

Investigating the state of knowledge of deep-sea mining

Deep-Sea Mining

- Exploration of polymetallic nodules can potentially yield the high and pure rare earth products
- Much is knowledge dependent on reports by several other states which interest in extract raw materials



Ecorys

- International independent research and consultancy
- over 80 years old
- 500 people in 100+ offices worldwide
- 2000+ projects
- working for governments, NGOs and the private sector across 100+ countries



The project

The project is a research project on the environmental and social implications of deep-sea mining.



Agenda of the day

Time	Activity
09:00	Registration
09:30	Introduction to the day's activities
10:00	Break
10:30	Session 1: Deep-sea mining: an overview
11:00	Session 2: Environmental and social implications of deep-sea mining
11:30	Break
12:00	Lunch
12:30	Session 3: Public consultation and feedback
13:00	Session 4: Q&A and closing remarks
13:30	Break
14:00	Session 5: Final report and next steps
14:30	Break
15:00	Session 6: Public consultation and feedback
15:30	Break
16:00	Session 7: Final report and next steps
16:30	Break
17:00	Session 8: Public consultation and feedback
17:30	Break
18:00	Session 9: Final report and next steps
18:30	Break
19:00	Session 10: Public consultation and feedback
19:30	Break
20:00	Session 11: Final report and next steps
20:30	Break
21:00	Session 12: Public consultation and feedback
21:30	Break
22:00	Session 13: Final report and next steps
22:30	Break
23:00	Session 14: Public consultation and feedback
23:30	Break
00:00	Session 15: Final report and next steps

EU
Public consultation
Online now until the 16 June

https://ec.europa.eu/economy_finance/consultation

Study carried out by
Ecorys
for the
European Commission
DG Maritime Affairs
and Fisheries



Partners in deep-sea mining

- Godfred
- MRAG
- Geomar
- Senoape
- TU Delft



Ecorys and Blue Growth



Deep-sea mining
participate in public
consultation



Growing interest

- 18 licenses issued in 2016 approved by the EU on 17 January 2016
- Additional 20 exploration licenses issued by national governments (mainly by Iceland, Poland and France, Portugal)

More information on the project: ec.europa.eu/economy_finance



We invite you to:

- ask questions
- participate in discussions
- give us feedback

Please feel free to ask questions from our project team as well as the event organizers. Please register on: https://ec.europa.eu/economy_finance/consultation

Investigating the state of knowledge of deep-sea mining

Deep-Sea Mining

• Exploration of seabed mineral deposits can provide metals needed for high and green technology products.

• The EU is increasingly dependent on imports for some of these metals which serve as important raw materials.



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The project

The Commission's deep-sea mining research programme is a multi-year project.

It aims to build the evidence base for policy development and to provide a platform for dialogue between stakeholders.



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ECORYS

Partners in deep-sea mining

- Grid Arendal
- MRAG
- Geomar
- Seascoper
- TU Delft



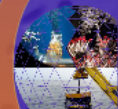
Growing interest

- 10 licenses issued or to be signed by the ISA as of January 2018
- Additional 22 exploration licenses issued by national governments mainly by Pacific Island States and New Zealand

Increased number of deep-sea mining permits and exploration licenses



Ecorys and Blue Growth



Long standing partnership with industry

• Lead author of the Blue Growth Report

• Lead partner in research framework for the MRAG





Deep-Sea Mining

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Production concentration of critical raw mineral materials



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Production concentration of critical raw mineral materials

