EURECA-PRO

The European University on Responsible Consumption and Production

Participants:	Montanuniversität Leoben, Technische Universitaet Bergakademie Freiberg, University of Petrosani, University of León, Technical University of Crete, Silesian University of Technology, Mittweida University of Applied Sciences
WP 3:	Research, Montanuniversität Leoben
D3.1:	Organisational Scientific Framework Charter (SFC) for interuniversity research collaboration
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Content

1 Introduction

The European University on Responsible Consumption and Production (EURECA-PRO)

Responsible Consumption and Production (RCP) is one of the major factors influencing our global society and many of the biggest challenges of our time are linked to it. Without RCP patterns we are not able to sustain a healthy environment, society or economy. For this reason, EURECA-PRO has joined forces of 7 partner universities[1] to become a true global actor and role model in this field. The long-term vision is to be the global educational core hub and interdisciplinary research and innovation leader in qualitative environmental and social framework development for responsible consumption and production of resources and goods in 2040. This will comprise technological, ecological, policy, economic and societal aspects and their transfer into society and industry.

Organisational Scientific Framework Charter (SFC)

The Scientific Framework Charter will be the scientific manifesto of this European University initiative to create a New Open European Research Area. The Charta is organized like a book with different chapters corresponding to the deliverables in the EURECA-PRO project. It defines the roles and responsibilities of each partner, designates a Research Task Force and it governs the communication throughout the project. Lighthouse Research Missions regarding responsible consumption and production are established in all relevant disciplines and cross-institutional research groups already yield promising research results that flow into the practical education of the European Studies programme via problem-based learning (PBL).

The SFC is provided in English as it is the lingua franca of the project consortium and it is available on the official EURECA-PRO website[2]. Due to the deliverables associated with the document, the Scientific Framework Charter is iteratively evolutionary and will be continuously updated. Different access rights for different users ensure legal certainty regarding IPR issues.

[1] The term university in this document refers to all institutions of higher education allied in the EURECA-PRO European University initiative.
[2] https://www.eurecapro.eu/

2 General organisational framework

Chapter 2, which corresponds to D3.1 of the EURECA-PRO project, outlines the general organisational framework regarding the collaboration mode. It is a hybrid form between an interorganisational chart and a project charter.

It will include the denomination of the key staff assigned to actively work in the group as illustrated in the chart, key scientists and personnel that will additionally contribute with their expertise, a mode and schedule for virtual meetings that ensures the timely completion of the tasks, infrastructure that can be used, communication solutions proposed and further points of importance.

The EURECA-PRO consortium consists of seven participating partner universities that are listed in the following table and their expertise is shown in section 2.1.

Tab. 1: Participating Universities in EURECA-PRO

Number	Role	Name in original language	Name in English	Short name	Country
1	COO[3]	Montanuniversität Leoben	Montanuniversität Leoben	MUL	Austria
2	BEN[4]	Technische Universität Bergakademie Freiberg	Technische Universitaet Bergakademie Freiberg	TU BAF	Germany
3	BEN	Universitatea din Petroșani	University of Petroşani	UP	Romania
4	BEN	Universidad de León	University of León	ULE	Spain
5	BEN	Polytechneio Kritis	Technical University of Crete	TUC	Greece
6	BEN	Politechnika Śląska	Silesian University of Technology	SUT	Poland
7	BEN	Hochschule Mittweida – Hochschule für angewandte Wissenschaften	Mittweida University of Applied Sciences	HSM W	Germany

[3] Coordinating organisation
[4] Beneficiary organisation

2.1 Expertise of partner universities

The realisation of the visionary Sustainable Development Goal 12 (SDG12) on Responsible Consumption and Production (RCP) is based on three system layers:

1. the technological layer of primary and secondary raw materials, processes, energy and products,
2. the layer of consumers, societal consumption behaviours and motivations, industrial culture, business models and market mechanisms,
3. the layer of policy, regulations and communication.

The constitution of the seven partners of EURECA-PRO with their scientific expertise is ideal as together they cover the interdisciplinary scientific areas needed to succeed in tackling the complexities of the vast RCP task. A team of three types of universities, (1) technical, (2) comprehensive and (3) universities of applied sciences, was selected. Silesian University of Technology (SUT), Technical University of Crete (TUC), Technische Universitaet Bergakademie Freiberg (TU BAF) and Montanuniversität Leoben (MUL) cover the technological layer. Research, development and education (R&D&E) at these universities is strongly dedicated to designing systems for the Circular Economy, recycling, sustainable material flows and energy efficiency. Digitalisation, artificial intelligence, added-value manufacturing, biotic and abiotic resources are just a few of the many areas where these technical universities have their special strengths. As comprehensive universities, University of Petroşani (UP) and University of León (ULE) cover the first and the second layer. Intrinsic consumer motivation, sustainable business models, industrial culture as well as policy and regulations are the focus of R&D&E at these institutions. Mittweida University of Applied Sciences (HSMW) covers layer 1 in the field of Energy Technologies and Digitization and layer 3 in the context of third mission and external image, a crucial aspect in achieving intended EURECA-PRO goals and reaching the relevant target groups.

2.1.1 Montanuniversität Leoben (MUL)

Founded in 1840, MUL is a "Global Center of Academic Excellence" in its highly-ranked core disciplines, which are oriented along the value-added life cycle of materials and goods. It claims a special position in the Austrian as well as in the international academic landscape as its research and education profiles are specifically centred around this cycle of product genesis, ranging from the exploration and extraction of raw materials, to their processing, material and product design, process and energy technologies, product distribution and industrial environmental protection, as well as the recycling of end of life products in order to introduce them into the value life cycle as secondary raw materials again and thus closing loops and reducing environmental impacts. The 15 institutes and departments demonstrate the centring on this cycle, such as Applied Geosciences and Geophysics, Electrical Engineering, Polymer Engineering and Science, Mathematics and Information Technology, Product Engineering, Metallurgy, or Mineral Resources and Engineering.

Montanuniversität Leoben is uniquely linked in research clusters with business and scientific partners across Austria. COMET[5]-Centres are characterised, for example, by their ambitious research programmes in various fields, such as Sustainable Metal Production, Smart Polymers for the Future or Evolutionary Engine Technologies for a Sustainable Tomorrow. The understanding of raw materials as a holistic, circular and systemic concept is a central thought at MUL as it also represents the current global trends of environmental, societal, industrial and scientific development, as reflected by the UN's Sustainable Development Goals (SDGs). MUL has become thoroughly involved in relevant research and education activities regarding SDG12 – Responsible Consumption and Production in recent years. In its Resources Innovation Center (RIC), which is home to the international scientific and educational partnerships of the university in the areas of sustainable resources development, MUL has gained great experience in responsible consumption and production matters. UniNEtZ, a project in which the Montanuniversität Leoben collaborates to produce an option catalogue for the Austrian government on how to most effectively implement the SDGs in Austria and the EIT Climate-KIC flagship project eCircular in which RIC is concerned with the sustainable

[5] Competence Centers for Excellent Technologies

life cycle of plastics and polymers, are just two examples of MULs broad scientific project landscape.

