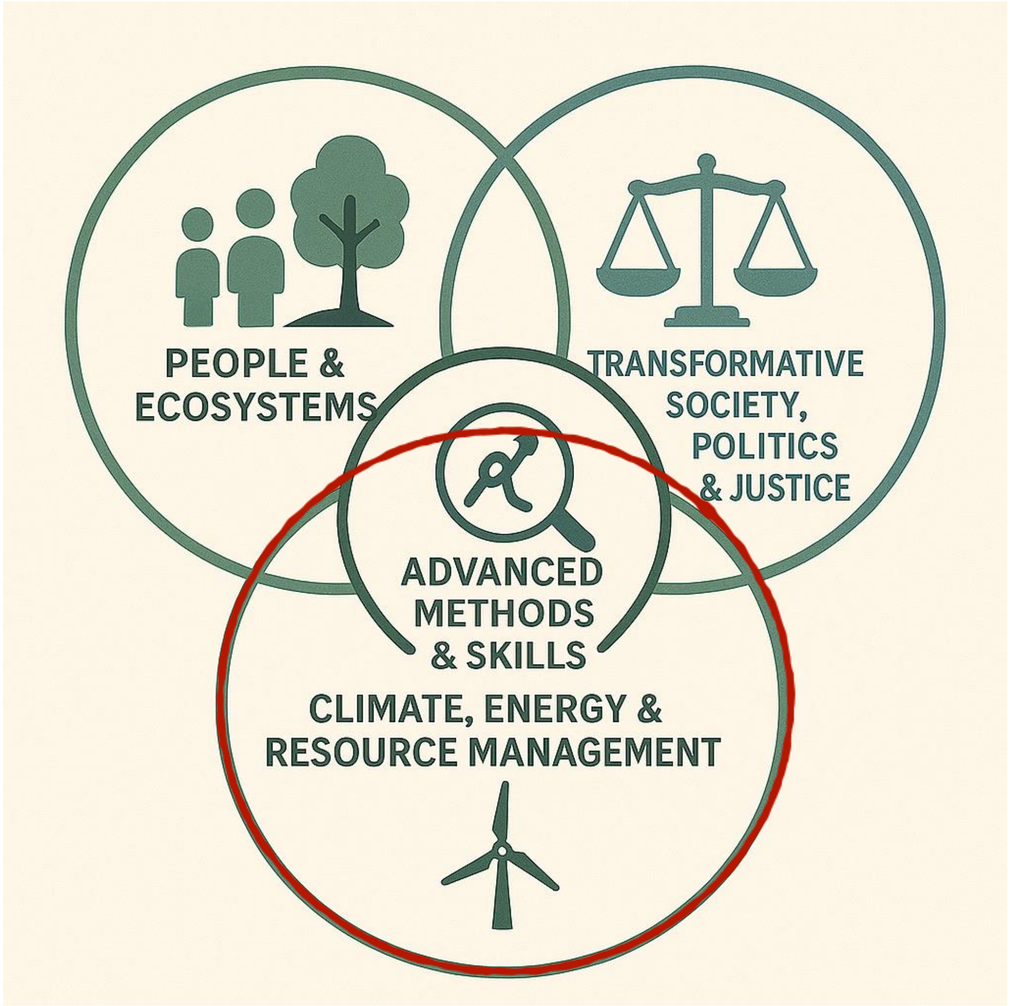
Central European University

Department of Env. Sciences & Policy

Climate, Energy & Resource Management (CERM)



Cluster leader: Aleh Cherp

Faculty: Tiziana Centofanti | Michael LaBelle | Zoltan Illés | Diana Ürge-Vorsatz

September 11, 2025

Cluster focus, keywords, faculty

- Major research hub
- Technologies of industrialized societies, especially energy
- Climate and environmental impacts
- Analysis, policy and management
- Quantification important

- Energy (Michael LaBelle)
- Entropy (Diana Ürge-Vorsatz)
- Feasibility (Aleh Cherp)
- Pollution (Zoltan Illés)
- *Thresholds (Tiziana Centofanti)*

