

Risk Concept

Topic 1

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ITAS KIT

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Content of the Lectures

- **Topic 1: Risk concept**
- Topic 2: Perception of risks
- Topic 3: Risk communications
- Topic 4: Trust and credibility
- Topic 5: Labeling risks
- Topic 6: Participatory decision making and dialogue
- Topic 7: Disclosure of uncertainties
- Topic 8: Precautionary measures and risk management
- Topic 9: Evidence characterization
- Topic 10: Tips for risk communication

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Some Remarks

- <http://www.youtube.com/watch?v=gVSII5n0c00>

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Worlds of Risk

Morning wash
Taking breakfast
Commuting to work
Listening to a lecture
Drinking coffee in the cafeteria
Drinking a late night beer

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Morning wash

A paper in the Dental Journal of Australia concluded that there is "sufficient evidence" that "alcohol-containing mouthwashes contribute to the increased risk of development of oral cancer“.

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Breakfast - acrylamide

Studies in rodent models have found that acrylamide exposure poses a risk for cancer
The International Agency for Research on Cancer considers acrylamide to be a “probable human carcinogen,” based on studies in laboratory animals given acrylamide in drinking water.

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Commuting by car

About 5000 fatalities per year in Germany

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Listening to a university lecture

Congestion with a flu virus

16.000 - 20.000 fatalities in Germany due to
influenza in Winter 2002/2003 in Germany

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Risk is Everywhere

“The risk concept could be applied to everything.”

M. Power
The Risk Management of
Everything. Rethinking the
politics of uncertainty.
London: Demos 2004

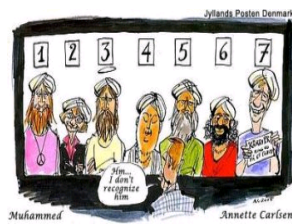


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Risk is Everywhere

- Living close to a power station
- Working in a chemical plant
- Skiing
- Buying shares
- Sun bathing
- Being a housewife
- Playing golf
- Being (un)married

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Even some comics are risky

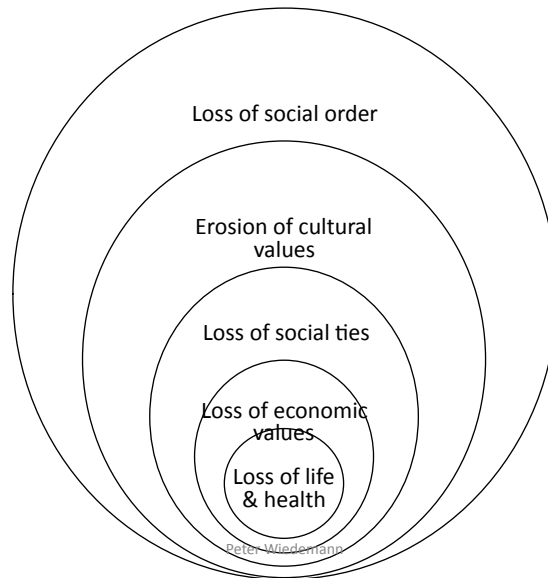
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Components of the Risk Concept

- Loss
- Relevance of the loss
- Probability of the loss

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Losses



Relevance



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Relevance

In June 2008, the US EPA had estimated the value of a statistical life to be \$ 6.9 million (about \$1 million less than five years ago),

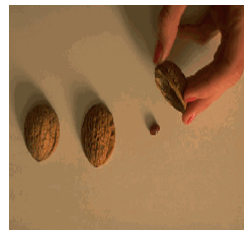


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Probability

The loss is uncertain

- Probability is a measure for the uncertainty



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There is no Zero Risk

Risk Analysis, Vol. 15, No. 6, 1995

Understanding Life-Threatening Risks

Ralph L. Keeney^{1,2}

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Table I. Twenty Facts About Life-Threatening Risks

About the Existence of Risks

1. Life is not and cannot be free of risk.
2. Total risk to an individual cannot be reduced; only the causes and timing can be transferred.

About the Analysis of Risks

3. Policies intended to reduce risks to some people often produce risks to other people.
4. Alternatives intended to reduce risks often have indirect risks.
5. The economic costs of risk reduction induce risks.
6. Risk problems involve conflicting objectives.
7. Identifiable fatalities are not the same as statistical fatalities.
8. Attributing lives saved or lost to decisions made is important.

About the Evaluation of Risks

9. Evaluating risks requires values.
10. Evaluating risks depends on many characteristics of the risks.
11. The relative value of lives of different individuals is an essential component of all public risk problems.

12. Economic costs and risk of loss of life must be traded off in many risk problems.
13. It is not unethical to trade off economic costs and risk of loss of life.
14. Discounting future loss of life does not imply that we value future lives less than our own.
15. Evaluating risks requires both science and judgment.

About the Choice of Alternatives Regarding Risks

16. Alternatives with greater risk may be preferred to alternatives with less risk.
17. There is no generally acceptable level of risk.
18. Conservatism is not always conservative.
19. Many governmental decisions intended to save lives could save more lives for the same costs.
20. Appropriate personal decisions can reduce personal risk more than all governmental actions.

Lessons learned (1)

- Risk is a multi-facet Concept
 - Losses
 - Probability
 - Relevance

 - Knowledge / Evidence: How good is our knowledge about the risk components?

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Lessons learned (2)

- Risk is inevitable – there is no zero risk.
- Risk management is key.

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