Towards a Global Technology Assessment

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Institute for Technology Assessment and Systems Analysis
ITAS

- **Founded** in 1995, a research facility of the Karlsruhe Institute of Technology (KIT)

- The **largest, oldest scientific institution in Germany dealing with TA & systems analysis** in theory and practice.
  - Ca. 120 scientific staff members
  - Mix of natural scientists/engineers, social sciences/arts
  - Ca. 50 currently run projects

- Part of the **research programme of the Helmholtz Association (HGF) “Technology, Innovation and Society”**

- Research in **3rd party funded** projects and contract work. Important external clients and funding partners are:
  - German/ European **parliaments & European Commission**
  - Federal and state **ministries & authorities**
  - Companies & **industry** associations

- Also involved in **university teaching** and scientific (further) education
ITAS

- ITAS is divided into 4 research areas
  - Sustainability & Environment
  - Innovation Processes and Impacts of Technology
  - Knowledge Society and Knowledge Policy
  - Energy – Resources, Technologies, Systems

- Operates the Office of TA at the German Bundestag (founded in 1990)

- Provides research-based advice for ministries, authorities and parliaments with an emphasis on parliamentary policy advice

- In cooperation with the European Technology Assessment Group (ETAG) ITAS also coordinates a European network to advise STOA (Scientific Technological Options Assessment), the technology assessment institution of the European Parliament since 2005.
German Research & Innovation System

Source: BMBF
Technology Assessment (TA) Definition

“TA is class of policy studies which systematically examine the effects on society that may occur when a technology is introduced, extended or modified...”

J.F. Coates, 1980

“TA is a scientific, interactive and communicative process which aims to contribute to the formation of public and political opinion on societal aspects of science and technology.”

TAMI, 2003
Reference Book

- Summary of project output
- Including main TA institutes in Europe
- Standardisation of TA methodologies & impact assessment
TA Functions:

- Policy Advice
- Public Debate
- Engineering Process
Methodological Models

Classical TA
- Expert orientated / focus on risks
- Attempt to ‘rationalise’ debate (threat diffusion)
- One-way relationship between TA and public
- Examples: TAB, ITAS

Participatory TA
- Non-expert / public inclusion
- Focus also on ‘value’
- Attempt to create ‘coherent’ debate
- Variety of experimental models
- Examples: DBT, RATHENAU
## Methodological “Tool Box”

<table>
<thead>
<tr>
<th>Scientific methods:</th>
<th>Interactive methods:</th>
<th>Communication:</th>
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<tbody>
<tr>
<td>Expert discussion</td>
<td>Consensus conference</td>
<td>Newsletter</td>
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<tr>
<td>Delphi method</td>
<td>Citizens’ jury</td>
<td>Articles in press</td>
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<td>Modelling / simulation</td>
<td>Scenario workshop</td>
<td>Video presentation</td>
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## Roles of TA:

<table>
<thead>
<tr>
<th>ISSUE DIMENSION</th>
<th>IMPACT DIMENSION</th>
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<tbody>
<tr>
<td>I. RAISING KNOWLEDGE</td>
<td>II. FORMING ATTITUDES /OPINIONS</td>
</tr>
<tr>
<td>SCIENTIFIC ASSESSMENT</td>
<td>AGENDA SETTING</td>
</tr>
<tr>
<td>- Technical options assessed &amp; made visible</td>
<td>- Setting the agenda in the political debate</td>
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<tr>
<td>- Comprehensive overview on consequences given</td>
<td>- Stimulating public debate</td>
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<tr>
<td>III. SOCIAL MAPPING</td>
<td>MEDIATION</td>
</tr>
<tr>
<td>- Structure of conflicts made transparent</td>
<td>- Self-reflecting among actors</td>
</tr>
<tr>
<td>POLICY ASPECTS</td>
<td>- Blockade running</td>
</tr>
<tr>
<td>- Bridge building</td>
<td>- RE-STRUCTURING THE POLICY DEBATE</td>
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<td>- Comprehensiveness in policies increased</td>
<td>- Policy alternatives filtered</td>
</tr>
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<td>- Policies evaluated through debate</td>
<td>- Innovations implemented</td>
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<tr>
<td>- Democratic legitimisation perceived</td>
<td>- New legislation is passed</td>
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<tr>
<td><strong>TECHNOCOLOGICAL SCIENTIFIC ASPECTS</strong></td>
<td><strong>SCIENTIFIC ASSESSMENT</strong></td>
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<td><strong>POLICY ASPECTS</strong></td>
<td><strong>POLICY ANALYSIS</strong></td>
</tr>
<tr>
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<td>- Policy objectives explored</td>
</tr>
<tr>
<td></td>
<td>- Existing policies assessed</td>
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Varieties of European TA

- "European TA": microcosms of global TA → amalgamation of countries, cultures, norms, values, political systems achieving certain TA communality by large efforts under the EU

- European Parliamentary TA (EPTA): network of partners who advise parliaments on the possible social, economic and environmental impact of new sciences and technologies
Technology Assessment - Going Global

- Global, world-wide, simultaneous effects of S&T and interconnectedness across countries/cultures
- "real world" challenges requiring common orientation and problem-solving capacities

- Going beyond the national level while reflecting on possibilities and limitations
- Need for transnational, networked, flexible approaches
- Need for global concepts, methodologies, structures
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Parameters of Global TA

TA Habitat

- Pluralistic - Authoritarian
- Multi-level - S&T decision-making system - Strict top down
- Highly developed - Socio-economic development stage - Undeveloped
- Individual rights - Values - Group harmony
- Full inclusion into system - Access and equity - No awareness
- Germany
- India
- China

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Ways Forward for Global TA

- Create projects for developing **standardized formats and methods** of TA (methodological)
- Develop **parameters** and their variables for a global TA framework (conceptual)
- Enable structures for networked, flexible TA activities on a global level (structural): **UNCSTD**
- Conduct global TA projects on **specific technologies** with worldwide effects (practical)
- Enhance in-depth knowledge on **specific TA(-like) activities** in other countries (practical)