

Integrated Risk Assessment Method

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History

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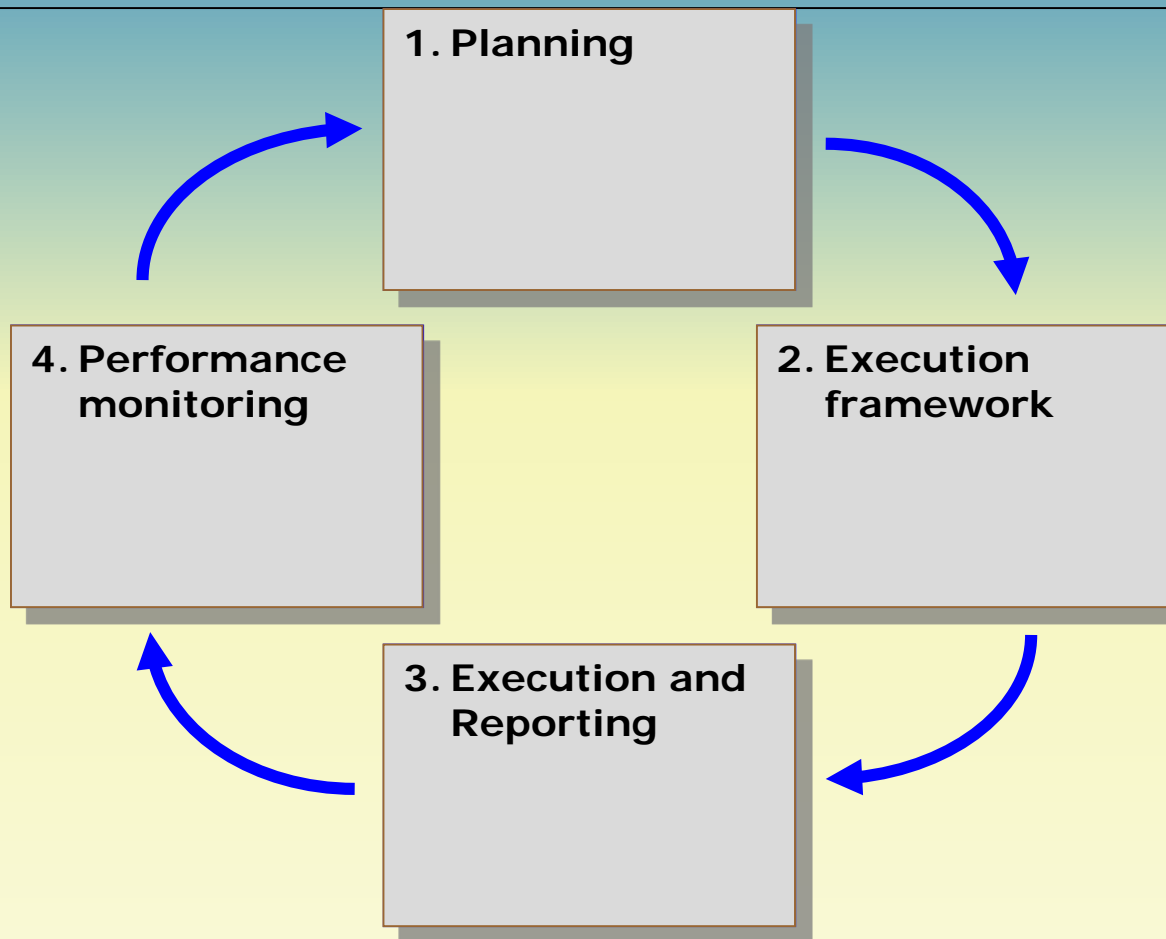


- 1997: IMPEL – Minimum Criteria for Inspections
- 1999: IMPEL - Reference Book for Environmental Inspections
- 2001: EU – Recommendation on Minimum Criteria for Environmental Inspections
- 2007: IMPEL – Step by Step Guidance Book for Planning of Environmental Inspections
- 2011: IMPEL – easyTools Risk Assessment Guidance Book
- 2011: EU - Industrial Emissions Directive
- 2012: IMPEL – Guidance for IED Inspections
- 2013: Upgrade of EU Environmental Inspections?

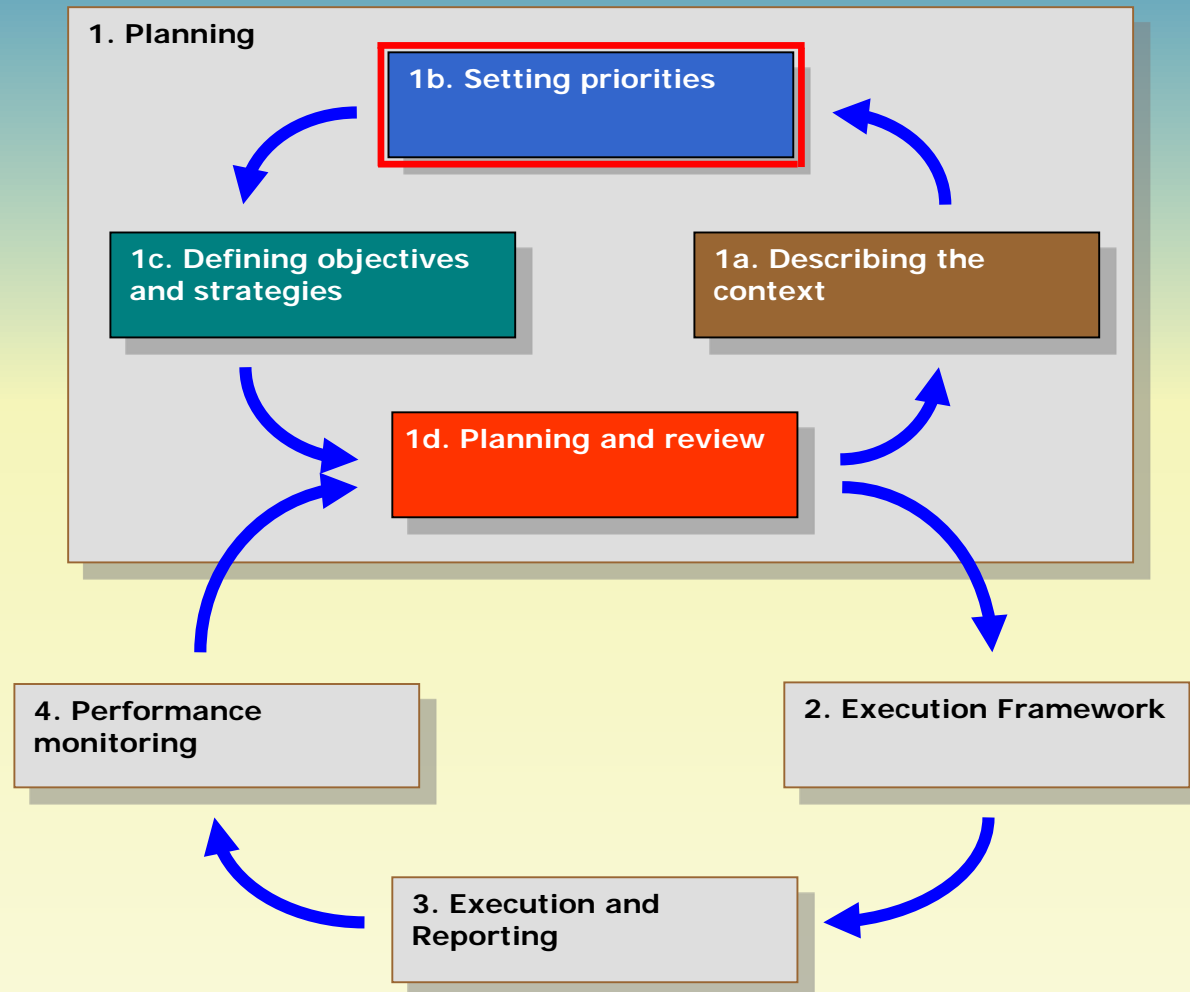


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ENVIRONMENTAL INSPECTION CYCLE



