

ESPP EU research & development nutrient projects list

EU H2020 (FP), LIFE, INTERREG and national funded R&D projects on nutrient recycling and management

Date: 15-09-2017

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Table of Contents

1	Overview projects	2
2	ESPP research project members	5
3	Running EU funded projects.....	9
4	Running non-EU funded research	52
5	Finished EU funded projects.....	65
6	Finished non-EU funded research	104
7	Projects to add (PLEASE FILL IN).....	123

This list of R&D projects relevant to nutrient recycling and nutrient management are published by the European Sustainable Phosphorus Platform (ESPP). It includes R&D project to our list of R&D projects on nutrient recycling and management (not only phosphorus), for promotion on our website (www.phosphorusplatform.eu) and in our network of research institutes, companies, public bodies and other stakeholders. Please provide your input via kimovandijk@phosphorusplatform.eu

The first table in this document provides an overview of all projects included. In the last table you can fill in your suggested relevant missing projects.

1 Overview projects

ESPP research project members	Running EU funded projects	Running non-EU funded research	Finished EU funded projects	Finished non-EU funded research
Phos4You	Run4Life	ASHES	ALL-GAS	Agri4Value
QUB Phosphorus from wastewater	3R2020+	Biochar-Soil-Plant Interface research	ANPHOS	AquaEnviro UK
SMART-Plant	A_Propeau	BiofuelcellAPP	AQUA	AVA-CleanPhos
SYSTEMIC	AgroCycle	Ecosec mobile struvite reactor	Aquavlan	Bio-Ore
TL-BIOFER	ALGAECAN	Ferti-Mine	ARBOR	BIOUREA
	Anadry	Helsinki wastewater nutrient recovery	BioEcoSim	BioVakka Vehmaa biogas / digestate
	ANSWER	IMPROVE-P	Biorefine project	ExtraPhos
	Aquemfree	I-PHYC	Bioteam	DemoWare
	ARREAU (EIP Water, international project)	IWARRC	BONUS PROMISE	EDASK
	Baltic Slurry Acidi	Netherlands Micronutrients from batteries	CANTOGETHER	ePhos
	BIOFECTOR	Nurec4org	CLONIC	Resource Container
	CIRCWASTE	OCAPI	Combine	FIX-PHOS
	Clamber	OPF	DeBugger	Global TraPs
	DECISIVE	PFeWTR	DemEAUmed	GOBI
	DEPURGAN	Phorwärts	DIGESMART	GreenSpeed
	DOP	Phos4Life	DYNAMIX	H2O-C2C
	DRAINUSE	PProduct	ECOPHOS	IF2O - COOPERL
	Electro-Sludge	PRecover	End-o-Sludge	KIVIREKI
	ENRICH	RAVITA	ES-WAMAR	KRN-Mephrec
	EUROLEGUME	Rec Alkaline	EURoot	MAB3
	FATIMA	Redmedite	Fertiplus	Manuvalor
	Feed-a-Gene	SAVE	FUSIONS	Nutricycle
	FERTINNOWA	Sludge P recycling Norway	GR3	Nutrient Clearing House
	FORCE	TransBio	HTCycle	Nutrient recovery Grødalund

ESPP research project members	Running EU funded projects	Running non-EU funded research	Finished EU funded projects	Finished non-EU funded research
	FUTUREROOTS	UNEP INMS	INEMAD-GR3	NUTS
	GISWASTE	UPM and Yara recycled fertilisers	IPHYC-H2020	Ochre and biochar research
	HotPaNTS		Manev	Organic waste P recycling Norway
	HTC4WASTE		ManureEcoMine	Phosph'Or
	iCirBus-4Industries		MIX-FERTILIZER	PIDA
	In-BRIEF		Mubic	Polonite
	INCOVER		NECOVERY	POWER
	InnoPellet		NEWAPP	RecoPhos Germany
	INNOQUA		NOSHAN	Recovering and Reusing Resources in Urbanized Ecosystems
	INSPIRATION		NUTREC	RECYPHOS
	INTMET		PHARMAFILTER	Short-Rotation-Plantation nutrient recycling
	ITERAMS		PharmDegrade	SLURRY-MAX
	LEMNA		PhoReSE	Sustainable Airport Cities
	Mest op Maat - Dünger nach Maß		PhorWater	Tetraphos
	METGROW PLUS		PhosFarm	Tianshui Shui Sweetest Apples Ltd
	MicroFert		POLFREE	VALODIM
	MIN-GUIDE		P-REX	Waste to Product (W2P)
	Newfert		PROTEINSECT	Wetsus Phosphate Recovery theme
	N-SINK		R3Water	ZAWENT
	Omzet Amersfoort		R4R	
	Pegasus		RecoPhos (thermal)	
	PHOSave		REFERTIL	
	RE-DIRECT		REMPHOS	
	REPAiR		reNEW	
	RichWater		REPHATER	
	SABANA		ReuseWaste	
	SALTgae		Revawaste	
	SATURN		Routes	
	Sharebox		Sludge2Energy	

ESPP research project members	Running EU funded projects	Running non-EU funded research	Finished EU funded projects	Finished non-EU funded research
	SIPs		SMART Fertigation	
	Smart Fertirrigation		SMARTSOIL	
	SolACE		Stop CyanoBloom	
	Sto3Re		SusPhos	
	STRADE		SuWaNu	
	SURE		TREAT&USE	
	SUSFANS		ValueFromUrine	
	Teholanta		WW4ENVIRONMENT	
	TRANSrisk		WW-SIP	
	VALPORC		ZIPRU	
	VicInAqua			
	Water2Return			
	WETWINE			
	WOGAnMBR			
	ZERO BRINE			

2 ESPP research project members

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
Phos4You	Phosphorus recovery from municipal sewage in North West Europe	The Phos4You project will include building demonstration phosphorus recovery installations at sewage treatment sites, innovative phosphorus recovery technologies, new recycled phosphorus products for fertilisers, working on a standard to assess recycled fertiliser quality and addressing social acceptance of recycled nutrient products. Phos4You partners are Lippeverband (lead), Université de Liège, IRSTEA, Cork Institute of Technology, FHNW, Universiteit Gent, Glasgow Caledonian University, University of the Highlands and Islands, Veolia Environnement, EmscherGenossenschaft, NV HVC – SNB NL, Scottish Water.	16-9-2016	14-9-2020	INTERREG V B NWE	http://www.nweurope.eu (underway)	Ploteau.Marie-Edith@eglv.de	Marie-Edith Ploteau
QUB Phosphorus from wastewater	Phosphorus sustainability in Ireland and innovative technologies to recover phosphorus from wastewaters	The successful adoption of emerging technologies for the recovery of phosphorus is driven by efficiency, economic viability, purity and/or bioavailability of the recovered product and legislation. The overall aim of this EPA funded project is to investigate phosphorus sustainability within the wastewater sector in Ireland and develop innovative technologies to recover P from wastewaters.	2014	2020	NERC (United Kingdom)	https://phosphorus.ie/wpordpress.com	k.macintosh@qub.ac.uk , J.McGrath@qub.ac.uk	dr. Katrina Macintosh
SMART-Plant	Scale-up of low-carbon footprint material recovery techniques in existing wastewater treatment plants	SMART-Plant will scale-up in real environment eco-innovative and energy-efficient solutions to renovate existing wastewater treatment plants and close the circular value chain by applying low-carbon techniques to recover materials that are otherwise lost. 7+2 pilot systems will be optimized for > 2 years in real environment in 5 municipal water treatment plants, including also 2 post-processing facilities. The systems will be automated with the aim of optimizing wastewater treatment, resource recovery, energy-efficiency and	1-6-2016	31-5-2020	Horizon 2020, Water-1-b	http://www.smart-plant.eu	malamis.simos@gmail.com , f.fatone@univpm.it , malamis.simos@gmail.com	Prof Francesco Fatone, Simos Malamis, Christian Remy and Peter Vale

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		reduction of greenhouse emissions. A comprehensive SMART portfolio comprising biopolymers, cellulose, fertilisers and intermediates will be recovered and processed up to the final commercializable end-products. The integration of resource recovery assets to system wide asset management programs will be evaluated in each site following the resource recovery paradigm for the wastewater treatment plant of the future, enabled through SMART-Plant solutions. The project will prove the feasibility of circular management of urban wastewater and environmental sustainability of the systems, to be demonstrated through Life Cycle Assessment and Life Cycle Costing approaches to prove the global benefit of the scaled-up water solutions. Dynamic modelling and superstructure framework for decision support will be developed and validated to identify the optimum SMART-Plant system integration options for recovered resources and technologies. Global market deployment will be achieved as right fit solution for water utilities and relevant industrial stakeholders, considering the strategic implications of the resource recovery paradigm in case of both public and private water management. New public-private partnership models will be explored connecting the water sector to the chemical industry and its downstream segments such as the construction and agricultural sector, thus generating new opportunities for funding, as well as potential public-private competition.					s@gmail.com , Christian.Remy@kompentenz-wasser.de , smart-plant@ateneo.univr.it , peter.vale@severntrent.co.uk	
SYSTEMIC	Largescale demonstration projects for recovery of nutrients from manure	The SYSTEMIC project, 2017-2021, is a public-private partnership to build operational technologies and business models to recover phosphorus, nitrogen and potassium as products corresponding to fertiliser market requirements from digestates, at sites treating different combinations of animal manure, sewage sludge, food waste and other organic wastes. The project will include five demonstration-scale nutrient recovery installations,	1-6-2017	1-6-2021	Horizon 2020	http://www.systemicproject.eu	oscar.schoumans@wur.nl , systemic@wur.nl	Oscar Schoumans

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	and sewage sludge	operating in combination with large anaerobic digesters and field testing of the recovered nutrient fertiliser products to demonstrate agronomic value, business case and environmental benefits. The five demonstrations plants are Groot Zevert (NL), AMPower (BE), Acqua&Sole (IT), GNS (DE), and RIKA biofuels (UK). Nutrients will be recovered by ammonia stripping (product ammonium sulphate), reverse osmosis (N and NK concentrates), phosphate extraction and precipitation (calcium phosphate), and in organic digestate residuals, alongside production of purified irrigation water and biogas. The SYSTEMIC partners are: Wageningen Environmental Research NL (lead), AM Power BE, Groot-Zevert Vergisting NL, AcquaSole IT, RIKA Biofuels UK, GNS DE, A-Farmers Ltd FI, ICL Europe NL, Nijhuis Water Technology NL, Proman Management AU, Ghent University BE, Milano University IT, VCM BE, European Biogas Association BE, RISE BE.						
TL-BIOFER	Nutrients and regenerated water recycling in WWTPs through twin-layer microalgae culture for biofertilisers production	The LIFE+ TL-BIOFER project aims to address the environmental problem of wastewater produced by small- and medium-size urban agglomerations. To meet this aim, the project plans to implement two actions. First, it will develop and demonstrate a wastewater treatment plant using a Twin-Layer (TL) system: an advanced nutrient removal technology based on immobilised cultivation of microalgae. In this technology, microalgae are immobilised by self-adhesion on a wet, microporous ultrathin substrate (the substrate layer). A second layer, which consists of a macroporous fibrous structure (the source layer), will provide and distribute the growth medium. Secondly, the project also plans to address the shortage of phosphorus by developing produced and testing biofertilisers derived from the remaining microalgae. The fertiliser will meet high agronomical standards of sustainable farming as well as the requirements of current and future EU regulations.	1-7-2014	30-6-2017	LIFE+	http://www.life-tlbiofer.eu	igonza ez@bp eninsu lar.co m, mdios @agua sdecor doba.e s	Inmaculada González

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		The trials will be conducted in microplots for two different crops in northern Italy and four different crops in Spain.						