Cluster courses overview (Fall)

Title	Credits	Faculty
Climate Change 1 (CC1)	2	Diana Urge-Vorsatz
Energy Technology and Global Change (ETCG)	2	Aleh Cherp
Resource Management and Pollution Control (RMP)	2	Zoltan Illes and Tiziana Centofanti

Cluster courses overview (Winter)

Title	Credits	Faculty
Climate Change 2 (CC1)	2	Diana Urge-Vorsatz
Sustainable Energy Transitions	4	Aleh Cherp
Energy Markets	2	Michael LaBelle
Events in Energy and Geopolitics	2	Michael LaBelle
Decarbonisation and Business	2	Marina Olshanskaya and Aleksandra Novikova (A.Cherp coordinating)
Green Technologies for Environmental Pollution	2	Tiziana Centofanti
Industrial Hazardous Waste Management and Pollution Control	2	Zoltan Ilés
Policies for Sustainable Transport	2	Zoltan Illés
Sustainable Water Management	2	Zoltan Illés

Energy transitions courses (Aleh Cherp)

- Background: MSc Applied Physics and Mathematics; MSc Pollution and Env.Control; PhD Environmental Assessment

- Research area: Realistic projections of climate and energy futures

- Flagship projects: IPCC WGIII (Climate change mitigation) - Chapter on Projected Climate Futures

Aleh Cherp's courses

Energy technology and global change (Fall)

- What are energy technologies and systems?
- How do they solve and create problems for societies?
- What are net-zero emission (NZE) systems and their challenges?
- Global energy scenarios

Sustainable energy transitions (Winter)

- Technological, economic and political aspects of energy transitions
- Realistic speeds of energy transitions
- Case-studies

Diana Ürge-Vorsatz' courses

- Climate Change I. – The Problems: Physical Science Basis, Impacts and Vulnerability (Fall)
- 2 US credits (4 ECTS credits)

- Climate Change II – The Solutions: Managing Climate Change, Adaptation, Mitigation (Winter)
- 2 US credits (4 ECTS credits)

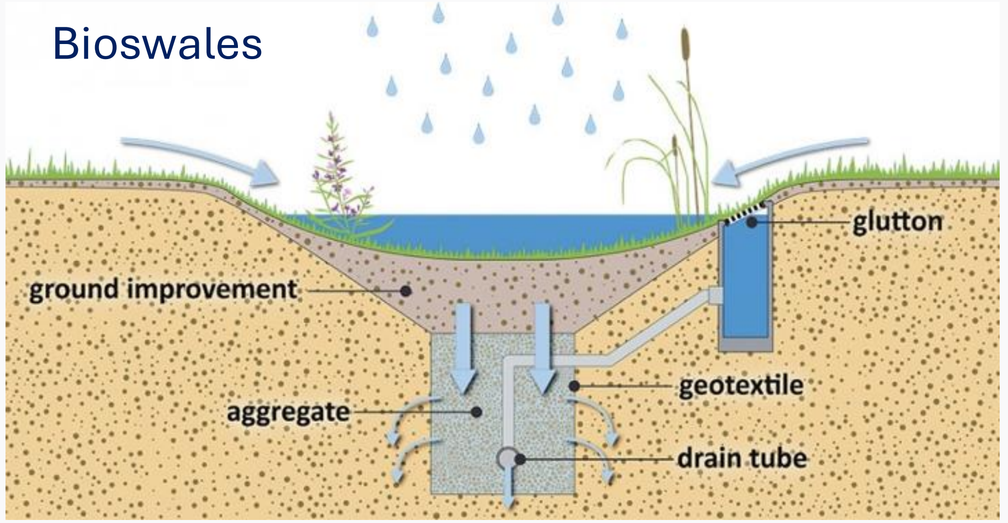
Green Technologies for Environmental Pollution (GTEP) | Tiziana Centofanti

