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INTEGRATED SYSTEM FOR AIR TRANSPORT OF DANGEROUS GOODS

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*"One machine can do the job of fifteen ordinary men.
No machine can do the job of one extraordinary man "*
- *Elbert Hubbard.*

1. STADIUL REVIEW OF TRANSPORT OF DANGEROUS GOODS

In the present period there was a sharp acceleration of the deployment of processes and phenomena that surround us, natural or artificial. And the need for transport is growing larger, so that aircraft are required dynamic performance and traffic safety increasingly higher. However, they still require a set of ecological conditions on harm reduction, lower operating costs and improving maintainability thus leading, as in modern aircraft to be fitted intelligent devices to control the operation and provide information useful to diagnose the technical state.

As a result of global economic development and technical progress in the last century, increased the transport of dangerous goods. Air transport of dangerous goods have a particular importance in the overall transportation system in our country because they are an active factor in ensuring the production process between businesses and particularly in the sphere of material dangerous

goods. For smooth movement of dangerous goods transport business operating personnel of companies must have specific tasks to work on that to know in detail and implement them fully.

Unification of Europe into a single unitary structure - the European Union and the transition to the European single currency, the Euro has led to changes in legislation implicitly European. Union countries are trying to achieve a light transport standard to allow for transport of dangerous goods high quality and security while taking into account environmental protection.

Security in transport of dangerous goods covers a multitude of factors that may directly or indirectly influence of business conditions in this domeni. Astfel, staff qualifications and professionalism of the transport of dangerous goods, education of all road traffic participants, the technical condition and amenities aircraft carrying dangerous goods, quality of infrastructure are factors contributing to the smooth conduct of transport security and safety.

Completing the integration and harmonization of legislation to complete the European Union in particular regarding



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market access and professionalism as well as measures to improve safety through education and training at European Union level, providing and developing information systems for the aviation network, provide air transport in Romania can compete on equal terms with the worldwide air transport.

In order to protect the unwanted events that could occur have been developed at the UN level, a series of stringent measures, technical and legal nature, which apply domestic and international traffic of dangerous goods. Compliance with these measures make possible the safe transport of dangerous goods in rail traffic, road, water, air, multimodal and handling of goods. The measures relate to packing, loading and transport using some modern technology (containment, pallets and packing). As a result of the need to harmonize legislation with European legislation regarding the carriage of dangerous goods in order to facilitate economic exchanges with countries in Europe, Romania has joined the Technical Instructions for the safe transport of dangerous goods by general air. Principal governing the international transport of dangerous goods by air are contained in Annex 18 to the Convention on International Civil Aviation. Detailed technical instructions contain all the instructions necessary for safe international transport of dangerous goods by air. Dangerous goods can be transported safely to the air whether the principles that have been adopted as technical instruction. They are designed to facilitate transport while providing a high level of safety, so that dangerous goods can be transported safely to the aircraft or its occupants and providing all the conditions of an incident if it is not an accident can lead.

Man-aircraft-environment relationship in terms of dangerous goods is complex and involves at least three distinct sub-components:

- SUBSYSTEM-TO REFER TO HUMAN CONSCIOUSNESS AND HUMAN FACTOR REQUIRED EXPERTISE HANDLING AND TRANSPORT OF DANGEROUS GOODS-awareness of the dangers of dangerous goods, learning and continuous training to raise the level of training of personnel involved in the transport process.
- ENVIRONMENT SUBSYSTEM-TO RELATE TO PHYSICAL AND CHEMICAL PROPERTIES OF DANGEROUS GOODS AND THEIR IMPACT MEDIOAMBIENTAL-characteristics of hazardous substances, mainly present danger and environmental impact.
- AIRCRAFT SUBSYSTEM-TO RELATE TO THE TECHNICAL ASPECTS OF CONSTRUCTION OF AIRCRAFT CARRYING DANGEROUS GOODS-constructive-functional characteristics of means of transport for dangerous goods.

**CONCLUSIONS ON THE
INTEGRATED AIR TRANSPORT OF
DANGEROUS GOODS**

Development, modernization and improvement of air transport is possible by completing and harmonizing legislation in the countries of the European Union road, improving road safety and raising the level of staff training that is involved in transport. *In terms of human subsystem:* Worldwide, European and national



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efforts are made to prevent any major accidents resulting in property damage, casualties or environmental pollution, because the human factor plays a decisive role in carrying out transport operations.

In this context through the transport of dangerous goods is appropriate to make the following proposal:

➤ All persons involved in shipping, transportation or professional intervention should be formed to meet the requirements of their activities and the responsibility imposed by working with these dangerous substances. In these conditions will possess expert knowledge on the characteristics of hazardous substances and articles can be transported, their hazards, emergency equipment required, and recommendations on how to proceed and act when there are losses (spills, leaks) or events (fires, explosions, contamination) that endanger human life or health, jeopardize the integrity of the material assets (buildings, machinery, facilities), or affect environmental quality.

In terms of the environment subsystem:

Use of chemicals has resulted in the need of solving problems of humanity, but without knowing the consequences or the price to be paid later to reduce environmental degradation or health. Today, clearly it is known that many synthetic chemicals are suspected to generate environmental and health damage, it being found in many products that we consume daily, or being present in our environment.