3 Running EU funded projects

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
Run4Life	Recovery and Utilisation of Nutrients for Low Impact Fertiliser	The Run4Life project will develop an alternative strategy for improving nutrient recovery rates and material qualities, based on a decentralised treatment of segregated black water (BW), kitchen waste and grey water combining existing WWT with innovative ultra-low water flushing vacuum toilets for concentrating black water hyper-thermophilic anaerobic digestion as one-step process for fertilisers production and bio-electrochemical systems for nitrogen recovery. It is foreseen up to 100% nutrient (NPK) recovery (2 and >15 times current phosphorus and nitrogen recovery rates) and >90% water reuse. Obtained products will be >90% reused thanks to prospective end-users in the consortium and a new Business model based on a cooperative financial scheme. Run4Life impacts will be evaluated on safety and security (Risk Assessment), from an environmental point of view (Life Cycle Assessment and Environmental Technical Verification), on the economy (Benefit Cost Analysis) and considering Social Risk Perception. Active measures will be developed with the support of a Stakeholders and Exploitation Panel for achieving institutional, legal and social acceptance. Different parts of Run4Life will be large scale demonstrated at 4 demo-sites in Belgium, Spain, Netherlands and Sweden, adapting the concept to different scenarios (market, society, legislation). Performance tests will be carried out with obtained products (compared to commercial fertilisers) with close collaboration with fertiliser companies. Process will be optimised by on-line monitoring key performance indicators (nutrient concentration, pathogens, micropollutants). The information obtained in the 4 demo-sites will be used for process simulation to	1-6-2017	31-5-2021	Horizon 2020, CIRC-02-2016	https://sc5.easme-web.eu/?p=730285	beatriz.delcastillo@fcc.es, emartinez@fcc.es, FRogalla@fcc.es, ESantos@fcc.es, FRogalla@fcc.es	Eva Martínez Díaz and Frank Rogalla

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		conceive a unified Run4Life model which will be applied in a fifth demo-site in Czech Republic, allowing new business opportunities and providing data for critical raw material policies.						
3R2020+	From waste to resource by recycling	The aim is to investigate innovative technologies to recycle different waste flows with no commercial value. In particular, the project will allow to obtain: (1) green-diesel, (2) PHA, hydrogen, caproic and D-lactic acids, (3) metals and (4) struvite and ammoniac sulphate as fertilizers, coming from (1) LDPE, (2) digestate and biogas, (3) incineration ashes and slags and (4) sewage sludge, respectively.	1-6-2015	31-5-2019	CIEN call (CDTI)	http://www.3r2020.com	gortizv@urbaser.com , calvar ezr@urbaser.com , efernandez@urbaser.com	Gema Ortiz
A_Propeau	Includes phosphorus filtering from artificially drained agricultural fields	The research station for vegetable production (PSKW) has up to 50 years (since 1963) experience in the research of both the cultivation of greenhouse vegetables and the cultivation of vegetables in open field. It is a non-governmental and a non-profit organization. PSKW aims to create a link between the fundamental scientific research carried out at the universities and the growers. Their experience in dissemination activities and (semi)field trials combined with their close contact with growers guarantees the implementation of (best) practices and new technologies. Growers obtain the achieved results by organized open days, through the website of the research station, horticulture magazines like "Proeftuinnieuws" and "Management en Techniek", study evenings at the various Growers Associations, the technical committees and the working groups and the close collaboration with extension services throughout the chain.	1-9-2014	1-9-2018	IWT (Belgium) and EU funding	https://www.proefstation.be/project/iwt-a_propeau	info@proefstation.be , Stany.Vandermoeere@UGent.be	Stany Vandermoeere, Joris De Nies, Ellen Goovaerts
AgroCycle	Sustainable techno-	The AgroCycle project will convert low value agricultural waste into highly valuable products, achieving a 10%	1-6-2016	31-5-2019	Horizon 2020	http://www.agro	agrocycle@u	Prof. Shane Ward and

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	economic solutions for the agricultural value chain	increase in waste recycling and valorisation by 2020. This will be achieved by developing a detailed and holistic understanding of the waste streams and piloting a key number of waste utilisation/valorisation pathways. It will bring technologies and systems from TRL4 to TRL7 within the 3 years of the project. A post-project commercialisation plan will bring commercially promising technologies/systems to TRL8 and TRL9, ensuring AgroCycle will have an enduring impact by achieving sustainable use of AWCB both inside and outside the agricultural sector, leading to the realisation of a Circular Economy.				cycle.eu http://cordis.europa.eu/project/rcn/203391_en.html	cd.ie	Ger Hanley
ALGAECAN	Adding sustainability to the fruit and vegetable processing industry through solar-powered algal wastewater treatment	The LIFE ALGAECAN project will demonstrate the feasibility of applying solar-powered algal treatment to the effluents generated by the fruit and vegetable processing industry (FVPI) as a way of reducing the environmental impact of this sector at the same time that valuable algae-based market products are generated. This technology will be suitable for being replicated, transferred or mainstreamed anywhere. The ALGAECAN project proposes a sustainable treatment model of high loaded and salty effluents that combines cost-effective heterotrophic algae cultivation with spray drying of the collected microalgae to obtain a product of commercial interest as raw material for the production of biofertilisers, animal feed, bioplastics or biodiesel.	?	?	LIFE+	? Not yet online?	dolhid@cartif.es , jesmar@cartif.es	Dolores Hidalgo
Anadry	Dry anaerobic digestion as an alternative management & treatment solution for sewage	The project LIFE-ANADRY will test Dry Anaerobic Digestion (AD) technology under thermophilic (55 °C) and mesophilic (35 °C) conditions as a more effective treatment method for the sewage sludge produced in WWTPs. The implementation of dry AD of sewage sludge at semi- or pre-industrial scale has not been carried out to date. The project will test this technology in a 20 m3 pilot plant to be installed in the urban WWTP of Mula (Murcia, Spain). It will demonstrate that the abovementioned process offers a vast improvement in	1-9-2015	28-2-2019	LIFE+	http://www.life-anadry.eu/index.php/en	laura.pastor@dam-aguas.es	Laura Pastor-Alcañiz

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	sludge	terms of effectiveness, cost-effectiveness and sustainability over other methods for sludge treatment in small to medium-size WWTPs. The process will offer: 1. Enhancement of biogas production with a concomitant reduction in energy use; 2. Reduction of the operating costs in the WWTPs; 3. Sludge stabilisation and hygienisation; 4. Reduction of carbon emissions due to the minimisation of the use of inorganic fertilisers (recycling sludge as fertiliser); and 5. Comprehensive data that supports the attractiveness of the technique for full-scale application.						
ANSWER	Advanced Nutrient Solutions With Electrochemical Recovery	LIFE-ANSWER will demonstrate an integrated and innovative technology for treating wastewater from breweries, and other food and drink sectors. In particular, the proposed technology will combine electrocoagulation and bioelectrogenesis microbial treatments for the complete (100%) removal of wastewater pollutants. This technology will be implemented in Alovera (Spain) in a pilot waste water treatment plant (WWTP) able to treat 10 m ³ /h of wastewater. The final dry residue will be valorised for both energy production (making the process energy efficient) and fertiliser. The project is in line with the Water Framework Directive and its objective of achieving good status for all EU water bodies.	1-9-2016	31-5-2019	LIFE+	http://www.life-answer.eu	jcirizas@mahou-sanmiguel.com	Juan Francisco Ciriza
Aquemfr ee	Development of a system to decontaminate water from washing of containers and phytosanitary treatments	The main objective of the project is to demonstrate an alternative economic and ecological technique to completely degrade pesticide residues in waste water produced on farms by remnants in containers and tanks of phytosanitary treatment equipment, and rinsing of them after use, machinery and equipment cleaning, etc., with innovative equipment located on farms, providing solutions to a current European problem, especially in the Mediterranean area.	1-7-2014	30-6-2018	LIFE+	http://www.life-aquemfr ee.eu	jose.fenoll@cararm.es, isabel.garrido3@cararm.es, fulgencio.contreras@car	José Fenoll

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	equipment by solar photocatalysis.						m.es	
ARREAU (EIP Water, international project)	Accelerating Resource Recovery from Water Cycle (AG108)	ARREAU will develop market plans for viable and profitable value chains for resources from the water cycle, including nutrients and metal salts. ARREAU will build on existing cutting edge initiatives in several regions in Europe, where resources with a high added value are produced, such as phosphorus and cellulose from wastewater and iron and calcium carbonate residuals from drinking water. This will contribute to increasing resource efficiency and will create jobs and market opportunities for the European industry and SMEs. Although the techniques and therefore resources are available in the water cycle, widespread production of resources fall far behind its potential. The activities in the water cycle are run by utilities, not used to commercially develop products and bringing these to a highly competing –price, quality, service, security of supply–market. ARREAU will review current European initiatives and best practices of resource recovery and reuse. Barriers and constraints for resource recovery and reuse will be identified. ARREAU will explore the key success factors of resource value chains with all engaged stakeholders. The outcomes will be used to develop frameworks that can be used to remove bottlenecks and enable successful resource recovery in other regions in Europe and beyond.	2014	Ongoing	EIP Water funding	http://www.eip-water.eu/ARREAU	christian.kabbe@kompetenz-wasser.de, Theovan.den.Hoven@kwaterwater.nl	Christian Kabbe
Baltic Slurry Acidi	Reducing nitrogen loss from livestock production by promoting	Baltic Slurry Acidification project aims to promote the implementation of Slurry Acidification Techniques (SATs) throughout the Baltic Sea Region. Reducing ammonia losses will reduce airborne eutrophication of the Baltic Sea. Increased usage of SATs will give an environmental benefit for the whole region. The usage of SATs benefits farmers by increasing the nitrogen use efficiency of their	1-3-2016	28-2-2019	Interreg Baltic Sea Region	http://www.baltic-slurry.eu	erik.sindhoj@ri.se	Erik Sindhøj

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	the use of slurry acidification techniques in the Balti Sea Region	manure fertilisers and thereby decreasing their dependency on mineral nitrogen.						
BIOFECTOR	The Use of Bio-Effectors for Crop Nutrition and enhancing nutrient use efficiency	BIOFECTOR is an integrated project with the aim to reduce input of mineral fertilisers in European agriculture by development of specifically adapted bio-effectors (BEs) to improve the efficiency of alternative fertilisation strategies, such as organic and low-input farming, use of fertilisers based on waste recycling products and fertiliser placement technologies.	1-9-2012	31-8-2017	EU FP7	http://www.bioeffector.info	guenter.neumann@uni-hohenheim.de, raupp@madora.eu	Prof. Dr. Günter Neumann
CIRCWASTE	Towards circular economy in Finland	The aim of the LIFE IP CIRCWASTE-FINLAND project is to implement the National Waste Plan of Finland (NWP). The project will help with the implementation of the current NWP as well as optimise the implementation of the next NWP for 2017–2022 in order to help keep materials circulating in the economy for a longer time. It has been designed to respond to the bottlenecks currently being experienced and the future challenges in waste legislation and the waste management business – e.g. The Roadmap to a Resource Efficient Europe (COM(2011)571) and the Circular Economy Package (COM(2014)398). In particular, the project will initiate a transitional change towards a circular economy. The LIFE IP CIRCWASTE-FINLAND project will increase capacity building and enhanced cooperation within the waste management sector. It will redesign municipal/industrial systems, prevent generation of waste, and encourage use of by-products and waste. The IP covers five regions in Finland: Satakunta, Southwest Finland, Central Finland,	1-10-2016	31-12-2023	LIFE+	http://ec.europa.eu/environment/life/projects/index.cfm?fuseaction=search.dspPage&proj_id=6098 http://www.syke.fi/en-US/Rese	tuuli.myllymaa@ymparisto.fi	Tuuli Myllymaa

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		the North Karelia region and the South Karelia region. Finnish Environment center is responsible for coordinating the whole and relatively broad LIFE CIRCWASTE, where LUKE is responsible for demonstrating circular economy in the food chain (including nutrient recovery and reuse) in Southwest Finland.				arch_Development/Research_and_development_projects/Projects/CIRCWASTE_TowardsCircular_Economy_in_Finland		
Clamber	Biorefinery of organic waste	The project includes biorefinery of organic waste at demonstration scale. The objective is to be open to different research projects and contracts with different partners and institutions at EU level.	?	?	EU FEDER	http://ipex.castillalamancha.es/perfil/expertador/es-inversores/notasdeprensa/portada/clamber-project?language=en	jmgomez@bpensular.com, amorp@unileon.es, info@bioenergiaydt.com, jgarcia@bpensular.com, bestrada@b	José María Gómez Palacios

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
							peninsular.com, jpareja@peninsular.com, igonzalez@peninsular.com	
DECISIVE	A DECentralized management Scheme for Innovative Valorization of urban biowaste	The DECISIVE project proposes to change the present urban metabolism for organic matter (foods, plants, etc.), energy and biowaste to a more circular economy and to assess the impacts of these changes on the whole waste management cycle. Thus, the challenge will be to shift from a urban “grey box”, implying mainly goods importation and extra-urban waste management, to a cooperative organization of intra- and peri-urban networks enabling circular local and decentralised valorization of biowaste, through energy and bioproducts production. Such a new waste management paradigm is expected to increase the sustainability of urban development by: (1) promoting citizens awareness about waste costs and values; (2) promoting renewable energy production and use in the city; (3) developing an industrial ecology approach that can promote the integration between urban and peri-urban areas, by providing valuable agronomic by-products for urban agriculture development and so improving the balance of organic products and waste in the city; (4) developing new business opportunities and jobs. In order to achieve these objectives, the project DECISIVE will develop and demonstrate eco-innovative solutions, addressed to	1-9-2016	31-8-2020	Horizon 2020	http://cordis.europa.eu/project/rcn/203386_en.html http://envs.au.dk/aktuel/nyhed/artikel/decicive-project-granted-by-horizon-2020/	mth@envs.au.dk	Marianne Thomsen

