

# State Safety Programme and State Safety Plan

## Part one – State Safety Programme structure

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**Abstract** — State Safety Programme and plan are considered the main instruments in safety management. In that matter, this paper focuses on their description and simultaneously tries to clarify a need and significance of their establishment and implementation within respective state. All elements, defined in ICAO doc. 9859 as State Safety Programme (SSP) fundamentals, are separately described. These elements are divided into four groups, further detailed in individual chapters – State Safety Policy and objectives, State Safety Risk management, State safety assurance, State Safety Promotion.

**Keywords;** state safety programme, risk management, safety policy, state level, safety performance indicators, Just Culture

### I. INTRODUCTION

The risk management in the area of aviation safety nowadays distinguishes on different levels. The main reason for that could be found in the fact that aviation is a global industry where each subject, from the tiniest establishment to the respective state, has its own management mechanism. European and international legislation, regulations and agreements represent the main instruments regulating operations of the air carriers, the entities generating air traffic.

Current legislation has its roots in operation practices and experiences from the industry. Naturally, the state here plays its oversight role. A desired objective, on the other hand, puts different expectations where instead of supervising, state should act more as a supporting element. The common international approach therefore, represents a good way for reaching a higher level of the whole process efficiency.

Lately, International Civil Aviation Organization (ICAO) recognised this idea and started considering it. As a result, the

new Annex 19 to the Chicago convention from 1944 brought a requirement, where all member states are supposed to prepare and implement a State Safety Programme (SSP). As it was defined in ICAO Doc. 9859, SSP is an integrated set of rules and activities established in order to improve a current safety level. ICAO made another important step by issuing a Global Aviation Safety Plan (GASP), which was made according to the globe-wide problems. Its main purpose is to raise awareness of existing problems and to offer possible mitigating or solving solutions.

The similar approach was applied at the European Union level. Quite obviously, the ICAO standards were used here as basis for its development. It is also in line and compatible with required SSPs. The difference in comparison to the global one lies primarily in its focusing on European Union area with all its specifics. One of the achieved results was a creation and constant improvement of the European Aviation Safety Plan (EASP). This plan was designed according to the existing plans of the particular EU Member states. This approach is known as bottom-up approach [1].

If we try to distinguish what is a fundamental difference between state safety programme and plan, the answer could be found in a different view on the issue levels. The programme in its core represents a general view on the subject, brings a basic definition of a system, defines relations within it and determines the general risks and their solutions. On the other hand, safety plan is focused on the specific risks and corrective or mitigation activities. EASP was designed according to existing plans so in that matter represents a more detailed document. Both GASP and EASP are conceived and applied only as supporting documents, which in practice means that their application is not mandatory for all Member states [1].

## II. THE AREAS OF RISK MANAGEMENT AT STATE LEVEL

The ICAO doc. 9859 (Safety Management 3rd. Edition) comprehensively defines a structure of SSP, which is supposed to be developed by the state. The document brings a common framework and approach to the process of SSP establishment. Here, eleven basic elements were defined and divided into four following areas:

### A. State safety policy and objectives:

- a) State safety legislative framework
- b) State safety responsibilities and accountabilities
- c) Accident and incident investigation
- d) Enforcement policy

### B. State safety risk management:

- a) Safety requirements for the service provider's safety management system
- b) Agreement on the service provider's safety performance

### C. State safety assurance:

- a) Safety oversight
- b) Safety data collection, analysis and exchange
- c) Safety-data-driven targeting of oversight of areas of greater concern or need

### D. State safety promotion:

- a) Internal training, communication and dissemination of safety information
- b) External training, communication and dissemination of safety information

As previously mentioned, this is only a common framework. Naturally, the SSPs developed by various states differ due to divergent view on what is considered as essential within respective state. Because SSPs nowadays represent an instrument in a global approach to safety on the state level, the following chapters are focused on acquainting with the individual areas contained in SSP.

## III. STATE SAFETY POLICY AND OBJECTIVES

State safety policy in its core represents a foundation for state's approach to the obligations regarding safety. State safety policy, as previously listed, consists of four basic elements aiming to reach distribution of responsibilities and accountabilities in a way that will enable comprehension of safety and its further development. The main safety policy principles are determined by the state, naturally, in conformance with GASP and EASP requirements. As well, state is in a position to use its own space in order to further develop these principles, as it is needed by specific local conditions. State safety policy is not a document that only needs to be adopted, but constantly revised and if necessary modified.