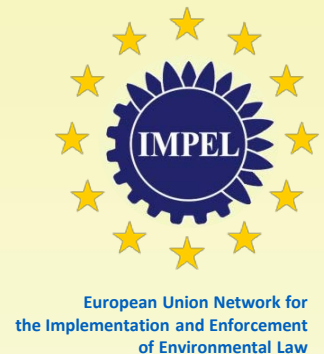
ENVIRONMENTAL INSPECTION CYCLE



Risk Assessment in Inspection Planning



Development of a web based risk assessment tool for inspections like IPPC (IED), Seveso, waste, waste water, genetic engineering, agriculture and so on



Objectives

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- Evaluation of existing inspection tools and risk criteria
- Development of a risk assessment tool for environmental inspections that could easily be used by every IMPEL member
- Integration into the inspection cycle of the Step by step guidance book (DTRT)
- Availability from the IMPEL website as an advanced interactive IT tool



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Risk Criteria

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Potential impacts

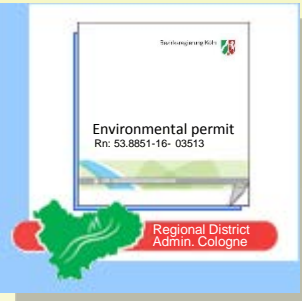
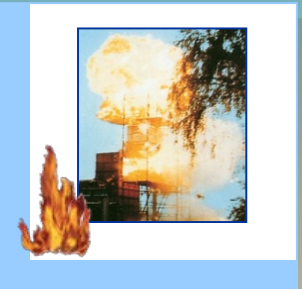
- Kind and type of installation
- Risk of accidents
- Handling and storage of waste

Actual impacts

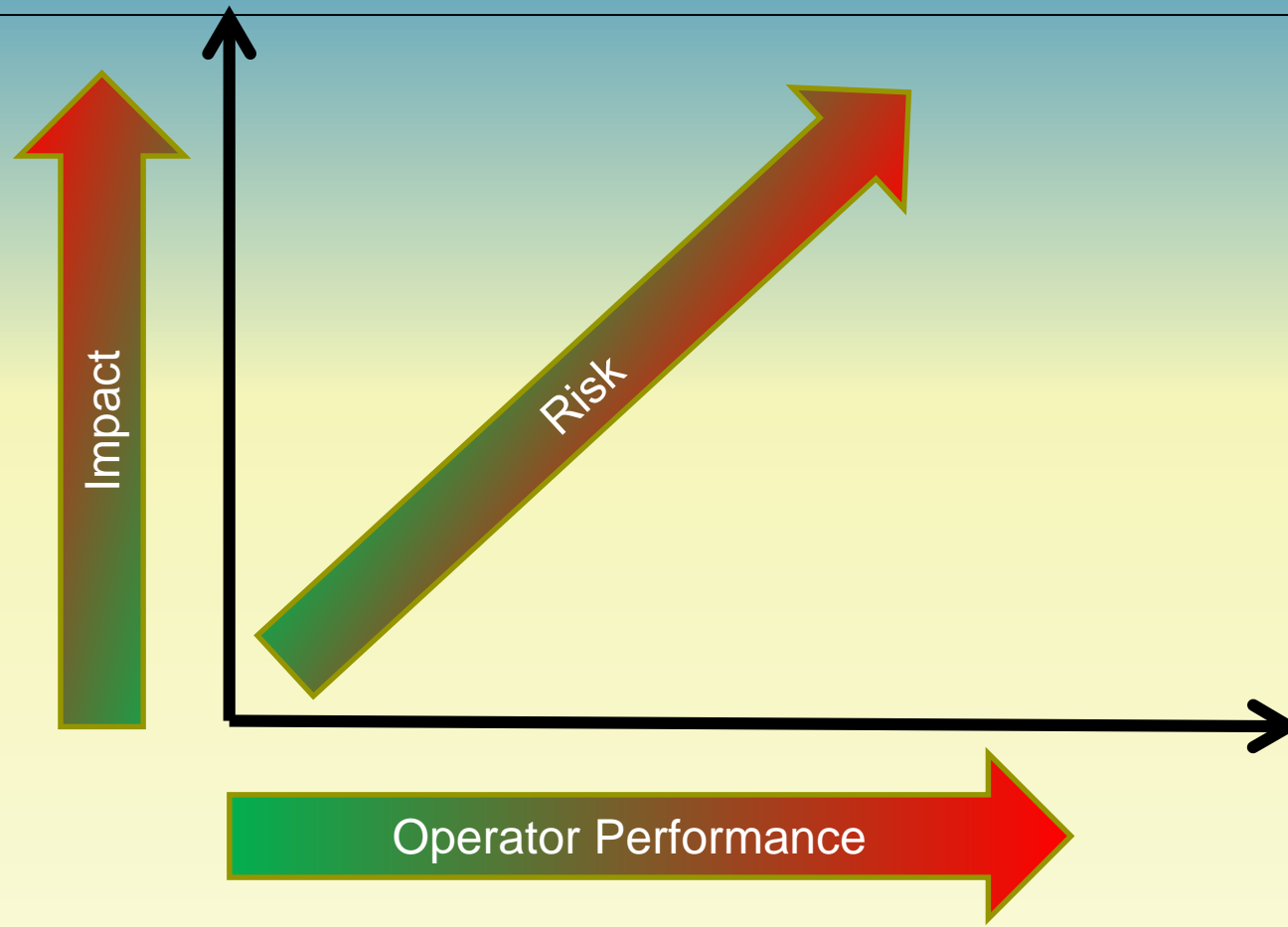
- Levels and types of emissions: air, water, soil
- Sensitivity of the local environment
- Incidents and accidents

Operator performance

- Compliance with permit conditions
- Attitude of the operator
- Environmental management system (EMAS)



Risk of the Installation



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Impact steered inspection frequency

The (potential) impact of the activity on environment or human health is:

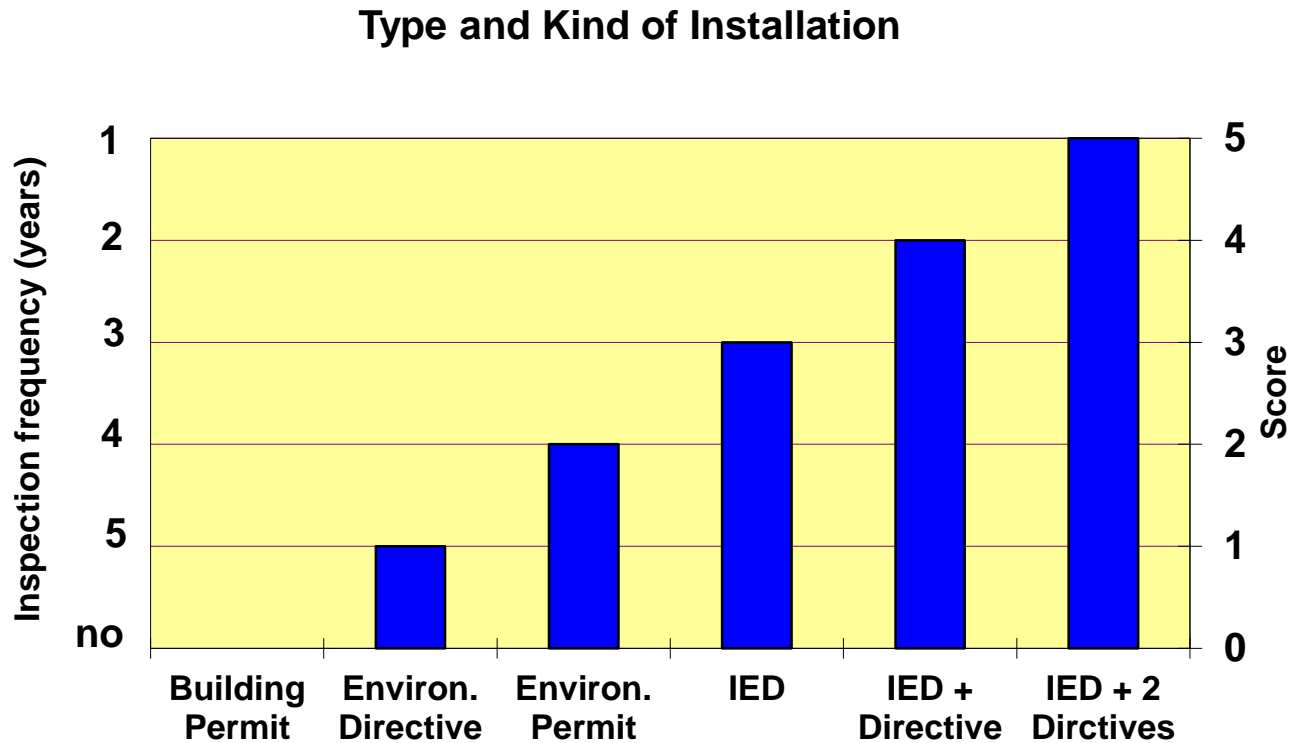
- | | |
|--------------|-------------------------|
| ● negligible | ▶ no routine inspection |
| ● minor | ▶ every 5 years |
| ● moderate | ▶ every 4 years |
| ● relevant | ▶ every 3 years |
| ● important | ▶ every 2 years |
| ● serious | ▶ every year |



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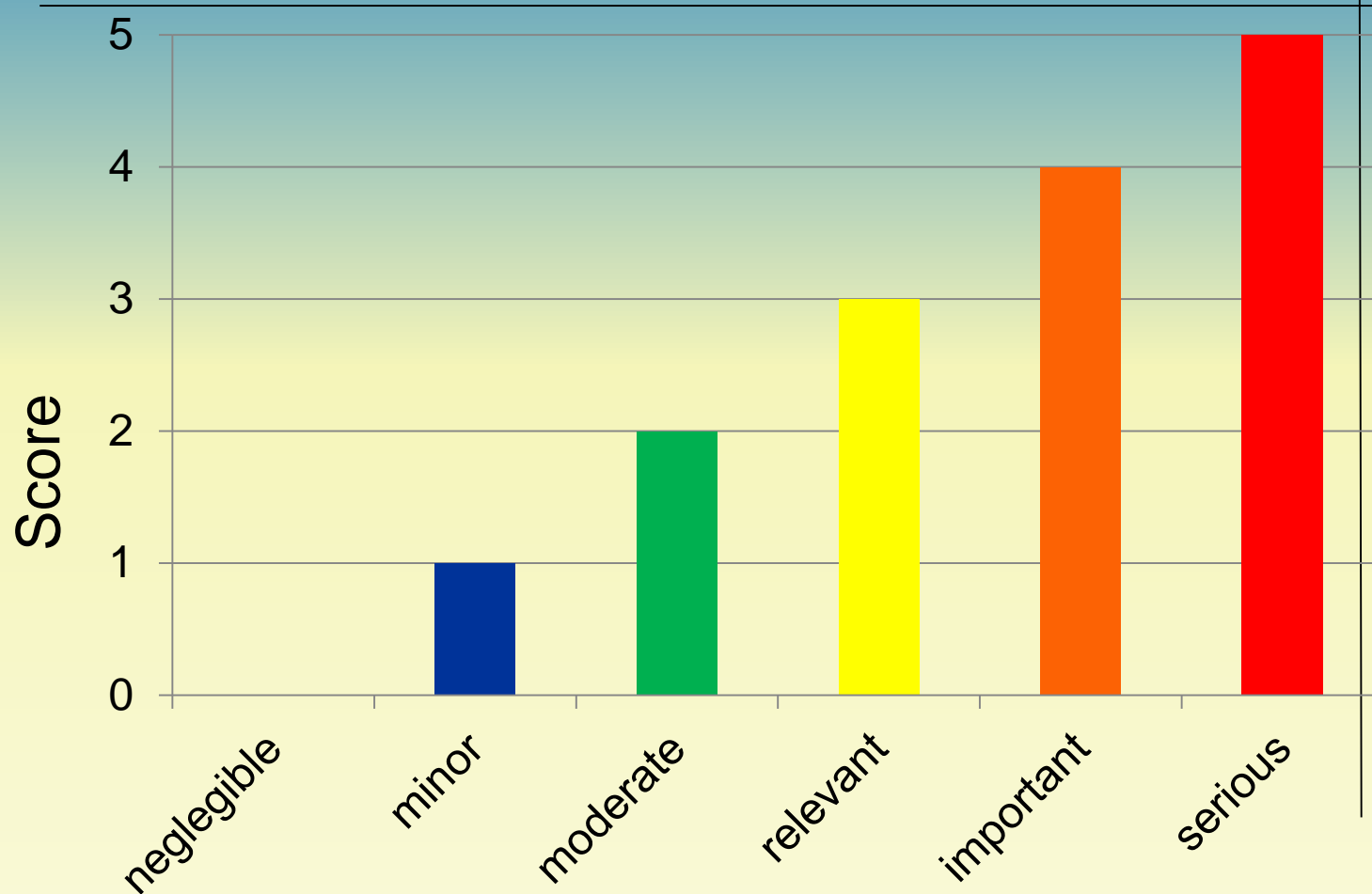
Potential Impacts