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		waste operators and public services, consisting in: (1) a decision support tool to plan, design and assess efficient decentralised management networks for biowaste in urban areas; (2) eco-designed micro-scale anaerobic digestion and solid-state fermentation processes.						
DEPURGAN	Swine-farm revolution	The DEPURGAN project aims to bring to the market an efficient pig manure treatment process, with an initial investment 4 times lower compared to other solutions and operation costs being also very competitive. It base its innovative character in the use of an optimized electrocoagulation reactor, that allows nitrogen abatement, while producing as residues a solid fraction that poses great calorific potential as biomass, and a NPK liquid effluent ready to be used as fertiliser. The specific objectives are: (1) minimizing the concentration of contaminants in the manure (nitrogen, phosphorous, metals, bacteria, virus...), (2) treating the pig slurry at its origin, (3) being independent from national subsidies, its technical and economic viable for the farmer and (4) valorizing the manure (energy recovery and fertiliser).	1-9-2015	31-7-2017	Horizon 2020	http://www.depurgan.com http://cordis.europa.eu/project/rcn/197962_en.html	medioambiente@urogan.com	Juan Pablo Cruz
DOP	Demonstrative model of circular economy process in a high quality dairy industry	The project includes integrated nutrient management from fodder production to manure treatment by anaerobic digestion using digestate as substitute of fertilisers reducing environmental impacts. The project will evaluate and demonstrate a new model, and apply it to the production of Grana Padano DOP (Denominazione di Origine Protetta/Protected Designation of Origin) and Parmigiano Reggiano DOP. The project will integrate all the phases along production chains (from livestock rearing to production), in order to re-use all of the waste products/materials generated. This not only promotes a circular economy and greater resource efficiency, but also reduces PM10, ammonia, NOx and CO2 emissions. In turn, the re-use of digestate as fertiliser will decrease ammonia emissions and increase soil organic content, thus contributing to the Soil Thematic Strategy.	1-9-2016	1-3-2021	LIFE+	http://www.lifedop.eu/en	info@lifedop.eu , stefano.giuliana.dimporzano@gmail.com	Giuliana D'Imporzano and Stefano Garimberti

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
DRAINUSE	Re-utilisation of drainage solution from soilless culture in protected agriculture. From open to close system	The LIFE DRAINUSE project will design, construct and demonstrate a full re-circulation pilot system of drainage reuse that is easily adaptable to most agricultural scenarios in southern Europe. The pilot system will be tested in a 500 m ² greenhouse (0.05 ha) housing 952 tomato plants at the Experimental Greenhouse of CEBAS-CSIC, a governmental research facility in Murcia, southern Spain. The pilot system proposed here will be able to collect drainage stemming from the normal irrigation of the tomato plantation. It will then disinfect the drainage water and adjust its nutrient concentration, pH and electrical conductivity with a view to making it reusable in a new irrigation cycle. The project will also propose a legal and regulatory framework for drainage recirculation to Mediterranean regulatory bodies in Europe.	1-9-2015	31-8-2018	LIFE+	http://www.drainuse.eu	vicente@cebas.csic.es	Vicente Martínez
Electro-Sludge	Innovative Electro Dewatering system for the maximisation of the urban sludge Dry Solid content	The main objective of the ELECTRO-SLUDGE project is to design, develop and demonstrate an innovative electro-osmotic dewatering system that is able to dewater urban sludge from wastewater treatment plants and thus obtain a dry solid content (DS) equal to, or greater than, 30%. The project will reduce both the volume and weight of urban sludge (drying process) and the concentration of some heavy metals in the dewatered sludge (osmotic process), leading to an increase in the amount of sludge that meets regulations for its safe use in agriculture.	1-9-2015	31-12-2018	LIFE+	http://www.electrosludge.eu	giancarlo.ferrari@astautomatization.it , roberto.canziani@polimi.it , cesare.cristoforetti@caph	Giancarlo Ferrari

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
							olding.grupp@ocap.it	
ENRICH	Enhanced Nitrogen and phosphorus Recovery from wastewater and Integration in the value Chain	The goal of the ENRICH proposal is to contribute to circular economy through the recovery of nutrients from Waste Water Treatment Plants (WWTPs) and its valorisation in agriculture (either direct use on crops or through the fertilizer industry). ENRICH will tackle this value chain by developing a new treatment train that will be designed, built and operated in an urban WWTP. The products obtained will be mixed in order to find optimal mixtures and the agronomic properties of these products will be validated at full-scale through field tests in order to ensure the viability of the products obtained. Moreover, a business model of the whole value chain will be defined, involving several partners from different sectors, in order to ensure the replicability in other case studies or other EU regions.	1-9-2017	28-2-2021	LIFE+	?	slopezp@cet.aqua.com , raquel.gonzalez@ltl.evante.com	Silvia López Palau
EUROLEG UME	Enhancing of legumes growing in Europe through sustainable cropping for protein supply for food and feed	Long term S&T objective: The project is to sustainable use of Leguminous plants and soil resources in order to ensure European citizens with balanced and safe food, ensuring the high quality protein sources in their daily diet by increasing competitiveness and cultivation of legumes for food and feed. Short-term S&T objectives: 1. Evaluation of pea, faba bean and cowpea/black-eye-bean local genetic resources for the development of new varieties for food and feed and further use in breeding; 2. Development of new food and feed products from available European varieties of pea, faba bean and cowpea; 3. Selection of appropriate rhizobium strains and arbuscular mycorrhizae fungi to support nitrogen fixation and development of new, commercial inoculants; 4. Evaluation of influence of leguminous plants on the soil properties in sustainable, regionally specific cropping systems. Activities: WP1 Management and coordination; WP2 Broadening of genetic diversity in breeding trough	1-1-2014	31-12-2017	EU FP7	http://www.eurolegume.eu http://cordis.europa.eu/project/rcn/11423_en.html	citab@utad.pt	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		evaluation of local genetic resources; WP3 Selection of appropriate rhizobium strains to support nitrogen fixation and development of inoculants; WP4 Nutritional value and innovative food and feed; WP5 Legume supported cropping system in sustainable agriculture; WP6 Management and valorization of the residual biomass; WP7 Publicity and dissemination. 19 partners from 10 EU Member States.						
FATIMA	FARming Tools for external nutrient Inputs and water Managemen t	FATIMA addresses effective and efficient monitoring and management of agricultural resources to achieve optimum crop yield and quality in a sustainable environment. It covers both ends of the scale relevant for food production, viz., precision farming and the perspective of a sustainable agriculture in the context of integrated agri-environment management. It aims at developing innovative and new farm capacities that help the intensive farm sector optimize their external input (nutrients, water) management and use, with the vision of bridging sustainable crop production with fair economic competitiveness. Our comprehensive strategy covers five interconnected levels: a modular technology package (based on the integration of Earth observation and wireless sensor networks into a webGIS), a field work package (exploring options of improving soil and input management), a toolset for multi-actor participatory processes, an integrated multi-scale economic analysis framework, and an umbrella policy analysis set based on indicator-, accounting- and footprint approach. FATIMA will be implemented and demonstrated in 8 pilot areas representative of key European intensive crop production systems in Spain, Italy, Greece, Netherlands, Czech Republic, Austria, France, Turkey.	1-3-2015	28-2-2018	Horizon 2020	http://www.fatima-h2020.eu http://cordis.europa.eu/project/rcn/193262_en.html	info@fatima-h2020.eu, anna.osann@gmail.com, Alfonso.Calera@uclm.es	Anna Osann
Feed-a-Gene	Adapting the feed, the animal	The Feed-a-Gene p aims to better adapt different components of monogastric livestock production systems (i.e. pigs, poultry and rabbits) to improve the overall	1-3-2015	29-2-2020	Horizon 2020	http://www.feed-a-	?	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	and the feeding techniques to improve the efficiency and sustainability of monogastric livestock production systems	efficiency and to reduce the environmental impact. This involves the development of new and alternative feed resources and feed technologies, the identification and selection of robust animals that are better adapted to fluctuating conditions, and the development of feeding techniques that allow optimizing the potential of the feed and the animal.				gene.eu http://cords.eu ropa.eu/project/rcn/193241_en.html		
FERTINNOWA	Transfer of INNOvative techniques for sustainable WATER use in FERTigated crops	FERTINNOWA will build a knowledge exchange platform to evaluate existing and novel technologies for fertigated crops and ensure wide dissemination to all stakeholders involved of the most promising technologies and best practices. Fraunhofer IGB will showcase at pilot scale an innovative technology to recover phosphorus from fertigated crops wastewater using the chemical-free ePhos technology.	1-1-2016	31-12-2018	Horizon 2020	http://www.fertinnowa.com	jennifer.billbo@igb.fraunhofer.de	Jennifer Bilbao
FORCE	Cities Cooperating for Circular Economy	The overall objective is to minimise the leakage of materials from the linear economy and work towards a circular economy. The eco-innovative solutions will be demonstrated across four cities (Copenhagen, Hamburg, Lisbon and Genoa) and using the four materials, including the following two biomaterials. Wood waste: additional 12,000 tonnes wood waste from urban and mountain areas will be collected. 8-10,000 tonnes of brushwood will be used for compost production, and 14-16,000 tonnes will be processed into wood particles. Biowaste: around 7,000 tonnes of biowaste from the municipal mixed waste stream will be recovered: 3,000 tonnes coming from restaurants and hotels, and 4,000 tonnes coming from households. The partnerships will result in	1-9-2016	31-8-2020	Horizon 2020	http://cords.eu/ropa.eu/project/rcn/207269_en.html	ergp.msc@cbs.dk, sds.markt@cbs.dk	Sönnich Dahl Sönnichsen, City of Copenhagen

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		<p>the creation of viable eco-innovative market solutions, exploited by the partners. Replication in other cities will be incentivised thus ensuring competitiveness of European Circular Economy and green growth. Specific objectives are to:</p> <p>(1) Engage cities, enterprises, citizens and academia in 16 participatory value chain based partnerships to create and develop eco-innovative solutions together.</p> <p>(2) Develop 10 viable end-markets by demonstrating new applications for plastic waste, metals (EEE devices), biowaste and wood waste.</p> <p>(3) Develop a governance model for cities based on value chain based partnerships.</p> <p>(4) Develop decision support tools and assess the actual impact by use of Big Data.</p> <p>(5) Ensure replication through the FORCE Academy aiming at enterprises, citizens and policy makers.</p>						
FUTUREROOTS	Redesigning root architecture for improved crop performance	<p>Rooting depth impacts the efficient acquisition of soil nitrogen (and water) since nitrate leaches deep into the soil. Phosphate use efficiency could be significantly improved without increasing root depth by manipulating the angle of root growth to explore the top soil where this macronutrient accumulates. The genes that regulate root traits such as angle, depth and density in crops remain to be identified. A key impediment to genetic analysis of root architecture in crops grown in soil has been the ability to image live roots non-invasively. Recent advances in microscale X-ray Computed Tomography (mCT) now permit root phenotyping. Major technical and scientific challenges remain before mCT can become a high throughput phenotyping approach. This ambitious multidisciplinary research programme will be achieved through six integrated work packages. The first 3 work packages will create high-throughput mCT (WP1) and image analysis (WP2) tools that will be used to probe</p>	1-8-2012	31-7-2017	ERC grant	http://cordis.europa.eu/project/rcn/103475_en.html	malcolm.bennett@nottingham.ac.uk	Malcolm Bennett

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		variation in root systems architecture within wheat germplasm collections (WP3). Work packages 4-6 will identify root architectures that improve water (WP4) and nitrate uptake efficiencies (WP5) and pinpoint the genes that regulate these traits. In parallel, innovative mathematical models simulating the impact of root architecture and soil properties will be developed as tools to assess the impact of architectural changes on uptake of other nutrients in order to optimise crop performance (WP6).						
GISWASTE	AHP method combined with GIS for organic waste valorisation	The GISWASTE Life project offers a MCDA tool which assists decision-makers (private or public waste management bodies and companies) in choosing the option which makes best use of agri-food by-products, rather than treating them as waste products. This tool implements AHP method and GIS to evaluate the main parameters involved in the by-products valorisation process. GISWASTE tool decreases considerably the time required to evaluate the different scenarios for each study case, as well as facilitating a sensitivity study when geographic, technical, economic and environmental criteria values are modified. Hence, as well as reducing the risk associated with the implementation of food waste valorisation strategies, it also helps to public waste management authorities or private organisms to define bio-economy based waste valorisation strategies.	15-7-2013	30-6-2017	LIFE+	http://www.lifegiswaste.eu/en	dsanmartin@azti.es	David San Martín Errea
HotPaNTS	Hot-spots of Phosphorus and Nitrogen delivery in Time and Space in agricultural catchments	Growing food demand exacerbates negative impacts of agriculture on the environment including diffuse nutrient losses from agricultural land to surface and groundwaters causing their eutrophication. The project will evaluate a robust monitoring method of detecting diffuse pollution in space and time in agricultural catchments based on in situ fluorescence sensors. Tangible advantages of the fluorescence sensors: in situ deployment, low cost, real-time measurements, mobility within the catchment, sensitivity and reliability, will be evaluated against	1-1-2016	31-12-2017	Marie Skłodowska-Curie Individual Fellowships	http://cordis.europa.eu/project/rcn/195405_en.html	magdalena.bieroza@slu.se	Magdalena Bieroza