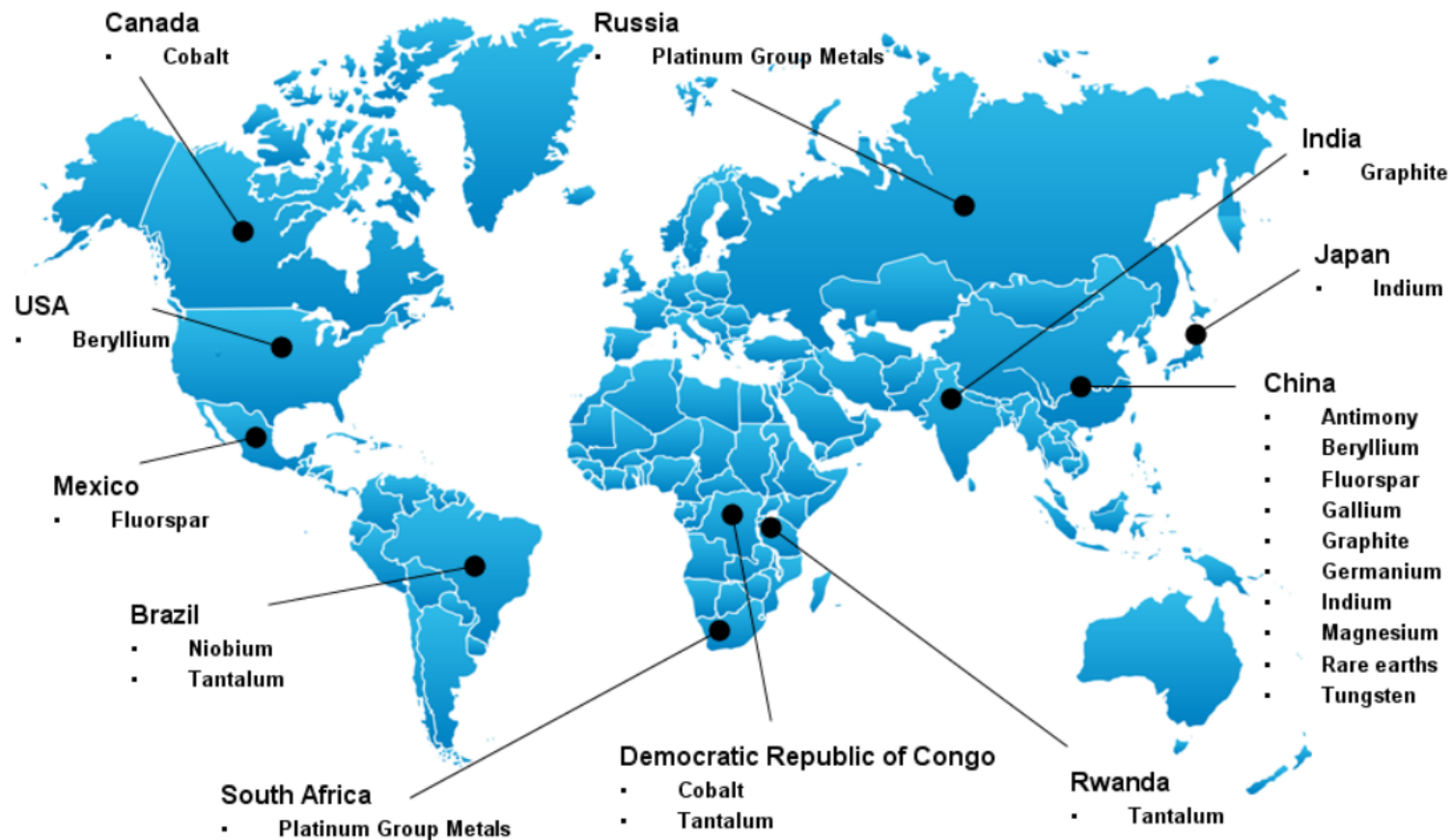
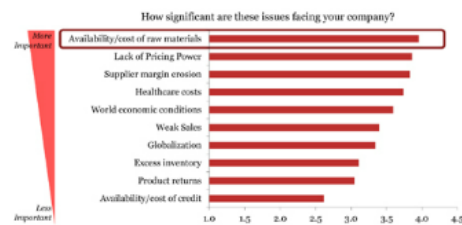


Table 1: Metrics for EU Import Dependency of Raw Materials (%)²

Raw Material	Import Dependency	Raw Material	Import Dependency
Natural Rubber	100%	Bulk Metals	57%
High-Tech Metals	96%	Industrial Minerals	46%
Iron Ore	85%	Wood	15%
Critical Raw Materials*	77%	Paper	9%

* As defined by the EU. These 14 raw materials include a combination of high-tech metals, bulk metals, as well as industrial minerals

Raw material costs and availability remained the top supplier concern in 2011 Q4



Raw material costs and availability remained the top supplier concern in 2011 Q4

How significant are these issues facing your company?



