

# OPTIONS TO MAKE UP THE INFORMATION PORTAL ENLISTING THE AIR INCIDENTS, EVENTS AND AIR ACCIDENTS

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The authors in their thesis deal with the air accidents and grave incidents related to civil aviation. There is air accidents characterized and grounds of their origin described; reporting of air accidents and incidents and the modes of investigating those and how to eliminate them. Thesis consists of four chapters. There are explained the air accidents and incidents in general; those are classified and the modes and procedures of reporting the air accidents and incidents are given, attached with applicable legislation. Further to this, the author is focused on investigating and detecting the air accidents and events Slovakia-wide globally. The aim of thesis was to make up description on website; and so it was the contents of final chapters covering the grounds of air accidents and events.

**K e y w o r d s:** Air accident (air crash), incident, investigation, website, internet.

## 1 AIR ACCIDENTS AND GRAVE INCIDENTS

Air disasters may be huge, small, of no importance, grave, or, less grave. People may come across those in person, or, they may be informed about those in mass media. However, mass media do inform us just about those serious and important air accidents occurred to the larger extent, or, about those, due to which some passengers died as the air accidents caused people's death consequently. We may learn about the smaller air accidents of less importance on internet only, or, in reports of respective national aviation investigation services. Obviously, due to the lack of information provided, people are afraid of travelling by air; moreover, the air accident can be also deemed to be the situation directly not jeopardizing human lives.

### Air Accident

Every day, we may be listening to the news covering the air accidents or, we may learn about those on the daily basis. We could hear that the airplane had fallen incidentally here or there, that a certain number of passengers had died or got wounded gravely, or had been rescued seriously injured. Notwithstanding, not all of us we are familiar with the air accident actually what is it in fact, what may cause it and how it is investigated. Therefore, the chapter herein is covering and enlightening the things in question.

Air accident can be assessed, due to the consequences, as the event related to operating the aircraft, and which occurred from the period of time when any persons boarded the plane with the aim to undertake the flight, until that very moment when all persons on the board abandoned the plane and when death or grave damage to health of a person piloting the plane occurred due to the accident, or, the person involved or the third party not involved. Over the accident it could /might also happen that the plane turned to be destroyed entirely, or, damaged in its entirety in the way that it is impossible to fix it; and the repair does not pay back; or, such damage to plane occurred, or such defects, failures, defaults and breakdowns which had unfavourable impact on the solid aircraft structure and skeleton, output or aviation

aircraft characteristics, and they require usually a major repair or replacement of damaged parts.

Damage to aircraft or breakdown (failure, defect, default) are not deemed to be the situations when engines got damaged or broken and engine breakdown occurred, and/or engine accessories and coverage, or cover parts; if the damage is limited to the extent of engine only and also damage to propeller, marginal (side-lining) aircraft parts, aerals, brakes, tyres, aerodynamics coverage parts and punctured holes in cladding/side lining occurred.

### Grave Incident

Presupposition for air accident is an incident which jeopardized safety of the flight and when the flight crew or control bodies (dispatchers) of aviation operation are urged to conduct the activities not comprised in the applicable flight time schedule, or procedures to the extent of aviation operation control, or, eventually non-standard, thus, emergency flight navigation acts and procedures are requested to be exercised, or, early, precocious termination of the flight is a must. Presupposition for air accident is congruently (consistently) concluded and qualified with the air accident from the viewpoint of time.

Presuppositions for air accident can be divided according to the grounds of occurrence in:

- technologies
- flight
- controlling and managing the aviation operation
- others;

### Legislation

On the territory of the Slovak Republic, reporting, investigation, monitoring and recording, assessment and publishing the news release of air accidents and incidents are exercised in compliance with procedures and regulations determined in laws and directives on both national and/or international levels. Any and all the procedures are precisely given; however, there are the exceptions existing which are possible, optional and allowed (allowable) under the given circumstances.