The only global organization regulating this field of aviation industry is ICAO. In a case of EU, European

commission, council and parliament as the main legal authorities for all member states, play this role. All regulations issued by these authorities are mandatory for all member states and must be adopted promptly. Beside those mentioned, there are other European authorities regulating this field such as European Civil Aviation Conference (ECAC), EUROCONTROL and European Aviation Safety Agency (EASA).

If we now take a look on state level, the main authorities responsible for regulation of aviation industry are competent ministry (in Czech Republic – Ministry of Transport) and Civil aviation authority (CAA) (in Czech Republic - Úřad pro civilní letectví). A competent ministry acts here as a subject responsible for implementation and other following activities regarding SSP and safety plans. CAA, as a body subordinated to respective ministry is (after ministry approval) actively involved in a process of SSP development and implementation.

During implementation process, a respective state should perform a "gap analysis" of its own safety system. This step is one of the requirements given by ICAO. Thanks to the analysis, state can determine whether individual SSP elements are already the parts of existing system or not. Logically, the results of the analysis show if there is a need for further corrective actions [3].

Another important aspect defined here is an accident and incident investigation. Effective improvement of a current safety level is considered as one of the main purposes of such investigation. Assigned organization should act as completely independent body (in Czech Republic - ÚZPLN). As a final result, this body creates a report that among other facts contains recommendations for interested parties.

Enforcement policy, as a next defined aspect aims to specify particular cases where due to non-compliance with regulations a proper reaction of responsible authority is required. Aviation is an industry branch where due to its specifics almost every activity is subject of licencing and requires specified permissions. CAA of the respective state is an authority responsible for permission issuing and all related activities. Determinations whether respective subject fulfils required conditions and comply with given regulation or not can be defined as main purpose of such enforcement policy. Thanks to it, eventual findings of non-compliance can be handled subsequently and adequately.

As an example of the adopted policy, we can take Swiss "FOCA safety policy", which refers to all segments of civil aviation in Switzerland [4]. It was prepared and adopted by Swiss Federal Office of Civil Aviation. This institution is the highest authority in Switzerland ensuring the adequate conditions for the safer civil aviation.

"Safety first" principle applied in the policy's realization strategy represents a foundation thanks to which FOCA as competent organization can act as supervision body. Here, a

great attention is paid on the operational aspect. This practically means that relation between principle and expected commercial results must be balanced in order to make all operations economically justified.

FOCA safety policy also contains specified activities that are expected to be performed in order to reach desired safety standards. Establishment of the effective risk management systems, support to reporting and just culture and maintenance of a high-level employee competency are just some of the specified priority activities presented in FOCA safety policy.

#### IV. STATE SAFETY RISK MANAGEMENT

Safety Management System (SMS) is recognised as a main instrument in the state safety risk management. Both, ICAO and European Union put various requirements regarding SMS [2][5]. Individual states and organizations' managements are in position to require their own as well. In reality, the establishment types or region characteristics are the factors due to which particular risk management systems differ from each other. Besides that, internal establishments' experiences gained through years also influence further development of SMS. Therefore, the state should ensure, through CAA the existence of control and oversight instruments. These represent powerful tools affecting individual establishments' SMSs in required way.

The state's goal here is to regulate a way how different establishments and service providers identify and manage operational risks. Legislation, norms, various requirements and rules represent the important instruments in state hands, primarily because they could be mandatory for involved entities.

By ensuring a proper functioning of SMS, state could get a sufficient overview of current risks and seriousness of their impacts. Ensuring process must be dynamic and continuously revised. This way, it could be verified whether state requirements are in line with current industry conditions or not. The state should have a partner approach. Its main objective should be a support in a risk mitigation process, as well as aviation related information and experience sharing, not only within its borders but also internationally.

Risk management also implies a following setting of the acceptable level of safety. Setting of this level should be result of the bilateral agreements between state and respective establishment or service provider [6]. This is a logical solution, mainly due to differences between various establishments, regarding not only the fields of activity but the scope of their operations as well.

The next step we are approaching in this phase of risk management is application of Safety Performance Indicators (SPI). Their application is followed by setting of the particular safety objectives. The state should be involved as a stimulating element influencing establishments and service providers by approving or requiring a higher (then already applied) level of safety [5].

Bilateral agreements could serve well in a process of state's SPIs evaluation. However, state is not in position to measure these SPIs directly, but it can obtain the input data from the particular establishments or service providers. A proper definition of SPI is fundamental. Besides the condition that SPI should be measurable, definition must ensure that their values will be relevant and meaningful.

