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# *Errare humanum est*, but Sometimes Costs are Extremely High. The Biggest Constructional Catastrophe in Polish History: The Collapsed Building in Chorzow-Katowice

*Abstract:* The paper approaches the biggest constructional catastrophe in Polish history. Article focuses on conditions and causes of crises. Conditions refer to: biophysical factors, natural and technical ones, different institutional rules acting in variable spheres of life, as well as various characteristics of community. All of them create context of actions of human beings. Those conditions combined with intentional, rationally bounded and opportunistic individual, transform into causes of social events (positive and negative). Catastrophe in Chorzów-Katowice was a result of all of those elements mentioned above. New institutional approach used in this paper seems to be the most productive to explain and understand different social crises.

*Keywords:* Catastrophe, crises, crises management, institutional rules, institutional failure, new institutionalism

## Introduction

On Saturday, 28th of January 2006, at 5.15 p.m., in the centre of Silesian urban complex, within the area of Katowickie International Trade Fairs (MKT) situated in Voivodship Leisure and Culture Park (WPKiW) in the suburbs of cities: Chorzów, Katowice, Siemianowice Śląskie, a building collapse took place, considered largest of this type in the Polish history. During the event of VIIth International Trade Fairs of Carrier Pigeons and also organised for this occasion National Exhibition of Carrier Pigeons and Showy Fowl, a roof of the largest of MKT fair halls collapsed on participants of those events. 65 people were killed (including three children and six foreigners), over 140 people (including 13 foreigners) were severely injured and several tens suffered enduring injury. Also many pigeons were killed (over 40% of birds from exhibition). Tangible losses are significant.

The event for several thousands of people was planned to take place from Friday to Sunday. Organizers sold most of the tickets on Saturday. Fair hall was crowded since 7.00 a.m., the most attendance was before noon (champions coronation took place at 11.00 a.m.) and at noon (over 7000 people were present)—that is when birds' charity auction planned for two hours began. After the auction many people

have left the exhibition and starting from 4.00 p.m. the fair hall began to empty. During the accident there were "only" few hundred people present in the fair hall. Pigeons' breeders and enthusiasts visiting the exhibition in late afternoon hours (often entire families with children) admired 1050 carrier pigeons (each in separate cage) selected at different exhibitions by judges of Polish Carrier Pigeons' Breeders Association and also birds brought to trade fairs by European breeders. Polish pigeons are leaders in Europe and consist of champions which are acquirers of many awards and cups.[1] Next to them breeders from several European countries presented their collections. Also food and accessories' producers related to pigeon breeding from Belgium, Czech Republic, Netherlands, Germany, Slovakia and Ukraine arrived to Chorzów-Katowice.

Six year old fair hall had dimensions of 97/102 meters. Practically the whole roof collapsed on participants of exhibition from height of 11 meters, 1/3 of the roof—its central part, fell down in the centre of fair hall causing most injuries and huge blast wave (some people were blown several meters in the air). Rest of the roof cracked up and descended by the walls. Light, steel construction with tinware external covering, on which 70 cm layer of ice and snow was gathered, rapidly collapsed—within several seconds. It tumbled down on people and animals with laud roar, jarring, crash ("as if a plane flew nearby," "as if the bomb exploded") burring underneath many victims. Few hundreds of tons of damaged steel construction of the roof, an area of nearly 10 000 sqm, with remaining on most of its part iced snow constituted a weight of several thousands of tons, which crushed few hundreds of people. All that died on site suffered deadly wounds and severe head and spine injuries. Many were seriously wounded.

Damaged roof construction which on the ground appeared as a pile, formed mess of joists-grates, sharp, twisted, cracked and rotated plate panels, pipes of different thickness, wires, foamed polystyrene, etc., mixed together with tons of snow and ice pieces. Scrap-rubble yard was formed between remaining standing, although twisted and curved, steel bearing pillars and leaning inside high metal walls. Those last, in case of incautious actions, set a threat of fall on formed rubble pile and were additional danger for rescuers. Underneath the pile there were people alive and unknown number of victims. A terrible screams, yells, "squeaks of dieing people," cry and moan of injured, begging and cry for help, mobile phone bells, iron clatter, pleas and screams of stuck people were coming from rubble pile full of gaps, tunnels, "specific splits," niches, etc., on which people rescuing rubble-bound victims were running. Within minutes fire fighters, paramedics and police arrived to the site of disaster. A rescue action begins, which in crisis situations is described as response phase, that is, one of phases of crisis management process. No doubt, catastrophe in Katowice has created great crisis for many different actors.

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[1] Best specimen of hens, cock birds and passage champs cost even up to few thousands Euro. Breeding pigeon costs on average PLN 500.00, that is over EUR 100.00.

## Ambiguity of the Meaning of Crisis

Before we start crisis analysis of catastrophe in Katowice it is worth reminding that the term crisis or catastrophe functions not only in social-scientific meaning. Both terms—except colloquial, common meaning—exist also in philosophical and history-philosophical approaches, whereat they become tools of philosophy of history, acquiring shape of diagnosis of present age (late-modernity or post-modernism), in order to formulate on this basis future assessments and future prognoses. Terms often have metaphorical meaning, and full of emotions crisis or catastrophe rhetoric engulfs all possible areas of live, systems, institutions, organisations and relations between them. Generally, more often and clearly appear tendencies towards expanding crisis or catastrophe idea in such wide and non-differentiated way that it actually becomes a synonym of entire modern social life. Those terms equipped often with vague and blurred meanings carry along sizable dose of persuasion. They are ideologically exploited and overused for purposes of manipulation. However, only in exceptional circumstances understanding of problem of crisis or catastrophe might be deprived of ideological or political involvement of researcher. Yet, from point of view of scientific methodology a clear difference occurs between postulated, hidden or permanent "crisis" inevitably leading towards "ultimate crisis," "total catastrophe" in the human history, and a situation of allowing to distinguish state of breakdown of defined social existence to the point in which it looses its identity.

