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## Threats for public safety in the 21<sup>ST</sup> Century

**Grzegorz Biszko**

Institute of Naval Operations, Faculty of Command and Naval Operations,  
Polish Naval Academy, 69 Smidowicza St., 81-127 Gdynia, Poland

E-mail address: [biszop6@interia.pl](mailto:biszop6@interia.pl)

### ABSTRACT

The aim of the following paper is to present the threats that have a direct impact on social development. The article adopts the distinction of threats into primary and secondary ones. The former entails natural phenomena such as the movement of tectonic plates, various forms of precipitation, or ambient temperature, both high and low. They result in floods, fires, earthquakes and massive water movements, e.g. tsunamis, responsible for the damage of industrial and public infrastructure as well as private properties. Secondary threats are results of human activity. Industrial growth and technological advance lead to unsustainable exploitation of natural resources and change the demand for workforce in terms of both quality and quantity. Such threats to safety can be identified, resolved and prevented as opposed to those targeted directly at a given country, e.g. terrorism or cyber attacks. Often unexpected, they become increasingly common. It is essential for public administrations to detect and recognise both kinds of threats in order to react in time and minimise their negative effects.

**Keywords:** safety, primary threats, secondary threats, natural disasters, disasters, terrorism, cyber threats

### 1. INTRODUCTION

Public safety is one of the prerequisites for a stable social development. Personal safety contributes to efficiency, growth, professional performance and, most importantly, to a sense of purpose. Stress and various diseases, mainly those of the central nervous system, disturb the state of wellbeing. Unfortunately, the 21<sup>st</sup> century is the time of a rapidly increasing pace

of life made possible by a progressive exploitation of natural resources. This in turn often leads to irreversible damage to fauna and flora. Political, cultural and economic processes also have a considerable influence on safety.

The opposing concept of a 'threat' is simply defined as a possibility of danger (Kunikowski et al. 2006). Individuals and whole societies commonly protect safety as the highest value. To provide safety is to meet one of the basic needs that exerts a huge impact on a balanced development in terms of demography, politics, economy and science. To be safe is to be certain and free of anxiety.

Threats contribute to the lack of safety and evoke the feeling of uncertainty. The first step to counter a threat is its proper identification. Natural hazards, including those human-induced, tend to be extremely harmful for urban areas, leading to a large number of casualties, but at least it's the fight against a 'known enemy' as opposed to purely human-induced threats. Unfortunately, these are in many cases undetectable and more often than not fatal.

Thus, it is of utmost importance to provide considerable financial support for institutions responsible for identification, warning and elimination of threats in the public space.

## **2. THREATS AND PUBLIC SAFETY**

### **2. 1. Basic definitions**

According to "Internetowa encyklopedia PWN" (PWN Encyclopaedia Online), a 'threat' is a 'situation or state that poses danger or in which someone feels in danger; also: someone responsible for such situation' (WN PWN SA 2017). This definition implies that, in terms of safety, anything responsible for our discomfort can be treated as a threat, e.g. an immediate action of another individual or a natural phenomenon.

Similarly, 'safety' means a 'lack of threat' (WN PWN SA 2017). It's a situation in which one's existence is not endangered but provided with a room for improvement. To be safe means to experience an acceptable level of the risk of losing something especially valuable, e.g. life, health, job, respect, feelings, material or immaterial goods. Safety is one of the basic needs of a human being and, thus, can be extrapolated to a whole community, state and supranational units. Its lack results in a sense of danger and anxiety. One can distinguish many kinds of safety (e.g. public, active, passive, social, road, etc.) and security (e.g. collective, energy, etc.).

The term 'public safety' is defined as a 'set of conditions and institutions ensuring the safety of citizens, national property, political system and sovereignty from any threats to law and order, mainly in a state of emergency' (WN PWN SA 2017).

### **2. 2. Characteristics of threats**

In the literature on safety, there are many classifications of threats depending on the matter in question. Any threats to people, property and environment caused by natural forces are referred to as 'primary', whereas those human-induced are classified as 'secondary'.

#### **2. 2. 1. Primary threats**

Earthquakes, floods, storms, snowstorms, fires, rain, fog and frost all fall into the first category. Unfortunately, even though we can predict and sufficiently prepare for natural

hazards, the scope of their effects is unpredictable. The scale of damage is often huge. In 2005, Hurricane Katrina destroyed 80% of New Orleans. Below, selected examples of natural hazards are presented in detail.

### **2. 2. 1. 1. Earthquake**

An earthquake is a discharge of tectonic stress in the Earth's crust caused by the movement of rock layers. Depending on a cause, we distinguish:

- volcanic e. – induced by the movement of magma;
- tectonic e. – along the boundary between two tectonic plates, induced by their collision;
- collapse e. –induced when the roof of a solution cave collapses;
- anthropogenic e. –caused by human activity, e.g. mining or damming.