RIC's partnerships range from the EIT RawMaterials, a pan-European 125-partner network for raw materials, a so-called Knowledge & Innovation Community (KIC) of the European Institute for Innovation and Technology, across to the EIT Climate-KIC, a KIC concerned with climate change mitigation to other more local networks.

Currently, the Montanuniversität Leoben (MUL) has around 3500 students, thereof 20% foreigners, and 45 study programmes.

For further information, see: https://www.unileoben.ac.at/en

2.1.2 Technische Universitaet Bergakademie Freiberg (TU BAF)

TU BAF is the oldest university of mining in the world with a continuous operation since its foundation in 1765. Its original mission was to train students in natural sciences with a focus on mathematics, chemistry, physics and geosciences, and in mining technologies for employment in the mining and metallurgical sectors. Already from the beginning, an international student body became established as the norm. Professors and academic teachers dedicated themselves to research for the promotion of scientific knowledge and for education. This tradition has been maintained up to the present day. Currently TU BAF operates six faculties dealing with (i) Mathematics and Computer Science, (ii) Chemistry and Physics, (iii) Geosciences, Geo-Engineering and Mining, (iv) Mechanical, Process and Energy Engineering, (v) Materials Science and Materials Technology, (vi) Business Administration. The university has a unique profile focusing on the entire value chain of materials, from exploration to mining and processing, production and use of products, treatment of end-of-life products and materials recycling. In addition, there is a seventh faculty called "Virtual Faculty". This new structure was created to offer online courses for the preparation of future students in STEM study programmes.

Researchers of TU BAF co-operate in numerous Special Research Groups and competence centres. For this task, the university is equipped with a high-level scientific infrastructure, composed of laboratories for natural sciences and engineering, computer labs and large-scale pilot plants for the development and the testing of industrial processes. Above mentioned

faculties i, ii and iii deliver characterizations, modelling and simulation, visualization and synthesis, robotics and value creating chemistry to the scientific areas Mathematics and Natural Sciences. Faculties iii, iv and v develop technologies, plants and processes, sensors and light-weight materials as their contributions to the second scientific area Engineering Sciences. Faculty vi studies valuation, innovation management, economics and ecological management of resources as a contribution to the third scientific area Economics. TU BAF's research interests with regard to EURECA-PRO range from innovative technologies for mining operations, climate mitigation and adaptation strategies to study consumer patterns and behaviour with respect to natural resources, energy and water, recycling and re-use.

TU BAF has strong ties with partners in the region, especially Helmholtz Centre Freiberg for Resource Technologies, Geokompetenzzentrum Freiberg, Fraunhofer Technology Centre for Semi-Conductors and industrial companies. The university also maintains a large global network through 18 agreements at university level and 184 partnerships at faculty level with 260 universities in 72 countries.

TU BAF has around 4000 students, of which 27% are foreigners, 90 chairs and 70 study programmes.

Further information: https://tu-freiberg.de/en

2.1.3 University of Petroşani (UP)

UP is strategically located in the Jiu Valley of Romania and has a long tradition, since 1864. Taking as a basis the strong academic tradition and prestige enjoyed at home and abroad, the university today provides the necessary conditions for its students to acquire high qualification in many different areas. Students are educated for professional careers by the following three faculties: Faculty of Mining, Faculty of Mechanical and Electrical Engineering and the Faculty of Sciences. The mission of UP is education and research in these subjects within the European context. At university level the following scientific research centers are operational: Center for Rocks Engineering Useful Mineral Substances, and Building Materials; Mining Engineering Center; Center for Mechanical Engineering in Mining; Center for Risk Evaluation in Industry; Center for Methods, Techniques and Software for the Monitoring and Control of Mining Processes. UP aims to support scientific research directions in accordance

with the research policy documents of the European Commission. The University of Petroşani conducts fundamental and applicative studies and research in the following fields: the engineering of natural resources and raw materials extraction and processing; the improvement and automatic control of machines, installations and technological processes; the evaluation of the impact of economic activities upon the environment; the rehabilitation of mining areas, the elaboration of new management, marketing, and entrepreneurial development systems and methods for innovation and organizational competitiveness; the identification of opportunities for regional economic growth, jobs insurance and improved competitiveness of the companies in a knowledge – oriented society. UP has been involved in a series of projects funded at European level, in the fields of raw materials, mining and waste recovery like in ERA-NET Cofund on Raw Materials (ERA-MIN 2) and Horizon 2020 – RFCS as well as in national and international projects, with business environment in the fields of mineral resources, reducing the internality of energy of industrial processes, and improving the energy efficiency of production and consumption processes.

UP was evaluated by the Romanian Agency for Quality Assurance in Higher Education and obtained a "High Trust" certification and the university won a valuable grant from European Funds in 2020, which meets the thematic objectives 10 of the EU's Smart Specialization Strategy.

The University of Petroşani is currently training over 4500 students.

For further information, see: https://www.upet.ro/en

2.1.4 University of León (ULE)

ULE is a public institution of higher education and research founded as an autonomous entity in 1979. ULE is located in León province, in the northwest part of Spain. It is a comprehensive university based on two campuses which offer 42 bachelor and double degrees, 38 official master's degrees, 17 PhD programmes and 23 university-specific degrees adapted to the European Higher Education Area in all branches of knowledge. They are organized in 13 different schools/faculties: Faculty of Veterinary Medicine, Faculty of Biological and Environmental Sciences, Faculty of Laws, Faculty of Arts, Faculty of Economics and Business Administration, Faculty of Work Studies, School of Industrial Engineering and Information

Technology, School of Mining Engineering, School of Agricultural Engineering, Faculty of Education, Faculty of Health Sciences, Faculty of Sciences of Physical Activity and Sport and the associated centre School of Social Work.