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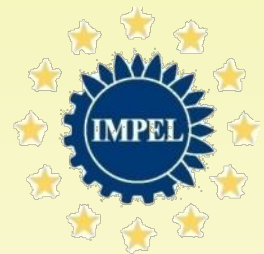
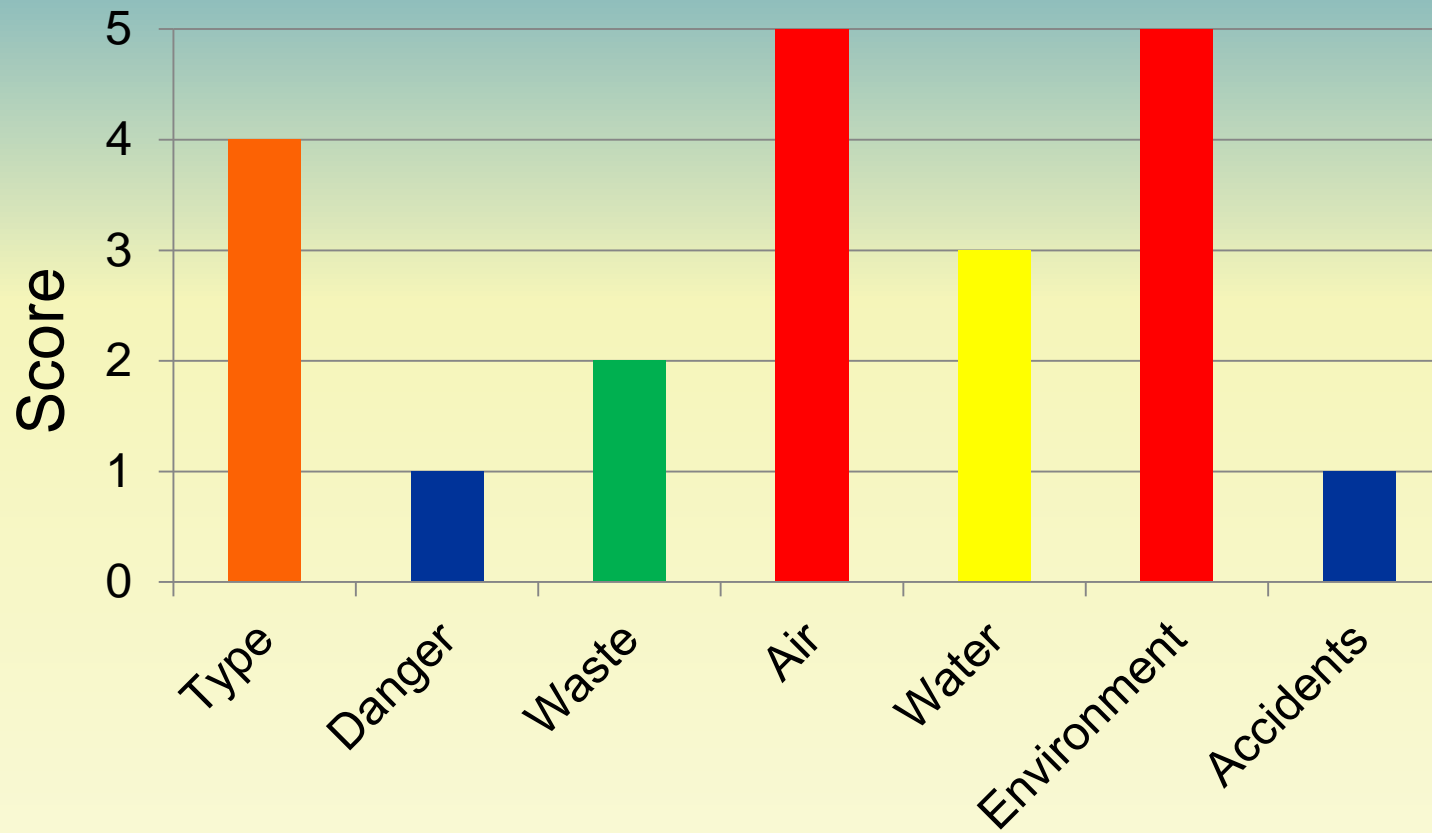


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Impact on the Environment



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Appraisal of Risk

How is risk defined?

$$\text{Risk} = \text{Impact} * \text{Probability}$$

Risk in inspection planning:

- **Impact**
 - ▶ Appraisal with impact criteria
- **Probability**
 - ▶ Appraisal with operator performance criteria



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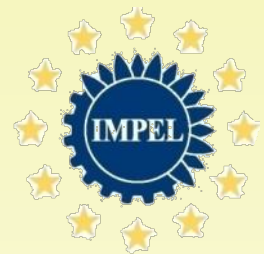
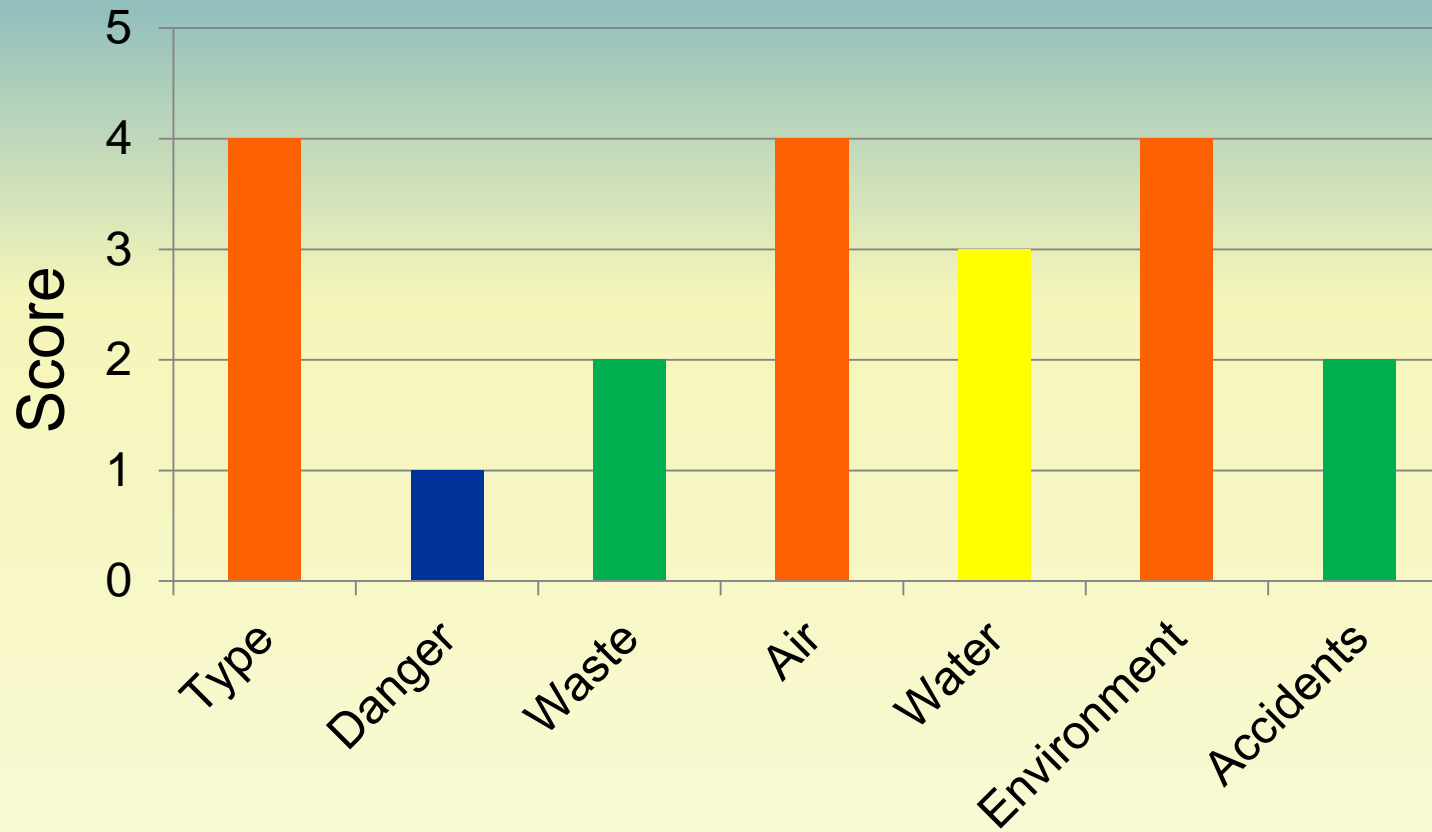
Influence of Operator Performance