Source of concern is the scarcity of knowledge about the impact of many chemicals on human health and the environment. EU chemicals policy must ensure a high level of protection of human health and the environment, both for existing

generation and future generations, while the effective functioning of the internal market and competitiveness of the chemical industry. To achieve these objectives, the precautionary principle is fundamental. Another important objective is to encourage the substitution of hazardous substances with less hazardous substances where suitable alternatives are available.

In this context through the mitigation of dangerous goods on the environment is appropriate:

To prevent accidents or incidents, all actors in the transport of dangerous goods here include: shipper, carrier, receiver, charger, charger tanks, packer, the operator of tanks or containers, have set responsibilities of a non-exclusive manner, which is interwoven so that error is virtually eliminated. Participants in the transport of dangerous goods must be trained to meet the requirements of their activities and the responsibility imposed in the exercise of their activities. In those circumstances will possess expert knowledge on the characteristics of hazardous substances and objects that can be transported, their hazards, emergency equipment required, and recommendations on how to proceed and act when there are losses (spills, leaks) or events (fires, explosions, contamination) that endanger human life or health, jeopardize the integrity of materials (buildings, machinery, facilities), or affect environmental quality.

Awareness of the dangers presented by dangerous goods transported must concern not only the sender, carrier and consignee of dangerous goods **but recommend that crucial first step of creating specialized teams to intervene promptly and professionally with the**



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highest incidents, accidents involving dangerous goods .This own body, well defined tasks structured field of dangerous goods in the future could prevent major accidents resulting in increased property damage, casualties and increasing environmental pollution accentuată. These teams to be effective there must be in Each county can operate promptly and be composed of professionals who know in detail the properties currently periculoase. The fire men goods are overwhelmed with the problems of dangerous goods demonstrating countless times (see Mihăilești accident, etc..) their inability manage this area.

Proposals on measures proposed to prevent the aggression of dangerous goods on the environment are:

- Designation for each (*company or office*), *shipper or carrier of one or more safety advisors for dangerous goods*;
- Continuous training of personnel functions which contribute to the safety of dangerous goods
- Procedures for implementing emergency measures and, where appropriate, drafting of the report, in case of accidents, incidents or serious infringements recorded during transportation, loading or unloading of dangerous goods
- Verification procedures for equipment used in the transportation, loading or unloading of dangerous goods;
- Implement necessary measures to prevent recurrence of accidents, incidents or serious misconduct during transportation, loading or unloading of dangerous goods
- Check that the personnel involved in the transport, loading or unloading of

dangerous goods have detailed procedures and work instructions;

- Take measures to raise the risk inherent in transport, loading or unloading of dangerous goods.

In terms of aircraft subsystem:

Aircraft carrying dangerous goods must have as many safety systems to carry dangerous goods in a safe maximum.

As a result of global economic development and technical progress in the last century, increased the transport of dangerous goods. International carriage of dangerous goods is regulated by international agreements. In order to protect the unwanted events that could occur have been developed at the UN level, a series of stringent measures, technical and legal nature, which apply domestic and international traffic. The measures relate to packaging, cargo handling, loading and transport using some modern technology (containment, pallets and packing) and that these measures make possible the safe transport of dangerous goods in rail traffic, road, water, air, multimodal . These rules are approved by international organizations and are updated periodically to take account of technical progress and improve safety. The Maastricht Treaty established the European Community's competence to deal with transport safety.

Mode of transport of dangerous goods must be chosen according to the risk that it involves their transport. The main objective risk assessment of the goods / hazardous substances is to provide a reliable



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database to decide safeguards / security measures (risk management) based on specific uses.

Risk assessment provides an estimate of the situation in which if a substance used as specified by the scenario of exposure could cause adverse effects. This includes a description of the nature and effects a calculation of probability that they happen, and to assess the development or magnitude.

Proposals for the aircraft carrying dangerous goods and means of transport of dangerous goods are:

- To increase safety in the transport of certain hazardous substances aircraft carrying dangerous goods must be equipped with advanced safety systems and authorized to carry certain categories of dangerous substances according to the danger posed by them.
- Type of aircraft used to transport dangerous goods must be chosen according to the risk that it involves transportation. The main objective risk assessment of dangerous goods and substances is to provide a database for groups of substances to decide safeguards / security measures (risk management) for transportation.
- Provide aircraft carrying dangerous goods by high-performance security systems to reduce the risk of incidents / accidents while increasing the safety of these shipments.
- Sharing of dangerous substances according to the state of aggregation of these risk factors present in the class of risk and appropriate identification of each type of transport aircraft (cargo or people).

The issue of dangerous goods is one of the most acute problems of modern trade, the implications of this problem affecting both broad economic structures, and public administration, social security, etc.. The implications of cross-border issues of dangerous goods, as evidenced by the consistency of interventions specialized agencies of the UN, EU and national regulations note the contents of the common area.

Romania's interest in order to bring safety concerns in the field and give these products becomes evident logistics realism and modernity, thus providing reliable trading partners and potential partners in Romania. However, this involvement requires extending the approach to the problem of dangerous goods and formative structures, which provide the relevant powers.

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