We do not claim that social history, nations history, or world common history, do not provide examples of development, stagnation or decay, and even extermination of societies or entire cultures. Nevertheless, we claim that spreading beliefs of forthcoming decay or coming total catastrophe and human world perdition, similarly as previous trendy belief of "end of history" (being continuation of XIX century progress-evolution concepts) are expressions of extremely final ideologies, teleological thinking, so characteristic for bounded in its rationality and ideological from its nature of human being. We also do not claim that extreme catastrophic scenarios should not be considered, even in case of their low probability. We believe that those types of prognoses (optimistic or pessimistic end of human history) should be viewed with large dose of cautiousness, because social world being created by a man—and at the same time creating it—reveals huge potential of strength and weakness. In our opinion even dismal ascertains of deep and ultimate crisis of modern civilisation do not forejudge in a firm way of its further fate. At the same time it is worth to remember that crises always have impact on people, their awareness and issues of perception, interpretation and definition may play important crises generating role—to remind only W. Thomas theorem or R. Merton's self-fulfilling prophecies. It is particularly important task for social researchers living in period of general uncertainty and risk society, often accompanied by intentional "production" of fear undertaken by different social actors. So, instead fearful prophecies that "world is coming to the end" we prefer assumptions that "future is open" and different crises will visit social life as they did in the past and do in the present. So, the analysis of different crises is

more interesting for social researchers and more productive for human affairs than expressed solicitously statements of "end of humanity."

## Context of Analysis

Collapse disaster in Katowice required efficient crisis management, making of determined decisions, coordination of actions of rescue services, efficient management of rescue means in the context of human tragedy (unknown number of victims) and rescue of stuck people, whose lives were threatened not only by wounds and injuries, but also by penetrating frost. Because of the above, collapse disaster required as well efficient management of classical crisis situation featuring serious threat of fundamental values, uncertainty and time pressure of decision making processes (Rosenthal, t'Hart and Charles 1989: 10). Such perception of crisis was accompanied by stress rescuers, people making different decisions and acting on basis of results of those decisions.

Response phase—being a test of flexible ability of an answer to crisis, quality of crisis decisions which are made, effectiveness of institutions and organisational possibilities—is basic subject of crisis management analysis in cognitive-institutional categories (Rosenthal, Boin, Comfort 2001; Stern 2001). Description and analysis of actions in the response phase includes—beyond analysis of decisions and acting of human beings in extreme situations—also additional cognitive qualities. We assume that although unique, requiring precise solutions in every crisis situation, that is certain *ad hoc*[2] analysis, acting in phase of response is connected in different ways with previous and further phases of crisis management, existing in subject bibliography, that is phases of: mitigation, preparedness, response, recovery and reconstruction (Comfort 1988).

Tragic in its effects catastrophe in Katowice is an example of more often occurring accidents and catastrophes in metropolitan areas, so called: public sector contingencies and crises. Hereby case is an example of crowd and leisure centre disasters (Rosenthal and Kouzmin 1993)—characteristic feature of late-modernity culture. The subject of the following paper is only analysis of conditions that led to this catastrophe. It is a first step towards cognitive-institutional analysis of crisis situation management, which resulted from catastrophe in Katowice. In short, in this moment we are interested in widely understandable factors, which had higher or lower influence on its establishing and course. This kind of research approaches crises from systemic perspective and on the one side treats "system as the context and potential source of explanation for crises" and on the other side, "examines the effect of crises on the system as a totality. In other words, the distinction is whether crisis is the dependent variable influenced by the system or on the other way around" (Hermann 1989: 362). Here we focus on the first question.

[2] E. Quarantelli (1992: 493) writes: Disasters are relatively sudden occasions when, because of perceived treats, the routines of the collective social units involved are seriously disrupted and when unplanned courses of action have to be undertaken to cope with crisis. The notion of relatively sudden occasions indicates that disasters have unexpected life histories that can be designated in social space and time.

The first condition of productive crisis or catastrophe discussion is definition of border conditions of usage of those terms, particularly in the scope of reference plurality of those concepts and their catastrophic-existential connotations, which we would like to get rid off in scientific approaches. The latter, formulate precise questions to crisis or catastrophe, which depend on the way of their definition, level of occurrence and scientific discipline undertaking this issue. Scientific approach to crisis examining should be connected with crisis management researching—with its practical and normative formulations—which establishes characteristic feature of reflective modernity.

Basic distinction functioning in literature referring to crises, disasters and catastrophes implements differentiation to natural and man-made crises or natural and technological disasters.

> Disasters are nonroutine events in societies or their larger subsystems (e.g. regions and communities) that involve conjunctions of physical conditions with social definitions of human harm and social disruption. (…) disasters are both physical and sociological events and, as such, inherent to all social systems. The phrase "nonroutine events" distinguishes disasters as unusual and dramatic happenings from everyday issues and concerns. The dual reference to "physical conditions" and "social definitions" means that *each* is individually necessary and *both* are collectively sufficient for disaster to occur in social time and space. (…) When disasters occur, terms, such as *emergencies, crises* or *catastrophes* are used to capture increasing levels of severity. (…) After disasters occur, the events become relevant to the evolution of impacted social systems. It must be recognized, however, that any social changes that follow must be interpreted in light of already existing trends (Kreps 2001: 3718–3819).

Therefore, catastrophe becomes considered as the most severe case of calamity or disaster affecting people and requires crisis decision making. In case of Katowice we deal with a man-made disaster, and in particular a catastrophic failure of technical system (collapse of building of fair hall). Catastrophe in Katowice is—like other catastrophes of different size and scope (Posner 2004)—tragic, rapid and total ruin of an object resulting from lack of control of technology leading to loss of lives of sizable group of human beings. Catastrophe is a well observable change, visible discontinuity, obvious morphological fact, destruction of structure, while the crisis—according to theorists of catastrophe—may be concealed and hidden, featuring rather quantity than quality disorders, disturbances of function (physiology) and not destruction of structure (morphology). Always featuring certain subjective element crisis may be a result of weakening of regulating mechanisms and as such is a transitory phenomenon. Analysing relations between crisis and catastrophe on level of unit René Thom (1990) believes that between crisis and catastrophe exists an interesting relation. Crisis may prelude or provoke catastrophe, may also be prevented causing different results. However, crisis always is related to weakening of regulation of systemic mechanisms.

