



Next Destination: Horizon Europe Circularity & Bioeconomy

How to match your R&I proposal with EU and regional strategies

Thomas Ammerl, Agustina Gualdoni, Susanne Hirschmann, Melanie Schulte Bavarian Research Alliance (BayFOR)

Wednesday, 16 June 2021



Competent Support for Excellent Research in Bavaria, Europe and the World







Introducing Horizon Europe Funding Schemes Horizon Europe

Agustina Gualdoni

Scientific Officer Environment, Energy and Bioeconomy

Bavarian Research Alliance (BayFOR)

Wednesday, 16 June 2021







Horizon Europe – The new Research & Innovation Framework Programme of the European Union

- > Start date on January 1st 2021 with a duration of 7 years
- Increased budget volume with estimated 97,6 bn. Euro
- Goal of the European Commission on continuity, less bureaucracy and leaner



Bavarian

Research Alliance

> Objectives:

- Strengthen the scientific and technological position of the EU
- Strengthen the innovation capacity, competence and creation of work



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Global Challenges - Cluster



Pillar 2 **Global Challenges and European Industrial** Competitiveness

- Health
- Culture, Creativity and **Inclusive Society**
- **Civil Security for Society**
- **Digital, Industry and Space**
- Clusters Climate, Energy and Mobility
 - Food, Bioeconomy, Natural **Resources, Agriculture and** Environment

Joint Research Centre

- > "Clusters" are thematic divisions
- Every Cluster is divided into "Destinations"
- Destinations contain relevant Calls for this particular area
- Most of the calls are cooperation projects

 \rightarrow at least 3 partners from 3 EU member or associated states (at least 1 EU member state)





Cluster 6 Food, Bioeconomy, Natural Resources, Agriculture and Environment



Cluster 4 Digital, Industry and Space



Pic Credit: European Commission



A. Gualdoni Circularity and bioeconomy funding options under Horizon Europe

16.06.2021



Related European initiatives

Bavarian Research and nnovation Agency

A. Gualdoni Circularity and bioeconomy funding options under Horizon Europe 16.06.2021

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Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture and Environment

Transition to a low carbon, resource efficient circular economy and sustainable bioeconomy





Pic Credit: Fish Site

Bavarian Research Alliance



A. Gualdoni Circularity and bioeconomy funding options under Horizon Europe



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Destinctions in total

Cluster 6: 7 Destinations in total

1. Biodiversity and ecosystem services		2. Fair, healthy and environment- friendly food systems from primary production to consumption		3. Circular economy and bioeconomy sectors		4. Clean environment and zero pollution	
	5. Land, ocean and water for climate action		6. Resilient, inclusive, healthy and green rural, coastal and urban communities		7. Innovative governance, environmental observations and digital solutions in support of the Green Deal		





Cluster 6: Destination 3

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Example Calls from the Draft

construction sector

Cluster 6		Cluster 4
HORIZON-CL6-2021-CIRCBIO-01-03: Innovative		HORIZON-CL4-2021-RESILIENCE-01-01: Ensuring circularity of composite materials
solutions to over-packaging and single-use plastics, and related microplastic pollution	-	HORIZON-CL4-2022-RESILIENCE-01-01: Circular and low emission value chains through digitalisation
HORIZON-CL6-2021-CIRCBIO-01-08: Mainstreaming inclusive small-scale bio-based solutions in European		
rural areas		Novel paradigms to establish resilient and circular
HORIZON-CL6-2022-CIRCBIO-02-01-two-stage:		value chains
Integrated solutions for circularity in buildings and the		Green and sustainable materials

- Materials for the benefit of society and the environment and materials for decarbonising industry
- Materials and data cross-cutting actions
- Improving the resilience and preparedness of EU businesses, especially SMEs and startups





What to consider? A circular approach – not only for your project idea

Wholesome approach, needed for achieving circularity



Identification of all relevant aspects addressed in the call

Interdisciplinary consortium brings more collaboration and increased impact

Bavarian Research and Innovation Agency

A. Gualdoni Circularity and bioeconomy funding options under Horizon Europe Pic credit: European Commission

16.06.2021

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Need more information?

➢ Info days 2021



Cluster 6 07. – 08. July

Cluster 4 29. – 30. June

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臺 UPSCALE

UPSCALING THE BENEFITS OF PUSH-PULL TECHNOLOGY FOR SUSTAINABLE AGRICULTURAL INTENSIFICATION IN EAST AFRICA

EU-Africa cooperation on sustainable agricultural intensification: the UPSCALE Example

Adewole Olagoke & Emily Poppenborg Martin Leibniz University of Hannover, Germany

Circularity & Bioeconomy | 16 June 2021



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 861998.