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		potential limitations from quenching effects. This comprehensive evaluation is possible thanks to the host's unique expertise and role as a coordinator of the Swedish monitoring programme with access to the monitoring catchments, covering a range of agronomic and environmental conditions. Once tested over hot-spots and hot-moments of nutrient delivery, the method could offer an alternative and/or complementary monitoring approach to the existing methodologies of low-frequency and fixed-location nutrient sampling. The tool will improve targeting nutrient sources and mitigation measures to the locations in which they will bring the largest economical, societal and environmental benefits and in turn will help to achieve the aims of the EU Water Framework Directive.						
HTC4WASTE	Up-scaling, demonstration and first market application of Loritus' patented hydrothermal carbonisation as an eco-efficient and cost-effective organic waste processing technology	The objective of HTC4WASTE is to demonstrate – at full scale and in a real market application – the technical and commercial excellence of Loritus' unique, patented Hydrothermal Carbonisation (HTC) technology as a flexible organic waste recovery technology, suitable for converting organic waste streams into carbon neutral biocoal, carbon sequestering biochar, fertility products, water, and local thermal energy. During the project, Loritus will build a full-scale HTC installation to demonstrate its economic and technological performance across a range of commonly occurring waste streams sharing characteristics that make them costly to treat with established technologies. The demonstration will target at least three market applications (sewage sludge, food waste and animal by-products, and spent mushroom compost) on a commercial scale (10.000 tonnes/year). Loritus will then operate the full-scale HTC system on a specific organic waste stream, spent mushroom compost, at a mushroom farm in Ireland to finalise the business case for HTC in a real life, industrial scale application. Such a success will	1-11-2015	31-10-2017	Horizon 2020	http://cordis.europa.eu/project/rcn/201671_en.html	?	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		induce a multiplication effect across the associated multi-national farming cooperative, and provide evidence that clients in other market segments can gain the same HTC cost and environmental advantages. Loritus will prioritise and pursue these segments aggressively.						
iCirBus-4Industries	Innovative Circular Businesses on Energy, Water, fertiliser & Construction Industries towards a Greener Regional Economy	The LIFE iCirBus-4Industries project will demonstrate the use of fly ash from forest biomass power plants as an adsorbent agent for heavy metals and other organic materials in sewage sludge. This will make the sludge suitable for the production of low-impact fertiliser. In a second stage, the project will also demonstrate the viability of a further use in recyclable construction materials of the used biomass that contains heavy metals and organic pollutants from sewage sludge. The project will first characterise the sewage sludge and the forest biomass fly ash. Then, the two-phase sludge treatment to reduce the presence of heavy metals and other contaminants will be validated at laboratory scale. The project will then scale up the process in a prototype sewage treatment plant with a capacity of 100 kg/hour of clean sludge.	16-7-2015	16-12-2020	LIFE+	http://www.icirbus.eu/	mmartin@intromac.com	Manuel Martín Castizo
In-BRIEF	Integrated business model for turning Biowaste and sewage sludge into renewable energy and agri-urban fertilisers	The LIFE In-BRIEF project aims to develop and implement a new business model for the resource-efficient management of certain biodegradable waste, increasing its use for bioenergy and in bioproducts. This will be done through an integrated management model for processing different biowaste generated by agri-food enterprises, and sewage sludge from urban waste water treatment, transforming it into renewable energy and high quality fertilisers.	1-9-2015	31-3-2018	LIFE+	http://www.lifeinbrief.eu/?lang=en	msanchez@aimmes.es	Manuel Sanchez
INCOVER	Innovative Eco-Technologies for	Taking into account the current global water scarcity and the expensive operation and maintenance cost of wastewater treatment, the INCOVER project concept has been designed to move wastewater treatment from	1-6-2016	31-5-2019	Horizon 2020	http://www.incover-project.com	incovecontact@oie.com	Babi Uku, Juan Antonio Álvarez

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	Resource Recovery from Wastewater	being primarily a sanitation technology towards a bio-product recovery industry and a recycled water supplier. INCOVER aim is to develop innovative and sustainable added-value technologies for a resource recovery-based treatment of wastewater, using smart operation monitoring and control methodologies. At demonstration scale, three added-value plants treating wastewater will be implemented and optimized to recover energy and added-value products including fertilisers.				eu http://cordis.europa.eu/project/rcn/203262_en.html	au.fr_babi.uku@iseutilites.com_jaalvar ez@aimen.es_serene.hania@iclei.org	Rodríguez and Serene Hanania
InnoPellet	Self-supporting biofuel sludge pellet producing system for small and medium sized sewage plants	There is a huge number of small and medium sized sewage plants in and out of the European Union that cannot pass over urban sewage sludge for agricultural use in sufficient proportion (less than 50% in the EU), therefore the management of these sewage plants usually ask and receive permissions from environmental authorities for disposing the communal sludge in disused mines or dumps. Instead of disposal/landfilling – that regularly causes pollution of natural water resources – it would be more beneficial to produce sludge pellets. Such experiences drove to create the InnoPellet technology, a self-supporting biofuel pellet producing system for treating communal sewage sludge that is economical in case of small scale production too. Five years of research and development led to the successful completion of a prototype machine that received regulatory approval and third-party testing/validation. The InnoPellet system offers an economical solution of sewage sludge treatment for wastewater companies. The technology is a self-supporting machinery for drying and pelleting sewage sludge without external need of fossil fuel or any other additional material. The technology will enable	1-3-2016	28-2-2018	Horizon 2020	http://cordis.europa.eu/project/rcn/201671_en.html http://www.innowaste.com/inno pellet/index.html	info@innowaste.eu	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		wastewater plants to meet the strict EU environmental regulations and at the same time, reduce their sewage sludge treatment costs with 50-75%.						
INNOQUA	Innovative Ecological on-site Sanitation System for Water and Resource Savings	The INNOQUA project will accelerate the path to market of a modular set of innovative, patent protected, award winning and scalable fully ecological sanitation solutions that address wide market needs in rural communities, for agricultural industries, for sustainable home-builders or collective housing owners and for developing countries worldwide. The modular system is based on the purification capacity of biological organisms (worms, zooplankton and microorganism) and sorption materials bringing ecological, safe and affordable sanitation capacity. INNOQUA will perform demonstration scale deployment and resulting exploitation of the system to include commercial development, technology integration, eco-design, controlled environment pilots (Ireland and Spain), real use demo sites and market uptake preparation in several EU and non-EU countries (France, Italy, Ireland, Romania, UK, Ecuador, Peru, India and Tanzania), and further preparation for post project uptake. This integrated but modular solution for the final reuse of wastewater is particularly attractive for small to medium remote water stressed European communities with high water demand for either agriculture and/or the conservation of natural freshwater ecosystems. The system is aimed at being a sustainable solution for 'zero' wastewater production with the complete reuse of wastewater.	1-6-2016	31-5-2020	Horizon 2020	http://cordis.europa.eu/project/rcn/203388_en.html	glaucodonida@r2msolution.com	?
INSPIRATION	Managing soil and groundwater impacts from agriculture for	As a Marie Curie Innovative Training Network, INSPIRATION will provide advanced training to early-stage researchers (ESRs) in scientific, technical, practical and management skills related to the research of sustainable intensification of agriculture ensuring food safety for population growth while minimising future impacts on soil and groundwater. One of the ESRs will	15-2-2017	14-2-2020	EU Marie Curie Training Network	http://www.inspiration.eu	ingeborg.joris@vito.be , ilse.vankeer@vito.be	Ingeborg Joris and Ilse Van Keer

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	sustainable intensification	focus on quantifying P-fluxes in groundwater using innovative techniques.					be.priyanka.nitd@gmail.com	
INTMET	Integrated innovative metallurgical system to benefit efficiently polymetallic, complex and low grade ores and concentrates	The INTMET approach represents a unique technological breakthrough to overcome the limitations related to difficult low grade and complex ores to achieve high efficient recovery of valuable metals (Cu, Zn, Pb, Ag) and CRM (Co, In, Sb). Main objective of INTMET is applying on-site mine-to-metal hydroprocessing of the produced concentrates enhancing substantially raw materials efficiency thanks to increase Cu+Zn+Pb recovery over 60% vs. existing selective flotation. 3 innovative hydrometallurgical processes (atmospheric, pressure and bioleaching), and novel more effective metals extraction techniques (e.g. Cu/Zn-SX-EW, chloride media, MSA, etc) will be developed and tested at relevant environment aiming to maximise metal recovery yield and minimising energy consumption and environmental footprint. Additionally secondary materials like tailings and metallurgical wastes will be tested as well for metals recovery and sulphur valorisation. The technical, environmental and economic feasibility of the entire approaches will be evaluated to ensure a real business solution of the integrated INTMET process. INTMET will be economically viable thanks to diversification of products (Cu, Zn, Pb), high-profitable solution (producing commodities not concentrates), with lower operation and environmental costs (on-site hydroprocessing will avoid transport to smelters) and allowing mine-life extension developing a new business-model concept based on high efficient recovery of complex ores that will ensure EU mining industry competitiveness and employment.	1-2-2016	31-1-2019	Horizon 2020	http://cordis.europa.eu/project/rcn/199895_en.html	?	?
ITERAMS	Integrated	The aim of ITERAMS is to develop a proof of concept for	1-6-2017	31-5-2020	Horizon	http://c	?	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	mineral technologies for more sustainable raw material supply	more environmentally friendly and economic mine site operations, in Europe and globally. For that, the ITERAMS project focuses on the isolation of process waters completely from the adjacent water systems. This will require development of new methods for optimising and controlling water qualities at each process step. As a bonus, this will also facilitate the recovery of additional valuable constituents. The ITERAMS project will develop research and dimensioning protocols suitable for use at the mines processing different ores. In this context, validation of the concepts will have an essential role. In the planned project, it will be performed at selected mine sites processing sulphide ores, although the concepts will be generic and thus also suitable for other types of ores like gold, rare earth, and phosphate ores.			2020	ordis.eu ropa.eu /project /rcn/21 0182 es .html		
LEMNA	Duckweed technology for improving nutrient management and resource efficiency in pig production systems	The main objective of the LIFE LEMNA project is to demonstrate the feasibility of an innovative nitrogen and phosphorous recovery technology, to improve nutrient management and reduce the environmental impact of animal farming. This biological, energy-efficient system will involve the sustainable treatment of anaerobically digested manure through a duckweed (aquatic plant) production system. Duckweed biomass will be processed to obtain new bio-based products for local consumption, mainly bio-fertilisers and animal feed; and it will also feed an existing biogas plant in the same location, which will allow the system to run 100% on green energy. The new technology will be tested in a 250 m ² duckweed production prototype with a treatment capacity of 3 m ³ /day, which will be installed and operated over a period of 21 months on a pig farm in Castilla-La Mancha (Spain).	1-10-2016	31-12-2019	LIFE+	http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&proj_id=5755	info@ainia.es	Andrés Pascual
Mest op Maat - Düngernach	?	?	?	?	Interreg VA	http://www.mestopmaat.eu	hermus@3-n.info	Sascha Hermus