The region where ULE is located has a strong coal mining tradition. Although coal continues to play a key role in the energy matrix, the decline of the carbon industry due to the CO_2 emissions encouraged universities to develop teaching and research activities that contribute to a more sustainable energy model and to promote a new economic paradigm in the region. ULE is committed to the implementation of the guidelines of the 2030 Agenda for Sustainable Development of the United Nations through the inclusion of the SDGs in the society. In addition, ULE has been accredited as Campus of International Excellence, with a programme that aims to promote strategic aggregations between universities to create 'knowledge ecosystems' that favour employment, social cohesion and territorial economic development. ULE has signed more than 2400 agreements with international institutions and companies from more than 40 countries and has participated in several Capacity Building projects. ULE is aligned with the regional research and innovation strategy for an intelligent specialization (RIS3) of Castilla y León, based on R&D in ICT, Energy and Sustainability. The university belongs to several networks and initiatives that mainstream sustainability in several key areas. Some of these networks are the U-Mob network (the European University Network for Sustainable Mobility); Universities for Fair Commerce or CRUE-CADEP (University Organization for Environmental Quality, Sustainable Development and Risk Prevention). ULE is in the European Higher Education Space (EEES) and will participate in the development of the Iberoamerican Space of Knowledge (EIC) and the Euromediterranean Space of Higher Education and Research.

The total number of students is currently 12643 from which around 1000 are international students from more than 50 different countries.

For further information, see: https://www.unileon.es/

2.1.5 Technical University of Crete (TUC)

TUC is one of the two Technical Universities in Greece and the only one in the Region of Crete. Strategically located in the southeast part of the Mediterranean Sea, at the crossroads

between Europe, the Middle East and North Africa, TUC plays a major role in the outreach beyond Europe towards the South and South East. TUC was established as a legal entity in 1977 and received students for the first time in 1984. It consists of 5 Schools: Production engineering & management, Mineral resources engineering, Electrical & computer engineering, Environmental engineering, and Architectural engineering. In addition to the 5 undergraduate engineering diplomas, TUC grants 15 Master's level degrees, three of which are international. TUC provides its students with an education that combines vigorous academic study and excitement of discovering new knowledge and offer of intellectual stimuli within the framework of a dynamic academic community. TUC is a small technical (engineering) university with a clear mission: To expand knowledge and benefit society through research integrated with education. In this endeavour, the pursuit of excellence is the driving force. More than 50 laboratories with prime equipment, high technology infrastructure and eminently qualified personnel attest to the level of excellence in education and research. According to the External Evaluation Report by the Hellenic Quality Assurance & Accreditation Agency, "Research is a core mission of the Institution and as a result, TUC delivers scientific output of high calibre and volume. In terms of research publications, TUC is one of the most productive research institutions in Greece and compares very favourably with peer institutions in Europe and North America.

TUCs special location on an island results in combined expertise and experience of specific challenges such as remote energy supply and supply chains. TUC plays a pivotal role in the development of Crete, providing innovative solutions for environmental, productivity, business and organisational problems in areas such as water resources, waste management and valorisation, sustainable tourism and urban mobility. The university is characterised by intense education/research activities, agriculture and agribusiness, tourism, strong historical and cultural backgrounds, and a Mediterranean life-style that supports responsible consumption and production of food systems. TUC participates strongly in EU and international programmes, including Horizon 2020, Interreg and Med programmes, and has cooperation agreements with major universities in USA, China, India, and Argentina, while in

cooperation with the European Space Agency TUC operates one of the four satellite altimeter centres worldwide.

At present there are 5000 undergraduate students and around 600 Master students and PhD students at TUC.

Further information: https://www.tuc.gr/index.php?id=5397

2.1.6 Silesian University of Technology (SUT)

SUT is the sole technical university in the Upper Silesian-Zagłębie Metropolis, and the largest technical university in the entire Silesian Voivodeship. It was established in 1945 as a scientific and educational facility for Upper Silesia, the most industrialized area in Poland, and one of the most industrialized in Europe. SUT consists of 15 educational units at 3 campuses that offer almost 60 study programmes and about 200 major specializations for the students. It is implementing Project Based Learning to all study programmes. SUT offers 17 BSc and 19 MSc programmes taught entirely in English and aside from technical programmes, candidates may also study administration, business analytics, mathematics and management as well as foreign languages and pedagogy.

SUT operates in the Katowice Special Economic Zone, which for the third time has been recognized as the best economic zone in Europe, and recently as best economic zone in the world. This region has changed its specialization from heavy industry into modern technology industry and in the vicinity of the university there are approx. 500 thousand enterprises of international and even global scale, focused on climate and environment protection, responsible use of resources, and modern energy. The connection to the innovative companies and highly involving those to dual studies, project-based learning, and joint research is an outstanding best practice, which is a role model for other universities. SUT in close collaboration with the Metropolis authorities works on protection of the environment since decades and defined it as one of six priority research areas within the framework of climate and environmental protection and modern energy. Further research interests are for example: Artificial intelligence and data processing; Materials of the future; Smart cities and future mobility; Process automation and Industry 4.0.

The Silesian University of Technology, as one of the top 10 Polish Universities awarded with the status of Research University, has ambitions to play a significant role in the field of environmental protection in more extensive, international scale. Therefore, SUT is an active participant in international associations of universities and collaboration networks, including European University Association (EUA), European Society for Engineering Education (SEFI), Santander Universidades, European Regions Research and Innovation Network (ERRIN), and the European Association for International Education. SUT actively joins national and international initiatives, for example, within EIT RawMaterials and EIT InnoEnergy and it created the Centre for Climate and Environmental Protection jointly with Bertrand Piccard's Solar Impulse Foundation, the city of Gliwice and the Silesian-Zagłębie Metropolis.

The Silesian University of Technology is currently training around 18500 students.

Further information: https://www.polsl.pl/en

2.1.7 Mittweida University of Applied Sciences (HSMW)

HSMW is located in Eastern Germany, Saxony. Empowering this region is one of its major priorities but its impact extends far beyond. HSMW has developed an intellectual and cultural hub in Saxony and the third mission, understood as the transfer of knowledge and technology within and beyond the region, is its core task.

HSMW is a high-performance University of Applied Sciences within Saxony's universities and it teaches and conducts research in the faculties of Engineering Sciences, Applied Computer Sciences and Biosciences, Industrial Engineering, Social Sciences as well as Media Sciences. The university offers more than 30 accredited study programmes and the institution is characterized by a comprehensive internationalization strategy, both in terms of students and staff. Students come from over 50 countries and receive the benefits of applied education in social and media sciences prior to either staying in the region as skilled professionals or bringing their acquired knowledge to their home countries to contribute to further development there. In addition, students can certify their intercultural competence at HSMW or study Global Communication in Business and Culture (Bachelor of Science) at the Institute for Technology and Knowledge Transfer.

Recognized research foci of HSMW are: product and process development, digitization in economy and society, applied computer science and laser technology. With the Institute for Competence, Communication and Languages as well as the aforementioned certification programme, HSMW is able to train students from other countries in these areas in a target group-specific manner. The courses are designed to interact with other disciplines and are practice oriented.

