



Implementation of Computer Security Measures into existing Physical Protection Strategies in Germany

(IAEA-CN-254-123)

J. U. Büttner (BMUB), A. Lochthofen (GRS)

International Conference on Physical Protection of
Nuclear Material and Nuclear Facilities

13 - 17 November 2017, IAEA, Vienna, Austria

Germany - a Federal State



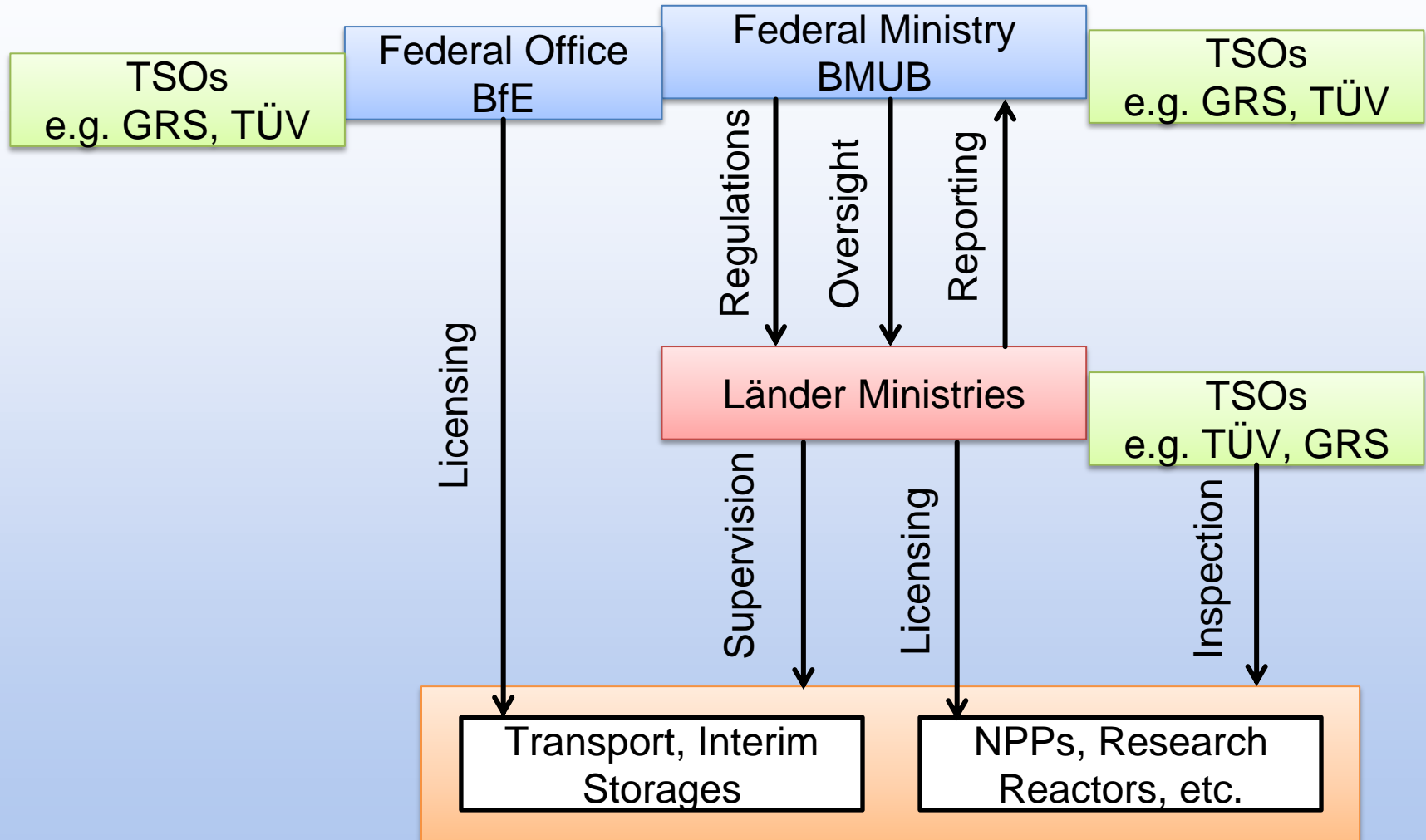
Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