The key regulations and directives are as follows:

- REGULATION OF THE EUROPEAN PARLIAMENT AND THE EU COUNCIL No. 996/2010 on investigation and

- prevention from accidents and incidents in civil aviation and on abolishment of Directive 94/56/ES;
- REGULATION OF THE EUROPEAN COMMISSION (EC) No. 1330/2007• REGULATION OF THE EUROPEAN COMMISSION (EC) No. 1321/2007;
- Act on Civil Aviation (Aviation Law) No. 143/1998;
- DECREE OF THE GOVERNMENT OF THE SLOVAK REPUBLIC No 661/2005 on reporting the events (accidents, incidents) in civil aviation;
- DIRECTIVE of the European Parliament and the Council (EC) No. 2003/42/ES;
- Rules L-13, Investigation of air accidents and incidents;
- ESARR 2 – Reporting and Reviewing the events (accidents, incidents) related to safety in ATM;
- Regulation No. 49/2011 of the Ministry of Transport, Construction and Regional Development of the Slovak Republic (MDVRR SR), regulating the common procedure after the reporting the event (accident, incident) in civil aviation is received (delivered);
- PUBLICATIONS of the Aviation Information Service

### Reporting the Air Accidents and Incidents

If there are grounds for concerns, or, if there is concern that accident occurred on the territory of the Slovak Republic, the aircraft operator, aircraft (flight) carrier (operator), airport operator, employee in charge of the flight operation time schedule, aviation operation controlling or flight conduct, or, other person being aware of and acquainted with the information about the accident, is reporting, without undue delay, to the regional Aviation Control Centre (ACC), or, to any point of aviation operation services, which shall assign the reporting to the ACC. Further to this, the reported event is subject to reporting the ACC to the Rescue Coordination Centre (RCC) which is activating the services of searching for and rescuing and finally, the RCC shall assign the reporting to the Aviation and Naval Investigation Department, to competent authorities of the Police Force of the Slovak Republic and to the aircraft carrier (operator), if his contact data are detectable; if the reporting was not delivered and received from any of the given entities. In the event of an accident of the foreign /international aircraft carrier (operator), the Rescue Coordination Centre shall be reporting the event also to the Foreign Affairs Ministry of the Slovak Republic.

The above all details are reported in compliance with the form given in the Rules L-13,

Annex A, without undue delay, straight to the Aviation and Naval Investigation Department.

### The Form and Contents of Reporting the Air Accidents and Grave Incidents

If air accident or grave incident occurs during the operation, the situation has to be reported without undue delay. Not only the operators (flight carriers) of airports and aircrafts and LPS personnel are obliged to do so and to comply with the duty requested, but all the concerned entities are obliged to comply with the duty. The situations of this kind are subject to reporting to respective department without undue delay, within the a.s.a.p. period of time, and have to be communicated using the fastest and the most accessible means of communication available at the moment. The said means of communication are deemed to be a telephone, cell phone, landline telecommunication network AFTN, facsimile, e-mail, etc. Notification of an accident (incident) is reported verbally and in the Slovak language, using the applicable ICAO abbreviations and abbreviations specified in the Rules L-13. Those may contain just the fundamental data only. Reporting must not be delayed due to a lack of some data. Those can be reported later.



### OZNÁMENIE O LETECKEJ NEHODE A VÁŽNOM INCIDENTE ACCIDENT AND SERIOUS INCIDENT REPORT

a) Označenie správy a druhu udalosti / Occurrence class (accident, serious incident, incident, ground incident)	
<div style="border: 1px solid black; height: 15px;"></div>	
b) Udalosť / Occurrence	
DÁTUM (DATE OF OCCURRENCE)	ČAS (TIME OF OCCURRENCE) (UTC)
ODKAM (ROUTE FROM)	KAM (ROUTE TO)
c) Lietadlo / aircraft	
Typ VARIANT / MODEL	POZNÁVACIA ZNAČKA (REGISTRATION MARK)
PREVÁDZKOVATEĽ (AIRCRAFT OPERATOR)	
C/S ( )	LET ČÍSLO (FLIGHT NR.)
d) Miesto udalosti (s odkazom na ľahko definovateľný zemepisný bod (zemepisná šírka a dĺžka)) Position of the aircraft (with reference to some easily defined geographical point (latitude and longitude))	
<div style="border: 1px solid black; height: 30px;"></div>	

**Obr.1 Form on Accident and Serious Incident Report**

### 2 GROUNDS AND INVESTIGATION OF AIR ACCIDENTS AND INCIDENTS

When operating the aircraft and also exercising the flights conduct, we have to take into account a tremendous amount of negative impacts which may influence the aviation operation

unfavourably, or, they may lead even to the occurrence of air accident or grave incident. There are lots of wrong impacts existing. The matter is the impacts concerning the aircraft as it is, primarily the defaults (defects) to aircraft structure, material fatigue, short circuit in electric line and electric cabling in the aircraft and many others.

