VDI-Gesellschaft Technologies of Life Sciences

Society for Technologies of Life Sciences

Federal Agency for Nature Conservation

Standardisation for GMO-Monitoring

Standardisation for GMO-Monitoring helps to perceive effects on environment

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Gefördert durch das Bundesamt für Naturschutz
mit Mitteln des Bundesministeriums für Umwelt,
Naturschutz und Reaktorsicherheit.

Verein Deutscher Ingenieure – VDI
The Association of German Engineers

- **incorporated society** and **non profit** organisation
- financially and politically **independent**
- 136.000 **members**
- 5000 **congresses** / training events, 200.000 participants

- Technical standardisation body: **10.000 honorary experts**

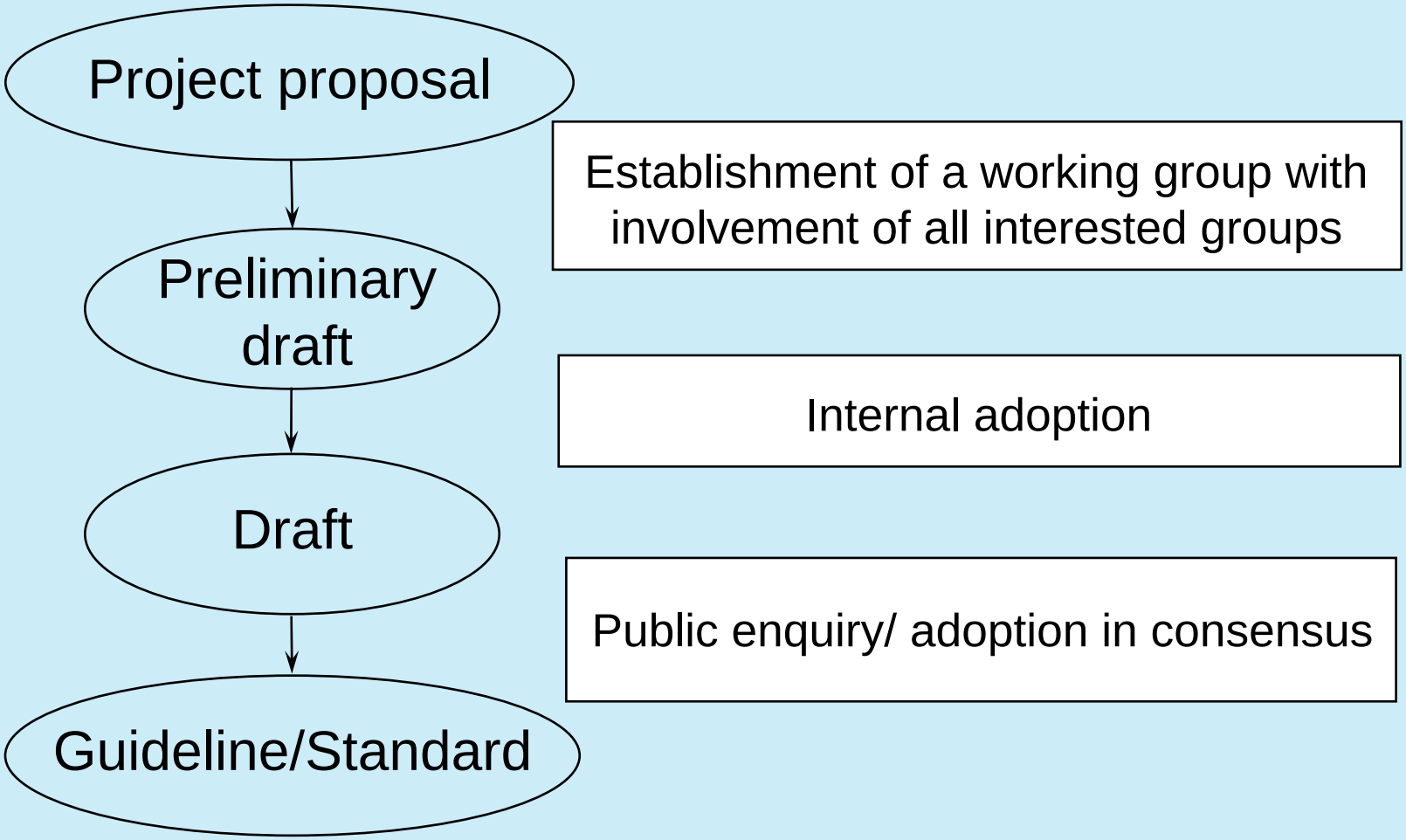
A need for standardisation

- Biodiversity is realised as something of value needing protection
- Monitoring is necessary to evaluate a baseline and to detect changes
- Standard methods allow comparison between regions/countries and time
- Monitoring of GMOs is regulated in EU-Directive 2001/18/EC