The Economist commodity-price index

January 6th 2009=100, \$ terms



Source: *The Economist*

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- 19 licenses issued or to be signed by the ISA as of January 2014
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Access and availability of raw materials impacts on prices and competitiveness



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Partners in deep-sea mining

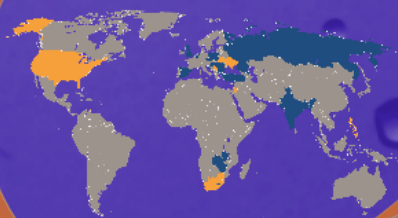
- *Grid Arendal*
- *MRAG*
- *Geomar*
- *Seascope*
- *TU Delft*



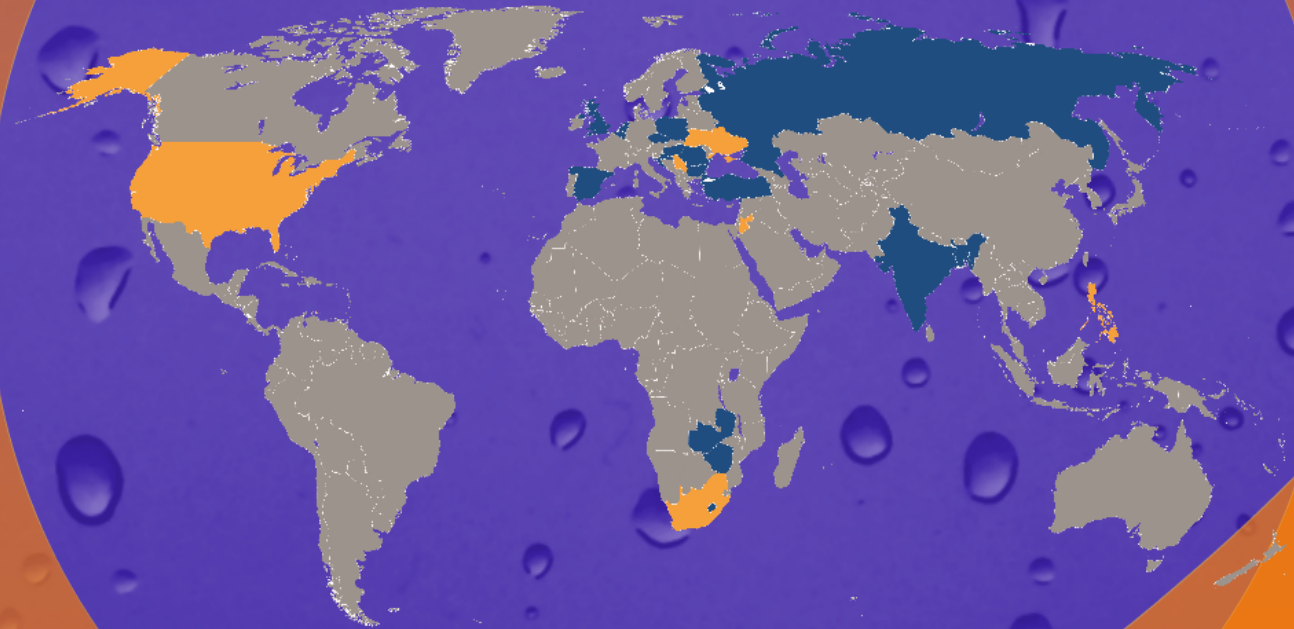
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Ecorys coverage