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
Maß								
METGROW PLUS	Metal Recovery from Low Grade Ores and Wastes Plus	METGROW+ will address and solve bottlenecks in the European raw materials supply by developing innovative metallurgical technologies for unlocking the use of potential domestic raw materials. The value chain and business models for metal recovery from low grade ores and wastes are carefully looked after. Within this project, both primary and secondary materials are studied as potential metal resources. Economically important nickel-cobalt deposits and low grade polymetallic wastes, iron containing sludges (goethite, jarosite etc.) which are currently not yet being exploited due to technical bottlenecks, are in focus. Concurrently, METGROW+ targets innovative hydrometallurgical processes to extract important metals including Ni, Cu, Zn, Co, In, Ga, Ge from low grade ores in a cost-effective way. In addition a toolbox for metallurgical system is created in the project using new methods and combinations. The unused potential of metal containing fine grained industrial residues are evaluated, while hybrid and flexible hydrometallurgical processes and treatment methods of fines are developed for both materials. The knowledge of raw materials and sustainable technologies will attract new talents in the field who can flexibly change fields from treatment of secondary to primary resources, which also smoothens the economic ups and downs in the primary sector.	1-2-2016	31-1-2020	Horizon 2020	http://metgrowplus.eu http://cordis.europa.eu/project/rcn/199025_en.html	contact@metgrowplus.eu	?
MicroFert	Novel Release-on-demand micronutrient fertilisers for crops	The overall objective of the project is to evaluate the potential of Layered Double Hydroxides (LDHs) as release-on-demand micronutrient fertilisers, mainly focusing on Zn, Mn and Cu, and their interactions with N, P or K under a range of soil conditions and growing conditions. Experiments will cover both improving commonly used techniques and novel methods and designs leading to the formulation of patents, the development of novel fertilisers and crop production of	1-8-2015	31-7-2017	Marie Skłodowska-Curie Individual Fellows hips	http://cordis.europa.eu/project/rcn/195870_en.html	?	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		increased yield and quality. Recently novel concepts for designing fertilisers have been adopted which try to extend their time of availability in the soil in different ways. This proposal, introduces the release-on-demand concept in which the plants themselves trigger the release of nutrients from nanoparticles at the time in their growth cycle that they need them. LDHs are currently being developed in the host institution and are interesting candidates for the controlled release of micronutrients. LDHs consist of alternating layers of positively charged metal hydroxides and interlayers of anions so they can include both di and trivalent metal cations and different interlayer anions. The nutrient release is expected to be dependent on rhizosphere acidification via root excretion of protons, low molecular organic acids and CO ₂ .						
MIN-GUIDE	Guidance for innovation friendly minerals policy in Europe	The MIN-GUIDE project addresses the need for a secure and sustainable supply of minerals in Europe by developing a 'Minerals Policy Guide'. The functioning of European economies and, consequently, the well-being of societies is highly dependent on the long-term supply of natural resources and raw materials for production and use. However, access to non-energy mineral raw materials that constitute the basis of industrial value-chains is not stable and secure. To secure minerals supply in Europe we would need a policy framework promoting innovative and sustainable approaches to tackle challenges in the mining value chain. The MIN-GUIDE project has been designed to comprehensively tackle these challenges. The project will link to the European Innovation Partnership on Raw Materials (EIP) by feeding back its results into EU policy process, and supports outreach activities and community building.	1-2-2016	31-1-2019	Horizon 2020	http://www.min-guide.eu	info@min-guide.eu	Gerald Berger & Andreas Endl
Newfert	Nutrient recovery from	The NEWFERT (New Fertilisers) project is designed in order to recover nitrogen, phosphorus and potassium (NPK) nutrients from biobased waste for fertiliser	1-7-2015	31-12-2018	Horizon 2020 + Bio-	http://www.newfert.org	christian.kabbe@k	Christian Kabbe and Javier

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	biobased Waste for fertiliser production	production, bringing together 6 partners from 4 European Union member countries (Spain, Germany, France and Austria). Partners represent Member States throughout Europe, so that the project has a clear European dimension that will allow an easier pooling of competences and a wider and faster impact on the industrial fertiliser production. Realising the biobased economy potential in Europe, NEWFERT project involves the design and development of different enabling technologies to allow the re-use and valorisation from biowaste making them suitable as secondary raw material in the fertiliser industry: a new brand of cost-effective, eco-friendly and healthy advanced fertilisers. Furthermore, NEWFERT targets highly plant available combination of specific organic and mineral components and sets up ranges of their concentration in NPK fertilisers. Two main ways for nutrients recovery will be developed within the project: (1) Design new process to recover nutrients from solid biowaste modifying existing industrial processes, development of new chemical nutrients extraction technologies and scale-up of the integrated system. And (2) Involving different technologies of nutrients recovery from liquid biowaste: (a) chemical acidification, separation, struvite crystallisation, and (b) bioelectrochemical system. NEWFERT aims to decrease raw material dependency, prevent resource depletion and reduce the environmental impact increasing significantly the fertiliser industry sustainability.			based industries Public-Private Partnerships		ompetenz-wasser.de , ralf.herrmann@promanpro.com , ibl@fertibera.es , amorpe@unileon.es , garrido@dragamate.com , marie-line.damer@irstea.fr	Branas
N-SINK	Reduction of waste water nitrogen load: demonstrations and	The N-SINK project aims to demonstrate cost efficient wastewater treatment processes for nitrogen removal in order to reduce eutrophication of the Baltic Sea. In particular, it will demonstrate an innovative sediment filtration process for reducing the nitrogen load when wastewater nitrogen is released as nitrate. This will use the natural ecosystem service provided by the sediment.	1-8-2013	31-7-2017	LIFE+	http://www.helsinki.fi/lamm/NSINK	jussi.huotari@helsinki.fi , lauri.arvola@helsinki.fi	Jussi Huotari

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	modelling	The basis for this innovation is that micro-organisms living in the sediment have an enormous capacity to reduce nitrate to nitrogen gas through denitrification. In this demonstration, wastewater released from sewage plants as a point source will be directed to a wider area near the sediment where denitrification takes place. With this new sediment filtering system the nitrogen load can be reduced in an economically and environmentally sustainable way. Outcomes expect to highlight how the efficiency of nitrogen removal could be increased, especially in small-medium sized WWTPs.					nki.fi	
Omzet Amersfoort	Energy and resources from wastewater factory	The main objective of the OMZET project is to develop a new approach to wastewater treatment that will demonstrate net energy production, optimal recovery of phosphates and economic viability. Its main innovation will be to implement an extra de-nitrification process for the reject water coming from sludge dewatering. The beneficiary will seek to demonstrate its innovative water treatment approach - called "OMZET" - in a municipal wastewater treatment facility. It specifically aims to increase the energy self-sufficiency of the process and recover phosphate, whilst maintaining the high effluent quality. The hydrolysis of biomass will also lead to a significant reduction in sludge production and the associated costs of transporting and incinerating sludge. The combination of energy savings, phosphorus recovery and the reduction of sludge requiring additional treatment offer significant overall economic advantages. The project aims to demonstrate the cost effectiveness and economic viability of the OMZET process by reducing the operational costs for wastewater treatment by 15%. The project expects to demonstrate the high replication possibilities for OMZET in both new and existing wastewater treatment plants across Europe.	1-9-2011	31-3-2018	LIFE+ and STOWA (Netherlands)	https://www.omzetputamersfoort.nl/english	hvanveldhuizen@valleiveluwe.nl , tbrand@valleiveluwe.nl , info@valleiveluwe.nl	Henry van Veldhuizen
Pegasus	Phosphorus efficiency	PEGaSus is emphasising monogastric animals since pigs and poultry contribute to achieve global food security but	1-9-2017	31-8-2020	European	http://library.w	wimmers@f	Klaus Wimmers

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	in Gallus gallus and Sus scrofa: bridging the gaps in the phosphorus value chain	are major phosphorus excretors and sources of P losses. Balancing the phosphorus cycle is crucial towards a P-resilient livestock production, comprising P-efficiency in animals and plants, P-storage in soils, P-utilisation of microorganisms, and their interactions. The strategic aim of PEGaSus is to provide solutions to secure sufficient supplies of high quality animal products from resource-efficient and economically competitive agro-systems that are valued by society and preserve soil and water ecosystems. To reach this overall aim, five complementary partners from across Europe with expertise in animal biology, social ecology, policy and economy collaborate in three work packages, aiming attacking the fate of P in fodder, animals, microbiota, slurry, soil, and water. PEGaSus generates improved understanding of the biodiversity of monogastric P utilisation towards both an optimised P supply and highest standards of animal health and welfare in European livestock production. PEGaSus addresses the genotype-phenotypic variation, feed and nutritional strategies and waste reuse strategies to reduce P losses which will simultaneously reduce greenhouse gas and nitrogen emissions. PEGaSus delivers cost-benefit estimations in various farm-, production-, process-, and ecosystems and novel approaches of P management to balance economic and environmental sustainability of the dense but uneven distributed European animal production. By integrating the results, PEGaSus provides knowledge products with far-reaching impact on research and policy communities within the EU.			Research Area Network on Sustainable Animal Production ERA-NET SusAn programme	ur.nl/WebQuery/platform/public-research?partner=ship/platform/research/@isn=1133	bn-dummerstorfer.arno.rosemarin@seintl.org	
PHOSave	Innovative solution for phosphate recovery from exhausted	The aim of the PHOSave project is the recovery of phosphorus from exhausted extinguishing powder (polyvalent powder) via an eco-innovative, chemical/physical, solubilisation process. In particular, PHOSave aims at developing a system for the recovering of phosphate contained in exhausted extinguishing	1-7-2016	30-6-2018	Horizon 2020	http://www.phosave.com	m.michelotti@phosave.com	M. Michelotti

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	extinguishing powders	powder, in order to develop new products to use in fields such as the agriculture and wood sector. The PHOSave project will construct a pilot plant near Cromona, Lombardy, to recover and recycle phosphate from exhausted fire extinguishing powders. Over recent years, problematic chemicals in fire extinguishers have been largely replaced by phosphate based dry powders, considered as not posing environmental or health issues and effective in combating fire. Phosphates are also widely used as additives to water sprayed on forest and wildland fires, again because they are considered to have minimal health impacts and to generally not harm ecosystems. Prophos Chemicals is Italy's only producer of dry fire extinguisher chemicals of all classes. Fire extinguishers have to be periodically emptied, overhauled, refilled and re-pressurised, to guarantee reliable performance in case of fire. The recovered phosphate will be recycled into the chemical industry or as fertilisers.						
RE-DIRECT	Regional Development and Integration of unused biomass wastes as Resources for Circular products and economic Transformation	RE-DIRECT is a holistic approach to promote the efficient use of natural resources and materials by converting residual biomass into carbon products and activated carbon at smart regional decentralised units. The project involves 11 partners from BE, DE, FR, IR and the UK who will implement the approach in 5 urban, semi-urban and rural NWE regions. Each year at least 34 million t of residual biomass from the management of rural landscapes and urban greens in NWE are wasted. On the other hand, there is a growing market for sustainable and decentralised products such as active coal, used in sewage water technologies to clean water polluted with complex chemical substances or antibiotics. RE-DIRECT will make use of the proven technology for Integrated Generation of Solid Fuel and Biogas from Biomass (IFBB) to convert 20 000 t of unused biomass in a circular economy approach into region specific carbon products,	2016	2019	INTERREG NWE	http://www.nweurope.eu/projects/project-search/regional-development-and-integration-of-unused-biomass-wastes-as-	mwac h@uni-kassel.de	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		among them activated carbon. This will be achieved in the project lifetime by regional and interregional stakeholder communities (biomass waste producers, industries, SMEs, NGOs, researchers and regional interest groups) who explore, develop and manage region-specific product portfolios and create economic value chains in the framework of transferrable “integrated biomass concepts”. The project will develop one large scale investment for a biochar and activated carbon production at a urban biomass conversion centre in DE and one small conversion plant on farm scale in Wales.				resour es-for- circular- product s-and- econom ic- transfor mation- re-direct		
REPAIR	REsource Management in Peri-urban AREas: Going Beyond Urban Metabolism	The project objective is to provide local and regional authorities with an innovative transdisciplinary open source geodesign decision support environment (GDSE) developed and implemented in living labs in six metropolitan areas. The GDSE allows creating integrated, place-based eco-innovative spatial development strategies aiming at a quantitative reduction of waste flows in the strategic interface of peri-urban areas. These strategies will promote the use of waste as a resource, thus support the on-going initiatives of the EC towards establishing a strong circular economy. The identification of such eco-innovative strategies will be based on the integration of life cycle thinking and geodesign to operationalise urban metabolism. Our approach differs from previous UM as we introduce a reversed material flow accounting to collect data accurate and detailed enough for the design of a variety of solutions to place-based challenges. The developed impact and decision models allow quantification and validation of alternative solution paths and therefore promote sustainable urban development built on near-field synergies between the built and natural environments. This will be achieved by quantifying and tracking essential resource flows, mapping and quantification of negative and positive effects of present and future resource flows, and the	1-9-2016	31-8-2020	Horizon 2020	http://2020repair.eu/repair http://cordis.europa.eu/project/rcn/203259_en.html	A.Wandl@tudelft.nl , repair-bk@tudelft.nl , H.T.Remoy@tudelft.nl , L.Amenta@tudelft.nl	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		determination of a set of indicators to inform decision makers concerning the optimization of (re-)use of resources.						
RichWater	First application and market introduction of combined wastewater treatment and reuse technology for agricultural purposes	RichWater is a Fast Track to Innovation project whose main result is to develop a commercial system thoroughly demonstrated and tested in its operational environment. RichWater system is composed of a low-cost and energy-efficient MBR (to produce pathogen-free and nutrient rich irrigation water), a mixing module (for tailor-made mixing with freshwater and additional fertilizers), the fertigation unit and a monitoring / control module including soil sensors to guarantee demand-driven and case sensitive fertigation. By combining these developed modules a complete and turn-key system for safe wastewater reuse in agriculture is available. The technology is intended to reuse local community wastewater for irrigation purposes. The aim is to create a win-win situation between two sectors (the wastewater treatment and the agricultural sector) by turning public wastewater into a valuable end-product. A detailed life cycle assessment and business plan will help to precisely assess the ecologic, technological and economic benefits enabling an effective market strategy.	1-2-2016	31-1-2018	Horizon 2020 – Fast Track to Innovation	http://www.richwater.eu	rcasielles@bioazul.com, alorenzo@bioazul.com	Rafael Casielles, Antonia Lorenzo
SABANA	Sustainable Algae Biorefinery for Agriculture and Aquaculture	The general objective of the SABANA project is to demonstrate the technical, environmental and social feasibility of producing valuable products for agriculture and aquaculture by using only marine water and wastewater as nutrients source. The key advantages of SABANA project are: the sustainability of the process, using marine water and recovering nutrients from wastewaters while minimizing the energy consumption, and the socioeconomic benefits, due to the relevance of the target bioproducts for two major pillars in food production as agriculture and aquaculture. Bioproducts capable of increasing the yield of crops and fish production are highly demanded, whereas recovery of	1-12-2016	30-11-2020	Horizon 2020	http://www.eu-sabana.eu		?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		nutrients is a priority issue in the EU. Instead of considering wastewater as an inevitably useless and problematic residue of our society, SABANA acknowledges its potential as an opportunity for economically relevant sectors.						
SALTgae	Algae to treat saline wastewater	The aim of the SALTgea project is to implement and demonstrate at large scale the long-term technological and economic feasibility of an innovative, sustainable and efficient solution for the treatment of high salinity wastewater from the food and drink industry. Conventional wastewater treatments have proven ineffective for this kind of wastewater, as the bacterial processes typically used for the elimination of organic matter and nutrients are inhibited under high salinity contents. Therefore, generally combinations of biological and physicochemical methods are used which greatly increase the costs of the treatment, making it unaffordable for SMEs, who voluntarily decide not to comply with EU directives and discharge without prior treatment, causing severe damage to the environment. The solution of SALTGAE to this issue consists in the implementation of innovative technologies for each step of the wastewater treatment that will promote energy and resource efficiency, and reduce costs. Amongst these, the use of halotolerant algae/bacteria consortiums in HRAPs for the elimination of organic matter and nutrients stands out for its high added value: not only will it provide an effective and ecological solution for wastewater treatment, but also it will represent an innovative way of producing algal biomass, that will subsequently be valorised into different by-products, reducing the economic and environmental impact of the treatment.	1-6-2016	31-5-2019	Horizon 2020	http://www.saltgae.eu	?	Miguel Herrero
SATURN	Solar-Assisted Treatment	The possibilities of full nutrient recovery (N, P and K) from urine are explored using an innovative process based on simple physicochemical technology, tentatively	1-8-2013	1-1-2018	Flanders Institute for	?	sebastian.derese@	Sebastiaan Derese

