are crucial in promoting the effectiveness of (disaster) risk reduction mechanisms in governments, such as sustainable, equitable (impartial) economy, society, and environmental development (Pal et. al., 2020). Based on disaster research, data collection and the results of the statistical analysis, it is possible to make recommendations for the government and political decision-making (Papp 2019). Indrajit Pal et al. argue that Sendai Framework for Disaster Risk Reduction (SFDRR) contributes to sustainable development, as well as the sustainable development goals support disaster risk reduction. Sustainable development may indeed be a solution to the global challenges of the modern age, but, since we are talking about interconnected systems, personal participation, as well as the state’s commitment on a national level determine global attitudes and the qualitative outcomes and results of the series of actions to be taken. Global problems require responsible global answers; where the principle issue is what a nation will do for their own, and for humankind’s sustainable development, and how the central power co-ordinates, directs and manages these efforts.

The professional disaster management organization is the law enforcement body responsible for the safety of Hungary. To perform its basic objectives, it requires instruments (e.g. vehicles for missions, for performing administrative duties, etc.) that release harmful emissions. The disaster management’s staff size of 12 thousand envisages the fact that there has to be harmful material emission, energy, water, fuel consumption, etc. associated with their operation. However, it can also be concluded, that the organization seeks an environmentally friendly operation in a way that it maintains the efficiency for the performance of its duties stemming

from its basic objectives. This limits the scope for “environmentally friendlier” operation, however it can be concluded that there are outstanding results from the point of view of the criteria of sustainable development.

Measures taken by the professional disaster management organization supporting sustainable development between 2012 and 2019:¹

- The separate collection and monthly delivery of used printing toner cartridges for reuse.
- During the execution of the refurbishment project, energy efficient solutions were taken into account (e.g. fluorescent tubes, motion sensor operated lighting, etc.). Enhancing effectiveness in relation to energy and water consumption. Refurbishing of water facilities (e.g. showers and toilets), installation of motion sensors.
- The renovation of the garage building of 41 Mogyoródi str. belonging to MI NDGDM: façade thermal insulation, replacing copolyte glass to walling, roof renovation.
- The exchange of area lightning apparatuses belonging to MI NDGDM into LED devices in order to reduce specific energy consumption.
- The installation of modern inverter air conditioning devices.
- Introduced the selective collection of batteries.
- Preparation and closure of agreements relating to the recycling and shredding of office paper waste generated in the office premises of MI NDGDM.
- Set up regional health centers (Szeged, Csorna, Debrecen) in order to reduce commuting.
- Establishing bicycle storages to support employees in commuting via bicycle.
- The reconstruction of the sustainability management system. Appointment of environmental/sustainability officer. The elaboration of the sustainability policy of MI NDGDM, the preparation of internal regulator.

¹ Without being exhaustive.

- Assigned energy policy officers for all departments, who draws the attention of colleagues to energy efficiency issues in relation to energy and water consumption.
- In co-operation with BM HEROS Zrt., the development of a new type of fire engine with a significantly lower emission rate.
- The decommissioning, and taking out of the system as well as recycling of outdated (non-conform with current environmental regulations) personal vehicles from the pool of the disaster management.
- On 20 December 2018, in the framework of a tender, MI NDGDM handed over 54 electric personal vehicles for use by the disaster management organizational units undertaking authority and official inspection duties. Undertook the installment of 64 fast charge stations at 32 disaster management locations nationwide; 8 of these are to be established on MI NDGDM premises by 30 June 2019.
- New command center construction and refurbishment projects. The improvement of the accommodation of the professional firefighting staff, in order to secure a higher level of performance for their basic objectives.



Figure 1. Examples of more modern disaster management for a more environmentally friendly organizational operation

It is clear that many aspects have been elaborated, such as the increase of the energy efficiency of the buildings (the subsequent heat insulation for the external structures of the buildings, the exchange of external doors and windows); the improvement of the performance of main system elements and heat production devices; the application of a more modern vehicle pool; eco-conscious education; waste management; preventive health care-recreation; fire station building programs; options for the application of renewable energy (geothermal, solar) etc.; which, altogether, contribute towards a more sustainable law enforcement following the principles of environmental protection.

Conclusion

In line with the basic principles of the European Union and the National Framework Strategy on Sustainable Development, the official organizational units of the Ministry of Interior as well as organizational units supporting the official activities of the Ministry, the autonomous organizations under the direction of the Minister of Interior (such as the professional disaster management organization) place a great emphasis on the elaboration and maintenance of a more economic and more eco-friendly operation, and also contribute to improving the conditions in the society. They consider and enforce the criteria of sustainability in their operations, within their capabilities.