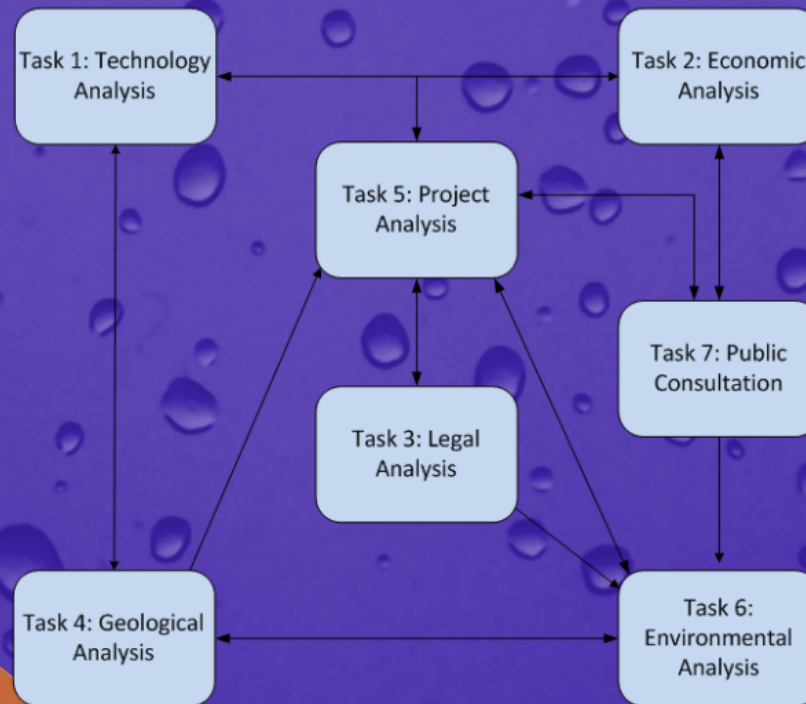
Ecorys coverage

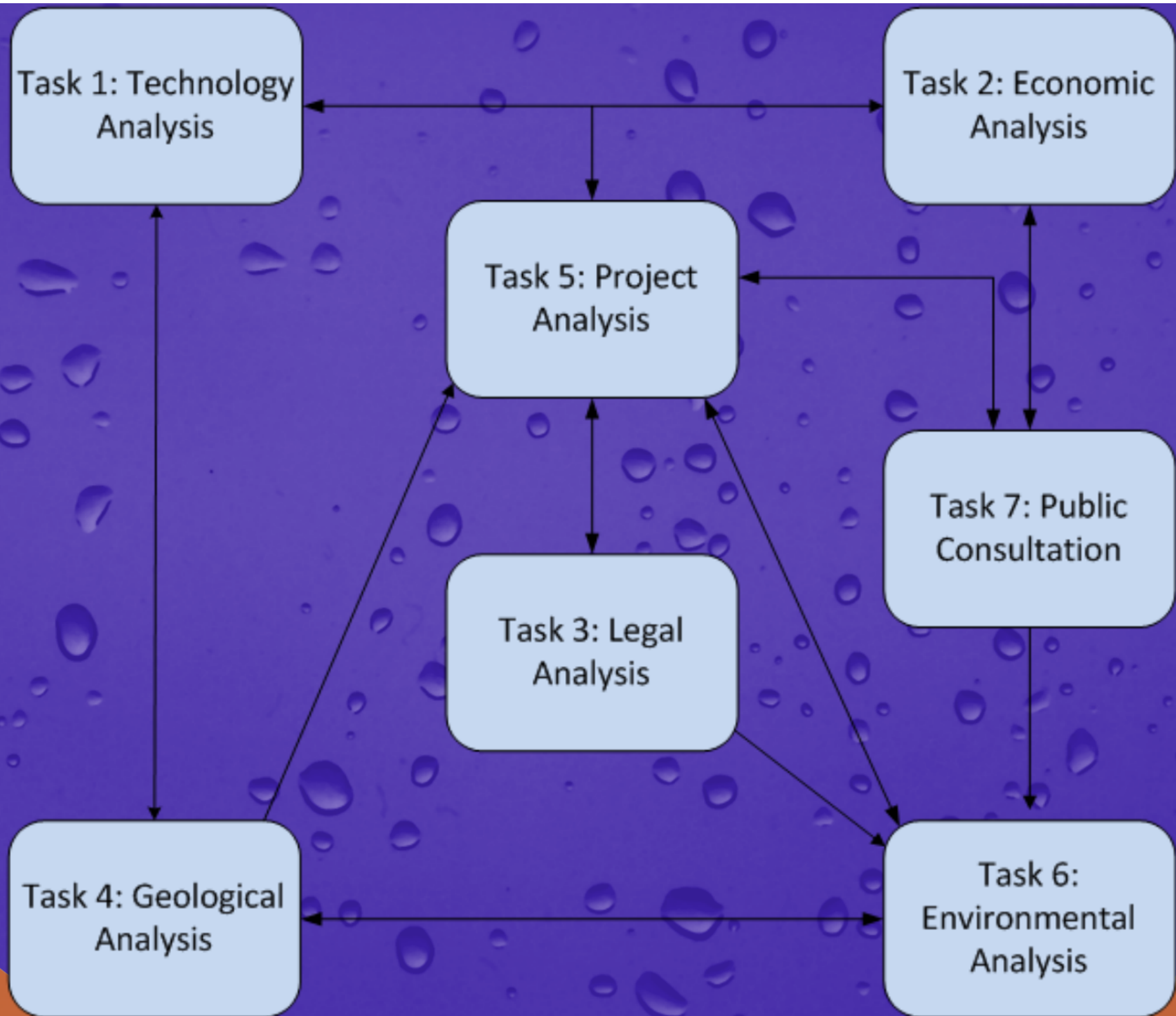


The project

The Consortium brings together economists, environmental and policy analysts as well as engineers.

Ecorys leads the tasks on economic, technology and project analysis and coordinates work on the environmental and geological analysis tasks.





Ecorys and Blue Growth



*Long-standing
partner to policy
makers*

- Lead author of the Blue Growth report
- Lead partner Blue Growth Framework for DG MARE



Agenda of the day

WORKSHOP ON THE TECHNOLOGICAL ASPECTS OF DEEP-SEA MINING

TUESDAY, 29 APRIL 2014

10.00 - 11.00	REGISTRATION
11.00-11.30	Welcome and Introduction to the study (Roelof-Jan Molemaker - Ecorys)
11.30 -12.00	Findings of the technology analysis (Mike Buxton - TU Delft)
12.00 -12.30	Moderated discussion on: state of play of technological development (comments on the value chain, missing technologies, R&D developments) (Johan Gille - Ecorys)
12.30-14.00	LUNCH
14.00- 14.30	Plenary: statements on technology readiness levels, economic feasibility and environmental implications of various technologies
14.30-15.30	Breakout sessions (moderated by Mike Buxton, Joerg Bendorff - TU Delft, Phil Weaver - Seascope, Johan Gille - Ecorys): <ul style="list-style-type: none">• what are key technology issues to be solved• who are key players• what stands between current and future TRL (specific issues)• have we missed any technology in the selection that you consider key bottleneck?
15.30-16.00	COFFEE/TEA BREAK
16.00-16.45	Plenary reporting back from the breakout sessions; interactive discussion on follow-up steps (Moderator: Jan Maarten de Vet)
16.45 - 17.00	Emerging key findings from the day (Roelof-Jan Molemaker)
17.00	END OF MEETING
19.00 - 21.30	Networking Dinner

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The Commission has supported an international, cross-sectoral analysis of global systems.

It will look at the various systems, including the impact of climate change and the potential for technological and industrial revolution.



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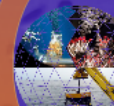
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