UPSCALE FACTS & FIGURES

EU H2020 FUNDING: **€7.66 million** Scope A: Sustainable intensification in Africa DURATION: 60 months (11/2020 - 10/2025)

UPSCALE European partners

Germany, Serbia, Sweden and Switzerland

18 PARTNER INSTITUTIONS:

7 Universities

1 SME

10 Associations & Research Institutes



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and the second second

UPSCALE African partners

Ethiopia, Kenya, Rwanda, South Africa, Tanzania and Uganda

THE PUSH-PULL TECHNOLOGY



Adapted from Pickett et al. (2014). 10.1016/j.copbio.2013.12.006

Purely ORGANIC

Natural pest control

Water preservation

Climate-smart

Soil fertility

Livelihood Food security

Gender empowerment



YIELDS: 1.5 – 3 folds

UPSCALING THE BENEFITS OF PUSH-PULL TECHNOLOGY FOR SUSTAINABLE INTENSIFICATION IN EAST AFRICA

ADDRESS FOOD SECURITY, LIVELIHOODS & CLIMATE CHANGE RESILIENCE IN EAST AFRICA WHILE REDUCING THE ENVIRONMENTAL IMPACT OF AGRICULTURAL PRACTICES

> FOSTER THE DESIGN, ADAPTATION AND ADOPTION OF STRATEGIES FOR INTEGRATED AGRO-ECOLOGICAL MANAGEMENT BASED ON PUSH-PULL TECHNOLOGY FOR WIDE-SPREAD AND CLIMATE-RESILIENT SUSTAINABLE INTENSIFICATION IN EAST AFRICA





INNOVATION METHODS

MACs EMPLOYED IN TRAINING AND **CAPTURE AND MOBILISE THE INNOVATION** COMMUNICATION AMONG SCIENTISTS AND POTENTIAL AMONG FARMERS TO STIMULATE **STAKEHOLDERS** LONG-LASTING ENGAGEMENT AND FURTHER **DEVELOPMENT OF SUSTAINABLE INTENSIFICATION TECHNOLOGIES. NOVEL APPLICATION OF ECOLOGICAL** METHODS, MODELLING TOOLS AND SOCIAL-ECOLOGICAL APPROACHES **DEVELOP AND ADAPT INNOVATIVE DISSEMINATION TOOLBOXES : KNOWLEDGE HUB, MOBILE APP, INTERACTIVE INTEGRATIVE MAPS UNLOCK THE POTENTIAL OF PUSH-PULL** FOR SPATIAL TARGETING OF DISSEMINATION **TECHNOLOGY FOR OTHER REGIONS AND EFFORTS CULTIVATION SYSTEMS**





UPSCALE IMPACTS







UPSCALE IMPACTS



INCREASED AGRICULTURAL PRODUCTIVITY BY MANAGING KEY CONSTRAINTS, INCLUDING INSECT PESTS ENSURING SUSTAINABILITY THROUGH TECHNOLOGIES THAT ALLOW FOR SUSTAINABLE INTENSIFICATION OF FARMING SYSTEMS AND IMPROVED ACCESS TO PRODUCTIVITY ENHANCING TECHNOLOGIES

MARKET-DRIVEN SOLUTIONS FOCUSED ON VALUE CHAIN OPTIMIZATION





For EC Institutions & Policymakers

KNOWLEDGE TO CURB INVASION OF PESTS, IMPROVE AND MAINTAIN FOOD SECURITY & RESILIENCE UNDER CURRENT AND FUTURE CLIMATES, AND MAINSTREAM GENDER



EVIDENCE-BASED POLICY FORMULATION IN THE AREAS OF SUSTAINABLE INTENSIFICATION OF AGRICULTURE, TECHNOLOGY DEVELOPMENT AND IMPLEMENTATION

INPUT AND OUTPUT MARKETS TO DRIVE TECHNOLOGY ADOPTION











This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 861998.





