The European Commission’s science and knowledge service

Joint Research Centre
Interdisciplinary science based policies for SDGs

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JRC Director-General
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Austrian Academy of Sciences
Mainstreaming the 17 SDGs across the EU policies and projects
"The world is in a flux. Everything is changing for everyone.

The question is whether we are a victim of change, or whether we will embrace and guide it.

To face complex challenges, we need to gear all our science, our financing, taxation, and our governance towards the achievement of the SDGs."

**Reflection Paper on "A more sustainable Europe by 2030", 30 January 2019**
Science-based implementation
Challenge 1
MEGATRENDS

Inequalities
Climate change
Migration
Consumerism
Resource scarcity

Demographic imbalance
Change of influence
Technological change
Future of work
Reinventing education

Health
Urbanisation
New governance
Security

Image credit: JRC Megatrends
SDGs: a 'wicked' policy challenge
Challenge 2
From Data to Knowledge: Big Data Analytics and Artificial Intelligence

- **DATA**
  - Datasets
  - Model
  - List of recognized Datasets

- **INFORMATION**
  - Sub-Evidences
  - Model

- **KNOWLEDGE**
  - Official Evidence
    - Interpretation & Representation model
    - Official (Policy) Evidence
  - Effective Knowledge for Policy Needs

- **DATA**:
  - EO Data
  - Datasets
  - Sub-Indicators

- **INFORMATION**:
  - List of intermediate Evidences

- **KNOWLEDGE**:
  - • List of recognized Datasets
JRC – EU Commission Science and Knowledge Service
<table>
<thead>
<tr>
<th>Vertical knowledge management</th>
</tr>
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<tbody>
<tr>
<td><strong>Disaster Risk Management</strong></td>
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<td>Knowledge Centre on</td>
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<td>Migration and Demography</td>
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<td><strong>Knowledge Centre for</strong></td>
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<tr>
<td>Territorial Policies</td>
</tr>
<tr>
<td><strong>Knowledge Centre on</strong></td>
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<tr>
<td>Bio-economy</td>
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<td><strong>Knowledge Centre for</strong></td>
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<tr>
<td>Food Fraud and Quality</td>
</tr>
</tbody>
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Horizontal knowledge management

Competence Centre on Composite Indicators and Scoreboards

Competence Centre on Microeconomic Evaluation

Competence Centre on Text Mining and Analysis

Competence Centre on Modelling
Challenge 3
EU support to Localized STI roadmaps for SDGs: the Smart Specialisation experience

SMART SPECIALISATION

Place-based STI policies

Evidence-informed analysis

Stakeholders' dialogue

No "one size fits all" transformative agenda

Localisation

Prioritisation

Mobilisation

Customisation

No "one size fits all" transformative agenda
JRC: Cooperation with UN institutions and G20 Development Group

United Nations

UN Inter-Agency Task Team (IATT)

STI Forum

G20

Guiding Principles for the Development of STI Roadmaps for SDGs

UN Guidebook on STI roadmaps for the achievement of SDGs

High Level Political Forum

Global Pilot Programme

Background Paper on comparison of international methodologies, including smart specialisation
Smart Specialisation worldwide
Challenge 4
Knowledge is locked-in the boxes
Water-energy-food-ecosystems nexus in the EU

Current water use (2015)

- Agriculture (JRC)
- Energy (JRC)
- Public supply (ESTAT)

Projected water use for energy

- Energy production
- Energy transformation

Based on the EU Energy Reference Scenario:

DEVELOPMENT AND NEIGHBOURHOOD POLICY
WATER AND ENERGY DIPLOMACY
COMMON AGRICULTURAL POLICY
ENERGY UNION
CLEAN ENERGY FOR EU ISLANDS
WATER FRAMEWORK DIRECTIVE

Projected freshwater use from the European energy sector

Water in agro-economy

- Less rain 20%
- Less water availability 30%

Maps showing water scenarios in Europe.
Monitoring our Blue Planet: First SDG indicator platform launched by Google, the JRC and UN Environment

SDG 6.6.1 Change in the extent of water-related ecosystems over time

Lake Gairdner, Australia

Lake Manicougan, Canada

Ob River, Russia
The EU land affected by the risk of *severe soil erosion* is decreasing from **6.0% to 5.2% between 2000 and 2012**.
Life Cycle Assessment: environmental impacts of EU consumption

5 areas of consumption and impacts on other SDGs (on water, climate, biodiversity)

- Human toxicity cancer
- Human toxicity non-cancer
- Particulate matter
- Photochemical ozone formation
- Ionizing radiation

- Impact due to water use
- Eutrophication
- Eutrophication marine and freshwater
- Eutrophication terrestrial
- Acidification
- Impact due to resource use (metals, minerals and fossils)
- Ozone depletion
Sustainability of consumption patterns – is EU within planetary boundaries?
Raw Materials: responsible business and circular economy

Transition to circular economy is crucial as global material extraction is growing continuously

Source: European Commission, EIP on Raw Materials, Raw Materials Scoreboard 2018, based on UN Environment Programme (historic data) and Hatfield-Dodds et al. (2017) (projections).
Global Energy and Climate Outlook

GECO 2018: Model-based Global Assessment to support the European Commission's LTS
Coal Regions: ensuring a fair transition

EU planning well ahead for the transition in coal regions

Potential job losses in EU27
Unit 2030 (cumulative)
- <1000
- 1000-3000
- 3000-6000
- 6000-15000
- >15000 (up to 41000)

EU support for transition in 13 coal regions is underway

Source: European Commission (DG JRC, DG REGIO)
Challenge 5
Why is evidence informed policymaking so hard?

45 degrees, 25 minutes, 29 seconds north
75 degrees, 42 minutes, 20 seconds west
Different mindsets

Scientist

Policy-maker
The role of evidence
“There can be no peace until they renounce their Rabbit God and accept our Duck God.”
Dis-information and contested sciences

- 3% disagree
- 97% of climate scientists agree with AGW
- 55% think the Science is unsettled or don't know
- 45% think there is a scientific agreement on AGW

Source and image credit: US data, J. Cook, S. Lewandowsky
Knowledge Brokerage

I’ve heard the rhetoric from both sides... time to do my own research on the real truth.
What are the emerging solutions?

Evidence for policy 2.0
Engaging with citizens
Monitoring and Evaluation
Agenda Setting
Policy Formulation
Decision Making
Policy Implementation
Making sense of knowledge
Harnessing collective intelligence
A new age of reason
Thank you!

https://ec.europa.eu/jrc/en

http://europa.eu/!jj73DJ Evidence for Policy Community

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Joint Research Centre

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