

Digitalisation including AI and sustainable soil management – a comparative law perspective

STIAS Workshop April 8, 2025:
Digitalisation, AI, Sustainability
and Soil Protection

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February – April 2025
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Content

- D/AI for SMS: opportunities
- SMS and D/AI: challenges and risks
- Complexity of legislation
- Current legal approaches
- Conclusions

D/AI for SMS

Core substantial drivers of degradation

- Agriculture
- Urbanisation
- Industry, Mining, Infrastructure

Data management

- Measurements, Analysis, Dissemination and Outreach

Implementation and Enforcement

- Planning instruments
- Environmental Standards – maximum limits

Awareness raising

Digitalisation and Artificial Intelligence

Agriculture

- Real time monitoring and applications – fertilizers and pesticides, irrigation
- Weather forecasts
- „new“ crops

Data management

- Analysis in the laboratories: D/AI more comprehensive, more rapid results
- Dissemination and outreach:
 - AI for different languages, audience appropriate versions, visualitions
 - Regular updates

Planning instruments and environmental thresholds:
more data processed and analyzed

Awareness raising: as for disseminations

SMS and D/AI: Challenges

- Ecological dimension of sustainability
 - Energy demands and water demands for cooling
 - Rebound effects - > Negative balance concerning climate change
- Social dimension of sustainability
 - Misuse of information data: Disclosure and transparency for users
 - Avoid digital and social divide
 - Capacity building,
 - Empower civil society to understand and to set priorities
- Economic dimension of sustainability
 - Make use of benefits in the interest of all
 - Risk assessment and management procedure before or after the market entry
 - Mitigate market power concentration

Legislation on SMS and D/AI

SMS Legislation

- Specific soil acts
- General laws on the protection of the environment
- Town planning law, Agricultural provisions, law on industrial facilities, mining and infrastructure

General results:

- Non of them foresee specific regulation on D/AI

D/AI legislation – dimensions according to the AU AI strategy

- Intellectual Property laws
- Electronic Communications and Transactions laws
- Whistleblowing and protected disclosure laws
- Access to information laws
- Personal data protection laws
- Cybersecurity laws
- Consumer protection laws
- Antitrust and competition laws
- Laws and policies pertaining to inclusion and empowerment of different groups (women, girls, people with disabilities, youth, children, rural population, etc.)
- **Laws concerning sustainability and the protection of the environment – Lacking in the AU list**

Law comparison

- EU AI Act
 - Risk based approach – Human centric – value based
 - Prohibited AI, AI with RAM, AI to be announced, free AI
 - Governance system – institutions at EU level and member state level
 - Scope of application
 - All AI techniques which are used within the EU market – independent of nationality and location of the enterprise
 - Promotion of innovation
 - No consideration of environmental aspects
- Draft Revision German Soil Protection Act
 - Data Management and Monitoring: Specific chapter with several provisions
 - No specific provision on D/AI

Comparative analysis

- Draft Model law for SMS in Africa
 - Use of D/AI – specific section
 - Promotion
 - Principles
- International cooperation – Imposing joint standards
 - Principles
 - Good practices of Risk Assessment and Management
 - IPCC comparable international panel on D/AI

Conclusions

- D/AI and SMS Governance: Separated communities
- SMS and digitalisation/AI: high risks and big chances
 - Risks:
 - Rebound effects in terms of energy and water demands
 - Social and digital divide
 - Market power concentrations
 - Chance: support the implementation of SMS
- Legislation:
 - Inclusive approach needed
 - Balance between enabling and guardrail – regulation
 - Highly complex – legal expertise over many fields necessary
- More focus on process related regulation: inter alia D/AI
- Legislation needed at all levels – global challenge

The topic