Standardisation

- **technology-transfer**
- **teamwork**, honorary standardisation experts
  - voluntary **self-responsibility**
  - **cooperation** with interested parties
- **methods** have to fit defined criteria
- **standards** pass internal approval procedure & public enquiry

Approval procedure of guidelines and standards



VDI guidelines; characteristics, legal validity

- recommendations; not authoritative
- published internationally
- updated continuously

“state-of-the-art”


ICS 13.040.20 VDI-RICHTLINIEN Oktober 2004

VEREIN DEUTSCHER INGENIEURE

Biologische Messverfahren zur Ermittlung und Beurteilung der Wirkung von Luftverunreinigungen auf Flechten (Bioindikation)
Kartierung der Diversität epiphytischer Flechten als Indikator für die Luftgüte

Biological measurement procedures for determining and evaluating the effects of ambient air pollutions on lichens (bioindication)
Mapping the diversity of epiphytic lichens as indicators of air quality

VDI 3957
Blatt 13 / Part 13
Entwurf / Draft

Ausg. deutsch/englisch
Issue German/English

Die deutsche Version dieser Richtlinie ist verbindlich.
The German version of this guideline shall be taken as authoritative.

Einsprüche bis 2005-01-31

- vorzugsweise in Tabellenform als Datei per E-Mail an krdl-it@vdi.de
  Die Vorlage dieser Tabelle kann abgerufen werden unter http://www.vdi-richtlinien.de/einsprueche
- in Papierform an
  Kommission Reinhaltung der Luft im VDI und DIN
  Postfach 10 11 39
  40002 Düsseldorf

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Kommission Reinhaltung der Luft im VDI und DIN – Normenausschuss KRdL

VDI/DIN-Handbuch Reinhaltung der Luft, Band 1a
VDI-Handbuch Biotechnologie, Band 2

Standardisation procedure guarantees…

- **openness** and transparence
- legal **certainty**
- fills unspecified legal terms, “state-of-the-art”, “adverse environmental effects”
- broad public **acceptance**, extensive **consensus**
- correct **integration** with European and international standardisation
- standards in administrative regulations

Principles & Strategies

“Framework guideline ” (VDI 4330 Part 1, 2006)

- explains essential **concepts**
- lists protection **targets** and **checkpoints**
- **merges** methodical guidelines

Monitoring of Pollen Exposure

- **Technical sampling** of pollen (VDI 4330 Part 3, 2007)
- **Biological sampling** of pollen (VDI 4330 Part 4, 2006)
- **Sampling design** (VDI 4330 Part 2)
- **European Standardisation** (CEN)

Molecular Analytics

guidance for the detection of DNA and protein

- **Collection and preparation of plant samples** (VDI 4330 Part 5, E: 2009)
- **Qualitative methods** (VDI 4330 Part 7, 2006)
- Detection of **recombinant protein**: (VDI 4330 Part 11, 2009)

Vegetation Surveys

- Procedures to assess **floristic diversity** (VDI 4330 Part 9, 2008)
- **Mapping** of floristic changes (VDI 4330 Part 10,)

Faunistic Methods

Biodiversity of **soil organisms & function** of soil (VDI 4331 Part 1)

Standardised assessment of **butterflies** (Lepidoptera) — Transect method, light trap, and assessment of larvae (VDI 4330 Part 13, 2009)

Faunistic Methods

In development are VDI Guidelines for a GMO-monitoring of biodiversity of:

- Carabid beetles (VDI 4331 Part 2)
- Spiders (VDI 4331 Part 3)
- Earthworms (VDI 4331 Part 4)
- Nematodes (VDI 4331 Part 5)
- Microbial biodiversity of soils (VDI 4330 Part 12)
- Bees and wasps (VDI 4332)
- Amphibians (VDI 4333)

Conclusions

- monitoring of GMOs is an important tool for the **protection of biodiversity** and **for nature conservation**
- comparability of data is essential
- **first step: standardisation**
- **second step: international harmonisation**
- VDI has many years of experience in establishing standard methods for biodiversity monitoring programmes

GMO monitoring is an **international challenge!**