#### V. STATE SAFETY ASSURANCE

State safety assurance, one of the SSP components, introduces a feedback as one of the instruments monitoring the efficiency of adopted rules in safety management. Various instruments are used during this process, primarily audits. Audits and random checks represent the activities performed in standardized forms. Simultaneously, proactive elements of safety culture should also be integral part of state safety assurance. Body responsible for safety oversight on a state level is a previously mentioned CAA. The findings obtained during these processes are considered as valuable data and an important tool in risk management. This way, created feedback would serve as powerful instrument showing how effective the applied rules actually are in safety management.

According to available SSPs, approaches to the issue of state oversight and its role in safety assurance are more or less the same for the majority of the states. Interesting method for audit planning could be found at Swiss FOCA. Their approach is based on identified risks, which practically means that the conduction and audit specifics are dependent on characteristics and seriousness of the risks [7]. Logically, this method is supposed to be a part of every state safety assurance process.

To conduct an oversight in the cases requiring greater attention, CAA must find the methods how it will define priorities. For example, Czech SSP introduces necessity to ensure a program of safety assessment of foreign aircraft (SAFA). In the case of Swiss FOCA, information gathered from SAFA inspections represents one of the basic criteria for prioritization.

Another ICAO requirement compulsory for all member states is an establishment of the mandatory safety reporting system. The main idea here is to simplify a gathering of information related to current or potential safety problems [8]. These information are essential element necessary for good safety management. The more information available automatically increases the chances for simpler risk identification and corrective activities implementation. Therefore, the majority of states support concept "Just Culture". Concept implies that responsible person is not penalised for reporting of his/her mistakes, with the exception where these mistakes represent negligence or intentional violation of the rules. Besides Just Culture, other Safety Culture elements must not be forgotten too. Safety Culture as a whole represents an important proactive element of the safety system.

In order to support reporting, various countries started developing their mandatory and voluntary reporting systems.

United Kingdom developed its own mandatory reporting system MORS (Mandatory Occurrence Reporting Scheme) [9][10]. Other systems, such as CHIRP (Confidential Human Factor Incident Reporting Programme) or UK National Wake Vortex Reporting System, are the examples of additional reporting systems associated with MORS [9].

Reporting in Finland is performed through standardized reports approved by Finnish Transport Safety Agency. Besides that all accidents or serious incidents must be reported to Finnish Safety Investigation Authority as well [11][12].

In addition to mandatory ones, development of systems enabling voluntary reporting is also recommended. These systems are designed for reporting of the events, which could have an impact on safety, but does not belong to the group of those whose reporting is considered as mandatory. The good example from the practice is Switzerland, which developed its own reporting system called SWANS (Swiss Aviation Notification System). Voluntary reporting systems allow anonymous reporting, primarily in order to increase a number of sent reports.

Gathered data must be properly stored. That must be done in a way to simultaneously make them available for further analysis and for all interested entities. Belgium, as one of the priorities stated a necessity of National safety library establishment. It would serve (besides other purposes) as a depository for all data related to the reports of accidents or serious incidents [13].

## VI. STATE SAFETY PROMOTION

State safety promotion primarily implies the training and safety related information sharing [5]. Its main purpose is to support information, knowledge and experiences sharing. This is considered as important because it would help employees to get familiar with all aspects of safety and to develop their own attitude towards it. The sharing of safety related knowledge creates a good foundation for proper comprehension of the safety issues. Thanks to that, employees are now actively involved in a maintenance of a current safety level and its further improvement.

National CAA should focus on a training and information sharing both internally and externally. Internal CAA training can bring a visible efficiency improvement of CAA activities in this area. Quite logically, it will have positive impact on SSP and safety plan improvement as well. For external subjects, training represents a process of relevant industry knowledge sharing among respective groups of employees. Important CAA objective here is to ensure two-way communication. Practically speaking, CAA is not supposed only to transfer information but to receive them as well.

## VII. CONCLUSION

After taking into consideration all aspects, one can say that approach to the risk management on the state level does not substantially differ from the approaches on the other levels. More likely, we can notice many relations and mutual

interconnection on both higher (European and global) and lower (establishments and service providers) levels. Another common characteristic for all levels is an application of SPIs and effort to describe safety performance. Therefore, a proper definition of the adequate SPIs set is one of the nowadays problems, mainly due to the fact that defined indicators need to be measurable and expressed in meaningful values. Without that, we would not be in position to discuss system's safety performance.

Both global and European approaches are focused on a development of the common basis for risk identification and its following mitigation. However, in order to utilize available synergies and prosperous approaches, it is necessary to consider air transport as a whole and to approach it systematically. That could be reached only by SPIs application on the state and higher levels and by following evaluation of safety performance. This way, a significant improvement of aviation safety level could be achieved.

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