- Operator performance criteria:
 - ▶ Compliance
 - ▶ Attitude of the operator
 - ▶ Environmental management system
- Scoring of operator performance criteria:
 - ▶ good: -1
 - ▶ moderate: 0
 - ▶ bad: +1
- The average (integer) of the operator performance scoring is added to each impact criteria score ▼
risk score

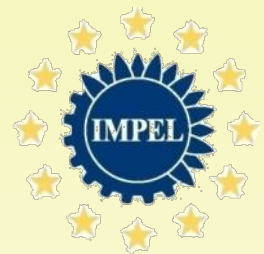
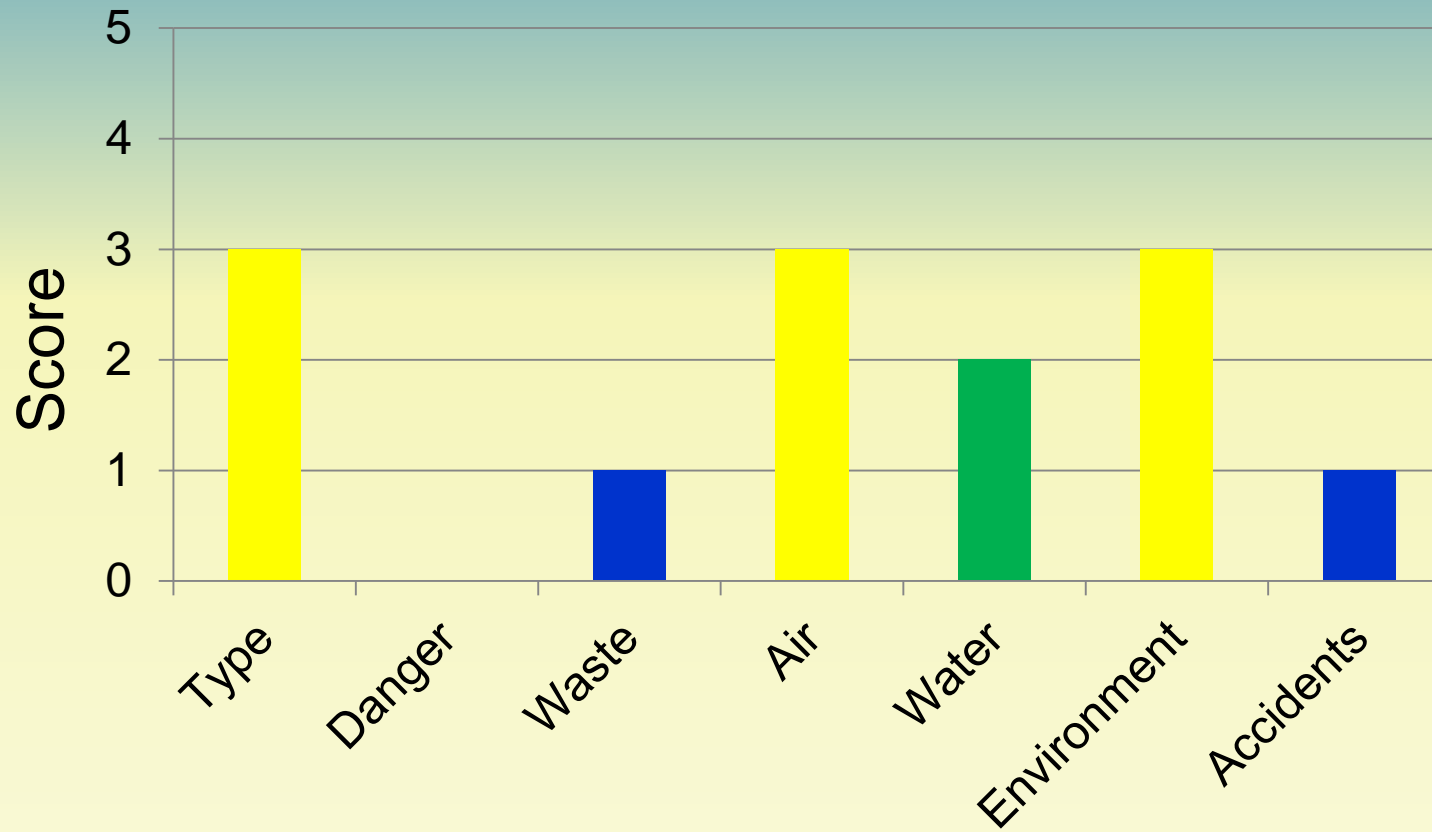