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	of Urine with Recovery of Nutrients	named SATURN. The goal is to achieve a maximum recovery of nutrients with a minimal input of energy, chemicals and effort.			Innovation and Technology; Flanders Agency for Innovation and Entrepreneurship		ugent.be	
Sharebox	Secure sharing of information about recyclable materials between companies	Resource efficiency offers a major economic opportunity for the European Process Industry, both in terms of cost savings as well as opportunities to offer greener products and services. Industrial Symbiosis (IS) is the use by one company or sector of by-products, including energy, water, logistics and materials, from another. The approach that underpins SHAREBOX centres on logical work flow that covers from the identification of new symbiotic synergies right through optimised connections among companies and organisations in established symbiotic relationships. SHAREBOX will provide plant operations and production managers with the robust and reliable information that they need in real-time in order to effectively and confidently share resources (plant, energy, water, residues and recycled materials) with other companies in an optimum symbiotic ecosystem.	1-9-2015	31-8-2019	Horizon 2020 SPIRE	http://www.sharebox-project.eu	albert.torres@iris.c.at	Mr. Albert Torres
SIPs	European Network on Smart Inorganic Polymers	This Action on Smart Inorganic Polymers (SIPs) will synergise the European activities in relevant areas in order to establish widely applicable rules for the rational design of smart inorganic polymers. The combination of leading scientists with common motivation but diverse expertise (main group/transition metal chemistry, polymer synthesis, characterisation, processing,	?	?	EU COST Action	http://www.cost.eu/COST_Actions/cmst/CM130_2	Lucia.Forzi@cmst.eu, hey@uni-leipzig.de,	Lucia Forzi

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		applications, and theory) in concert with industrial partners will act as a nucleus for translational efforts towards the design and application of novel inorganic polymers (e.g. polyphosphazenes, polyamino- or phosphinoboranes, polysilanes, metallopolymers, nanoparticle-based hybrids). The network will coordinate and concentrate scattered existing national programmes and informal collaborations, which will be kick-started by including new complementary skills. SIPs will intensify the European exchange of knowledge and technologies and provide a forum for recent developments and innovative aspects. By implementing a sorely missed annual European conference on inorganic polymers, SIPs will increase its visibility in related communities. This will allow the systematic expansion of SIPs by inclusion of additional interested parties with desirable expertise and resources to boost the developments in this area.					muriel.hissler@univ-rennes1.fr , sips@uni-leipzig.de	
Smart Fertirrigation	Integrated pig manure digestate processing for direct injection of organic liquid fertiliser into irrigation systems	LIFE Smart Fertirrigation aims to demonstrate the environmental and economic feasibility of innovative pig manure digestate treatment at biogas plants in order to produce liquid and solid biofertiliser. It proposes to optimise the treatment of both manure liquid and solid fraction so that after internal recycling of nutrients, the liquid fraction can be directly injected into irrigation systems as organic fertiliser. By replacing mineral fertilisation in a cost-efficient way, opportunities for biogas producers and farmers will be created. Reducing the use of mineral fertilisers will also cut greenhouse gas emission and prevent soil acidification and eutrophication. The digestate treatment process is made up of three main phases: (1) Mechanical separation of the digestate's solid and liquid fractions, (2) Extra filtration of liquid fraction to remove suspended solids and prevent clogging, making it suitable for direct injection into the irrigation system; and (3) Drying out of the solid fraction with the excess heat from the biogas	1-9-2015	31-12-2018	LIFE+	http://www.smartfertirrigation.eu/en	life@copiso.com	Andrés Garcia Martinez

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		production process and later ammonia treatment in an innovative pilot biological treatment plant. In addition, the project aims to reduce phosphorous levels in pig manure at source by adding phytase enzymes to the pig feed. Due to pigs' inability to digest phosphate present in pig feed, about 90% of phosphorous content is released in their manure. Innovative phytase enzymes can significantly reduce excreted phosphate in manure thus preventing over enrichment.						
SolACE	Solutions for improving Agroecosystem and Crop Efficiency for water and nutrient use	SolACE's overarching goal is to help European agriculture facing the challenge to deal with more frequent combined limitations of water and nutrients in the coming decades, through the design of novel crop genotypes and agroecosystem management innovations to improve water and nutrient (i.e. nitrogen and phosphorus) use efficiency. To achieve this goal, SolACE will focus its activities on three major European crops - potato, bread and durum wheat - and will identify the (i) optimum combinations of above- and below-ground traits for improving resource use efficiency, (ii) best-performing genotypes under combined water and N or P stresses and (iii) novel practices that make better use of plant-plant and plant-microbe interactions to access water, N and P resources in conventional, organic and conservation agriculture. SolACE will implement a double interactive innovation loop, based on agroecosystem management and breeding strategies, and will imply the engagement of diverse end-users, across the production chain, from farmers and farm advisors to NGOs, SMEs and larger industries in the agri-business sector, through the SolACE consortium and a range of stakeholders' events. The tested innovations will include crop genotype mixtures, legume-based crop rotations and cover crops, microbial inoculants, as well as improved decision support systems and hybrids or products from genomic selection and participatory evolutionary breeding	1-5-2017	30-4-2022	Horizon 2020, SFS-01-2016	http://cordsis.europa.eu/project/rcn/210161_en.html	philippe.hinsinger@supagro.inra.fr	Philippe Hinsinger

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		schemes. SolACE will implement complementary approaches, from data mining, modelling, phenotyping in high throughput platforms and field conditions, to experiments in research stations and farmers' networks in contrasted pedo-climatic zones. Through the co-design and co-assessment with the end-users of the selected novel breeding and management strategies to increase the overall system resource use efficiency, the findings of SolACE will be deemed acceptable and readily available for dissemination to a broad spectrum of stakeholders, including policy-makers.						
Sto3Re	Synergic TPAD and O3 process in WWTPs for Resource Efficient waste management	The LIFE STO3RE project is a demonstration project that aims to protect aquatic environment against pollution caused by nitrates diffusion and micropollutants by means of an energetically sustainable joint management of Waste Water Treatment Plants (WWTPs) sludge and manure to obtain a high environmental quality "biofertiliser". LIFE STO3RE will implement an innovative and cost effective technology (dual acid-gas temperature phased anaerobic digestion configuration coupled to ozone oxidation and hydrothermal cavitation, CavO3+DAG-TPAD) successfully developed in a R&D project (Sludge4Energy) carried out by FACSA and AINIA and co-funded by the Competitiveness and Economy Ministry of Spain. STO3RE Demonstrative Plant will centralize and treat secondary sludge from small WWTPs and cattle manure from surrounding farms within an extended area.	1-9-2015	1-12-2018	LIFE+	http://lifesto3re.com/category/news/?language=en	igberlanga@grupogimeno.com , spache@typsa.es	?
STRADE	Strategic Dialogue on Sustainable Raw Materials for Europe	The STRADE project addresses the long-term security and sustainability of the European raw material supply from European and non-European countries. It will develop dialogue-based, innovative policy recommendations for a European strategy on future raw-material supplies. Using a dialogue-based approach, the project brings together governments, industry and civil society to deliver policy recommendations for an innovative European strategy on	1-12-2015	30-11-2018	Horizon 2020, Water-1-b	http://www.stradeproject.eu	info@STRADeproject.eu, info@oeko.de, STRAD	Doris Schueler

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		future EU mineral raw-material supplies. The project holds environmental and social sustainability as its foundation in its approach to augmenting the security of the European Union mineral raw-material supply and enhancing competitiveness of the EU mining industry. The project brings together practical experience, legislation, best practice technologies and know-how by addressing: (1) Strengthening the European raw-materials sector, (2) A European cooperation strategy with resource-rich countries, and (3) Internationally sustainable raw-material production & supply					Eproje ct@oe ko.de	
SURE	Sediment Uptake and Remediation on Ecological basis	The LIFE SURE project will demonstrate a cost-effective and ecologically sustainable process for retrieving and recycling sediments in shallow eutrophic waters. Hazardous substances will be removed with a minimum of negative impact, turning such sediments into a resource instead of a waste problem. The project will demonstrate an innovative dredging concept that is mobile, cost-effective, environmentally friendly and easy to use. In particular, the new dredging system uses an unmanned, totally automated unit. It consists of a surface raft pulling the underwater unit, which has 18 specially-designed nozzles that pump sediments up from the seabed. The system moves slowly (1 cm/s) and therefore does not cause any re-suspension of sediments. The system can be continuously operated and supervised locally or remotely using built-in sensors. The system moreover has great potential for replication, given that it can be handled by non-professionals and used anywhere there is a need for taking up sediments. Once sediments have been dredged, they pass through a treatment and dewatering system, which removes water and pollutants via decantation and centrifugation. Sediments are separated into three fractions: water, organic sediments and mineral sediments. The project will recycle dredged materials for use in construction or agriculture. It will	1-8-2016	31-06-2020	LIFE+	http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&proj_id=5786	anna.c arneliu s@kal mar.se	Anna Carnelius