Especially through the research foci, HSMW offers a wide range of experience in international research cooperations. Digitization is of enormous importance for HSMW and it can already proudly point to a large number of successful projects and entire study programmes such as General and Digital Forensic Science.

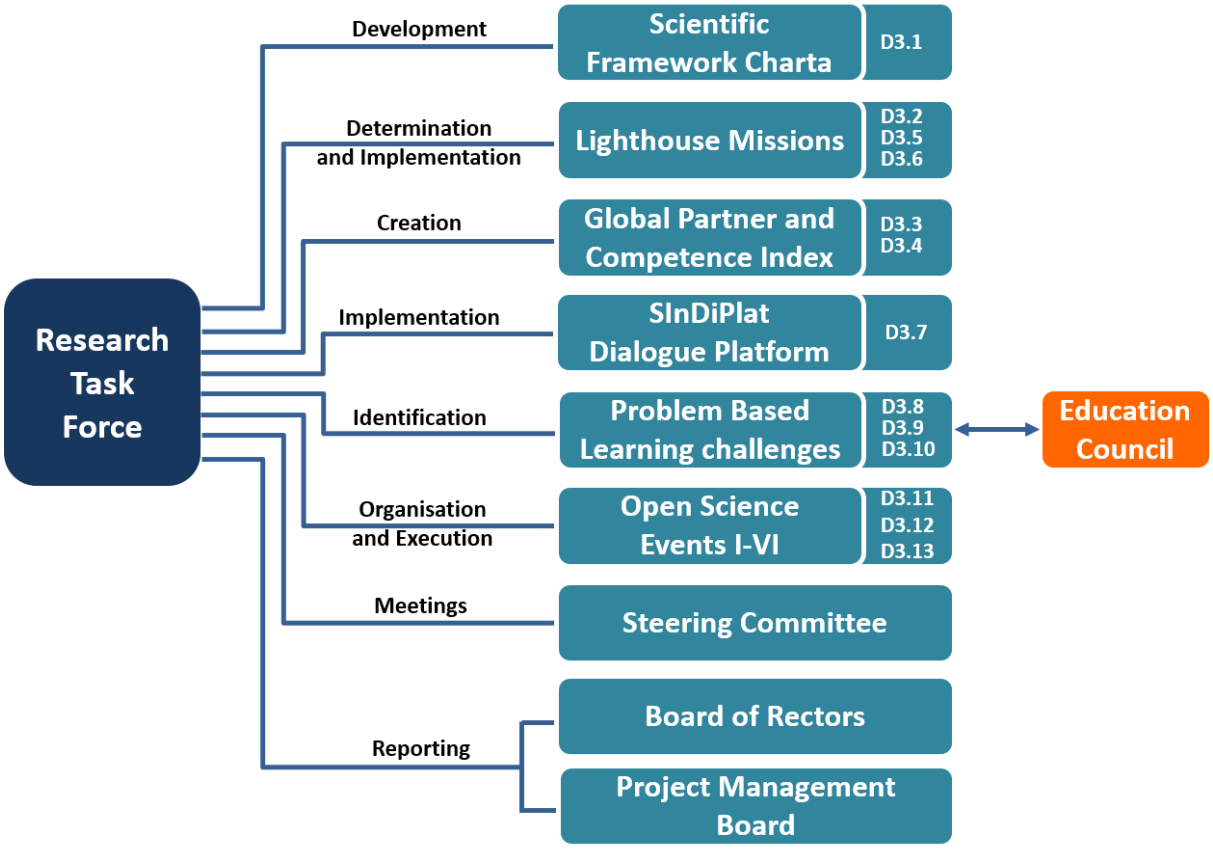
HSMW teaches approximately 7000 students from over 50 countries.

Further information: https://www.hs-mittweida.de/en

2.2 Research Task Force

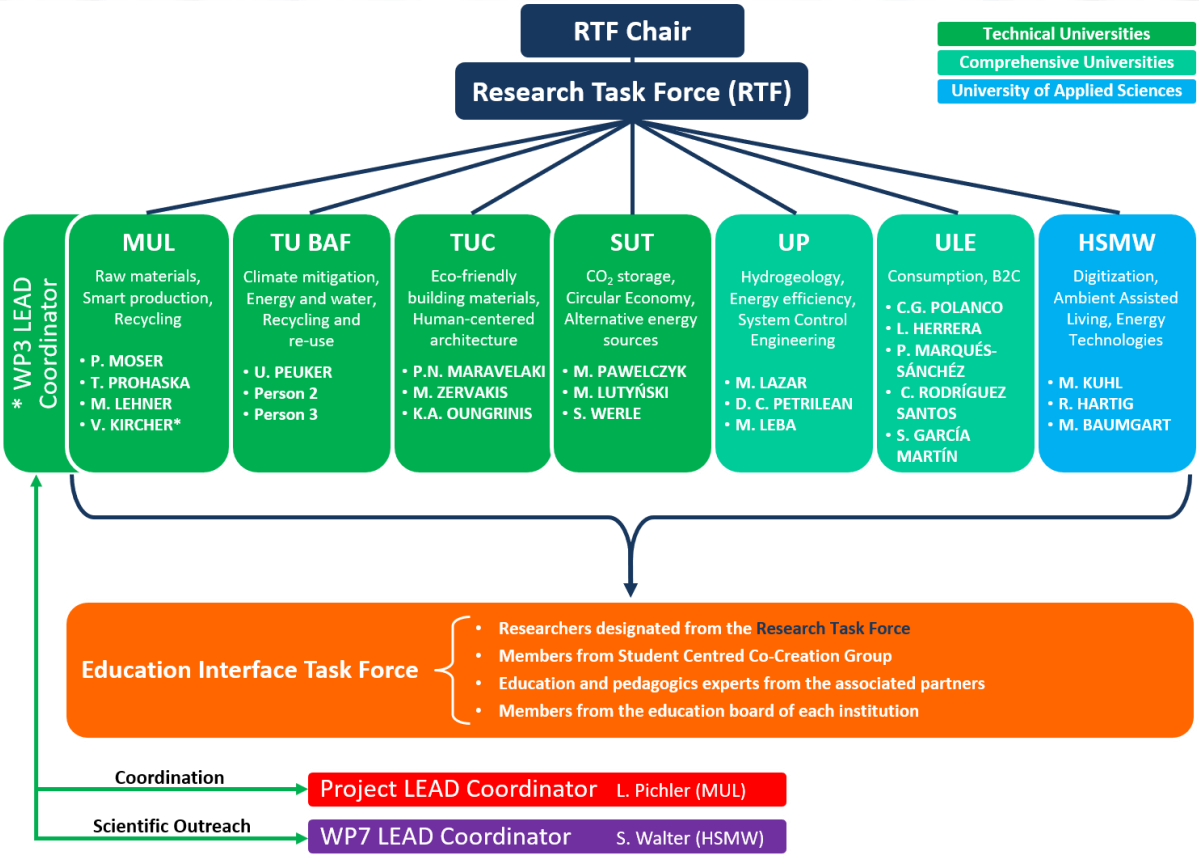
The Research Task Force (RTF) is created by selected scientists from all partner institutions. Joint research inside EURECA-PRO focuses on new technologies and processes that integrate primary and secondary resource material flows and efficient resource use in the sense of a Circular Economy as well as substitution of non SDG12, Planetary Boundaries or Climate Neutrality compliant Resources. In addition, new concepts for responsible consumption behaviours that are aligned with societal expectations concerning the fight against climate change, biodiversity loss or atmospheric and land system changes are required.