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Scored Risk Criteria

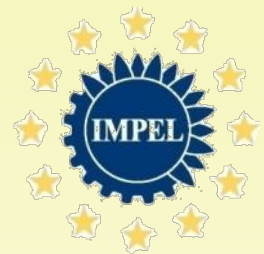
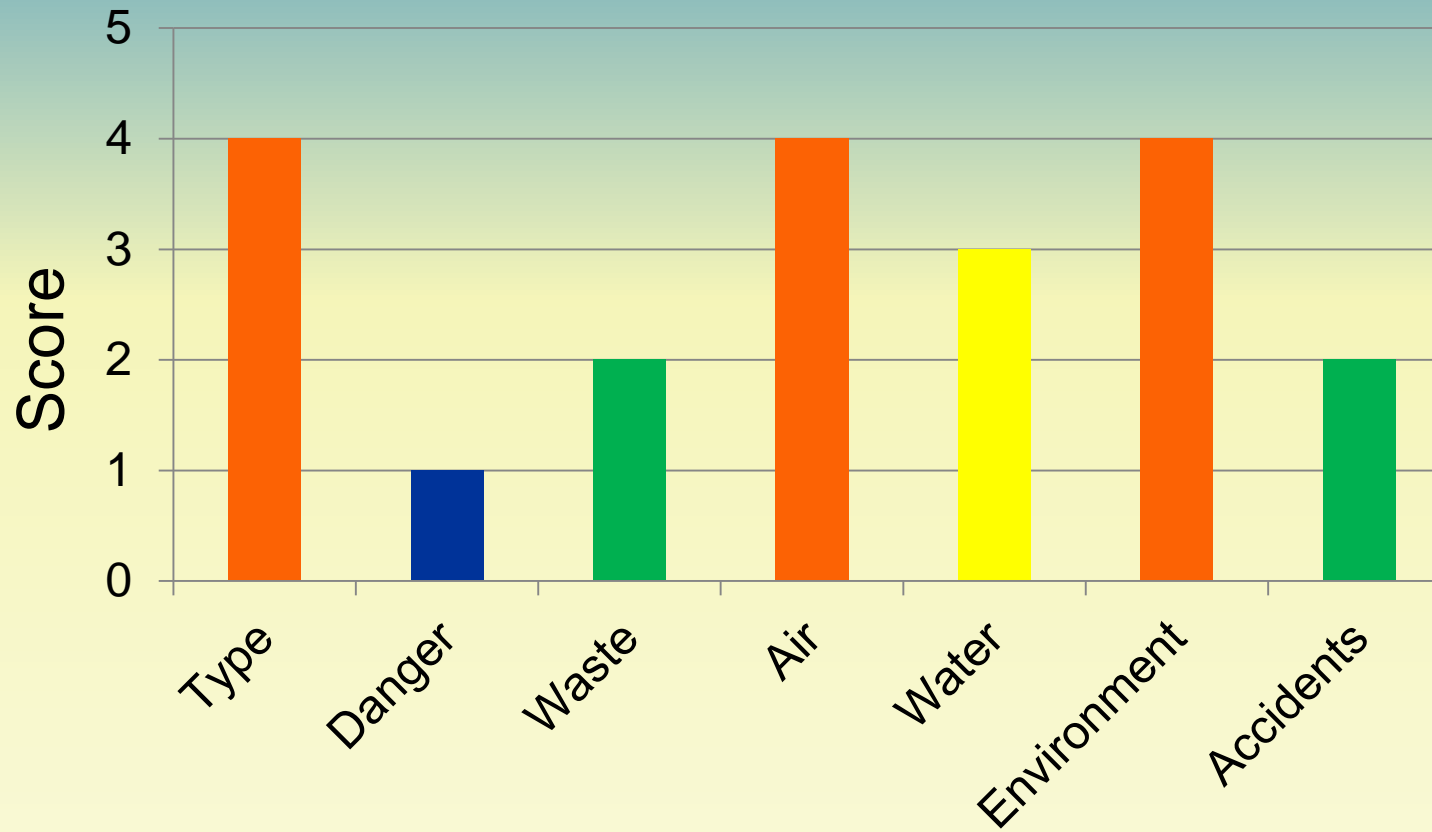


Good Operator Performance

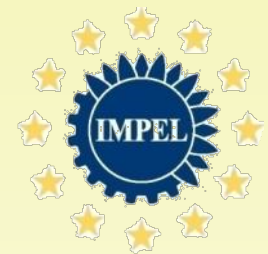
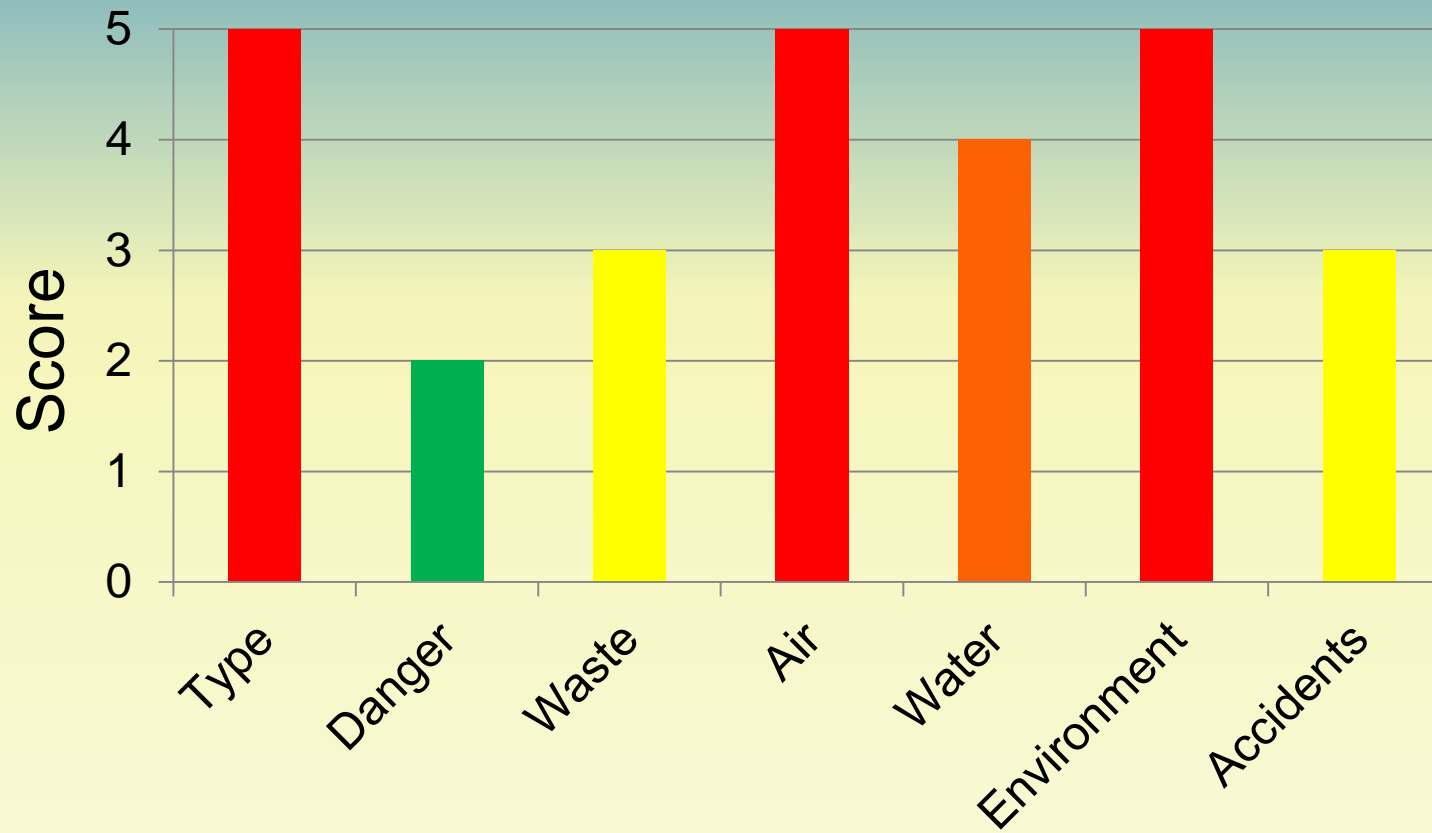