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		propose a solution for increasing the recycling rate of dredged sediments in the EU, which stood at just 12% in 2012 (Eurostat), helping preserve the physical and chemical features of marine ecosystems. Such a move will contribute to the implementation of the Water Framework Directive and the Marine Strategy Framework Directive, which both aim to achieve a good status for all European coastal waters.						
SUSFANS	Metrics, Models and Foresight for European Sustainable Food And Nutrition Security	Strengthening food and nutrition security (FNS) in the EU requires a move towards a diet that supports sustainable food consumption and production. To gauge the policy reforms needed for this major societal challenge, the SUSFANS project will identify how food production and nutritional health in the EU can be aligned. The multidisciplinary research agenda of SUSFANS will build the conceptual framework, the evidence base and analytical tools for underpinning EU-wide food policies with respect to their impact on consumer diet and their implications for nutrition and public health, the environment, the competitiveness of the EU agri-food sectors, and global FNS. Based on a conceptual model of the food chain and its stakeholders, SUSFANS will develop suitable metrics and identify major drivers for sustainable FNS, integrate data and modelling, and develop foresight for European sustainable FNS. Central asset is a coherent toolbox which integrates two complementary strands of state-of-the-art quantitative analysis: (i) micro-level modelling of nutrient intakes, habitual dietary patterns and preferences of individual consumers, and (ii) macro-level modelling of food demand and supply in the context of economic, environmental and demographic changes on various time-scales and for multiple sub-regions. The tools will bridge the current gap between policy analysis on the EU agri-food sector and the nutrition-health sector. Case studies and scenarios based on stakeholder input from	1-4-2015	31-3-2019	Horizon 2020, Water-1-b	http://www.susfans.eu	hans.vanmeijl@wur.nl, thom.achterbosch@wur.nl	Hans van Meijl

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		consumers, food industry, farmers/fishermen, government and the scientific community, are instrumental in achieving this goal. The project will provide a comprehensive set of tools for assessing sustainable FNS in Europe, centred around the implications of the current diet for the sustainability of production and consumption in the EU, and the options for the EU agri-food sector (including fisheries and aquaculture) to improve future diets in the near future (up to 5 years) and in the long run (one or more decades ahead).						
Teholant a	Efficient and sustainable use of poultry manure	The objective of this project is to increase efficiency in use of poultry manure and sustainability. The project examines the possibilities of energy use, more precise use of nutrients, technologies and life cycle assessment.	2016	2018	EAFRD 2014-2020	https://www.luke.fi/en/producers-initiative-give-rise-to-the-teholanta-power-manure-project	sari.ostarin@luke.fi	Sari Luostarinen
TRANSrisk	Transition pathways and risk analysis for climate change policies	One of the aims of the TRANSrisk project is to assess low emission transition pathways in animal production that are technically and economically feasible and acceptable from a social and environmental viewpoint. The project brings together quantitative models and qualitative approaches, focusing on participatory consultations with stakeholders as a link between the approaches. TRANSrisk analyses possible transition pathways to reduce the environmental impacts of livestock production in the Netherlands: reduction of livestock numbers or integrated manure management (IMM). The	1-6-2017	31-5-2019	Horizon 2020	http://www.transrisk-project.eu	eise@jin.ngo.wytze@jin.ngo , J.Lieu@suss-ex.ac.uk	Eise Spijker and Wytze van der Gaast

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		project indicates that livestock production represents 3% of Netherlands GDP, so that reducing livestock numbers would have considerable economic impacts, but that significant action to reduce agricultural environmental impacts are recognised to be needed, including greenhouse emissions, ammonia emissions and phosphates. Mature management is expected to have cost impacts for farmers, to offer the benefit of increasing renewable energy production (anaerobic digestion of manure to produce biogas), and may have some negative side-effects (e.g. reduced animal grazing time, as farmers optimise in-stable manure production to input to biogas). Livestock reduction may not have anticipated positive results if production is simply transferred to other regions of the world. Farmers, manure managers, bioenergy actors and other stakeholders are invited to contact the project to participate.						
VALPORC	Valorization of pig carcasses through their transformation into biofuels and organic fertilizers	The LIFE+ VALPORC project aims to demonstrate a process for the sustainable management of animal by-products from the pork industry, especially pig carcasses and manure. It seeks to exploit these waste products by transforming them into biofuels - biogas and biodiesel - and organic fertilisers, with resultant environmental and socio-economic benefits. The project will develop a prototype treatment process for pig carcasses to obtain high-quality meal and fat for subsequent use. The process will allow flexible operating conditions to optimise energy efficiency. It will meet all the health and safety requirements of current legislation for this type of waste. The meat and bone meal (category 2) and glycerine obtained will be used as new substrates in biogas production in a co-digestion process with pig manure. To improve the efficiency of the anaerobic digestion and optimise the biogas production, the project will	1-9-2014	31-8-2017	LIFE+	http://www.lifevalporc.eu http://ec.europa.eu/environment/life/projects/index.cfm?fuseaction=search.dspPage&n	proyecto@lifevalporc.eu , info@lifevalporc.eu , lifevalporc@gmail.com , adaudeni@gmail.com	Arturo Dauden

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		implement a new pre-treatment system of the animal by-product inputs, based on ultrasonic technology. Finally, the project will produce an organic fertiliser from the digestate and acidic waste from the biodiesel production process. It will then demonstrate the agronomic potential of this fertiliser.				_proj_id=5092		
VicInAqua	Integrated aquaculture based on sustainable water recirculating system for the Victoria Lake Basin	The VicInAqua project will follow an integrated approach in order to develop a sustainable combined sanitation and recirculating aquaculture system (RAS) for wastewater treatment and reuse in agriculture in the Victoria Lake Basin area. In this decentralized integrated treatment system wastewater from households and fish processing industry as well as RAS production water will radically reduce stress on the sensitive ecosystems of the Lake Victoria and will contribute to food and health security. It will be operated fully autonomous powered by renewable energies (PV, biogas). The RAS will particularly produce high quality fingerlings of the local fish species to supply the pond aquaculture of the area with stocking material. The innovative core idea of the project is to develop and test new technologies which enable the integration of sanitation with the aquaculture in a sustainable manner. The core of the project concept is to develop and test a novel self-cleaning water filters which consist of a highly efficient particle filter as well as a membrane bioreactor (MBR) as principal treatment unit within a combined treatment system where the nutrient rich effluent water will be used for agricultural irrigation. the surplus sludge from both filter systems will be co-digested with agricultural waste and local water hyacinth to produce biogas. The overall concept will promote sound approaches to water management for agriculture.	1-6-2016	31-5-2019	Horizon 2020	http://www.vicinaqua.eu http://cordis.europa.eu/project/rcn/202637_en.html	info@aquabtu.com , Ephraim.Gukelberger@hs-karlsruhe.de	Ephraim Gukelberger
Water2Return	REcovery and REcycling of nutrients	The objective of the Water2REturn project is a full-scale demonstration process for integrated nutrients recovery (up to 90-95%) from wastewater from the slaughterhouse industry using biochemical and physical	1-7-2017	31-12-2020	Horizon 2020	http://cordis.europa.eu/project	pzapata@bioazul.com	Ms. Pilar Zapata Aranda

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	TURNing wasteWATER into added-value products for a circular economy in agriculture	technologies and a positive balance in energy footprint. The project will not only produce nitrates and phosphate concentrate available for use as organic fertiliser in agriculture, but its novelty rests on the use of an innovative fermentative process designed for sludge valorisation which results in a hydrolysed sludge (with a multiplied Biomethane Potential) and biostimulants products, with low development costs and high added value in plant nutrition and agriculture. This process is complemented by proven technologies such as biological aeration systems, membrane technologies, anaerobic processes for bio-methane production and algal technologies, all combined in a zero-waste-emission and an integrated monitoring control tool that will improve the quality of data on nutrient flows. The project will close the loop by demonstrating the benefits associated with nutrients recycling through the implementation of different business models for each final product. This will be done with a systemic and replicable approach that considers economic, governance and social acceptance aspects through the whole chain of water and targets essentially two market demands: 1) Demand for more efficient and sustainable production methods in the meat industry; and 2) Demand for new recycled products as a nutrient source for agriculture. The project represents a first market application of a viable, cross-sectoral and integrated solution for slaughterhouse wastewater treatment (water savings: 20-40% in the meat industry) with energy production (and low-energy demanding) and recovery of nutrients with high market value (recovery rates: 90-95%), resulting in 4 relevant outcomes, including (1) production of 1 technological system (easy to operate, versatile and compact) to treat wastewater → novel combination of technologies and processes in cascade maximising the extraction of valuable products, and (2) production of 3 agronomic products (APs) ready				/rcn/210179_en.html http://www.bioazul.com/en/portfolio/water2return	alorenzo@bioazul.com	

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		to commercialise at EU and international level: one fertiliser and two biostimulants.						
WETWIN E	Transnational cooperation project for promoting the conservation and protection of the natural heritage in the wine sector in the South West of Europe	The wine industry has notable environmental implications, mainly due to the consumption of water in the cleaning operations and the liquid spills that are generated during the winemaking stages. On the other hand, the cultivation of the vine requires the rational use of fertilizers, being key the adequate contribution of organic matter, nitrogen, phosphorus and other trace elements. The use of fertilizers of mineral origin supposes a high cost for the farmers, besides the environmental impact caused in the water and in the soil. The WETWINE project will provide solutions to the (waste)water treatment problems of the wine industry, based on the development of an innovative pilot system based on anaerobic digestion and water and sludge treatment wetland to promote the value and rational use of the resources of the territory (water and wine growing), and its recycling as fertilizer to limit the generation of waste and soil/water pollution, reducing by 90% the impact on natural heritage.	1-7-2016	30-6-2019	Interreg -SUDOE	http://www.wetwine.eu	rpena@aimen.es, jaalvarez@aimen.es, alfonsoribas.alvarez@xunta.gal	Rocio Pena y Juan A Alvarez (AIMEN) and Alfonso Rivas (INGACAL)
WOGAn MBR	Demonstration of Anaerobic Membrane Bioreactor technology for valorization of agro-food industry wastewater	The LIFE+ WOGAnMBR project focus on the problem of industrial water with high concentrations of complex organic matter, often generated by food and beverages industries, which are currently treated by conventional processes that generate a large amount of sludge and have a high energy consumption. The main aim of the project is to further develop anaerobic membrane bioreactors (AnMBR), an emerging technology for the sustainable wastewater treatment of the agro-food sector. To achieve this aim, the project will construct an innovative and viable AnMBR wastewater treatment pilot plant that is specially adapted to the agro-food industry sector – i.e. it will offer an improved performance in treating wastewater with a high fat and oil content. This new technology also avoids problems linked to the	1-7-2014	30-6-2017	LIFE+	http://www.life-woganmbr.eu	rgallo@ubues	Rubén Ballo

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		treatment of wastewater with a high amount of organic matter, such as flotation of suspended biomass and the recollection of the biogas produced in digestion. The project team expects that this technology will be transferrable to scenarios where conventional anaerobic bioreactors are an inefficient means of treating wastewater. These include cases of excess salinity, large fluctuations in the concentration and composition of wastewater, and wastewater with abnormally high concentrations of nitrogen, among others.						
ZERO BRINE	Re-designing the value and supply chain of water and minerals: a circular economy approach for the recovery of resources from saline impaired effluent (brine) generated by process industries	The ZERO BRINE project aims to facilitate the implementation of the Circular Economy package and the SPIRE Roadmap in various process industries by developing the necessary concepts, technological solutions and business models to re-design the value and supply chains of minerals (including magnesium) and water, while dealing with present organic compounds in a way that allows their subsequent recovery. This is achieved by demonstrating new configurations to recover these resources from saline impaired effluents (brines) generated by process industry, while eliminating wastewater discharge and minimising environmental impact of industrial operations through brines (ZERO BRINE). The project will bring together and integrate several existing and innovative technologies aiming to recover end-products of high quality and sufficient purity with good market value. It will be carried out by large Process Industries, SMEs with disruptive technologies and a Brine Consortium of technology suppliers across EU, while world-class research centres ensure strong scientific capacity and inter-disciplinary coordination to account for social, economic and environmental considerations, including LCA. A large scale demonstration will be developed in the Energy Port and Petrochemical cluster of Rotterdam Port, involving local large industries. Two demo plants will be able to treat	1-6-2017	31-5-2021	Horizon 2020	http://cordis.europa.eu/project/rcn/210177_en.html	?	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		<p>part of the brine effluents generated by one process industry (EVIDES), while the waste heat will be sourced by neighbouring factories. The quality of the recovered end-products will be aimed to meet local market specifications. The involvement of representatives covering the whole supply chain will provide an excellent opportunity to showcase Circular Economy in Rotterdam Port, at large scale. Finally, three large-scale pilot plants will be developed in other process industries, providing the potential for immediate replication and uptake of the project results after its successful completion.</p>						