- 16 federal states (German: “Länder”)
- 5 Länder with NPPs
- most Länder have nuclear installations
- Federal Government:
Chancellor and 16 ministers
- Länder’s governments have analogue
structure
- Legislation:
 - Parliament (“Bundestag”) and
 - Federal Council (“Bundesrat”,
constituted by the Länder’s
Governments)



picture from: eu2007.de

Roles and Responsibilities in Nuclear Security



German Regulations for Nuclear Computer Security (1)



Atomic Energy Act (AtG)

Cyber DBT

**Malicious Acts Guideline
for Computer Based Systems (SK I/II)**

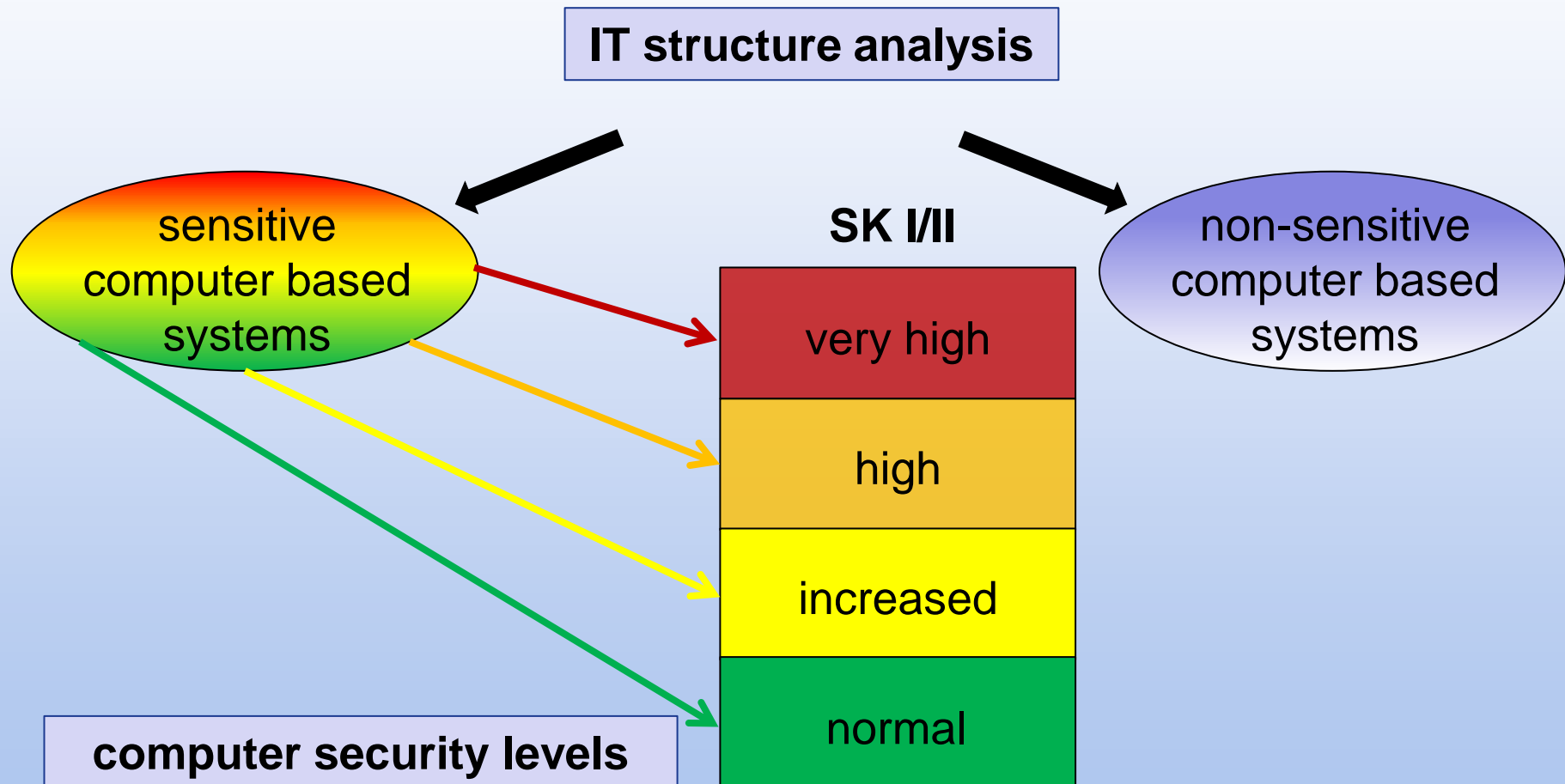
**Explanatory Notes
For NPPs**

**Explanatory Notes
for Interim Storages**

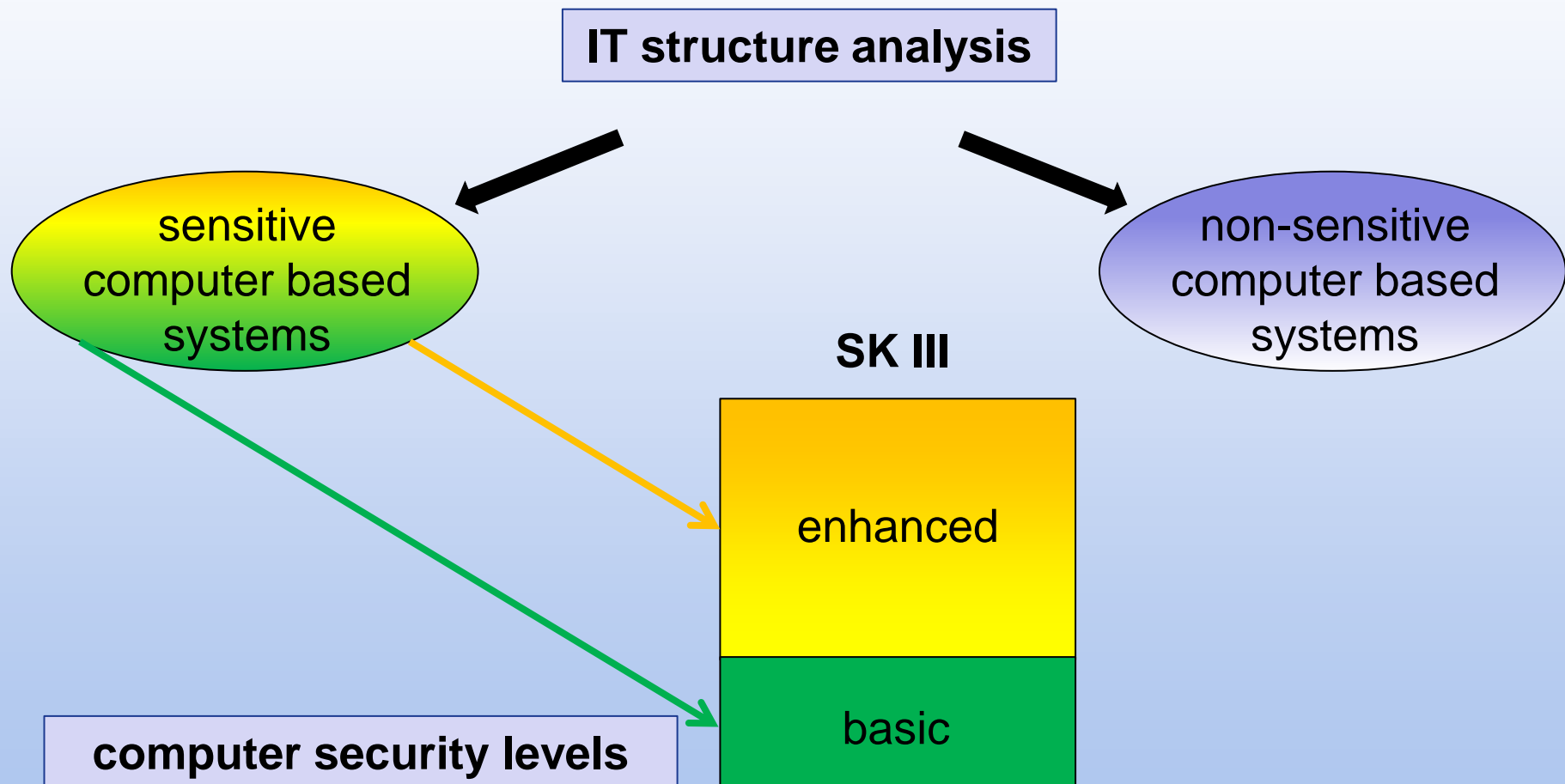
**Malicious Acts Guideline
for Computer Based
Systems SK III**