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Scored Risk Criteria



Bad Operator Performance



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IRAM principles

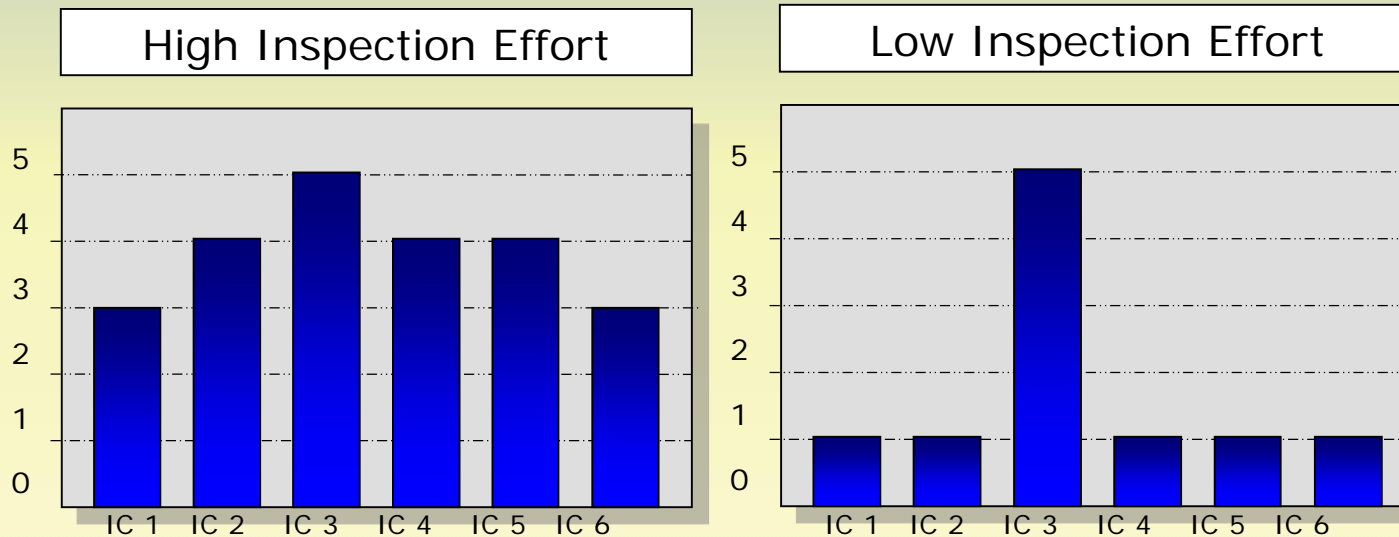
- I. The inspection frequency is determined by the highest impact score
- II. The inspection frequency is reduced by one step, if the set number of highest scores is not met (the Rule)
- III. The inspection frequency can be changed by one step up or down based on operator performance
- IV. The more criteria are scored high, the more inspection effort is needed



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IRAM Principles II and IV: Inspection Frequency and Effort

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Weight

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- Not all criteria have the same importance
- Therefore: Weighting
- Weighting is often Political
- Weighting factors (*) and
- Weighting terms (+)



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Web Tool and Database

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- The IRAM rules were implemented into a web based programme for risk assessment in inspection planning
- The programme distinguishes between:
Coordinator ---► decides on inspection task, criteria, and steering terms and factors
Inspector -----► does the risk assessment
- Assessment data storage in the internet
- The assessment data can also be downloaded as XML- or CSV-files and imported into national data bases (Access and Excel)
- Address of the programme:
<https://www.fms.nrw.de/lip/authenticate.do>

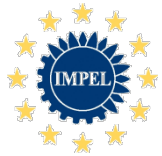


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 English ▼



[Register](#)

[Reset password](#)

[Integrated Risk Assess](#)

Logon

Please enter your logon data of user-id and password.

user-id:

password:



start

[\[Download the description of the tools for the Integrated Risk Assessment Method\]](#)



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← → ↻ <https://www.fms.nrw.de/lip/content.do>

 **New Language Versions**

Logged in as: Koordinator Br Köln



Welcome, Koordinator BR Köln!

Date of the last logon: April 1, 2013 at 6:14 PM

You are on the IMPEL form server that provides you with an application for risk assessment in inspection planning.

Home

- Master data
- Folders A-Z
- Forms A-Z
- Search
- Support

English ▼ |

- Czech
- Deutsch
- Français
- Hrvatski
- Portuguese
- Slovenian



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Home, Add, Edit, View, Print, Search, (0 records) new, 150%

Assessment done by:

Inspection object: ID:

Inspection task:

Date of inspection plan:

Integrated Risk Assessment:

Address data:

Street:

Postal code: Location:

Genetic engineering inspections
IPPC and other industrial installations
IPPC and other installations (linear approach)
Old: IPPC and other industrial installations
Old: IPPC and other installations (linear approach)
Seveso establishments
Simple
Waste shipment



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(0 records)
new

125%

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★★★★★

Impact criteria	Maximum score	Score	score (weight)
Type and kind of installation	5	4	0
Impacts on human health or the environment	5	2	0
Releases to air	5	3	0
Releases to water / off-site transport in waste water	5	5	0
Releases to land	5	0	0
Off-site transfer of waste	5	4	0
Input of waste	5	4	0
Quality of the local environment	5	3	0
Sensitivity of the local environment	5	3	0
Risk of accidents	5	5	0
Noise	5	1	0

Minimum number of highest score

2

Lowest risk category

3

Highest risk category

5

Input of Operator Performance Scores

Operator performance criteria	Weight of criteria	Score
Compliance	2	0
Attitude of the operator	1	-1
Environmental management system	1	-1



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Please select - Mozilla Firefox

new.de https://www.frs.new.de/lp/lookup/display.do?context=93D39D8D55829EDFC26384

Search criteria:

Search

Close

Description	Value
No relevant emissions	0
Noise emissions are more than 5 dB(A) below limit value	1
Noise emissions are more than 1 to 5 dB(A) below limit value	2
Noise emissions are plus or minus 1 dB(A) around limit value	3
Noise emissions exceed limit value by 1 to 5 dB(A)	4
Noise emissions exceed limit value by more than 5 dB(A)*	5

0 records 150%

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Maximum score Score Shift of score (weight)

Impacts on human health or the environment	5	5	0
Releases to air	5	4	0
Releases to water / off-site transport in waste water	5	3	0
Releases to land	5	2	0
Off-site transfer of waste	5	1	0
Input of waste	5	0	0
Quality of the local environment	5	5	0
Sensitivity of the local environment	5	4	0
Risk of accidents	5	3	0
Noise	5	2	0

lookup the value




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Assessment Results

Highest risk score	3
Number of highest risk scores	2
Risk category	3
Maximum inspection effort (100%)	55
Sum of inspection profile	26
Inspection effort (percentage)	47 %
Inspection category	B
Inspection frequency	36
Latest inspection date	24.12.2016