Weather is further factor which may have an impact on safety of aviation operation.

Unpredictable weather changes, strong wind, storms and lightning, dangerous thunder-burst may cause accidents to the hugest extent resulting in absolute aircraft destruction. Notwithstanding, the worst factor having an impact on safety is human being. Assumptions are saying that more than two thirds of traffic accidents are caused due to human factor, not up in the air only.

The key grounds of the air accidents are:

- Other objects, debris
- Distorted and/or insufficient information
- Lightning
- Ice and snow
- Engine breakdown
- Aircraft structure failure
- Fall speed of the aircraft
- Fire on the board
- Bird strike and/or air crash with a bird
- Damaging on the ground (ground incidents)
- Vulcan ashes
- Human factors
- Controlled navigation to the terrain
- Electromagnetic disturbance
- Condensation on the apron (take-off and landing surface)

### Procedures of Investigation

Procedures of investigation of air accidents and incidents in aviation operation were defined for the first time in 1928 by the US National Consulting Committee for Aviation. The Investigation Authority had been authorizing the assigned employee-investigator who had to detect the grounds of occurrence of air accident. Concurrently he was supposed to determine percentage of guilt of respective factors having its share in the particular accident. In 1944 within the framework of Chicago Treaty, the collection of procedures and processes was developed in order to control the enhancing international civil aviation transport. In the procedures there were also comprised the rules related to duties and liabilities of contractual countries in the event of air accident on their territory. The standards and recommended procedures were also developed for investigation of air accidents and incidents and those were indicated as Annex 13 to the Treaty later on.

The prime goal of the said document was not to find the guilty party of an accident but to find some kind of mechanism according to which all the

involved parties in aviation – aircrafts pilots, manufacturers and regulating agencies and authorities could be given a lesson and learn from their mistakes, or to be able to eliminate the failures at all in its entirety.

When the air accident occurred, the country on the territory of which the accident took place, shall send on assignment a team of the first investigators, so-called Go-Team on the place of occurrence. They are the first ones who launch the reconstruction of entire air disaster. They are obliged to exercise it in neutral and impersonal way, thus, in an unbiased way. Subsequently to this, they are putting each fragment and section of accident into one entire whole. The team of people usually consists of professionals, technically skilled in many fields of aviation who gained multifaceted knowledge in aviation. Selection of personnel in the said team depends on nature, size and placement of the aircraft. The team of investigators may also approach part-time (external) experts with the request to be assisted within the scope of identifying and determining the grounds of the accident. They are mostly the skilled professionals dealing with manufacturing of aircrafts and/or spare parts. They are allowed to express their expert's opinions within the investigation ongoing, and to comment on the already expressed assumptions or doubts, or, they may locate and find, and confirm irreversibly the proofs of evidence related to the occurrence of air accident and their abiding conviction of the air disaster.

### Department of Investigation and Conduct Performance

It is a separate branch office at the Ministry and is independent on the Ministry under the conduct of investigation performed. Members of the investigation board are either appointed by the Minister, or, by the Chair of permanent Committee. It depends on the facts whether the accident is of extreme graveness, or, the accident of extreme consequences. Each respective professional committee, investigating the air accidents and incidents and are detecting the grounds of occurrence of those, is issuing the reports, recommendations and measures to the Ministry in order to eliminate the air accidents alike.

No one unauthorised can enter the crash scene over the entire investigation of air accidents, save the initial rescue squads, teams and forces, and members of investigation team. The strict measures kept in the restricted crash area are enabling to save the most identical crash scene (place of occurrence) and not to destroy and not to devaluate eventual proofs of evidence and crash leads.