Introduction to pollution impacts and natural cleanup techniques

🎯 Learning Outcomes

- Analyze soil and water pollution impacts
- Explore degradation & recycling of pollutants
- Evaluate bioremediation benefits & limitations
- Study real-world case studies

Multifunctional constructed wetland in Ghana, Project DIVAGRI,



Section scheme of a bioswale during rainfall © atelier GROENBLAUW, Marlies van der Linden (based on: Boogaard et al, 2006)

https://www.urbangreenbluegrids.com/measures/bioswales/

🔬 Course Focus: Green Technologies for Environmental Pollution

Includes:

- **Phytoremediation** (plants removing pollutants)
- **Bioremediation** (microorganisms breaking down contaminants)
- **Constructed Wetlands** (natural water purification systems)

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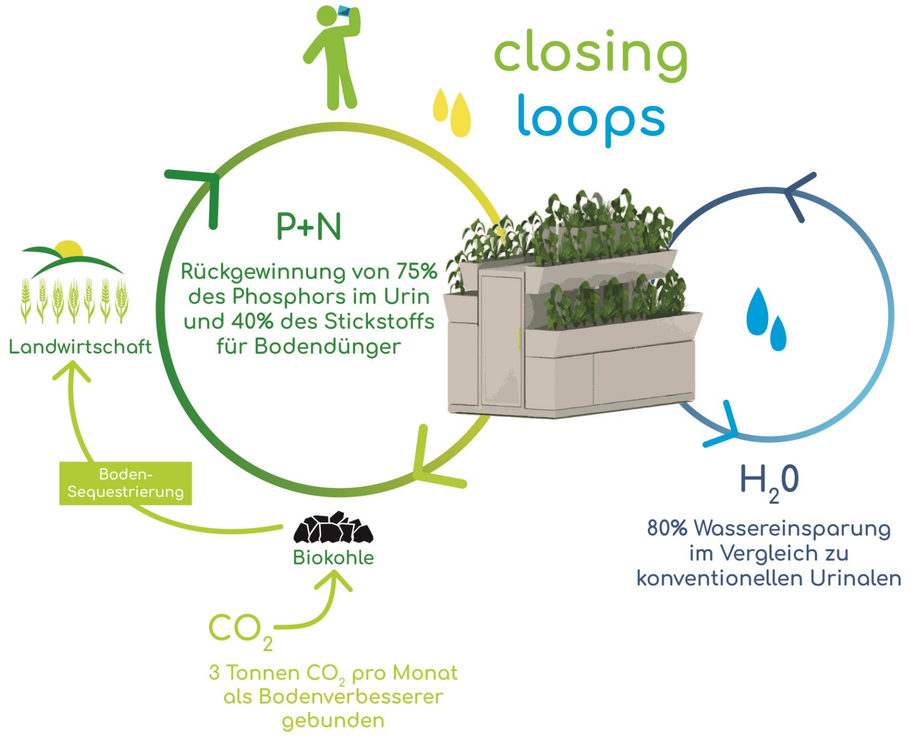