The RTF develops the general framework of the research organization, defines and implements the topical lighthouse missions, forms global knowledge alliances for collaboration, and defines educational problem-based learning challenges. The RTF installs a digital Societal Dialogue Platform that serves as information, communication and activity interface between EURECA-PRO and civic society. Citizens and companies can contribute to research and society will benefit from the outcomes. Close cooperation and exchange will be achieved by actively involving citizens in regular open science events. The main tasks of the RTF, together with the required deliverables, are shown in following graphical summary.



2.2.1 Interorganisational chart

The interorganisational chart delineates the composition of participating individuals in the Research Task Force and their affiliated institutions with according professional expertise. In this illustration communication flows and roles and responsibilities are highlighted as well. The RTF consists of at least 3 scientists from 7 partner institutions and the WP3 LEAD Coordinator. The RTF members have to elect a Chairperson that manages the RTF activities. One RTF member from each partner is appointed for the Education Interface Task Force. As RTF is subordinated to Work Package 3 – RESEARCH the WP3 LEAD Coordinator will coordinate project specifics with the Project LEAD Coordinator and will communicate scientific results to the WP7 LEAD Coordinator for third mission and external image.



Staff Persons as well as their expertise will be continuously updated in the Chart during the project duration.

2.2.2 Research Task Force staff members

In this section, each EURECA-PRO consortium partner introduces the skills and expertise of the key staff involved in the Research Task Force.

<u>Montanuniversität Leoben (MUL) appoints the following scientists to the RTF:</u>

Univ.Prof. Dipl.-Ing. Dr.mont. Dr.-Ing.E.h Peter MOSER (MUL)

Univ.-Prof. Dipl.-Ing. Dr.mont. Peter Moser is Vice Rector, responsible for International Affairs and University infrastructure at MUL. He is the Head of Department of Mineral Resources & Petroleum Engineering and holds the Chair of Mining Engineering & Mineral Economics.

Research areas: Technical, economical and societal issues of safe and efficient raw materials production, sustainable raw materials supply and he is a certified expert and consulter for the mining industry.

Univ.-Prof. Dipl.-Ing. Dr.techn. Thomas PROHASKA (MUL)

Univ.-Prof. Dipl.-Ing. Dr.techn. Thomas PROHASKA is full Professor and Head of the Chair of General and Analytical Chemistry at MUL.

Research areas: Analytical chemistry, development and application of novel methods in materials-, geo-, environmental- and life sciences as well as the implementation of metrological principles, mass spectrometric methods for elemental and isotopic analysis, chemical research and novel technological developments of methods in the combination of analytical chemistry and material science.

Univ.-Prof. Dipl.-Ing. Dr.techn. Thomas Prohaska is the person appointed from MUL for the Education Interface Task Force.

Univ.-Prof. Dipl.-Ing. Dr.-Ing. Markus LEHNER (MUL)

Univ.-Prof. Dipl.-Ing. Dr.-Ing. Markus Lehner is full Professor and Head of the Chair of Process Engineering for Industrial Environmental Protection at MUL.

Research areas: Energy process engineering, recycling processes for industrial wastes, integration and chemical storage of renewable energy, thermal cracking, catalytic processes for CO_2 utilisation, power-to-gas, industrial gas cleaning processes (mainly absorption).

Dipl.-Ing. Dr.mont. Volkmar KIRCHER (MUL)

Dipl.-Ing. Dr.mont. Volkmar Kircher works at MUL for EURECA-PRO and is LEAD Coordinator for Work Package 3 – RESEARCH.

Research areas: Melting-, dissolution- and crystallization of slags, continuous casting of steel, ceramics, refractory corrosion, laboratory measuring equipment

Technische Universitaet Bergakademie Freiberg (TU BAF) appoints the following scientists to the RTF:

Univ. Prof. Dr.-Ing. Urs PEUKER (TU BAF)

Researcher 2 (TU BAF): to be defined

Researcher 3 (TU BAF): to be defined

University of Petroşani (UP) appoints the following scientists to the RTF:

Professor PhD eng. Maria LAZAR (UP)

Professor PhD eng. Maria Lazar is Vice Rector and PhD supervisor in the field of Mine Petroleum and Gas at UP.

Research areas: Restoration and reconstruction of degraded land, Human impact on the environment, Stability of slopes and slopes, Hydrology and Hydrogeology Research in the field of mining and environmental engineering.

Professor Maria Lazar is the main contact person from UP for the WP3 LEAD Coordinator.

Professor PhD eng. Dan Codrut PETRILEAN (UP)

Professor PhD eng. Dan Codrut Petrilean is PhD supervisor in the field of Industrial Engineering, Director in 25 grants, he works in national and international projects and he is an authorized energy auditor.

Research areas: Thermotechnics and thermal machines, thermal engines, thermal balance sheet and energy efficiency.

Professor PhD eng. Dan Codrut Petrilean is the person appointed from UP for the Education Interface Task Force.

Professor PhD eng. Monica LEBA (UP)

Professor PhD eng. Monica Leba is the Director of the Grants for many research contracts and patent holder. She is PhD supervisor in the field of System Control Engineering.

Research areas: Design and control of robotic systems for medical, industrial or entertainment applications, automotive systems for electrical autonomous drive vehicle

developments, visible light communication systems for industrial or domestic applications, unconventional human-machine interfaces, like brain communication.

University of León (ULE) appoints the following scientists to the RTF:

Professor Dr. Liliana HERRERA (ULE)

Dr. Liliana Herrera is an Associate Professor at ULE, she has extensively worked in the R&D policy effects evaluation as well as in the area of scientific knowledge transfer.