Members of the investigation team are obliged to document the place of occurrence – the crash scene, the state of aircraft, persons on the board and also to take a required number of samples aimed at expertise conduct to the extent of further

investigation. The investigation board members conduct the hearing, record the statements of any and all involved persons, or, eventually, of eye witnesses of the accident and any person who could / might bring up new facts into clarification of the situation.

### Investigation on the spot of occurrence – the crash scene

On the spot of occurrence – the crash scene, the investigation is focused on documentation as the very first thing, evidencing the placement of particles of debris of crashed aircraft, thus, the leads made up in the terrain by the falling aircraft. Further to this, the position of separated parts and global cross section of the terrain is monitored and evidenced, which could / might influence the accident and the accident conduct and destruction of the crashed aircraft. Person supervising the work surrounding the aircraft debris and who is coordinating any and all requested works ongoing is authorised to do so by the Chair of the investigation board. The person is granted the powers to review the aircraft destruction and debris safety during the investigation held on the place of occurrence – the crash scene.

Prime securing of the place of occurrence – the crash scene applying the so-called marking and indicating is utmost important during the investigation of the air accident. On the spot of occurrence – the crash scene there must be also secured the supervision and regulation of the access of specialists with special marks. The extent of the investigation commences most often from the first contacts of aircrafts with the ground and is terminated by the final placement of all debris of the aircraft wreckage. The placement of debris and the leads are also indicative to what extent the corridor for investigation will be.

### Final Report

Every investigation and subsequent detecting of the grounds is followed by subsequent final report issued by the investigation committee. The form, contents and details of the final report should be dependent on the circumstances, type and graveness of the air accident or the incident. In Slovakia the report is structured in compliance with the Rules L13 Investigation of air accidents and incidents in the Annex Final Report Skeleton. In the report there have to be clearly and comprehensibly and truly described in an unbiased and not distorted way, the facts of investigation and also the results of examining. Further to this, the report has to comprise the recommendations aimed at the safety-securing. The extent of the final report may be altered in accordance with the character of the accident; however, the structure of the report has to be kept. The final reports are distributed to the parties which could / might benefit from the results of investigation. The said report is also subject to assignment to respective national aviation bureaus and the European

Commission in the moment of accidents related to other countries, or, the European Union member countries.

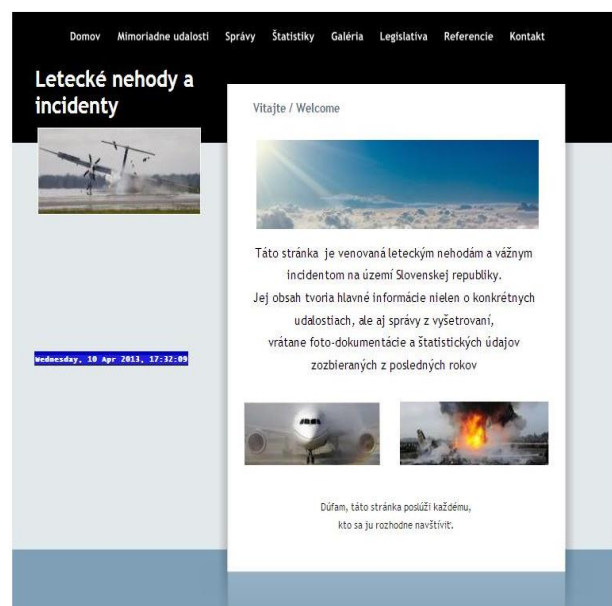
### 3 WEBSITE COVERING THE AIR ACCIDENTS AND INCIDENTS

In everyday life we are facing numerous and diverse information. We are surrounded with multifaceted information. Obviously we use the appropriate source of information and/or the means of communication in order to get the information required. No matter what kind of mass media it is, television, radio or internet, we are always facing the same problem – we are constantly flooded with the number of confused and not unambiguous eventual sources of information, not clearly defined once we seek for the requested expression.

#### Description and controlling

The same is also applicable when we wish to trace the information related to aviation and air accidents and incidents. It was also the reason why the necessity had been raised to locate the information comprehensibly in one source and to simplify the access to the information required as much as possible. The necessity to do so resulted in website covering the information about the air accidents and incidents on the territory of the Slovak Republic.