On 25<sup>th</sup> April 2015, there was an earthquake in Nepal caused by the collision of tectonic plates over the area 150-200 km long and 50-60 km broad. Nearly ten thousand people died and many lost their homes.



**Figure1.** Kathmandu. The aftermath of an earthquake in 2015.

(Source: <http://wiadomosci.dziennik.pl/swiat/zdjecia/galeria/489184,1,katmandu-grozi-epidemia-nepalski-lekarz-ona-raczej-sie-wydarzy.html>)

### **2. 2. 1. 2. Flood**

A flood is a hydrological phenomenon. It is an overflow of river, lake or sea water that submerges large areas of what is normally a dry land. Typology:

- pluvial f. –results from excessive rain;
- thaw f. – results from melting of large amounts of snow;
- winter f. – results from ice phenomena, e.g. ice jams;

- coastal f. – results from a severe storm on the coast and inland water bodies.

In 2010, a torrential downpour raised water level in the Vistula River. The water flooded Cracow, broke a levee in Nowa Huta and covered Silesia. The flood wave reached Sandomierz and moved up north. The same year, flood danger was also reported on the Odra River.



**Figure 2.**Sandomierz in May 2010.

(Source: <http://www.990px.pl/index.php/2010/08/13/czlowiek-vs-zywiol/>)

### 2. 2. 1. 3. Storm



**Figure 3.** The National Stadium before the match between Poland and England in 2012  
(Radio Muzyka Fakty Grupa RMF sp. z o. o. sp. k. 2012).

A storm is a sudden rain or rain with hail accompanied by overcast and sudden electrostatic discharges. In 2012, an elimination match for the 2014 FIFA World Cup had to be cancelled due to a torrential rain that changed the PGE Narodowy, National Stadium, into a national swimming pool (Radio Muzyka Fakty Grupa RMF sp. z o.o. sp. k. 2012). Despite unfavourable weather reports, the retractable roof had not been closed (Biszko 2014: 35).

#### **2. 2. 1. 4. Fog**

A fog is a thick mass of water droplets suspended in the atmosphere, which restricts visibility. Typology:

- radiation f. – forms when a surface radiates heat, cooling below the dew point; radiation fogs occur at night when the sky is clear;
- advection f. – forms when warm and moist air moves over a cold surface;
- frontal f. – forms near a front where a mass of warm and moist air slides over a mass of cool air; the resulting vapour cools below the dew point and condenses;
- smog– a blend of smoke, exhaust emissions and fog that forms over urban areas when the air is still.

Near the end of January 2017, there was a multiple vehicle collision in both directions on the A1 highway (Infor Biznes Sp. z o.o. 2017). The total of 76 vehicles were damaged as a result of a morning fog developing ice on the road.



**Figure 4.** A multiple vehicle collision on the A1 highway  
(Infor Biznes Sp. z o. o. 2017).

#### **2. 2. 1. 5. Frost**

Frost is a state when air temperature measured at the height of 2 m above the ground falls below 0 °C for over a day. Depending on frost severity (temperature), we distinguish:

- slight f.;

- moderate f.;
- severe f.;
- very severe f.

Precipitation can take the form of water droplets (rain) or ice crystals (snow). When accompanied by wind or frost, heavy and prolonged raining or snowing can lead to floods or snowdrift formation.



**Figure 5.** A snowstorm in Małopolska in 2013.  
(Source: <http://krolowa-superstar.blog.pl/tag/sniezyce/page/40/>)

#### **2. 2. 1. 6. Fire**

A fire is a destructive, uncontrollable and spontaneous process of burning. Depending on the cause, we distinguish:

- naturally-caused f., e.g. a result of a lightning strike;
- human-induced f., e.g. a result of an arson.

#### **2. 2. 1. 7. Natural disaster**

A natural disaster is a natural phenomenon that disturbs proper functioning of a community in a given area, usually causing a considerable damage.

#### **2. 2. 2. Secondary threats**

The second category entails human-induced threats. It seems that, as opposed to natural phenomena – unpredictable in both character and scope – it is possible to prepare for secondary threats: appoint tasks, estimate danger and take measures to minimise their effects. Unfortunately, experience shows that modern-age threats arise from human activity and are, thus, culture-related (Kiepas 1992: 11). The following list comprises threats that have the biggest impact on the functioning of societies:

- terrorist attacks;
- armed conflicts;
- industrial accidents; chemical, biological and environmental disasters;
- construction site accidents;
- terrorism;
- cyberthreats;
- unemployment;
- social threats.