Above reasoning may be applied to catastrophe in Katowice because we deal there with institutional weaknesses (crisis) of Polish administration system and public policy realised within it. In this text considering widely understandable causes of catastrophe in Katowice we admit the following:

> Most crises seem to flow from unique configurations of individual errors, organizational failure, and environmental flux. (…) Crises put institutional structures and existing policies to the test. If basic societal institutions and functions fail in hazardous event—whether from severe natural events or technological

or transportation accidents—the ensuing crisis serves as evidence of the need for change and creates the opportunity to redesign, revise, or rebuild failing institutions and policies (Rosenthal, Boin and Comfort 2001: 9, 10).

It results from the above that in order to describe and explain technical catastrophe in Katowice as cataclysmic event occurring in specific place and social time we ought to perceive—similarly as caused by them and occurring on different levels of social life crisis—in categories of phases before, during and after an event. Analysis of currently interesting for us phase before an event has to help in answering questions "why?" and "in what way?" led to its emergence. Plurality of factors and variety of conditions, which had an impact on existing situation persuades to searching for wide interpretive frames.

Aiming for capturing of possibly full conditions of catastrophe that occurred, it is worth to remember that explanation of reasons and related to it answer for question "why?" are for a long time most difficult in social sciences[3] and are also nowadays undertaken by representatives of different disciplines. George Ritzer (2000: 637, 639), for example, focusing attention on levels of social analysis and constructing integrated sociological paradigm claims that:

an integrated sociological paradigm must deal with the four basic levels of social analysis (…) and their interrelationships. It must deal with macro-objective entities like bureaucracy, macro-subjective realities like values, micro-objective phenomena like patterns of interaction, and micro-subjective facts like the process of reality construction. We must remember that in the real world, all these gradually blend into the others as part of the larger social continuum, but we have made some artificial and rather arbitrary differentiations in order to be able to deal with social reality. (…) The social-facts paradigm focuses primarily on the macro-objective and macro-subjective levels. The social-definition paradigm is concerned largely with micro-subjective world and that part of the micro-objective world that depends on mental processes (action). The social-behaviour paradigm deals with that part of the micro-objective world that does not involve the minding process (behaviour). Whereas the three extant paradigms cut across the levels of social reality horizontally, an integrated paradigm cuts across vertically. (…). Not all sociological issues require an integrated approach, but at least some do.

Surely, it includes questions concerning arousing crises in different spheres of life and ways of dealing with them. Presently created knowledge of crises and catastrophes—constituting modern expression of reflection of human existence in complicated and insecure world—also requires answers to questions about their causes and variety of conditions. Interesting perspective for reflective modernity is being built in this scope by wide orientation of new institutionalism, existing since several decades in all social sciences, which is considered to be promising, appearing in front of our eyes institutional paradigm of social sciences (Merton 1998; Nee 1998; Hodgson 2004). New institutionalism—with its emphasis on institutions (widely implied), moderate methodological individualism, intentional, rationally bounded and opportunistic individual, levels of human activity (micro, meso, macro), descriptive, explanatory and normative aspects of constructed theories—is featured with

[3] Only need to remind four types of Aristotle's causes (purposeful, tangible, formal and causative) including his strong belief that knowledge is nothing else but recognition and definition of causes. His questions about causes of human thinking about himself, about place of man in nature, about forces leading man, etc. are caused by extreme situations (war, death, love, unfaithfulness), that is crises which rapidly disrupt rhythm of our daily existence, force us at the same time to rethink our life.

significant force of explaining (Chmielewski 2005). This wide stream includes also institutional-cognitive approach to crisis management with its four (or five—if we include learning) phases.

When it comes to phase before an event particularly useful seems to be the Institutional Analysis and Development Analytical Framework (E. Ostrom 2005; V. Ostrom 1997). This productive, interdisciplinary approach binds together exogenous variables (biophysical/material conditions; attributes of community; rules) affecting action arenas (action situation and participants in that situation in positions as information processing agents) and related interactions as well as outcomes. Naturally in relation to interaction and outcomes, evaluative criteria are used, which allow for formulation of specific prescriptive (normative) statements referring to all elements of the model.

## Analysis of Condtions and Causes of Crisis

We start analysis of conditions of catastrophe in Katowice with exogenous variables, which constitute multidimensional, multilevel and complex conditions of acting of individual and social actors.

> Rules, the biophysical and material world, and the nature of the community all jointly affect the types of actions that individuals can take, the benefits and costs of these actions and potential outcomes, and the likely outcomes achieved (Ostrom 2005: 16).

Exogenous variables constitute *de facto* context of tragic event. They form a line of mutually connected phenomenon, events and factors, which in different ways co-participated in emergence of catastrophe, defined its character and course, in less or more direct way. Taking into account that questions and answers about causes of social occurrence—particularly in situation of late-modernity societies (complexity, co-dependency, generalised uncertainty, risk, fear, etc.)—are the most troubling and difficult, we will not asses their precise importance and role which they played in causing of crisis situation that had occurred. However, we will indicate character and type of relation with discussed event. Without doubt, technological and environmental (shortly: techno-ecological) factors played different role in this technical catastrophe, than human factors and connected to them organisational (administrative) or cultural aspects of human acting.

When it comes to community culture, there are almost 45,000 pigeon's breeders in Poland. One fourth of them is leaving in Silesian district. Pigeons' breeding, as a way of leisure, is one of characteristics of Silesian culture, as popular as football. It was imported to Silesia from countries of Western Europe together with Polish emigrants returning after several years from work in French, German, Dutch or Belgian mines and factories. As its hotheads say, miner spends lots of time working underground in difficult conditions, and thanks to pigeons he may look on the sky and communing with nature in that way, rest after hard work. Such way of free time activity by large number of families in Silesia—proper breeding requires at least 2 hours of time daily, not to

mention about flies organised from May to September—functions, as first and oldest Silesian breeding, for over one hundred years. Characteristic for Silesian portrait of pigeon breeder and accompanying to it pigeon houses started to occur before I World War. Still, known in whole Europe carrier pigeons (and ornate) exhibitions are organised there since sixty years. No wonder that entire families participated in this event.