Research areas: Scientific knowledge transfer from the R&D public system to the industry through assessing the mobility of researchers, importance of public support to stimulate the innovative activity of firms, estimating the effects of public instruments supporting industrial innovation, analysation of interactions between instruments taking into account firm size, firm location and the industry.

Dr. Pilar MARQUÉS-SÁNCHEZ (ULE)

Dr. Pilar Marqués-Sánchez is currently the Head of the Ponferrada Campus of ULE. This role includes responsibility for infrastructures and academic, research and internationalisation proposals.

Research areas: Head of an interdisciplinary and international group, the SALBIS Research Group that is oriented to the health and well-being of the person including technology in a citizen-friendly way. Main research topic is Social Network Analysis, a mathematical methodology that analyses contacts between people both face-to-face and digitally.

Professor Dr. Carmen RODRÍGUEZ SANTOS (ULE)

Prof. Dr. Carmen Rodríguez Santos is Professor at ULE, Research Fellow at Leeds Beckett University (UK), Adjunct Professor at University of Vaasa (Finland), Professor Visitor at IAE (France) and the University of Kassel (Germany) and Professor in various Private Business Schools.

Research areas: Brand Management, consultancy in private companies, B2C Engaging Communication and Consumer Insights.

Vice-Rector Associate Professor Dr. Carlos G. POLANCO DE LA PUENTE (ULE)

Dr. Carlos G. Polanco de la Puente is Vice-Rector for Research and Transference and he is Associate Professor of Genetics at ULE. His research work has been developed mainly in the field of Plant Genetics, where he has been involved in more than twenty research projects.

Research areas: Plant Genetics, Biology, Biotechnology and Biomedicine

Dr. Sheila GARCÍA MARTÍN (ULE)

Dr. Sheila García Martín is Lecturer in Didactics and School Organization area at ULE.

Research areas: Use of digital tools for knowledge management at schools and the influence of such use on students' academic performance, Use of digital tools for teaching in Spain during the COVID-19 pandemic, Use of technologies and academic performance in adolescent students, Evidence-Based Practice and improvement plans in educational centers, University teaching innovation by use and application of Educaplay (2020).

Dr. Sheila GARCÍA MARTÍN is the person appointed from ULE for the Education Interface Task Force.

Technical University of Crete (TUC) appoints the following scientists to the RTF:

Professor Pagona-Noni MARAVELAKI, PhD (TUC)

Professor Pagona-Noni Maravelaki is Professor in the Architecture School at TUC.

Research areas: Study of built heritage, more specifically the weathering mechanisms and stone decay forms; Technology of historic mortars, pigments and ceramics; Cleaning techniques of deteriorated stone surfaces; Assessment of cleaning with micro-destructive and nondestructive analytical techniques; Application and assessment of nondestructive spectroscopic techniques for the study of historic building materials; Development of eco-friendly and energy efficient plasters and paints for building envelope; Development and characterization of novel self-cleaning nanocomposites for the conservation and protection of historic monuments; Development of innovative multi-functional materials (mortars, hydrophobic coatings, strengthening) for building and monument protection; Development of antimicrobial coatings for buildings.

Professor Pagona-Noni Maravelaki is the main contact person from TUC for the WP3 LEAD Coordinator.

Professor Michail ZERVAKIS, PhD (TUC)

Professor Michael Zervakis is currently full Professor at the department of Electronic and Computer Engineering at TUC and the director of the Digital Image and Signal Processing Laboratory (DISPLAY).

Research areas: Modern aspects of signal processing, including estimation and constrained optimization, multi-channel and multi-band signal processing, wavelet analysis for data/ image processing and compression, biomedical imaging applications, neural networks and fuzzy logic in automation applications.

Professor Michail Zervakis, PhD is the person appointed from TUC for the Education Interface Task Force.

Professor Konstantinos-Alketas OUNGRINIS, PhD (TUC)

Professor Konstantinos-Alketas Oungrinis, PhD thematic areas of study are interdisciplinary, rooted in the field of architecture and from there on branching out mainly into the domains of psychology, neuroscience, interactive media, robotics, and computer science.

Research areas: Dynamic, human-centered architecture, transformable environments; activity-based design methods; time-space relationships; user-experience design; digital media and cultural heritage; educational environments, and spaces within extreme environmental conditions.

Silesian University of Technology (SUT) appoints the following scientists to the RTF:

Prof. Marek PAWELCZYK, DSc, PhD (SUT)

Prof. Marek Pawelczyk, DSc, PhD is a Full Titular Professor at SUT and holds the position of Vice Rector for Science and Development, and Head of the Department of Measurements and Control Systems. He is the Managing Editor of a JCR recognised journal and member of the Editorial Board of several journals.

Research areas: Automation systems including raw materials recovery enhancement via integration of innovative technologies, developing an innovative installation of dry and watered grinding of minerals with application of an electromagnetic mill, and innovative noise barriers.

Prof. Dr. hab. Eng. Marcin LUTYŃSKI, PhD (SUT)

Prof. Dr. hab. Eng. Marcin LUTYŃSKI, PhD is Associate Professor at the Faculty of Mining, Safety Engineering and Industrial Automation of SUT and Head of the Unconventional Gas & CO_2 storage laboratory. He is president and principal co-founder of Polish Society of Circular Economy.

Research areas: Mining waste recovery and efficient use of raw materials, Coalbed Methane, CO_2 storage in geological formations including CO_2 storage in depleted shale gas reservoirs.

Prof. Dr. hab. Eng. Marcin LUTYŃSKI is the person appointed from SUT for the Education Interface Task Force.

Prof. Dr. hab. Eng. Sebastian WERLE, PhD (SUT)

Prof. Sebastian Werle is an Associate Professor at the Faculty of Energy and Environmental Engineering of SUT and the Head of the Laboratory of the Renewable Energy Sources. He is a Faculty Vice Dean for Cooperation and Development and the Coordinator of the Priority Research Area Climate and Environmental Protection, Modern Energy.

Research areas: His field of expertise covers subjects related to thermal treatment of biomass and waste, low emission combustion, alternative energy sources

Mittweida University of Applied Sciences (HSMW) appoints the following scientists to the RTF:

Prof. Dr.-Ing. Michael KUHL (HSMW)

Michael Kuhl is Professor for systems electronics at HSMW and member of the research group systems electronics at HSMW. He is study dean for the bachelor's programme electrical engineering and automation.

Research areas:

His research activities focus on multisensory machine, plant and process monitoring through correlation of information from pre-, in- and post-process stages (process assurance, quality control, predictive maintenance) as well as human-machine interaction (especially environmental monitoring, decision support, werable systems and applications in the field of "Health Care" and "Ambient Assisted Living").