National Institute of Agricultural Technology (INTA)



Phytoremediation of mining waste and conversion to biofuels: An Argentine case study

Dr. Brian Jonathan Young

Horizon Europe – Circularity & Bioeconomy How to match your R&I proposal with EU and regional strategies Organised by Bavarian Research Alliance (BayFOR) GmbH

Phy2Climate Project – a short introduction





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- Project period 1.1.2021 30.06.2025
- 17 beneficiaries
- ► 3 Continents
- 10 different languages





Project coordinator: Prof. Markus Ortner (Markus.ortner@its-foerderberatung.at)



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Pilot site leader

Location: La Planta, San Juan Province, Argentina



Background: Abandoned gold mine



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Physicochemical analysis in soil

Contaminated site

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Parameter	Value
рН	2.86
Conductivity (mS cm ⁻¹)	25.4

Reference
siteImage: Conductivity (mS cm-1)ParameterValuepH8.10Conductivity (mS cm-1)0.2

Metal/oid	Concentration (mg k	(g ⁻¹)
Aluminum (Al)	377	
Antimony (Sb)	63.9	
Arsenic (As)	1040	227x
Bismuth (Bi)	8.2	56x
Cadmium (Cd)	30.7	
Copper (Cu)	134	29x
lron (Fe)	3740	
Manganese (Mn)	350	4x
Molybdenum (Mo)	148	
Lead (Pb)	264	→ 57x
Zinc (Zn)	5340	→ 117x



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Aquatic organisms







Desmodesmus spinosus (Sphaeropleales) Daphnia magna (Cladocera)

Cnesterodon decemmaculatus (Cyprinodontiformes)

52% of the endpoints have values of EC₅₀ less than1% concentration





Most contaminated site: 3 ha





Prosopis flexuosa



Plectrocarpa tetracantha

Abandoned infrastructure



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monitoring

Expected impact of Phy2Climate in Argentina

Participatory Action Research
(PAR)
Technological transference
(research → society, productive
sector & government)
Tools for environmental

Phytoextraction

Technological and social aspects

Training and cooperation

- Studies in lab & field conditions
- Use of amendments (compost

& dolomite)

- Bioaccumulation

- Bioavailability

- Courses & Workshops

- Knowledge exchange
- Cooperation with EU-partners to recover Cu and produce biofuel
- Visits to pilot sites & labs



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 101006912.

www.phy2climate.eu

🔰 @phy2climate

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Thanks for your attention!

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CLOSED-LOOP RECYCLING OF PVC FLOOR COVERINGS

DR. ANDREAS WINTER

HORIZON EUROPE - CIRCULARITY & BIOECONOMY JUNE 16, 2021



WESTLAKE CHEMICAL CORPORATION GLOBAL DIVERSIFIED PRODUCT MIX





VINNOLIT GMBH & CO. KG FACTS

















PRODUCTION CAPACITIES

Total Capacity PVC 730 kt VCM 690 kt

NaOH (100%) 500 kt



Project Profile



Project

Circular Flooring (New Products from Waste PVC Flooring and Safe End-of-Life Treatment of Plasticizers)

- Coordination Fraunhofer IVV, Dr. Martin Schlummer
- Funding scheme

77/06/7071

- EU funding
- Duration

Website

Horizon 2020, Grant Agreement Number 821366

€ 5.4 million

4 years (06/2019-05/2023)

www.circular-flooring.eu



Project Objectives



The aim of the EU-funded project Circular Flooring is to enable the circular use of plasticized PVC from waste flooring by developing recycling process that eliminate legacy phthalic acid esters that are not conform with the EU REACH Directive.

Main objectives:

- Develop a process for recovering secondary legacy plasticiser free PVC from flooring waste, thus preventing usable resources from landfill or incineration
- Demonstrate circularity of PVC in flooring and applicability of non-phthalate plasticizers that are compliant to REACH from waste flooring
- Assessment of environmental, health and safety impacts and techno-economic feasibility





The Recycling Process





77/06/7071

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 821366



Circular Flooring Consortium







WHAT DOES VINNOLIT CONTRIBUTE TO THE PROJECT ?

The Technical Service Center at the Burghausen site



Dry blends in hot/cool-mixers from 10 l up to 200 l



Photos: Vinnolit

Calandering



Extrusion

And also: modern two roll mills and moulding press for small lab trials



WHAT DOES VINNOLIT CONTRIBUTE TO THE PROJECT ? The Physical Testing Lab

- mechanical properties of semi-finished goods: for example tensile strength, Shore, cold crack temperature, dynamic mechanical analysis and others
- Thermal stability, Vicat softening temperature, chemical resistance, water absorption, plasticiser migration, weathering tests (Xenon, QUV-A and B)
- > powder properties: fluidity, pour behaviour, colour



Test of tensile strength Photos: Vinnolit

Gelation test (from dryblend)





WHAT DO WE HOPE TO ACHIEVE WITH THE PROJECT?