Although birds, nutrients and accessories fairs together with pigeons exhibition have commercial character, they are primarily part of Silesian culture, and acquire form of folk picnic. It is a social event where opportunity to meet people you know is combined with presentation of own achievements. Those periodical meetings of pigeons breeders and hotheads is accompanied by several parties, band concerts, snack-bar's activity, beer drinking, sausage eating, gossiping, etc. During the exhibition a press conference concerning proper breeding was held, a best product and best organizing of trading post were selected. Breeders agreed on carrier pigeons' flies route. Organising of this years exhibition was threatened by bird flu, however authorities aware of tradition and a fact that carrier pigeons are vaccinated several times per year finally had given in.

Describing the place of catastrophe such key context variables as climatic/ physical/ material conditions, technologies and nature of goods ought to be listed (V. Ostrom 1997: 103).

Winter environmental conditions may not be omitted when talking about catastrophe in ecological language. Winter of 2005/2006 was one of most severe during last several years. For several weeks the temperature was very law, decreasing during nights even below minus 20°C. (during the day of the collapse minus 15°C., and during rescue action minus 18°–20°C.). While those days of frost it was snowing. Snow exposed to large temperature differences—particularly on poorly thermally isolated roofs—gradually turned starting from the bottom into layer of ice. Snow covering roofs of different objects—especially those that were heated with large and flat roof areas—loosing its height, put on weight. At first glance, 50 cm layer of ice and snow seemed to be not dangerous, especially that according to technological standards the roof was supposed to hold a layer twice as high. However, ice and frozen snow of serious weight (ca. 3000 tons) covering tin area of roof became real threat.

It is said that Silesia is rich in coal. This popular statement indicates mining and industrial character of that part of Poland. In Śląsk one of most frequently appearing threats are, except accidents in mines, so called: mine damages. Earth slopings and earth's surface movements over excavations cause building walls' and roads' surface cracking, etc. Area of disaster, although located in region of Black Sielsia (region of Upper Sielsia famous for largest mines satiation) was not under influence of those type of incidents for many years. Coal mining underneath fair hall ended in 1942. Additionally, as it results from research of Superior Mining Office last tremor was registered on 25$^{th}$ of January in Rydułtowy near Rybnik and was detectable only in mine not on the surface. Recently, there were not any noticeable tremors in the area of MTK.

When it comes to technical and technological context, that is assessment of technical solutions in the context of social, economical, and environmental capabilities (so

called: Technology Assessment), a line of mutually combined and influencing on each other factors exists, which contribute to increase of threat of catastrophe. It is worth to pay attention on this aspect of man activity, especially when one of most often occurring expressions in the period of omnipresent alternation characterising modern societies is catchphrase of "sustainable development." Large building constructions are nowadays serious problem and challenge—technical-building catastrophes not only in Poland evidence that—for societies owning them. Catastrophe in Katowice was not a single case of catastrophe in Poland at that time, however was one which had most victims.[4] Collapse catastrophes are not Polish national speciality, which proves a series of similar accidents occurring in other countries, some of which took place almost parallel to catastrophe in Katowice agglomeration.[5]

When describing case of fair hall in Katowice it has to be mentioned that at present there are thousands of objects of similar construction in Poland. Popularly called "tinners" they spread across the country, "ornamenting" its landscape, including representative downtown of Warsaw capital city. Rapid increase of tinners started along with process of Polish transformation. This type of halls fulfil different functions in dynamically developing market economy. Law costs of projecting and short time of realisation forejudge their popularity in economy featuring high level of risk and uncertainty. Maximal time of resilience of this type of constructions is estimated for 30 years of use. Created in this way cheap production halls, warehouses or markethalls are built—as well as solid, built by means of advanced materials objects—very quickly, under constant pressure of investors (Western and domestic).

They decide about everything. Their aim for cost cutting influences architects, designers, constructors, contractors and—as it seems—building supervision. Often, after approval of a project for realisation—which always has to meet building law requirements and feature defined safety margin depending on specific of area of location of certain object—demands of investor to developers (for changes in realisation process and cost cutting) do not stop. It may cause a series of negative, even dan-

[4] Previous so large catastrophe occurred on 15th of February 1979 in Warsaw. In downtown of capital city at Rotunda PKO a gas explosion took place, in result of which, 49 people were killed and over 100 was injured. One of causes of disaster was also a severe winter (frost and snow). In 2004 Chief Inspector of Building Supervision received notifications about 132 building catastrophes, which resulted with 16 dead victims and over 50 people injured. In referring period (winter 2005/2006) building catastrophes occurred several times not only before, but also after tragedy in Katowice, particularly in January. Analyzing January 2006 it is hard to find a day without building catastrophe, however the number of victims of all January and February catastrophes may not equal with catastrophe in Katowice. Generally, when omitting described catastrophe in Katowice, in result of different kinds of obsolesces, during last five years 1255 building catastrophes took place, in which 93 people were killed and almost 300 were seriously injured. In this background catastrophe in Katowice is exceptional.

[5] Accidents like this happened recently also outside Poland. On 14th of February 2004 a roof of Transwaal aqua park collapsed. 28 people were killed. On 5th of December 2005 a roof of swimming pool in Czusowoj city in Ural in Permsk district collapsed. 14 people were killed, including 10 children. On 2nd January 2006 a roof under pressure of remaining snow collapsed over ice rink in Bad Reichenhall in Germany—15 people were killed, including 7 children. All above mentioned catastrophes were caused by heavy snow remaining on roofs of those objects. On 31st of January in Austria roofs of warehouses in Villach collapsed due to heavy snow. Fortunately no-one died. In February in Toeging (Bavaria) collapsed a roof of supermarket, which people had left in a hurry. Less fortunate were customers of markethall on Basmanny market in Moscow. In the morning of 23rd of February a roof of markethall collapsed. 56 people were killed.

gerous, occurrences for functioning of building. Those occurrences depend on widely understandable, characteristic for every group technical culture which is created by a number of factors.