Accordingly, the following criteria are to be met: (URL4)

- Planning and provisions serving sustainable development
- Preference to products that are more beneficial from an environmental point of view
- The reduction of instrument, energy and water use

- Waste management: a strive towards the reduction of the entire amount of waste generated, and to increase the ratio of waste handed over for reuse.
- Procurements: eco-friendly, lower energy-consumption, re-cycled products, instruments, solutions should come to the foreground and receive priorities.
- Instead of vehicle use, the consideration of other means of transportation
- Increasing the general awareness and pool of knowledge on sustainability for the staff
- Health prevention
- The development of public administration: the active participation of the colleagues in the formulation of an environmentally responsible public administration that conforms with the principles of sustainable development

As the managing body of the MI NDGDM is the Ministry of Interior, the above criteria must appear among their objectives. The professional disaster management organization intends to support the principles of sustainable development, as well as its sustainability:

- The monitoring and observance of legislation in relation to environmental protection.
- The continuous analysis of the performance data of MI NDGDM from an environmental aspect.
- The preservation, improvement of the status of the environment. The application of ecologically friendly procedures and methodologies in the activities of the organization. The economical use of natural resources, conscious resource management. Striving towards effectiveness in renovations concerning energy and water consumption.
- Minimizing environmental pollution – modernizing the vehicular pool, improving its environmental features.
- Recycling of generated waste in an increasing ratio, the establishment of the conditions for selective waste collection while reducing the total amount of generated waste.

- In procurement, the requirements for fulfilling real demands and for a prolonged use must be satisfied, while domestic businesses with environment management systems in place to be preferred as vendors.
- The improvement of the accommodation of the staff – station modernization, renovation programs.
- Supporting the recreation of colleagues. Improvement of health prevention conditions at the workplaces (dental treatment, gym, sauna, weekly working hour premiums for sporting activities). The environmental-centric improvement of the conditions for getting to work (enhancement of bicycle storage capacity).
- The continuous improvement of the eco-friendly behaviors and attitudes of the staff: Familiarizing with and applying the possibilities of diligent treatment of natural resources (energy and water efficiency, reduction of waste, etc.) It is important that the environmental aspects are present and considered in the activities of people working in the various professional areas and fields in an integrated way.
- The dissemination of organizational information related to sustainability via the intranet. MI NDGDM makes electronic knowledge sharing possible for the staff. Its purpose is to introduce good examples practiced by colleagues in relation to the subject of sustainability, to share sustainability information, etc.
- In relation to event organization, MI NDGDM considers sustainability aspects. As much as possible, it organizes video and teleconferences with partners and prefers the application of online communication channels.

The basic objective for the organization is the protection of the population and material assets. In the framework of this, during the performance of the daily tasks, there are incurring effects and loads concerning the environment (documents, water use of missions, the operation

of buildings, use of vehicle pool). However, it can be clearly concluded, that, by means of director general-level measures, regulations, action plans, organizational units, a possibility has arisen for the securing of a more sustainable operation. Based on the activities introduced annually, it can be established, that the leaders of MI NDGDM ensure the compliance with those incorporated in the Sustainable Development Regulations, and ensure the endorsement and performance of the objectives set therein. The system of direct and indirect activities supports the preservation and improvement of the environment, a more conscious resource management, the minimizing of the environmental pollution within the means, the more efficient use of natural resources, the increase of environmental awareness. These altogether can favorably influence the perception and image of the organization, contributing toward the endorsement of the aspects of sustainable development.

In summary, it can be concluded that MI NDGDM follows the environmental, sustainability principles of the Ministry of Interior. It ensures the enforcement of the sustainability aspects by means of an organizational unit enforced by experts (Environmental and Sustainability Work Group).

The performance of its goals and objectives takes place over a range of fields, such as the fields of fire protection, civil protection, industrial security, integrated authority, as well as technical-logistical-economical fields. In 2018, the tasks performed in relation to the various fields can be summarized as follows. The number of response events in year 2018 was 44,583 (15,330 fire and 29,253 technical rescue incidents), which is a 19% reduction compared to 2017 but a 15% increase in comparison with 2016. The member data of voluntary rescue organizations shows a very significant increase as the figure was 1,400 in 2012, while by 2018 this number had reached 20,200. The application of all rescue organizations (as supplementary forces to the professional forces) manifested in a number of various forms of supporting

activities in 2018, the most outstanding ones are search for missing persons (87 occasions), technical rescue (58 occasions), flood control and flood rescue (47 occasions). On the field of fire prevention, 59,991 official inspections were conducted by the fire authority, and 55,040 official procedures were conducted (this number was 72,512 in 2017). In the field of water and water protection authority, altogether 27,475 official procedures were conducted.

When examining the tasks in relation to the objectives, it is clear that there is a close relationship in a number of professional fields, authority competences, with high incident numbers, case numbers, authority tasks and inspections (carrying out daily duties) etc. The performance of these tasks has an ecological impact. Nevertheless, the professional fields determining the system of objectives for the professional disaster management organization are suitable for the preservation of the values of sustainable development, for the adherence and maintenance of the related criteria.

Tasks undertaken to perform the sustainable development objectives clearly increase the high-quality performance of tasks enclosed within the basic objectives, as the procured modern vehicles, instruments, equipment, more modern command centers, management principles, more developed mission methodologies etc. altogether improve the professional character, capabilities of the professional disaster management.

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