- A qualitative and quantitative leap in the post-consumer recycling of PVC flooring
- The elimination of currently undesirable additives (certain phthalate plasticizers)
- The conversion of these undesirable plasticizers into REACH-compliant plasticizers
- > A high recyclate quality that can be reused in the flooring sector

Thank you for your attention

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LOW CARBON AND CIRCULAR ECONOMY BUSINESS ACTION IN THE AMERICAS

LOCATION: BRAZIL, ARGENTINA, COLOMBIA AND CHILE





LOW CARBON AND CIRCULAR ECONOMY BUSINESS ACTION



The LCBA is a business platform to increase trade volumes and economic exchange between the EU and Latam companies seeking for energy efficient, low carbon and circular economy solutions. For this purpose, the project brings together multidisciplinary players and stakeholders:





MAIN GOALS & SECTORS



This business-driven initiative aims to promote the principles of



The project enhances the sustainable transition of companies to a low carbon and circular economy via:



Internationalization of EU SMEs providers supporting innovation & sustainability of local counterparts



Increase competitiveness of Argentinian, Brazilian, Chilean and Colombian companies thanks to green technology transfer STRATEGIC LCBA SECTORS



LCBA SECTORS



Technological areas:



- **Energy Efficiency Buildings** Energy Efficiency Industry Carbon Capture & Storage (CCS) Transport
- Cogeneration
- Solar PV



- Hydropower
- Biomass



Biogas & Biomethane





- Biodiesel Anaerobic Digestion Aerobic Composting
- Waste Collection & Treatment
- Manure Management
- Smart & Precision Agriculture
- Low Carbon Agriculture
- Agroforestry & Restoration of Forest
- Landfill disposal
- - Wastewater Treatment



LCBA SERVICES



Transforming low carbon technology demands into effective sales contracts Sept. 2023 Market Intelligence **Technical Assistance** Matchmaking Sept. 2020 Bringing together EU Providing technical In-depth low carbon market \$\$\$ technology providers assistance services to analysis, regulatory and LATAM help business partners Promoting framework, economic and Identifying mitigation companies to overcome difficulties interactions with technological trends and sectors and implement a throughout the whole clusters, industrial engagement of key players technology demands sustainable business process associations, project Supporting the governments and replicability and financial entities, scaling up of business In Argentina, Brazil, Chile within a low carbon projects in the target and Colombia ecosystem countries **Business** Opportunities Get the right partners Close the deal

HOW TO PARTICIPATE IN LCBA









LCBA SELECTION CRITERIA









LCBA'S VALUE PROPOSITION



Through specialised and individualised support for the Latin American industry



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BIOGAS PLANT

- **Project:** Waste from different industries (pig farms, candy manufacturer, vegetable oils, cattle and pig slaughterhouse).
- **Technological Need**: Biogas Plant (anaerobic digester, hydrolysis tank, mixing pumps, energy converter)
- CAPEX EU (est.): 2,6 M EUR

BIOMASS

- **Project:** Industrial cotton waste (5,000 to 8,000 tonnes per year) which allows the development of organic fertilisers.
- Technological Need: Industrial Pyrolytic Oven for Biochar Generation
- CAPEX EU (est.): > 400.000 EUR

BIOMASS

- **Project:** Use of by-products derived from sugar cane production (bagasse) for electricity production
- Technological Need : bagasse burning boilers, pelletisation technology, chemical processes to extract potassium for biofertiliser production
- CAPEX EU (est.): > 1 M EUR



BUSINESS OPPORTUNITIES: BRAZIL



BIOGAS PLANT

SOLAR PV

- Project: Installation of a biogas plant in the Rio de Janeiro municipal market (CADEG) for processing organic waste.
- **Technological Need:** plant design engineering services, including operation and construction management software.
- CAPEX EU est.: 200.000 EUR

- **Project** of a 1Mw offgrid photovoltaic plant on a farm, located in the State of Mato Grosso do Sul.
- Technological Need: hybrid system with batteries, including a pumping station. All the proposed equipment is European.
- CAPEX EU est.: 812.500 EUR 902.000 EUR (Total)