Let us take an example of designing the construction. Present projects (those finished and those being prepared in compliance with investor's preferences) are created by means of computer programs. Such optimal projects eliminate possibility of construction over-sizing, which was a common practice of projects created manually. According to experts opinion, till nineties, before implementation of computer projecting techniques, a weight of hall's construction counted as a weight on one square meter of its area and oscillated between 24–30 kg. Currently the weight is limited to 20 kg. and most of constructors considers this normal. Moreover, there are projects approaching weight of 10 kg/sqm. Those kind of projects are not dangerous on condition that they fulfil defined technological regimes such as Polish PN or European C standards.[6] Realisation of them would require using of only high-quality Austrian construction steel, instead of Chinese or Polish one. Naturally, the higher material quality, the higher the price, which is one of most important elements of economical decision. It is the price which defines in a significant degree investor's choice of construction as well as object's developer. This refers to large and small investors. As experts stress,

> investments are not only a project but also construction conducted in compliance with project guidelines and maintaining of accordance of materials with idiosyncrasy included in the project. In this point project's realisation argues with public purchase process and requirements of individual investors because the most important reason of choosing construction and developer is price. At present, so absurd requests of decreasing costs of materials and manpower appeared that task construction is impossible. Developers and companies when concluding contracts assume in advance that used materials would be those of lower quality than those specified in project, that sub-contractors employed would not receive full payment, and workers would be employed on commission contract on condition that they would have agricultural insurance. It is also surprising that newly built objects are allowed for use because they have performed technical receives, but investors do not pay out money to developers negating quality of construction. That does not concern questioning of small faults qualified to be corrected due to warranty. (…). Problem of construction, including use of materials not compliant with any standard is daily routine (Korzeniewska, 2006: 2–3).

Not only designing and constructing of objects favours building catastrophes, but also, or even maybe above all, ways of exploiting and maintaining of built objects. Once again we may discuss lack of proper supervision. Old-fashioned halls with sloping roofs

[6] According to opinion of designers and constructors Polish standards should be changed although usually they are not violated. Existing Polish Standards and building law quoting them are basis for designing and constructing of all objects in Poland. Standard 80-B-0210: "Ballasts in static calculations, snow ballast" divides Poland into four snow areas. Katowice and Warsaw belong to first area, which means that thickness of snow layer may reach max. 29 cm and ballast on sqm—70 kg. However, Katowice are located on the boarder of I and IV area and ballast of fair hall exceeded 250 kg/sqm. Flat roof in Warsaw or Katowice is calculated for ballast of 78 kg/sqm, and only in mountain and sub-mountain region—IV area—ballast may reach 420 kg/sqm. Reality proves that weight of one cube metre of snow may oscillate between 100–800 kg. Experienced constructors claim that "our standards should be higher. In times of Polish Peoples Republic (PRL) so many huge markets or halls were not built. After severe snow falls on 4th of January I sent a fax to all investors, for which I designed halls. I warned them that so called standard snow had fallen which means 32 centimeter thick layer. Throwing it down from roofs is necessary, otherwise construction may not hold it. (…) At that time, in beginning of January the snow might have been easily removed while it was fresh and powdery. Later it was melting and freezing. After tragedy in Katowice everyone went on roofs. In a few weeks time or at spring most of them will start to leak. When shoveling frozen snow it is easy to damage roof's isolation." (Falęcki, 2006: 3).

were replaced with more aesthetic halls with extensive and flat roof areas (cheap and elegant). Drain pipes and vales are hidden in roof slings. However, in case of severe falls and improper exploitation water or snow gathers on roofs of halls. That is when so called snow baskets emerge increasing acceptable ballast and therefore enlarge possibility of accidents and catastrophes.

In case of described, biggest fair hall, proud of MTK, project, as well as constructing and exploitation left much to be desired. Referring to conditions of fair hall's exploitation, exhibitors claimed that water lavishly dripped from fair hall's roof and because of that they had to move bird cages and their trading-posts during the event. Besides, people working in the hall claimed that since giving out the fair hall for use, its roof had been leaking. During the exhibition most of evacuation doors were closed and blocked (people crashed glass doors) or hidden by trading-posts, which delayed and made more difficult quick exit from fair hall for many people.

One of prerequisites, and as it seems indirect reason of catastrophe was an accident which had happened—about which after catastrophe MTK employees informed prosecutor office running an investigation—several years earlier. In winter 2002, before "Pigeon" fairs, a roof of the fair hall strained and cracked dangerously under pressure of 3 metre (sic!) snow layer. In result few-centimetre screws joining iron girders have started to fall out from steel construction of sling. People working in the fair hall evacuated and informed about the accident authorities of MTK. Fire brigade refused to remove snow from the roof until the sling is secured from inside which was object's owner obligation. According to spokesman of Fire Department of Silesia, after that accident roof of the fair hall was supposed to be decomposed and properly reinforced. In effect of Appeal Prosecutor Office investigation turned out that the roof was pillared with two bearers and damaged elements were welded. This was nothing else but architectural lawlessness, that is bungle and stopgap.

Thus four years before catastrophe fair hall's owners had had first significant warning about real threats concerning objects exploitation during winter period. Moreover, the danger was appropriately defined, which is evidenced by actions of management board of MTK after accident of 2002. Owners of the fair hall aspired to compensation for damages and faults caused by winter conditions. Insurance company refused augmenting that for damages that occurred is responsible management of MTK company. The case was filed to Court in Gliwice because MTK management claimed that it had no influence on damages caused by snow falls.

Court's expert assessed that owner of the object is not obliged to remove snow from the roof because it is not specified in any regulation (sic!). Three months before catastrophe (November 2005) court consented to expert's opinion. Court adjudicated that MTK may not be accused of not keeping of proper care of the roof and granted high compensation (PLN 257,992.67). In this way, the expert and later the court had formulated *ad hoc* rule which in peculiar way had removed from the owner an obligation and burden of responsibility for the state of object's safety.