As a result of the compiled and gained information, website was made up, containing the aggregate of all the information about the air accidents and incidents on the territory of the Slovak Republic.



Obr.1 Website Air Accidents and Incidents

After clicking on the reference and when the given address is depicted, the introductory letter of the given website is depicted to the users. The letter comprises hours, date, a few introductory words and the items of the menu. The letter also contains the pictures, photos portraying and documenting the air accidents world-wide. The key source of the photos turned to be the internet browser. The presented photos are demonstrating the air accidents which occurred world-wide, on the background of the sky, with the aim to add a special atmosphere to pictures and make the users jump into the issue enlightened by the website.

### Menu

Key offer consists of respective parts and is functioning in the way that if the users opt to click on one from a few options, that one will be opened in the form of the subpage showing the given contents or offer and from the upper key offer it disappears. There will be just left other unopened icons of the offer. This will happen when any icon is opened.

Offer into the key menu was chosen under the personal opinion, on the basis of the most important details which should be contained on the website. Similar foreign websites served to be a model or an aid to the extent of selection of the key offer. The matter was the websites of the US National Investigation Department and similar website made up for Russia.

The key menu comprises the parts as follows:

### Home

It is icon one to the extent of the menu and the item may put the users back on introductory website page after clicking on it.

### Breaking Events

Menu contains next important icon introducing the breaking events. After clicking on it, subpage is opened, containing the options for respective lists. Options are enlisted according to years, beginning from the 2009 year up to the year 2012. Viewing the fact that the lists containing the air accidents dd. prior to 2009 are neither available publicly, nor on website of the Aviation Investigation Bureau; and on internet the information about the air accidents are not comprehensible and are superficial and incomplete, the lists could not have been completed and classified in the subpage information herein.

The years 2009, 2010 and 2012 are providing any and all air accidents and grave incidents that happened over the past said years. The users may locate data to the extent of the lists like: date of accident, aircraft type, the aircraft registration mark, accident position of the aircraft, the operator (carrier), description of the accident, how was the aircraft damaged and extent to the damage, and whether injuries and wounds occurred or not. If positive, the

matter is whether the injuries and wounds were grave, or less grave. All references to time are given in UTC in the lists of air accidents and incidents, and data contained in the lists were reported by persons reporting the air accidents and incidents. The lists are transparent and classified and numbered according to dates when the respective accident happened.

### Option for the Reports

After clicking on the icon, the users may get the subpage of the Reports depicted. Similarly to the previous subpage covering the Breaking Events, the subpage herein is containing options for respective years. Option for the years commences with the 2009 year up to the year 2002. Although the website was supposed to be extended by much more information, it was not possible. It was not possible to trace the information using the internet browsers, or, they were not found in complete form and on the website of the Aviation and Naval Investigation Bureau there were just found the final reports on investigation covering the given years only.

After clicking on the respective year, there will be scrolled out and depicted the list of final reports on the investigation of air accidents and incidents which were published. The said reports are quite detailed and contain the fundamental, supplementary, and backing up précised information about the accident. Almost every report, if not each, is attached with the photographs from the place of occurrence – the crash scene. Number of pictures depends on the particular relevant transport accident.

### Statistics

The air accidents and incidents can be counted and registered from the viewpoint of statistical data, as any other activity, performance, or event. Statistics can seize and evaluate anything. We either may evaluate it for a certain period of time, for instance per year, month or three months, or, the evaluation can be expressed in percentage. According to these data we are able to assess the higher occurrence of air accidents for which period of time, and vice versa, when the accidents did not occur almost at all. Statistical data are enabling us to depict and to clarify a couple of issues, related to the origin of occurrence of those unwished phenomena in the aviation. Statistical data are saying who is the most responsible or what caused the occurrence of accidents; whether the air accidents were caused due to the operating grounds the most or, whether the human factors played the role and more accidents were caused by human negligence, fallaciousness and wrongfulness.

When opting for the option, the users are given the subpage depicted where there are enlisted statistical data itemizing the accidents not only Slovakia-wide but also abroad, according to years specified. The statistical data are given from the year

2006 up to 2013; however, in 2013 there are filled in just the first two months.

