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## Risk assessment model verification in hazardous industrial processes

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### Abstract

This paper presents results of a scientific project investigating the possibilities for applying a risk assessment model structure in a chosen "SEVESO" establishment process. This model was mainly created from the block diagram structures where methods and techniques in different kinds of steps were applied. And therefore it was verified that this model is suitable and applicable for these kinds of industrial processes.

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*Keywords:* industrial accidents prevention; risk assessment; complex model; hazardous substances

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### 1. Introduction

The dynamical development of technologies is a result of the human desire to achieve a higher living standard. The modern technologies are becoming still more complicated and may lead to industrial accidents. Industrial accidents like the explosions in Flixborough (1974) or Seveso (1976) or Union Carbide's catastrophe in Bhopal (1984), or Chernobyl catastrophe (1986) and many others show that the technology failures or operator's failures lead to the fatal consequences with many mortally wounded people or seriously injured ones (subsequently disabled) and these failures also lead to enormous material damages and long-term or irreversible environmental damages. One of the basic tools

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in the area of the major industrial accident prevention is a thorough and effective assessment and risk management both in the world and in the Slovak Republic.

This area was solved by the project team in the framework of the project APVV 0043-10 Complex Model for Risk Assessment of Industrial Processes. In this material we are bringing a summary of the solution results during the project and the next text will analyse the individual results.

## 2. Methodology and Data analyses

The individual goals of the project were set during the project proposal stage such that they were realistic and achievable. The work on the project began with the analysis of the current state of the major industrial accident prevention field. The outcomes of the analysis compiled in a monograph "Major Industrial Accident Prevention", together with recommendations from workshops and bilateral meetings with the Board of experts and a statistical survey were the key in the forming of the criteria and basis of the model. Subsequently these were transformed into the phases and steps of the risk assessment which comprised appropriate and relevant methods and techniques. In the next step, the standards of the Slovak Republic and European union were compared and aligned and the Complex Model of Major Industrial Risk Assessment was created.

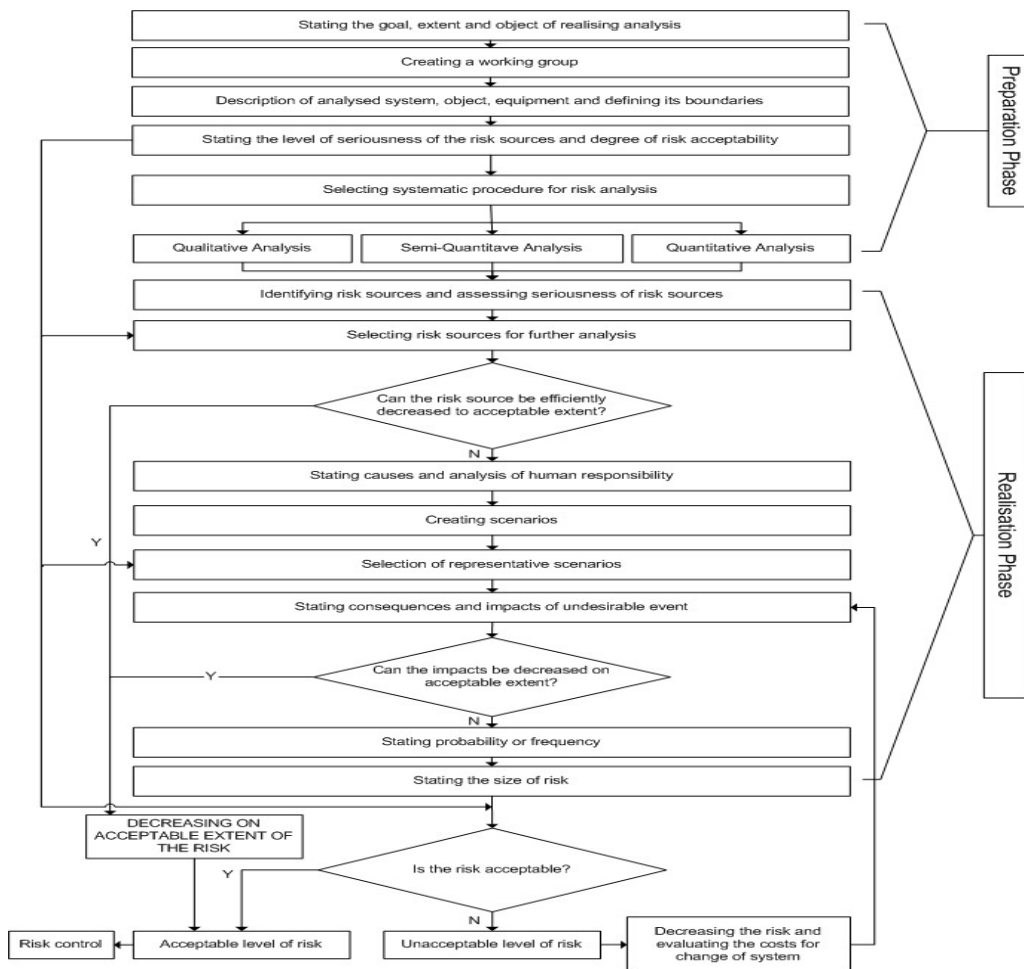


Fig. 1. Complex model of major industrial risk assessment [1].

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