Taking into account failure of the fair hall from 2002, catastrophe in Katowice is not only an effect of improper precautions (mitigation), but also an example of a second dimension about causes of disasters.

> Sometimes lack of preparedness or inadequate response (…) can change an accident into disaster. This phenomenon is referred as the second dimension of causes of disasters: when response problems enlarge the magnitude of an accident. (…) sometimes mistakes in the response as well as in the planning-phase, will influence the scope and magnitude of an disaster (Van Duin 1992: 2).

Inappropriate reaction to an accident may lead to catastrophe of significant sizes, victims and loses. In this way peoples' neglects and errors connected with building and above all exploitation of the fair hall has become one of essential factors leading to occurrence of catastrophe.

In this context fact that in beginning of January 2006 roof in the middle of the fair hall bended in a visible way acquires particular meaning. After removal of remaining snow by cleaning services from that part of the roof bending was eliminated and the previous shape of the roof was restored. At the same time resigned from removing of snow from entire roof area. After several days of snow fall technical director of MTK has informed the management board—couple of days before catastrophe—about construction threat and possibility of collapse of the roof. He received an answer that there are no funds for snow removing from the roof "and the fair hall has to make its leaving and that is why the event may not be cancelled." According to Prosecutor Office the roof was not shovelled because MTK had serious financial problems.[7] However, it seems that there was also another reason for leaving ice and snow on the roof, which strictly refers to building technology of the fair hall. The roof is thin and covered with special isolating foil. Five years ago, during bicycle fairs, when the roof had been cleaned this thin foil was damaged and water had started to leak from the ceiling. From the beginning of fair hall's existence, on the day of opening of first fairs, its roof leaked in some places. Unofficially were spoken about so called cheap metres. Wherever the roof was leaking during thaw or falls, the pay for place for trading-post was lower.

Management of fairs was aware that the roof required very gentle care. This is a second reason of not shovelling the roof despite recommendations from its constructors. Proxy of the company stated after catastrophe that two weeks earlier the roof was shovelled. However, it turned out that cleaning of the roof was stopped on command of the management of fairs because ice has remained underneath 50 centimetre layer of snow. Cleaning company employers wanted to remove it. Technical director of fairs did not approve it being afraid of damaging of sealing foil. Leaving snow and ice on the roof while high temperature differences—huge heating blowers were functioning in the fair hall—was a cause of significant overload of the roof. Water from melting ice flowed to the middle of the roof and had no outflow. Outside temperature was almost twenty degrees of freeze, and inside there was heat—people were without outer garments, exhibitors were only dressed in t-shirts. Systematic roof shovelling would not result with its icing. One-off cost of roof shovelling of 15,000 sqm is PLN 18,000.00, and MTK collects EUR 4.5 (PLN 18) for renting an area of one sqm of the fair hall.

[7] Fair hall's owners explained at Prosecutors Office that they could not pay for works on the roof because I Tax Office impounded their company's account. I Tax Office explained that the account was blocked because the company did not pay taxes.

Ordinary economic (mis)calculation became one of causes of huge disaster. Known thesis of Sen (1977) of rational fools was confirmed. Their actions creating social dilemmas and traps may carry along, like in case of Katowice, huge tragedy. This fact leads us to crucial distinction referring to types of goods: private sphere—public sphere. Division into private and public sector and relations between them is one of areas of growing interest of crises and crisis management researchers (Rosenthal, Boin, Comfort 2001: 21). In case of Katowice we deal with private company which collects profits from activity in public sphere. Therefore, it should feature high level of care and responsibility.

> In the case of technological disasters, implicit social contract between citizens and corporations is violated. The assumption is that corporations will not harm their customers, workers, or members of community where they make their products. When this contract is violated, anger and rage are added to the range of emotional responses to disasters (T. Schooler 2001: 3715).

No wonder that except trauma condition, which characterises living victims of catastrophe and their families, after finishing of rescue action appear very lashing formulations directed to MTK, accusations to the company for death of the closest relatives and declaration of demands of high financial compensations. They have big chances of realisation, especially after verdict of Committee called into being by Minister of Transport and Building, which made responsible for not removing of remaining snow from the roof of the fair hall three members of management board of MTK. They were arrested. Prosecutors Office in Katowice, investigating the case, charged them with calculated causing of danger and unintentional causing of catastrophe by neglecting their duties. Knowing about previous change of fair hall's construction and twenty centimetre deformations of trusses holding the roof, and also about an order of snow removing from the roof issued after incident in 2002 by an expert, bosses of MTK despite seventy centimetre layer of snow remaining on the roof, have not stopped exploiting the object and organised exhibition. In this way public good which is safety of citizens not only was not provided, but on contradictory, was jeopardised.

Understanding of occurrence of this not understandable at first glance—even in categories of common sense—crisis situation would be eased by transfer to meso level and consideration of institutionally-organisational aspects of activity of fairs in Katowice. MTP Ltd. is a company functioning from 1992 located in area of former Technical Progress Centre—antecedent of MTK—occupying several acres of land on the boarder of Katowice, Chorzów and Siemianowice Śląskie within WPKiW. The company owns 15 pavilions including fair hall, in which we are interested, built in 2000. Project from 1998 was executed by company Przemysłobud, which soon became bankrupt. Equity capital of the company while founding equalled PLN 25,000.00 (ca. EUR 6,000.00). One hundred shares in the company were divided as follows: 36—community Katowice, 28—National Treasury, 20—Spodek in Katowice, 16—Regional Chamber of Economy.

In 1993 the company was privatised. It was typical for that period process of enfranchisement of public property, not quite small (taking into account just land

ownership). Management board of MTK decided about 100% increase of capital. At the same time co-owners resigned from takeover of their shares and appointed as acquirers two persons: president and vice-president of management board of MKT. They purchased 50 shares each for equivalent of USD 3,000.00. Then, they sold shares—which was perceived as their transaction of a lifetime—to Expocentres Eastern Europe Limited registered in Cyprus in 2002. The company specialises in investments and management of exhibition centres in Europe. Its objects are located in Warsaw, Moscow, Cologne, Amsterdam, Belgrade and New Delhi. EEEL is owned by British company Expomedia Group, which media partners are above others Gazprom Media and Alex Springer.