Prof. Dr.-Ing. Michael Kuhl is the person appointed from HSMW for the Education Interface Task Force.

Prof. Dr.-Ing. Ralf HARTIG (HSMW)

Prof. Dr.-Ing. Ralf Ralf Hartig is Professor for renewable energies at HSMW, director of the Institute for Energy Management and member of the university council. He is study dean for the diplome programme Electrical Engineering and for the bachelor's programmes Energy Efficieny and Englishes as well as Energy- and Environmental Management.

Research areas: Renewable energies, innovative energy technology, energy efficiency and smart grids.

Dipl.-Wirtschaftsing. (FH) Matthias BAUMGART (HSMW)

Matthias Baumgart is an industrial engineer (M.Sc.) and head of the research division at HSMW. He advises applicants in the area of public funding bodies, is EU-Lear and ESF Officer.

Research areas:

Research and transfer management, project and process management, information technologies (i.e. information retrieval, assistant systems)

Dipl.-Wirtschaftsing. (FH) Matthias Baumgart is the main contact person from HSMW for the WP3 LEAD Coordinator.

All partnering institutions are obliged to report personnel changes to the Work Package 3 LEAD Coordinator so that this document can be updated immediately. An up to date version can always be found on the EURECA-PRO website[6] and the TUC own cloud.[7]

2.3 Roles and responsibilities

The Manual of Operations of the Research Task Force (RTF) regulates the roles, tasks and organisational issues, in particular the way the Research Task Force (RTF) functions and communicates within the EURECA-PRO project. During the first RTF meeting a proposed Manual of Operations should be adopted by majority vote. If changes in the content of the MOP are necessary, its adoption may be carried out using electronic communication, within seven days after the date of the first meeting.

If changes in the manual of operation also affect the content of this document, these changes will be incorporated in the next update.

RTF Chair

During the first RTF meeting, an RTF Chair is elected from among the RTF members by majority vote. Candidates for RTF Chair may be proposed by any RTF member present at the meeting and by a representative of the EURECA-PRO Consortium. RTF activities are managed by the RTF Chair with the assistance of one or two deputies. The elected RTF Chair shall propose candidates for one or two vice chairs, whose election shall be made by majority vote.

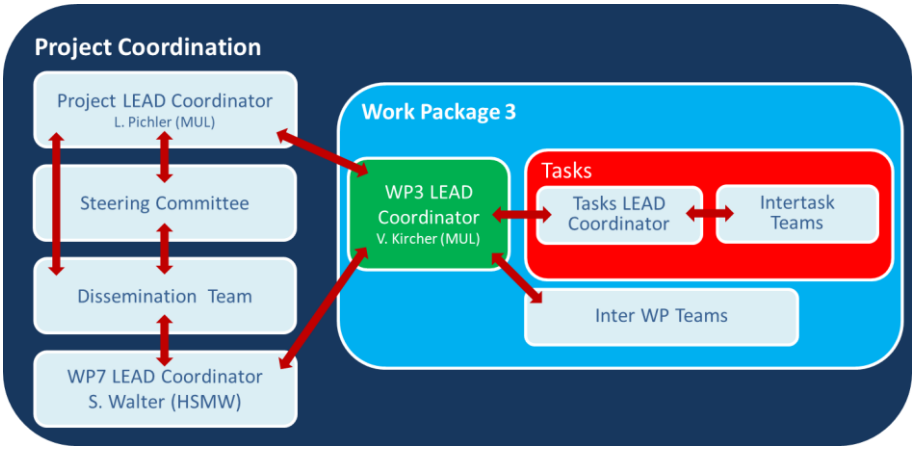
WP3 LEAD Coordinator

The Work Package 3 LEAD Coordinator is responsible for the completion of the deliverables of the Work Package 3. The WP3 LEAD Coordinator is the interface between Work Package 3 with associated tasks, institutions and the Project LEAD Coordinator.

As the Research Task Force is a part of the Work Package 3, the WP3 LEAD Coordinator will coordinate project specifics, with the Project LEAD Coordinator and will communicate scientific results to the WP7 LEAD Coordinator for third mission and external image. The

[6] https://www.eurecapro.eu/
[7] see chapter 2.4.2 “cloud”

communication paths are shown in the Project Coordination Chart below. In WP3 and the Research Task Force the reporting and communication structures are bottom-up and top-down. Specific tasks defined by the RTF are coordinated by the responding Task LEAD Coordinators and information from tasks and Inter WP Teams are forwarded to the WP3 LEAD Coordinator.



Education Interface Task Force

An Education Interface Task Force, which consists of researchers from the Research Task Force, Student Centred Co-Creation Group, education and pedagogics experts as well as members of Education Council, establishes the PBL challenges and converts them into formats that are applicable by teachers, students and official administrative organs of the institutions as well as a form that is suitable for dissemination purposes. The task force also creates an accompanying guidance manual and evaluation feedback forms for teachers for continuous evaluation purposes.

RTF - conflict management

The RTF is one of the bodies of settlement proposals when the Board of Rectors cannot find a common approach to decisions to be made, depending on the content of a conflict.

Should any conflict among or within RTF fail to be resolved the Project Management Board will be the mediator, and if the solution is not found, the Board of Rectors is entitled to ultimately resolve the conflict.

If a member of the RTF is not active or hinders the project, he/she may be removed upon the proposal of at least three members of the RTF or Steering Committee. A binding decision on removal of an RTF member requires the voting of at least 60% of the RTF members. The replacing member will be appointed by the relevant institution.

2.4 Communication

This section of the organisational Scientific Framework Charter focuses on feed mechanisms, communication tools and communication frequencies.

2.4.1 Input and feedback mechanisms

The Communication flow in Work Package 3 is organised similar to the Project Management Board (Task 1.1) and it is shown in the Project Coordination Chart in Chapter 2.3.

As an input and feedback mechanism a quarterly updated report of the progress in the Work Package Research must be sent to the Project LEAD Coordinator. This update should include a summary of the progress of the deliverables, a preview on the next steps to be taken, timesheets and a financial overview on expenses.

Thus, an assessment of activity progress and possible deviations is made every three months. In case of deviations, the project board develops remedial actions together with the responsible persons and organisations.

2.4.2 Communication tools

Daily Communication

Daily communication is done mainly by phone, e-mail and Zoom- or WebEx meetings. A common EURECA-PRO google calendar keeps all partners of the alliance informed about events, deadlines and meeting dates.