Guideline for Implementation of § 44b Atomic Energy Act (AtG)

Computer Security Concept for SK I/II



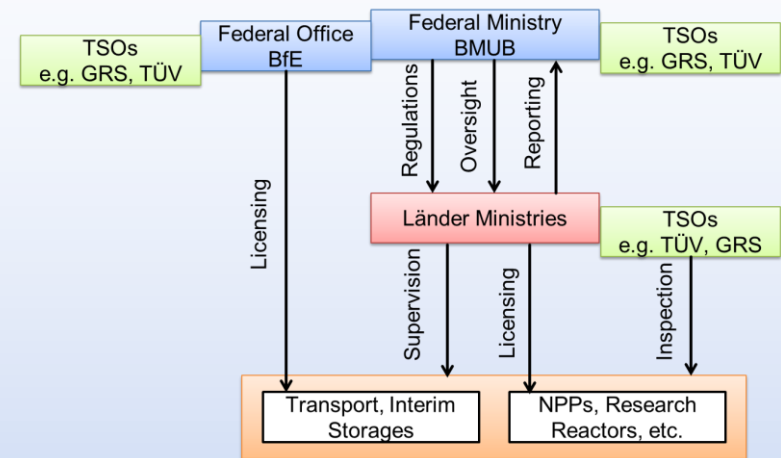
Computer Security Concept for SK III



Implementation



- two aspects
 - supervision by the competent authority
 - „real“ implementation by the licensee
- Länder level (NPPs)
 - done via licensing process, or
 - supervision process
- Interim Storages
 - licensing authority: Federal Office for the Safety of Nuclear Waste Management (BfE)
 - supervisory authority: Land ministry
- Working Group for consistent application of these guidelines
 - chaired by BMUB
 - participants: Länder ministries, BfE, Federal Office for Information Security (BSI), GRS



Lessons Learned (1)



- appointment of a Computer Security Officer (CSO) is important
 - must have expertise in computer science and computer security
 - must have knowledge of the processes in the facility
 - needs to have technical knowhow of installed instrumentation and control (I&C) systems and computer based systems
 - CSO is a subordinate of the Head of Physical Protection, which is responsible for planning, implementing and maintaining of **all** protection measures (physical protection and nuclear cyber security)
- clear definition to identify **all** computer based systems
- categorization sensitive/non-sensitive computer based system:
 - cyber-attack target?
 - cyber-attack tool?
 - cyber-attack path?

Lessons Learned (2)



- assignment to computer security level derived from maximum potential impact
- starting point is an “unprotected” facility
- for implementation of specific computer protection measures already available or planned protection measures may be taken into account
- as a basis a computer security level corresponding to “BSI Grundschutz” or ISO/IEC 270xx shall be guaranteed
- explanatory notes give a predetermination of computer security levels
- all computer based systems are equipped with at least basic physical and/or computer security measures



- in 2013 the Cyber DBT came into force in Germany
- beginning in 2013 three milestones had to be fulfilled by nuclear facilities of SK I and II (e.g. NPPs) until 2016
- explanatory notes for additional guidance were provided in 2013 and 2017
- implementation process of computer security into existing physical protection strategy was challenging
- feedback from competent authorities, TSOs, licensees and experts is gathered
 - for improvement of existing guidelines
 - for drafting of new guidelines (e.g. for SK III facilities)

Contact



Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety



Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

Federal Ministry for the Environment, Nature
Conservation, Building and Nuclear Safety (BMUB)
Division RS I 6
Jens Uwe Büttner

Tel.: +49 228 99305-2873
Fax: +49 228 99305-2889
jensuwe.buettner@bmub.bund.de
rsi6@bmub.bund.de
www.bmub.bund.de



© Hans Weingartz/Wikimedia, CC BY-SA 2.0 DE



Gesellschaft für Anlagen- und Reaktorsicherheit
(GRS) gGmbH
Department Electrical and I&C Systems
Dr. André Lochthofen

Tel.: +49 221 2068-746
Fax: +49 221 2068-10746
andre.lochthofen@grs.de
www.grs.de



Source: <https://www.grs.de/content/koeln>