Statistical data are focused on the numbers of air accidents and grave incidents. When speaking about the air accidents there are monthly given the numbers of air accidents, the number of wounded and injured, or dead persons, the passengers and the crews, and the scope of damage to the aircraft. When speaking about the grave incidents there are given the numbers, the scope of damage to the aircraft and the kind of incident, as for instance, the flight without connection, bird strike and/or air crash with a bird, safety landing, the breach of the procedures, the aircrafts' breakdowns, defects, failures, defaults, the called emergencies, TCAS, uncoordinated entry into the apron, the loss of connection, and many others.

### Gallery

Gallery is the next choice on the website. It contains the pictures portraying different air accidents and incidents. There are also photos documenting the aviation and the means of aviation. The photos were traced and sought-out on internet using the website browser, offering a wide range of pictures and photos of any kind. The photos are not presented specifically in the organized way and they were selected upon the personal opinion and taste. The photos and pictures were attached neither with the descriptions/annotations nor the names /subtitles; therefore, on the website there are the descriptions given: Picture One, Picture Two, etc. On the subpage herein, there are not given the pictures covering the accidents which occurred in Slovakia, due to the fact that there are already enlisted on the website, particularly speaking in respective final reports on investigations. Therefore, the repeated depiction would have to be neither fruitful nor to draw the attention.

### Legislation

The selection is providing an offer to get acquainted with the applicable legislation and legal rules in the Slovak Republic and also in Europe and world-wide. The offer cannot be used as the reference. It means that after clicking on the specified option, the contents won't get depicted, or, the system won't connect us to the website where we could locate the given document. The subpage is functioning just as the informative page, containing the names of regulations and laws, pursuant to which the procedure is governing the situations related to air accidents and grave incidents in the Slovak Republic.

### References

The option is presenting the references and also the functioning interlinks with the pages of similar character. They are the pages concerning the air accidents in general, and also there are references to the websites of respective countries. The websites contain the statistical data, numbers of accidents,

numbers of the injured, the wounded, the procedures in investigation, the final reports and also the pictures, photos and references to legislations of each respective European countries and world-wide. Websites of the largest countries contain the animations of entire air accidents (crashes), reconstructed under the investigations. The websites are of importance and they became the key source and inspiration for making up the website herein.

### Contact

The item of Contacts is the final one on the website. There are the contact details given which are subject to updating. The most important is the e-mail address where the interested parties may send new data and interesting aspects related to the air accidents and incidents in Slovakia. It may be of utmost importance when updating the website.

The website was originated with the aim to simplify and enable to search for the information related to air accidents, primarily on the territory of the Slovak Republic. Originally, the website was supposed to contain data from the year 1993, i. e, from the independent era of the existence of the Slovak Republic, and Slovakia's sovereignty above the air space above Slovakia's territory. Viewing the fact that quite a lot of information could not be reached, or, due to an eventual absent-mindedness the missing information was neglected the website is subject to updating and altering it right after the further latest information is acquired. If it is at least a little possible the website shall be enhanced and updated for the needs of other people who are interested in the issues of air accidents and incidents. It is our wish the purpose of the website meets expectations.

## 4 CONCLUSION

Thesis was developed under the stimulus to enable and to simplify the access to the information related directly and/or indirectly to the civil aviation in Slovakia and world-wide.

Thesis is focused primarily on the air accidents and incidents, commencing with their occurrence, through reporting up to the investigation of those.

The aim of thesis was to clarify and enlighten what the air accident is; the modes of reporting the air accident and incident; who is responsible for the investigation of the air accidents and to what extent. Notwithstanding, the key and utmost significant goal of the thesis was to make up the website which is supposed to be functioning as some kind of a tool enabling the browsing, searching for and storing the information about the aviation events. The website contains data just within the framework of the Slovak Republic only and is representing some kind of the archived reports not only upon the investigations.

Unfortunately, nowadays, when the technologies are dominating anything, it is tough to

acquire some information; therefore, the website may show the incompleteness in data, mainly concerning the past years.

Despite the failures every effort will be made to gain and alter the missing data and information. Website is accessible to public; no matter being interested in the civil aviation, or not.

Hope that any visitors of the website will be provided with the information needed.

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