During takeover of majority shareholding by EEEL strains and conflicts between foreign owner and Polish management board of the company appeared. Technical unit employing several employees responsible for safety of fairs and maintenance of infrastructure (maintenance of fair halls and devices, shovelling of snow, preparing of trading-posts for exhibitors, etc.) was liquidated. People were fired and devices were sold for small prices. Many experienced employees had left the company. Obsolesces, improper conservation and exploitation (roof's damages), outsourcing (cleaning of halls and roofs) caused that new three year old fair hall required general renewing.

In 2003 management board of MTK did not receive—in result of winter events of 2002—exoneration. Meeting of co-owners similarly as insurance company decided that roof damage caused by snow remaining on it was a result of omissions of the management. Moreover, management board did not enforce repair works performed at that time in the fair hall from object's developer. A person from Warsaw became new president who resigned after several months in result of divergences of management board concerning vision of fairs development. Lower number of exhibitors was an outcome of external and internal policy of new management board. Fairs of 2003 still had PLN 2.5 million of profit. Year 2004 was particularly unsuccessful for MTK. The company did not have any profit. For the first time it had a loss and was on the edge of bankruptcy. Expomedia sent from London new management board member who had deciding voice in the company. At present he is general director of Expomedia Poland and president of management board of MTK. Vice-president of MTK and deputy of general director, who visits Katowice very rarely is former spokesman of MTK.

New owners did not accept formalised way of managing of the company based on circulation of paper documents. They preferred "oral contracts" and were criticising administrative overgrowth. Former president of MTK when taking about "specific ease and amway flair" suggested that savings which owners in Chorzów made, aimed for liquidation of fairs in Katowice and transfer of main activity of the company to capital city. In 2002 in Warsaw the company opened modern Expo Centre XXI, which objective was to gain exhibit area twice as large as MTK (70 ths. sqm) and be in future competitor for oldest and most known in Poland and abroad International Fairs of Poznań. According to his opinion foreign shareholders acting upon international corporate standards did not understand specific of Polish exhibitory market.

Rationality is affected by access to knowledge and communities of shared understanding; every individual is fallible; and everyone endures the costs of choices made under ignorance, misconceptions, deceptions,

and strategic manipulations. Both the systems for making epistemic choices and those for market choices contribute to the elucidation of knowledge and information essential to systems for making public choices. I cannot imagine a modern society without some form of exchange arrangements characteristic of market organization. A key question is how variable structures among market arrangements affect conduct and performance. If the range of inquiry is extended to the epistemic realm, our concern is with how variable conceptions [ideas] affect the design of structures, the organization of processes, patterns of conduct, and performance (Ostrom 1997: 115).

One of conditions of catastrophe in Katowice was clear tension between decisions that were being made in private sphere (profit and loss calculation) and expected from the company corporate responsibility—ensuing from its obligations—also including public sphere. Hereof firm reaction of voivodship and state authorities to catastrophe. One of first steps of authorities was, except declarations of help to victims, their families and ritual of solidarity ('t Hart 1993), beyond investigation launched by prosecutor in Katowice, bringing into being by Minister of Transport and Building of a Committee for investigating reasons of catastrophe in Katowice.

Representatives of scientists, building supervision inspectors, voivode of Śląsk, fire department, police and other services became members of Committee consisting of 15 people. Their conclusions from two months of investigation indicate plurality and differentiation of catastrophe in Katowice. As it was indicated before the present management was found guilty of an error of allowing for remaining of too much snow on the roof of fair hall, but there were more errors related to building and functioning of the fair hall and they are not referring only to present foreign owner. It may be said that the fair hall was built on errors because in every phase of its origination and existence a series of different kinds of mistakes were made which were not corrected and led to tragedy in Katowice.

The fair hall was designed in improper way. This thesis is confirmed not only by report of the Committee, but also by events which followed catastrophe. On Monday evening one of designers of the fair hall who had been supervising entire project, member of management board of Ekotech2, which in years 1999–2000 has designed the object and was constructing it, tried to commit suicide. In his suicide letter he explained that he feels morally responsible for the tragedy and wrote: "Too much blame, apologize is too little." Later, during his stay in hospital he stated that he can not deal with a thought that some things could have been done better. He claimed that he should have foreseen that the roof would not be shovelled and that he should have been basing on higher foreign standards rather than on Polish ones, which estimate bearing of roof for 70 kg/sqm of snow. It should be emphasised that during construction works the designer was informing management board of MTK, that condition of proper exploitation of the fair hall was removing snow from the roof.

Not only designing and previously discussed exploiting errors, but also construction faults have caused the tragedy. The fair hall was improperly designed and wrongly built. In some parts of bearing construction there were 20% less materials in relation to project's assumptions—specifically comprehended saving on expensive construction materials. Additionally, compounding of elements and seams between them were of poor quality. Errors in designing as well as in constructing caused that the fair hall was unstable, had series of weaknesses. If we add to that improper exploitation of

the fair hall, no wonder that the construction did not hold the load and collapsed on people. History of the fair hall reveals series of mistakes and wrong decisions in all phases. Analysing *ex post* events related to its history it may be stated that the fair hall in Katowice sooner or later had to collapse!

## Institutional and Organizational Failures

Our deliberates in many points indicated role of institutional regulations—their not respecting to be more precise—as third type of exogenous variables, which influence participants of operational situation, interactions and outcomes related to them.

> The participants in operational situations are directly affected by the operational rules structuring what they must, must not, or may do. These rules were crafted in a collective-choice situation structured by collective-choice rules (which participants, in what positions, chosen how, given information, and assessment of benefits and costs can make operational rules). The collective-choice rules were themselves crafted in a constitutional situation. (Ostrom 2005: 214–215).