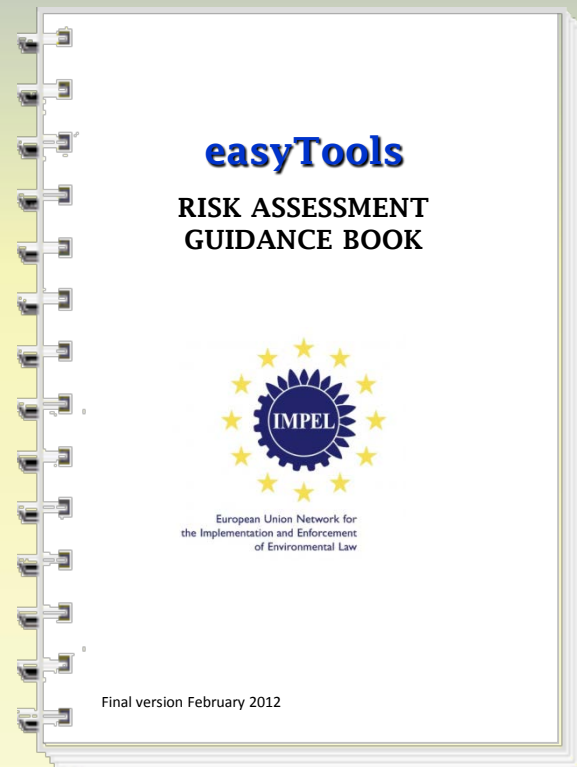


IRAM Inspection Program

	nameInspector	inspektionObject	identificationNumber	inspection task	risk category	inspection category	inspection frequency	latest inspection date	status
					▼		▼	▼	
Apply filter					▼		▼	▼	▼
					▼		▼	▼	
<input type="checkbox"/>	1 Horst Büther	Haifa 1	h1	Draft Israel IPPC	6	D	6	20.07.2014	in use
<input type="checkbox"/>	2 Horst Büther	Tel Aviv 1	ta1	Draft Israel IPPC	5	D	12	19.01.2015	in use
<input type="checkbox"/>	3 Horst Büther	Dead Sea 1	ds1	Draft Israel IPPC	5	C	12	21.01.2015	in use
<input type="checkbox"/>	4 Horst Büther	Errorrest3	et3	IPPC and other industrial installations	5	C	12	19.02.2015	in use
<input type="checkbox"/>	5 Horst Büther	Errorrest2	et2	IPPC and other industrial installations	5	C	12	20.02.2015	in use
<input type="checkbox"/>	6 Horst Büther	IO1	Exceltest	IPPC and other industrial installations	4	C	24	17.01.2014	in use
<input type="checkbox"/>	7 Horst Büther	IO1-1	Exceltest1	IPPC and other industrial installations	4	C	24	17.01.2014	in use
<input type="checkbox"/>	8 Horst Büther	Errorrest3	et3	IPPC and other industrial installations	4	C	24	19.02.2016	in use
<input type="checkbox"/>	9 Horst Büther	Errorrest1	et1	IPPC and other industrial installations	4	C	24	20.02.2016	in use
<input type="checkbox"/>	10 Horst Büther	IO3	12343	IPPC and other industrial installations	4	C	24	20.02.2016	in use

Guidance book

- Introduction in Risk Assessment
- Integrated Risk Assessment Method (IRAM)
- Manual of the online IRAM tool
- Examples of impact and probability criteria



Cologne Workshop Conclusions

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- The methodology is accepted
- The comparison with other systems confirms the value of IRAM
- The IRAM tool is an added value and organisations can start implementation
- Procedural arrangements in the member countries need to be made



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Utilisation of IRAM

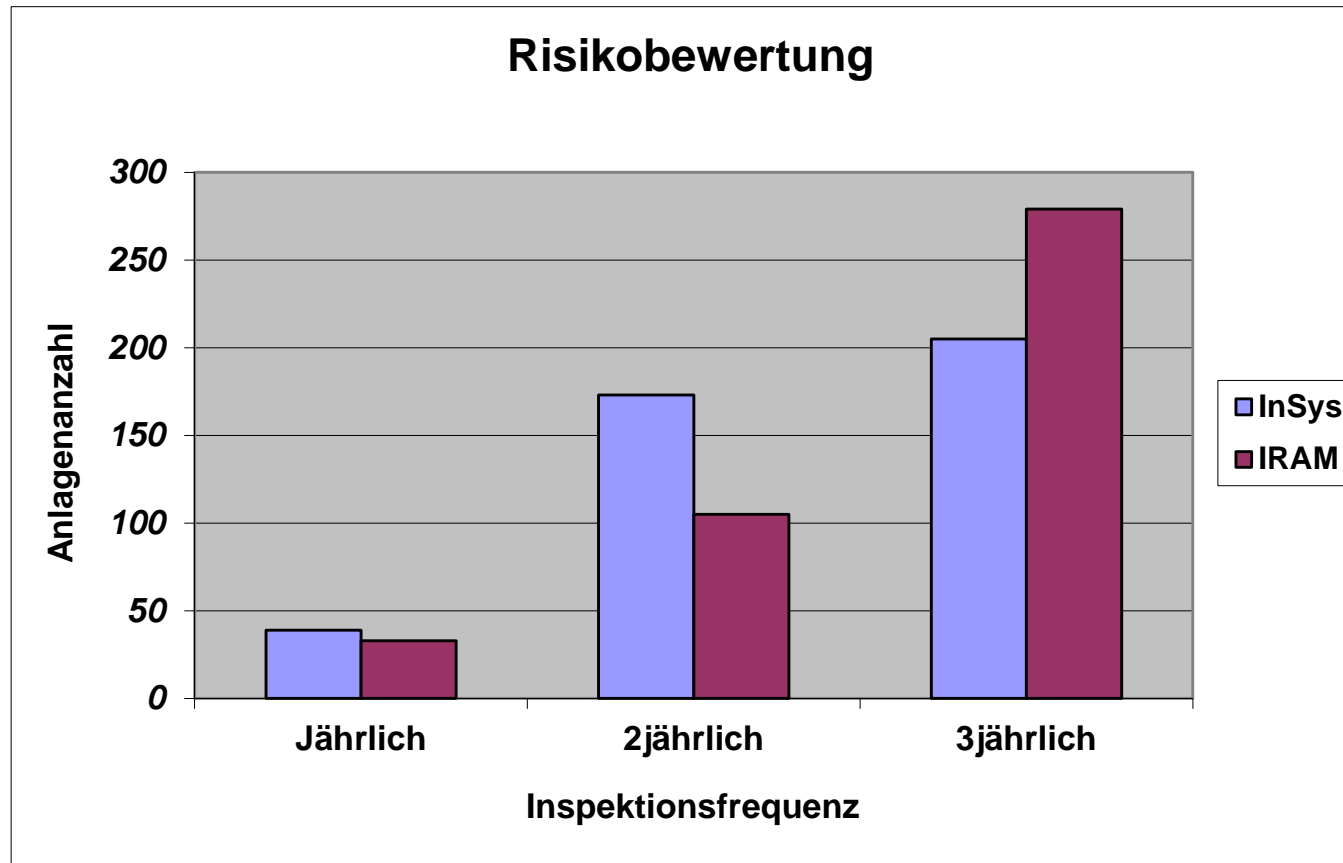
IRAM is (considered to be) used by Inspection Authorities of

- Austria, Belgium, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Iceland, Italy, The Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Turkey and RENA member countries.



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Installation Risk Categories in the Cologne Region





Horst Büther

2010/06/24

Thank you for your attention

Thank you for your attention



horst.buether@brk.nrw.de