ENERGY EFFICIENCY

- **Project:** Implementation of advanced systems (software and hardware) for the automatic detection of anomalies in the facilities using artificial intelligence techniques (energy efficiency).
- **Technological Need:** multiprotocol data collector with integrated PLC for concentration and communication of industrial signals to be monitored.
- CAPEX EU est.: 15.000 EUR / 222.222 EUR









- **Project**: Construction of a solar thermal plant to heat a leaching heap.
- **Technological Need**: Solar Collector, Solar Thermal Panels from an EU Supplier
- CAPEX EU est: 418.020 EUR

FOREST MANAGEMENT

Project: Construction of an integrated sawmill
 with pellet production technology

• Technological Need:

- Sawmill, Pelletising equipment, Boiler, "green" and "dry" pine lumber, Bagged wood pellets mainly for residential use, Bulk wood pellets.
- CAPEX EU est: 8.000.000 EUR





BUSINESS OPPORTUNITIES COLOMBIA

MONITORING SYSTEM AND SOFTWARE

- **Project:** Implementation of software technology for intelligent waste treatment and efficient use of natural resources.
- Technological Need : Software, intelligent detection and monitoring systems
- CAPEX EU (est.): > 0,5 M EUR

BIOFERTILISER PRODUCTION

- **Project:** Biofertiliser production from sludge and waste.
- Technological Need : Processing industrial and domestic waste, WWTP sludge with a mixture of green waste, pruning, tree felling, bushes, etc. resulting in a compost product with high nutritional value through the technology of filter sheets.
- CAPEX EU (est.): > 1,2 M EUR

GENERATION OF ENERGY FROM SUGAR CANE RESIDUES

- Project: To take advantage of Agricultural Harvest the Residues (RAC) of sugar cane solid biofuel in the as of thermal processes and electrical energy generation in the boilers of the sugar mills in Valle del Cauca.
- Technological Need : Vinasse and bagasse boilers, pelletisation technology, processes to produce biofertilisers.

• CAPEX EU (est.): > 2 M EUR

Case: Solar Thermal Energy (Chile)

- Partners: collaboration between the local technology integrator Solarmovil (Chile) and the European technology provider Rioglass Solar (Spain).
- Contact developed in the sectoral screening phase of companies in LCBA.
- Client / projeto: (*confidential)
- Technology: The solar thermal collector is cheaper and more compact than a photovoltaic collector for direct heat use, captures and transfers the sun's energy as heat with maximum efficiency, without losses due to intermediate transformation into electricity. Performance does not decrease with temperature, lifetime is 25 years and its main components in glass and stainless steel do not suffer degradation due to high UV ratios. Translated with www.DeepL.com/Translator (free version)
- Benefits The system increases productivity and reduces greenhouse gas emissions by displacing fossil fuels with solar heat.
- **Replicability:** mining (copper), dairy, meat, concrete, concrete
- LCBA support (in validation): technical modelling of the solution.











LCBA COLLABORATION: NEXT STEPS



IDUI



- Food System
- Biomass, Biogas & Biomethane
- Energy efficiency
- Low Carbon Smart Agriculture
- Solar PV
- Waste collection & Treatment
- Waste to Energy





- Food System ٠
- Biomass, Biogas & Biomethane ٠
- Waste to Energy ٠
- **Energy efficiency** ٠
- Livestock management ٠
- Low Carbon, Smart & Precision agriculture ٠
- Manure management ٠
- Solar PV .
- Waste collection & Treatment .
- Wastewater treatment & Water management & irrigation .



This project is funded by the European Union



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The Low Carbon and Circular Economy Business Action in the Americas



Up next: Guided breakout rooms for interaction

Please log into your respective session room 5 minutes before the start of the session (GoToMeeting)

Bavariar

Research Alliance

GoToMeeting-Breakout Room 1 (Melanie Schulte + Thomas Ammerl) European funding opportunities and international cooperation within Horizon Europe

GoToMeeting-Breakout Room 2 (Agustina Gualdoni + Susanne Hirschmann) **Circularity & Bioeconomy – challenges, impact creation and solutions**

> You will find the link in the chat – please copy it and paste it in your browser

Log out of GoToWebinar during the breakout sessions

Circularity & Bioeconomy – how to match your R&I proposal with EU and regional strategies



Bavarian Research Alliance

Thank you for your attention!

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Christine Reeb

Circularity & Bioeconomy – how to match your R&I proposal with EU and regional strategies