We witnessed that in case of catastrophe in Katowice many technical norms as well as social rules did not work. The rules were not well understood and effectively enforced. Divisions of competences were also unclear. For example, fire department and designer of the fair hall claimed that removing of snow was duty of owner of the hall, but the court in legal verdict stated quite opposite. Not obliging of existing rules is one of basic reasons favourable occurring of different crises situations.

Other, more serious situation results from improperly created rules. For example, an act exists saying that the lowest price decides about choosing of an offer. If a price becomes only criterion of choice, tenders are won by unreliable developers. The act formalises and strengthens intensions of investors aiming to pay for specific service as lowest price as possible. In this way developers are forced to drastic savings, often at the cost of safety. Cost-cutting means for instance that calculations are not verified several times, there is no additional review of projects or additional supervision of construction. Cheapest materials are used for constructions which edge to edge—with no reserve—meet safety standards. Other additional precautions which are common in other countries are not used (for example no-frost water drains). Lower quality of construction is connected with lower safety, it is inclined plane leaning towards catastrophe.

One more example of regulative rules—we omit normative and cognitive institutions (Scott 1995)—refers to functioning of building supervision. Head Office of Building Supervision is a national office on a macro level, which main task are: (a) review of technical condition of objects and (b) review of obliging of building law investors. The Office has its branches (inspectorates) on a district and voivodeship level. Activity of the Office epitomises a series of tendencies known in literature as bureaucratization (Eisenstadt 1959). In the activity of the Office (according to recent report of Superior Chamber of Control statutory goals were pushed out by means, which means that clerks occupied by paper work have stopped to visit construction

yards and control giving out for use and existing from a long time and requiring services buildings.[8] Building inspectors accept, usually without verification, reports of private building experts, in a situation when over 30% of buildings in Poland is not fit for exploitation. People are generally speaking about corruption which becomes social problem. Without signature of supervision inspector—according to law—any investment may not be given out for use. Corruption except bribes acquires more "sophisticated" forms such as subcontracting to inspectors supervision over performing of building projects, which later are accepted by them, managing constructions of objects by unauthorised persons, or other forms of offering of beneficial services. The fair hall in Katowice, which although observing of serious faults, was given out for exploitation evidences to what lack of proper building supervision may lead.

That were only some examples of rules which do not fulfil their role. Other, just like exogenous variables mentioned above, condition and cause results which are gained by society. In our case they influence such characteristics as social vulnerability to crises or character and quality of crisis management, including response phase. Analysis of this phase is subject of next chapter. In conclusion, let us just state that during seventeen years of Polish transformation, until present moment institutional structure of national crisis management system is in process of institution building. Similarly—although a little bit better—looks medical rescue system. It was approved by Polish Parliament in 2001 and finally after modifications has come into force few months ago.[9] Rescue action in Katowice—commonly assessed as successful—was result of devotion and wisdom of its participants and idiosyncrasy of an area in which it have happened. This action was effectively coordinated and cooperation among different rescue services was very good. It was result of "working rules" or "rules-in-use" which are developing in life processes of various organizations.[10]

The above confirms well known fact that crisis means threat and danger and at the same time means also chance and opportunity. It is a chance—often very costly

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[8] For instance, in inspectorate of Katowice voivodship which is obliged to take care of technical service of 20,000 buildings, 33 inspectors are employed, but only three of them are at fieldwork, including one on a part-time job contract. 1.5 building inspector is an average of employment of Polish districts. Budgets of inspectorates are insufficient.

[9] In this context it is important to introduce two complementary statements. First of all, in the end of September, 2006 Sejm and Senate of Polish Parliamant passed an act on National Medical Rescue System, which was signed by the President of Polish Republic in beginning of October, 2006. The law has become obligatory on January 1st, 2007. Secondly, on April 26th, 2007 Polish Parliament passed on legal act proposal on National Crisis Management System law. This act will come into force on August 22nd, 2007. It creates institutional structure of CM in Poland and ascribes organizational responsibility of different bodies in every phase of crisis and crisis management. Both legal acts, are examples of institutional arrangements of collective choice level. They make possible and workable collective decisions in crisis situation.

[10] For Elinor Ostrom (1992: 19–22): "an institution is simply the set of rules actually used (the *working rules* or *rules-in-use*) by a set of individuals to organize repetitive activities that produce outcomes affecting those individuals and potentially affecting others. (…) All rules contain prescriptions that forbid, permit, or require some action or outcome. Working rules are those actually used, monitored, and enforced when individuals make choices about actions they will take in operational setting or when they make collective choices. (…) working rules must be common knowledge and must be monitored and enforced. (…) Rules-in-use are similar to knowledge-in-use in the sense that they are invisible to direct observation." In other words, rules-in use are forms of social capital and together with physical capital are priceless resources for successful crisis management.

chance—to change an inefficient and ineffective system of CM. Crises create opportunity to rebuild old and design new institutional system. Institutional arrangements (rules, norms, procedures, etc.) are components of every organization. These institutional rules can be approached on three distinct but related levels of analysis.

> One is *operational level*, which explains the world of action. The second is the *collective choice level*, which explain the world of authoritative decision-making. The third is the *constitutional level*, which explains the design of collective choice mechanisms. (…) Constitutional decisions establish institutional arrangements and their enforcement for collective choice. Collective decisions, in turn, establish institutional arrangements and their enforcements for individual action. (…) The decision at the operational level differs fundamentally from decisions at the other two levels. *The operational level is the only level of analysis where an action in the physical world flows directly from a decision* (Kiser, Ostrom 1982: 184, 209).

At present—more than one year after tragedy in Katowice and after eighteen years of institution building efforts—there eventually exists National Crisis Management System which consists of three different levels of institutional rules involved in anti-crisis actions. However, there still remains a lot to do. The major unsolved issue seems to be cooperation of different organizations which take part in response phase of crisis management. Rescue action in Katowice confirms that cooperative drills as well as common experiences in anti-crisis activities work for creation of efficient "working rules" which are responsible for successful cooperation and effective coordination of actions.

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