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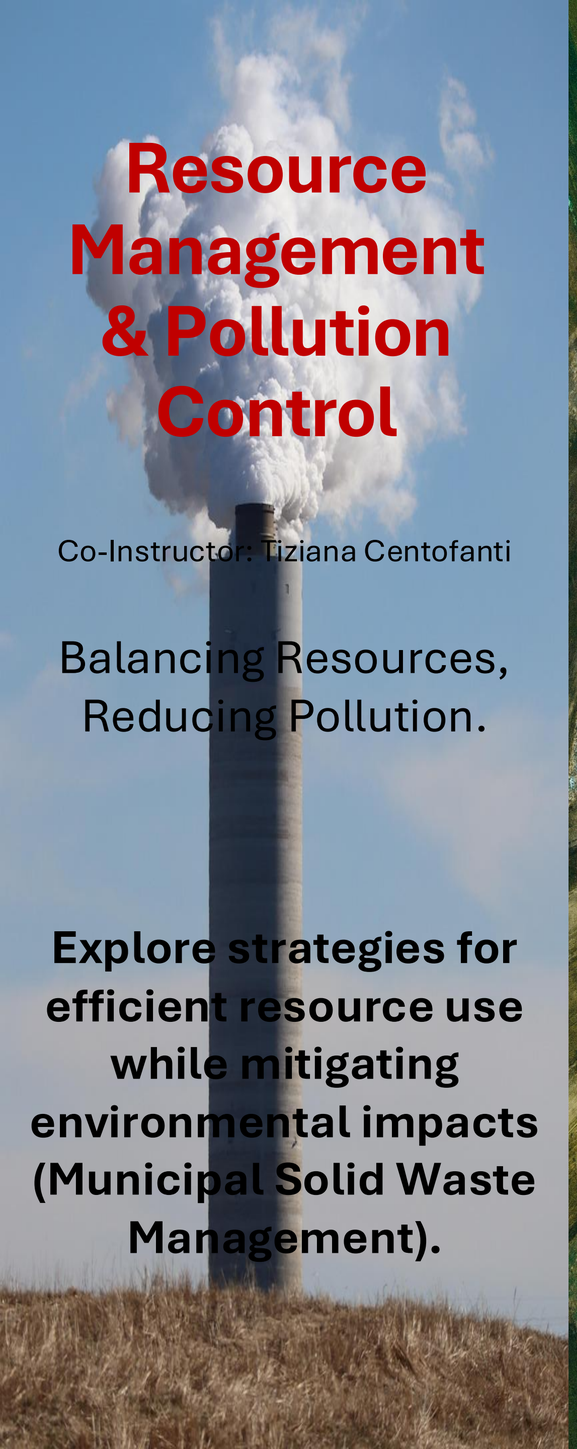
ENERGY GLOBE

alchemia nova
institute for innovative phytochemistry & closed loop processes



Resource Management & Pollution Control

Co-Instructor: Tiziana Centofanti

Balancing Resources, Reducing Pollution.

Explore strategies for efficient resource use while mitigating environmental impacts (Municipal Solid Waste Management).

Sustainable Water Management

Co-Instructor: Dan Cogalniceanu

Securing Water for the Future

Discover solutions for equitable, efficient, and climate-resilient water use (Sanitation, Clean Water Provision, Wastewater Treatment).

Policies for Sustainable Transport

Driving Change Through Policy

Understand how policies shape greener, safer, and more efficient mobility systems.

Industrial Hazardous Waste Management

Managing Risks, Protecting Lives

Learn methods to safely treat, dispose, and minimize industrial hazardous waste.

ENVS5241(ETG) - **Events in Energy and Geopolitics | Michael LaBelle**

This course explores recent events in energy resources, technologies, and geopolitics in the global energy transition.

Topics

- Current events
    - The post-fossil era and re-emergence of geopolitics
- The great race for critical raw materials in the global south
- History of energy interdependency and dependency: from oil and gas to critical raw materials

Assessment

- Presentation – based on readings (20%)
- Policy brief (50%)
    - Definitions and options
    - Recommendations
- Oral exam (30%)

(ENVS5490)EM: Energy Markets | Michael LaBelle

Topics

- Markets: Gas, Electricity and oil
- Renewable energy: Innovation and state support
- Regulation: Regulators and the regulated
- Geopolitics: Energy security and supply security

Assessment

- 20% - Class participation
- 50% - Quizzes and short assessments
- 30% - In-class final exam

Decarbonization and business

- Decarbonization and Business — EXPAND ALL
- Oral assignment
- Module 1: Why decarbonisation in business?
- Modules 2-3: Corporate GHG management , focus on GHG emission accounting and targets
- Homework
- Modules 4-6: GHG management, focus on targets, decarb strategies and reporting
- MODULE 7: DECARBONISING FINANCIAL SECTOR
- Module 5: Bonus lecture on CSRD
- Assignments
- Module 6 Wrap-up