

EHU-UPV SUMMER CAMPUS COURSES 2017

**New trends in restoration of degraded soils: energy crops and phytomanagement in a Circular Economy model.
(Vitoria-Gasteiz; 13-14 July)**

Introduction: In the restoration of degraded soils, phytoremediation techniques that combine different crops are increasingly being used. Forest plantations to obtain biomass or wood are being alternated with energy crops (biodiesel) or green fertilizers, which reduce the consumption of petroleum derived products. The tendency is to promote the phytomanagement of these spaces to obtain products with economic value while maximizing the ecosystem benefits of the restoration process. This course aims to explore models of phytomanagement in degraded spaces from the point of view of circular economy. It will show experiences that seek carbon neutral cycles, either by deriving agroforestry products to a green economy (biomass, biodiesel, ...) or by recycling the by-products that are generated (plant remains, ashes, compost) in the restoration process itself or into other final products. The program will be divided during the first day into three thematic blocks: forest crops, agricultural crops and agroforestry systems in which, after offering a theoretical framework of general context, practical cases and international experiences of interest will be presented. The second day will cover possible uses of agroforest products or residues under a circular economy model.

Objectives:

- Spread the concept of phytomanagement and bioeconomics.
- To know the experiences of energy utilization (biomass, biofuel) of species used in phytoremediation.
- To delve in the recirculation of materials and reduction of residues, within the concept of Circular Economy.
- Design economic regeneration models for peri-urban areas and the rural environment.
- Investigate new economic alternatives for the primary sector.

Day 1-Thursday 13th July (English/Spanish with simultaneous translation)

08:45-09:00 Reception of assistants.

09:00 -09:30 Institutional Opening.

09:30-10:30 Conference.

Phytomanagement to restore degraded sites and achieve wider benefits – the GREENLAND project.

Speaker: **Andrew Cundy**
Position: Research Professor
Institution: University of Southampton
Country: England

10:30-11:30 Conference

Evaluation of poplar efficiency for the cleaning of metals contaminated soils. Solutions adapted to the phytoextraction, treatment and recovery of the biomass produced

Speaker: **Michel Chalot**
Position: Research Professor
Institution: Université de Franche-Comté
Country: France

11:30-12:00 Cofee Break.

12:00-13:00 Conference.

Sustainable management of agricultural resources. Indicators of sustainable forest management, zoning of the forest landscape, adapted forestry and new models of forestry within the framework of the Green and Circular Economy.

Speaker: **Maria Rosa Mosquera**
Position: Researcher
Institution: University of Santiago de Compostela
Country: Spain

13:00-13:30 Summary and debate. Moderator: Juan Vilela (Environmental Studies Centre of the Vitoria-Gasteiz city council; CEA)

13:30-15:30 Lunch Break.

15:30-16:30 Conference.

Introduction to societal techno-economic assessment of phytoremediation. How to add value to phytoremediating crops and make phytoremediation profitable, both from a societal and an investor's perspective. A Belgian case study.

Speaker: **Tom Kuppens**
Position: Researcher

Institution: Hasselt University
Country: Belgium

16:30-17:30 Conference.

Life Seed Capital Project. Use of rapeseed crops for biodiesel production and reduction of emissions.

Speaker: **Aser García**
Position: Researcher
Institution: NEIKER
Country: Spain

17:30-18:30 Conference.

INTENSE Project. Remediation by planting non-food crops for energy generation and for other sectors in relation to Bioeconomics (phytomanagement).

Speaker: **Rocío Millán Gómez**
Position: Responsible for the Soil Conservation and Recovery Unit
Institution: CIEMAT
Country: Spain

18:30-19:00 Summary and debate. Moderator: Carlos Garbisu (NEIKER)

Day 2-Friday 14th July (Spanish only)

08:45-09:00 **Opening.**

09:00-10:00 **Conference.**

La Economía Circular y la estrategia para la CAPV (*Circular Economy and the strategy for the Basque Country*).

Speaker: **Iñaki Susaeta**

Position: Coordinator of the Waste Area

Institution: IHOBE

Country: Spain

10:00-11:00 **Conference.**

Biorrefinería verde basada en un concepto de Economía Circular. (*Green biorefinery based on a concept of Circular Economy*)

Speaker: **Amaya Arteche**

Position: Projecto Manager Biorefinery and Waste Valorisation Area

Institution: TECNALIA Research & Innovation

Country: Spain

11:00-11:30 **Coffee Break.**

11:30-12:30 **Conference.**

Experiencias cercanas sobre el aprovechamiento de residuos orgánicos y Economía Circular. Casos prácticos. (*Closer experiences in the use of organic waste and Circular Economy. Practical cases*)

Speaker: **Natxo Irigoyen**

Position: Professor of Agricultural Production and Plant Production

Institution: Public University of Navarra (UPNA)

Country: Spain

12:30-13:30 **Summary and final debate. Moderator: Antonio Hernández (University of the Basque Country; UPV-EHU)**

End of conferences.

13:30-15:30 **Lunch Break.**

15:30-17:30 **Visits to pilot projects:**

- PhytoSUDOE project's sites and other experimental plots in Jundiz (phytomanagement over degraded and/or contaminated lands in the urban periphery)

Speakers:

- **Andrew Cundy.** Expert in geochemistry, decontamination of soils and water, management of contaminated land, coastal systems and estuaries. Participant in the GREENLAND Project and creator of a decision support tool to support effective application of site phytomanagement and biomass generation strategies.
- **Michel Chalot.** Expert in chemistry, biochemistry, genetic, microbiology, botany and phytoremediation. Participant in several projects like PHYTOCHEM, LORVER or PHYTOPOP.
- **Maria Rosa Mosquera.** Expert in Agroforestry Systems, use of amendments and fertilization with industrial waste and urban sewage sludge.
- **Tom Kuppens.** He graduated as a business engineer and he has a PhD in business economics. He developed techno-economic models for thermochemical conversion (pyrolysis, gasification and combustion) of biomass from phytoremediation. Furthermore, he works in a construction of a methodological framework for techno-sustainability assessment of clean technologies and also investigates how sustainability can and should be integrated within business economics education.
- **Aser García.** Expert in agricultural energy-plantations. Participant in the Life Seed Capital Project.
- **Rocío Millán Gómez.** Expert in Geology, recovery of degraded soils, plant stress, phytoextraction, bioaccumulation, bioamplification and bioeconomics. Participant of the INTENSE Project as head of the "Integrated farming on marginal soils" working group.
- **Iñaki Susaeta.** Coordinator of the Waste Area of the Public Society of Environmental Management Ihobe. Expert in the prevention of waste generation and Circular Economy.
- **Amaya Arteche.** Degree in Chemical Sciences and Master in Urban and Industrial Wastewater Treatment. She has more than 22 years of experience in the development and optimization of hydrometallurgical processes for treatment and recovery of effluents and industrial waste. In the last ten years, it focuses on the field of Bioenergy, becoming responsible for the lines of research and the working group for the recovery of biomass residues and the production of liquid biofuels and biomethane, as well as the production of products Of high added value from algae and / or biomass taking into account the concept of Sustainable Biorefinery.
- **Natxo Irigoyen.** Expert in agronomy, soil, composting, organic waste management and Circular Economy. Propeller of several initiatives of decentralized management of organic waste. Participant and creator of several courses and lectures on the Circular Economy and use of organic waste.