### **2. 2. 2. 1. Terrorist attacks**

When it comes to public safety, terror-related violation of human health, life and property seems to be the most pressing issue (Bonisławska 2012: 115).

By definition, a terrorist attack is one of the combat elements of terrorist organisations used to achieve a certain goal both illegally and by breaching social norms. In the modern world, there are many events that bear traces of a terrorist attack.

On 15<sup>th</sup> April 2013, two homemade bombs detonated during the Boston Marathon in the U.S. (Polska Press sp. z o. o. 2013.). Three people died and about 140 were injured. The running event gathered 27 000 participants from 96 countries, including 29 Poles (Biszko 2014: 37).



**Figure 6.** Boston Marathon bombing in 2013  
(Polska Press sp. z o. o. 2013).

At this point, it is important to mention hooliganism. Only indirectly qualifying as a form of terrorism, this issue has a considerable impact on the sense of safety at a given time and place as illustrated by vandalism and flare burning during the match between Arka Gdynia and Lechia Gdańsk at the Tricity Derby in 2016 (Polska Press Sp. z o.o. 2016). The damage was estimated at tens of thousands of zlotys.

### 2. 2. 2. 2. Industrial accidents

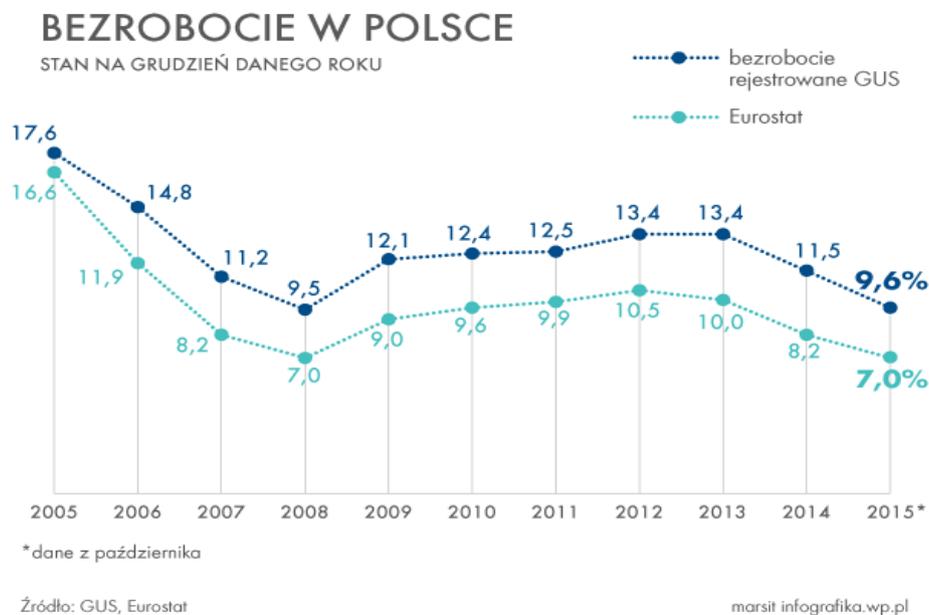
When referring to industrial facilities, an accident or a disaster is a serious, sudden and unexpected failure that disrupts or disables the functioning of an object and leads to property damage, injury or death. It is usually caused by inconsiderate exploitation of natural resources and industrial environment, but cases involving the influence of natural forces on industrial centres are also known.

In September 2001, there was an explosion in a chemical factory in Toulouse, France (Radio Muzyka Fakty Grupa RMF sp. z o.o. sp. k. 2001). Twenty nine people died, more than a dozen went missing and nearly 660 were injured. Experts compared it to an earthquake with an intensity of nearly 3.5 points on the Richter scale.

### 2. 2. 2. 3. Construction site accidents

This type of threats relates to housing, industrial and public infrastructure. A good example is posed by the collapse of a suspended ceiling in a supermarket belonging to a chain of discount stores Biedronka in December 2016 in Gliwice.

### 2. 2. 2. 4. Social threats



**Figure 7.** Unemployment rate in the years 2005-2015.

(Source: <http://www.money.pl/gospodarka/raporty/artukul/bezrobocie-w-polsce-praktycznie-180,0,1969844.html>)

Social threats define the risk of losing health or life or else national or ethnic identity. Unlike site- and size-limited threats, these have an impact on public safety and, thus, are relevant to the whole community (Bonisławska 2012: 124). Balcerowicz (1997: 74) lists:

- violation of human rights;
- cultural and religious prejudice;
- discrimination of minority groups
- restriction of media freedom;
- nationalism;
- social pathology;
- drug abuse;
- demographic crisis.