Virtual conferencing

For online meetings Zoom (first choice) and WebEx are used. Meetings are announced as stated in the Manual of Operations of the RTF. If meetings are recorded, participants will be informed before the meeting.

Cloud

An online storage for all documents is found on TUC own cloud https://filebox.isc.tuc.gr. The server is hosted locally at TUC and the cloud can be accessed by all institutions. All project relevant documents are stored in the cloud.

Platform for live chats

RTF, being advised by the Communication Task Force, installs a digital Societal Dialogue Platform that serves as information, communication and activity interface between EURECA-PRO and civic society.

2.4.3 Communication frequencies

Ordinary meetings of the RTF shall be held four times a year. When urgent matters need to be considered, an extraordinary meeting may be called at the request of the RTF Chair, at least 1/3 of the RTF members or the EURECA-PRO Leader.

Meetings may be held in virtual mode allowing the identity of the meeting participant to be confirmed. Not less than twice during the project implementation period, before the end of the 18th month and 34thmonth, meetings are held in contact mode in a place proposed by the Project LEAD Coordinator and accepted by the RTF Chair. The costs of organizing the meeting are covered by the consortium fund.

Minutes of the RTF meetings shall be drawn up with the assistance of the staff provided by the EURECA-PRO Project LEAD Coordinator and shall be distributed to the RTF members and other persons attending the meeting within 14 days after the meeting.

RTF can invite experts to their meetings. Where this has financial implications, the approval of the Project LEAD Coordinator is required in each case, so that expenses can be reimbursed.

2.5 Corporate Identity and Design

The dissemination plan includes the creation of a project identity with a cohesive external appearance that includes the design of the logo, a set of graphic elements and images, a key colour palette, corporate typefaces, and templates for presentations and reporting in line with the content identity based and project key messages.

The EURECA-PRO corporate design, as defined in the Guidance Portfolio, is applied to all products created by the alliance (reports, documents, presentations, dissemination material, merchandise material, etc.).

2.6 Quality Assurance Research

New Research Action Areas will be developed inside WP3 and formally evaluated and agreed on by the Research Task Force.

Once the research agenda is in place and operational details are rolled out at the participating universities, the Research Task Force will take responsibility of the evaluation. These comprise the following KPI's and items:

- Controlling of the joint research agenda in terms of targets, activities and the outcomings
- Regular review of research agenda
- Enabling and assistance with the allocation of research resources from national, European and international sources
- Evaluation of the quality of research results

As a general approach, research results will be evaluated on the basis of SCI publications and the impact factor increase for the participating faculty member (e.g. increase in Hirsch factor).

In summary, the evaluation of Admission, Education Programmes, Mobility Programmes and Mobility Activities and Research is under the responsibility of the Education and Research Task Force and the Student-Centered Co-Creation Group on the basis of the following indicators:

- Number of students admitted to the European programmes and percentage of successful completion (success rates in programmes, failure rate)

- Number of overall students participating in the mobility activities (PHD, MSc, BSc) and percentage of them meeting the set targets (language skills, cultural competence, achievement in knowledge, international Master and PhD thesis completion)
- Satisfaction survey through formative and summative evaluations
- Number of faculty members participating in European education and research activities and percentage of them meeting the targets (SCI publications, increase in Hirsch factor)
- Verification of the concordance and applicability of the accumulated knowledge, with the objectives of SDG12.
- Employability rate of students graduating from the joint programmes and their geographical place of first professional activities

This overall evaluation and the assessment against European and international standards will be done by an independent external quality assurance company.

3 Catalogue of Lighthouse Missions (LH)

Lighthouse Research Missions regarding responsible consumption and production will be established in all relevant disciplines and cross-institutional research groups already yield promising research results that flow into the practical education of the European Studies programme. Each participating university focuses on their expertise areas to achieve complementarity and an enhanced level of interdisciplinary research results. Society and industry are actively involved in the knowledge creation process through designated events and discussion fora as well as online discourse. This enables the research groups to apply real-life challenges in the definition of their Lighthouse Missions as well as in the definition of the challenges for the problem-based learning classes that are deducted from research results. Global Knowledge Alliances are formed to strengthen the LH. Open Science Awareness Events are frequently held to create a civic society and industry community.

This WP subtask establishes a common understanding of sustainability frameworks to be worked with concerning SDG 12 seen from a holistic and systemic point of view, revolving around abiotic materials and goods. This comprises a

- scientific problem definition, gap analysis and resulting confinement of thematic scope, which inherently leads to the
- lighthouse missions definition, which is subsequently followed by the
- creation and coordination of according interinstitutional research groups, including members from all relevant institutions on level senior, junior and student

The Catalogue of LH will be defined, implemented and publicly available according to the schedule of the EURECA-PRO project.
(D3.2; M12; public)

4 Global Partner and Competence Index (GPCI)

As strengthening aspect for the lighthouse missions, complimentary external expertise partnerships with international industry organizations, research institutions, NGOs and other relevant associated organisations are forged in this WP subtask.
This is realized in the following order:

- identification of relevant organizations in terms of challenge-ownership or complimentary expertise,
- correspondence about challenge or complementarity potential and willingness of collaboration,
- finalization of administrative formalities,
- definition of joint collaboration mode as defined in 3.1 for internal interinstitutional collaboration mode and
- start of work through integration in research groups.

(D3.3; M15; public)

5 Report on LH Implementation

This first Progress Report on LH Implementation Status is an ongoing task that will be implemented throughout the project once started, with specific reporting deliverables.

First milestones here are:

- the development and integration of interinstitutional and interdisciplinary approaches to specific scientific gaps,
- the development and integration of interinstitutional and interdisciplinary approaches to specifically identified industry challenges,
- the development of first evaluation systems and scientific solution frameworks
- the ongoing joint publication of relevant results and
- ongoing status reporting with first report due right before problem-based learning (PBL) challenges are to be established.

(D3.5; M21; public)

6 Catalogue of PBL challenges

Chapter 6 of the SFC consists of the listings of the educational problem-based learning challenges that were derived from the previous content work of the Research Task Force, the pedagogic input from the education experts and the Student-Centered Co-Creation Group input. Each listing contains a problem description, its derivation and its pedagogic and scientific value and its associated aspired learning outcome.

(D3.8; M24; public)

6.1 PBL challenge evaluation report

An updated version of the PBL catalogue after the first trial phase of implementation will be evaluated and the contents will be adapted at the end of the project. Chapter 6.1 presents the evaluation report of the first trial phase of PBL implementation.

(D3.10; M29; public)

7 Annex

Disclaimer

The content of this report represents the views of the author only and is his/her sole responsibility. The European Commission and the Agency do not accept any responsibility for use that may be made of the information it contains.