

Human errors endemic in risk analysis

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Keywords. Risk; Error; Analytic mistakes.

1. Introduction

Risk Analysis (RA) provides solutions to work design and contributes to safety and efficiency. For example, procedures, design specifications, planning systems and recovery protocols may result from sound risk analysis. But methodological errors can be harmful because they are often latent, unrecognised and mature in unexpected ways.

2. Enquiry approach

This oral presentation focuses on RA methodologies by examining and critiquing the central assumption that analysis schemes (e.g. reductionist approaches to cause-consequence relationships) always yield valuable meaning. The argument proposes that analysis (and specifically risk analysis) may yield meaning under certain strictly controlled circumstances - but inadequate recognition of the assumptions underlying analytic techniques inevitably leads to errors intrinsic to the process of analysis. Selected methodological error types will be described and illustrated from risk analysis case studies focusing on Human Factors in industrial and public safety over the last two decades.

3. Findings

Examples of assumptions often erroneously applied in RA include: (i) causality can be inferred from incident antecedents, so precursors indicate cause-effect relationships; (ii) precursors can be isolated as single contributors to incidents, and are not considered acting in concert, nor as reinforcing or combinatory factors that yield magnified or emergent consequences; (iii) sufficient fault and failure data pertaining to incidents exist within the systems studied and (iv) controls can be identified on a 'value' basis, even for risks that have not occurred (such as emergent risks). Two key forces provoke such errors: (i) risk ideology, which frames patterns of thinking for approaching analysis and (ii) cultural norms for analysis, which evolve into a scheme of values adopted by risk analysts. Other examples are discussed and analytic controls aimed at enhancing RA are explored.