The list should also include unemployment. Social changes, new technologies, and unprofitability of businesses all enforce employment reduction. Unfortunately, lower income means lower spending, but most importantly causes stress leading to the loss of mental health, social pathology and family disintegration.

### **2. 2. 2. 5. Terrorism**

Terrorism is one of the dominating and constantly evolving threats in the modern society (Szkoła Główna Handlowa w Warszawie 2011). Taking preventive actions, i.e. antiterrorism, is a matter of global importance. In the 21<sup>st</sup> century, the activity of terrorist organisations is especially pronounced. Terror and violence have become valuable measures to achieve certain goals by radical groups. Unfortunately, for a long time now, terrorists have aimed not only at military targets, e.g. barracks or vehicles, but also random civilians in civil infrastructure, e.g. airports, cinemas, metro stations or shopping centres. Will the world defeat terrorism? The answer is negative. Changes, growing human needs, resentment and hostility maintain the presence of those willing to do evil and cause damage – people who lack moral fibre and those religiously indoctrinated by spiritual leaders.



**Figure 8.** The U.S. Embassy in Beirut, 1993.

(Source: [https://fr.wikipedia.org/wiki/Liste\\_d'attaques\\_terroristes\\_islamistes#/media/File:BombenanschlagUS-BotschaftBeirut.jpg](https://fr.wikipedia.org/wiki/Liste_d'attaques_terroristes_islamistes#/media/File:BombenanschlagUS-BotschaftBeirut.jpg))

### **2. 2. 2. 6. Cyberthreats**

Cyberthreats are a new type of dangers for the public safety. Technological development enforces the use of an increasing amount of digital equipment. Networked to exchange megabytes of information, these appliances are perfect targets for hackers: personal computers, computers used by politicians, smartphones, GPS transmitters as well as whole infrastructures of intelligent cities and banking, e.g. ATMs.

There is no doubt that both companies and private users should actively protect themselves against cyberthreats (Defence24 Sp. z o. o. 2016). The safety of financial assets, personal information and intellectual property calls for a strong defence.

It is important to follow the developments in IT security industry to be aware of current dangers and learn about the most effective ways to protect oneself, e.g. proper hack-resistant setup. Users should remember to update or disable the Adobe Flash plugin due to its numerous vulnerabilities that facilitate unauthorised access. One should also pay attention to what kind of data is stored on a hard drive or sent between users from a computer or a cellphone.

Cybercriminals target unaware internet users. The Presidential election in the U.S. proved how dire consequences may have a break into an e-mail account of a politician. Recently, media informed that hackers from Russia may be responsible for Donald Trump's victory. Undoubtedly, whatever is published on the Internet can be accessed by people unauthorised to share this knowledge.

A smartphone is another common device used to communicate and exchange information. This intelligent device makes it possible not only to call but also to perform financial transactions, send and receive e-mails, and access social media. Experts in antivirus software recommend to limit the amount of personal and financial information stored on mobile devices.

In the first quarter of 2016, ransomware was the most debated issue with respect to cyberthreats (Gostev et al. 2016). According to the latest report on IT threat evolution published by Kaspersky Lab, in the first three months of 2016, Kaspersky Lab mobile security products detected nearly 2 900 mobile ransomware Trojans (an increase of 14 p.p. compared to the previous quarter). Currently, there are about 15 000 modifications of ransomware known and their number is still growing.

## **3. CONCLUSIONS**

Threats disturb public safety. Both categories discussed in the following paper entail many more issues than mentioned above. Constant changes stimulate the development of new threats, profoundly shaping the functioning of societies. All the presented natural hazards cannot be controlled, but – should proper precautions be taken – their effects can be minimised. In many cases, people take sole responsibility for a particular safety threat. As shown by the example of the multiple vehicle collision on the A1 highway, exceeding the speed limit on a road unprepared for traffic in given weather conditions may have tragic consequences. As for the secondary threats, a lot depends on human invention. Many of them, e.g. terrorist and cyberattacks or vandalism, cannot be entirely predicted. Despite the efforts of counter-terrorist forces, developed societies still struggle with attacks similar to those in London on 7<sup>th</sup> and 21<sup>st</sup> July 2005.

Increasingly growing needs, exploitation of natural resources and technological development facilitate the emergence of new threats of either kind. Sustainable economy and thorough analysis of natural phenomena have become a key to public safety. It is also important to monitor social movements and observe any aspirations for independence and self-constitution. Intrusion into the politics of another nation increases the risk of politically-motivated attacks. Also, certain fundamental religious groups may pose a threat incomprehensible for most Europeans. Considering the above, government agencies should be prepared to prevent threats and – in case of their emergence – take proper steps to protect public safety (Bonisławska 2012).

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