4 Running non-EU funded research

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
ASHES	Recycling of nutrients from residues of thermo-chemical processing of bagasse/sugar cane straw	The German research project ASHES is focused on the recycling of nutrients from residues of thermo-chemical processing of bagasse/sugar cane straw in Brazil and is coordinated by the Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT in Sulzbach-Rosenberg. Six German institutes, four Brazilian research partners and two industrial companies are involved in the project: This includes Fraunhofer UMSICHT, the Karlsruhe Institute of Technology (KIT), the Federal Institute for Materials Research and Testing (BAM), Fraunhofer IGB, Forschungszentrum Jülich, the Cutec Institute, the Brazilian Center for Research in Energy and Materials (CNPEM), the Federal Institute of Goiás (IFG), Laboratório Nacional Agropecuario (LANAGRO) and the Universidade Federal de Goiás (UFG), as well as the companies Tecnar and Outotec.	1-4-2015	31-3-2018	German Federal Ministry of Education and Research (BMBF) Germany	http://www.fz-juelich.de/ibg/ibg-2/DE/Projekte/bund/ASHES/ASHES_node.html	martin.meiller@umsicht.fraunhofer.de	Martin Meiller
Biochar-Soil-Plant Interface research	The Biochar-Soil-Plant Interface, probing the potential for a sustainable phosphorus fertiliser.	This project aims to quantify the soil fertilising qualities and environmental safety of a novel composite biochar, whilst exploring the small-scale P release mechanisms at the biochar-soil-root interface, in order to best manipulate biochar application to soil. To address this aim, a predominantly lab based research plan has been devised to answer the following key questions: 1) Can plants grown in soils amended with a novel composite biochar produce similar crop quality and quantity as crops grown using conventional fertilisers, whilst not presenting an unacceptable risk to human health or the environment?; 2) To what extent does the increased microbial activity at the biochar-soil-root interface influence P mobility and thus plant P uptake? 3) Can targeted application of a novel composite biochar promote the same plant growth as traditional bulk soil mixing? This project comprises of 3 projects planned to	1-9-2016	31-8-2020	Natural Environment Research Council	?	S1651564@gmail.com	Steven Lewis

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		take place across Steven Lewis's PhD (the first commencing 26/06/2017) in the School of GeoSciences / UK Biochar Research Centre at the University of Edinburgh and the James Hutton Institute.						
Biofuelcell IAPP	Agro-industrial wastewater purification and nutrients recovery. Towards Microbial electrochemical systems scaling-up and field Applications	Efforts in designing and scaling-up APPLICative bioelectrochemical systems, including (1) Nutrient recovery during agro-food wastewater treatment, (2) Environmental sensing, and (3) Electrofermentation reactors.	1-9-2015	1-9-2018	Project (RBSI14J KU3) financed by the SIR2014 Grant, Italian Ministry of University and Research (MIUR).	https://www.researchgate.net/project/BioFuelCellAPP	andrea.schievano@unimi.it	Dr. Andrea Schievano
Ecosec mobile struvite reactor	?	?	?	?	Company funding	http://www.ecosec.fr	b.clouet@ecosec.fr, q.legros@ecosec.fr	?
Ferti-Mine	From waste to fertilizer - phosphorus and carbon waste mining as nutrient recycling	FERTI-MINE aims to recover phosphorus from waste materials in order to reduce the depletion of global rock phosphate resources. By applying different thermochemical conversion techniques (pyrolysis, combustion, gasification, hydrothermal carbonization) for carbonization as well as recovery of ash components, fertilizer products rich in phosphorus and organic carbon will be developed and assessed for their viability, ecological and economic impacts. This innovative strategy	1-9-2014	31-8-2018	The Austrian Research Promotion Agency (FFG)	https://forschung.boku.ac.at/fis/suchen.projekt_uebersicht?sprache=in=e	walter.wenzel@boku.ac.at , christoph.pfeifer@boku.ac.at	Walter Wenzel & Prof. Dr. Christoph Pfeifer

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	strategy for the future	will help to close nutrient cycles, protect the diminishing phosphate resources and improve the fertility of agricultural soils.				n&ansicht_in=&menueid_in=300&id_in=10302	.at	
Helsinki wastewater nutrient recovery	New innovative methods for nutrient recovery and harvesting in wastewater treatment plants	Helsinki Region Environmental Services Authority (HSY) is a municipal body, which produces waste management and water services, as well as providing information on the Helsinki Metropolitan Area and environment. HSY will develop an innovative waste water treatment process. In the process phosphorus is recovered during the waste water treatment instead of recovering it from the residue, as it is done in the competing processes. Successful development of the process would mean a way to produce organic fertilisers free from hazardous substances as a by-product of waste water treatment process.	?	?	?	?	mari.heinonen@hsy.fi	Mari Heinonen
IMPROVE-P	Improved Phosphorus Resource efficiency in Organic agriculture Via recycling and Enhanced biological mobilization	The IMPROVE-P project will assess phosphorus recycling in organic farming, taking into account potential for urban nutrient recycling and risk assessment of possible contaminants. Organic farming systems rely on the efficient use and recycling of available resources. Currently, some mineral nutrients like phosphorus (P) are used only once to produce food. Subsequently, they are lost due to poor recycling of organic wastes back to farmland. There is an urgent need to improve the recycling of P from urban areas and the food industry, back to cropland. However, the traditional application of some of these waste products in agriculture is facing increasing concerns about pollutants (heavy metal, xenobiotics) and protection of soils and environment. There are many technological alternatives to recycle and clean the phosphorus already available, affecting P bio-availability and pollutants content. The different options will be evaluated from an agronomical and ecological	1-6-2013	1-5-2017	Private company	https://improve-p.uni-hohenheim.de	kurt.moeller@uni-hohenheim.de , julia.cooper@ncl.ac.uk	Kurt Möller

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		point of view in the frame of this project.						
I-PHYC	Industrial Phycology	Industrial Phycology is an award-winning SME that offers sustainable water recycling and nutrient recovery solutions. Applying cutting-edge technology, the I-Phyc system uses microalgae at an industrial scale to treat wastewater from agricultural, industrial and municipal sources.	?	?	?	http://www.i-phyc.com	info@i-phyc.com , dan@i-phyc.com , lucie@i-phyc.com	?
IWARRC	International Water Association Resource Recovery Cluster	Best Practices on Resource Recovery from Water. IWA Resource Recovery Cluster aims to bring together R&D, water industry and materials users, and to promote economically and environmentally attractive approaches to resource recovery. Learning from Best Practices on Resource Recovery from Water.	2014	2018	Topconsortia voor Kennis en Innovatie (TKI) public-private partnership funding (Netherlands) till end of 2015 & International Water Association till 2018	https://iwa-connect.org/#/groups/resource-recovery-from-water-cluster?view=public http://www.bestresourcesfromwater.org	Kees.Roest@kwrwater.nl , Hong.Li@iwahq.org	Kees Roest
Netherla	Micronutri	Brimstone will recover micronutrients Zinc and	?	?	Brimsto	http://b	ate@n	Ate Ludwig

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
nds Micronut rients from batteries	ent recovery from recycled batteries	Manganese from recycled consumer batteries in the Netherlands. At this moment testing in lab is finished, the project tries to find funding for a pilot scale plant.			ne own funding	rimston efertiliz ers.com /?Brimst one Fer tilizers _Winni ng_van essenti %C3%A Ble nutr i%C3%A Bnten u it restst romen	- xt.com . Ate@l ukro.n et, marcel .vancul embor g@zet adec.c om	& Marcel van Culemborg
Nurec4or g	Nutrient recyclates for organic farming	The Nurec4org project launched in 2017 will support the uptake of recycled nutrient products in organic farming in Germany. It is led by Kompetenzzentrum Wasser Berlin (KWB) and Bioland (Germany's biggest organic farmers' association) and funded by DBU, Germany's largest environmental foundation. Actions will include studying the market potential for recycled phosphorus products in organic farming and potential supply availability, looking at acceptance criteria for organic farmers and consumers, testing agronomic value and evaluation environment, health and life cycle factors. The objective is to provide both evidence and stakeholder consensus to support regulatory acceptance of recycled phosphates in organic agriculture. Partners: KWB, Bioland, IASP.	1-1-2017	31-12- 2018	DBU (Founda tion for Environ ment, German y).	?	christi an.kab be@k ompet enz- wasser .de	Christian Kabbe
OCAPI	Optimisatio n of CARbon, nitrogen and Phosphorus cycles in	The objective of the project is to explore possible ways of developing sanitation systems to meet the challenges of the 21st century: maximizing the value of the carbon, nitrogen and phosphorus resources present in wastewater, while limiting the use of energy and resources and the environmental impact of the sanitation system. In order to do this, the project will study possible	1-11-2014	1-2-2018	Greater Paris Wastew ater Authorit y, Seine- Norman	http://w ww.lees u.u- pec.fr/O CAPI- present ation	fabien. esculie r@pon ts.org	Fabien Esculier

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	the city	changes at all stages in the sanitation chain.			dy Water Agency, Ministry of Ecology			
OPF	Our Phosphorus Future	The project aims to: (1) Bring together scientific evidence to support policy development; (2) Raise awareness of the priority issues, possible solutions and co-benefits of delivering global phosphorus sustainability; (3) Contribute to consensus development around the scientific base and the issues identified. The core project output will be a synthesis report which will be used to communicate the evidence on issues surrounding the flows and drivers of the global phosphorus cycle, and provide clear messages, including the capacity of changes in societal behaviour to improve sustainable phosphorus use.	1-2-2017	31-1-2019	UK Natural Environment Research Council	?	OPF@ceh.ac.uk, wilow n@ceh.ac.uk	Will Mayes (CEH)
PFeWTR	Phosphorus capture, recycling and utilization for sustainable agriculture and a clean environment using iron desalination residuals (Fe-WTR)	The PFeWTR project aims to recover phosphorus from agro-waste streams into a fertilizer using water treatment residuals (WTRs). Major agricultural wastewaters and leachates from farms and confined animal feeding operations are highly enriched with P and should be targeted for their P mining potential. Thus, developing means to capture the lost P, and reutilizing it for sustainable agriculture, could be paramount in extending future P use in production agricultural settings in Europe and beyond. An excellent opportunity exists to provide means of recovery and reuse P, while minimizing environmental pollution by using iron-based water treatment residuals (Fe-WTR), a waste by-product of desalination facilities. Using Fe-WTR may also provide crops with the crucial micro-element Fe. Recent work in MIGAL's laboratory showed that Fe-WTR has a great potential to capture P from dairy wastewaters that contain several 10s mg L ⁻¹ P and further release it.	?	?	?	?	litaori@telh.ai.ac.il , Irisz@migal.org.il	Iggy M. Litaor

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		Greenhouse experiments indicated the P-enriched Fe-WTR successfully supported plant growth (lettuce as test crop) as the commercialized granular and liquid P fertilizers. The project continually examines other test crops, different soil types and agro-technical working procedures, while lab work continues in elucidating the Fe-WTR capturing P pools and sorbing mechanisms, using state of the art means, to improve P recovery.						
Phorwärts	LCA study to compare fertilizer production from rock phosphate with phosphorus recovery from the wastewater stream	Phosphorus is essential for life and an indispensable component of many fertilisers. The European and national legislation calls for the recovery of phosphorus from the wastewater stream in the medium term. Due to the lack of reliable data it has remained unanswered so far to what extent P-recovery can be considered appropriate in ecological and economic terms. By means of the LCA methodology, the PHORWÄRTS project compares conventional fertiliser production from rock phosphate with selected methods of phosphorus recovery from the wastewater path. Since the informative value of the parameter toxicity is rather limited in conventional LCAs, the project PHORWÄRTS additionally provides a comparative contaminant risk assessment for the fertilizer application for different fertilizers. In this context, the contamination with heavy metals and organic pollutants is spotlighted. This comparison will be completed by a cost estimate of the various production methods.	1-9-2016	28-2-2018	UBA (Germany)	http://www.kompetenz-wasser.org/PHORWaerts.608.0.html?&L=2&type=%25270	Fabian.Kraus@kompetenz-wasser.de	Fabian Kraus
Phos4Life	Process for phosphorus recovery from sewage sludge incineration ash	Phos4life is the name now used for the process for phosphorus recovery process from sewage sludge incineration ash (SSIA), for which development is led by Zurich Kanton (AWEL) and ZAR (Zentrum für nachhaltige Abfall- und Ressourcennutzung). A 3.3 million Swiss Franc (CHF) industrial development and pilot program was announced in 2015 (see SCOPE Newsletter n° 119). The process developed together with Técnicas Reunidas and successfully tested under micro-pilot plant operation	?	?	Zurich Kanton funding	http://www.klaerschlam.m.zh.ch	leo.morf@bd.zh.ch	Leo Morf

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		<p>in Madrid uses sulphuric acid (at 96%) to solubilise phosphorus and other elements in the ash, then hydrochloric acid and solvent extraction to separate phosphorus acid from iron chloride solution and heavy metals. The full scale process is planned to treat 30 000 t/year of SSIA, to produce 11 000 t/year of 74% phosphoric acid (after concentration using steam), 34 000 t/y of 40% iron chloride solution for recycling as coagulant agent in waste water treatment plants and 42 000 t/y of a residue which can be used by the cement industry. Heavy metal contaminants are nearly completely (>85%) transferred to a metal concentrate for metal recycling. The initial test results show the following recovering rates of the total potential in the SSIA: Phosphorus >95% (as phosphoric acid); iron: >90% (as iron-chloride solution). The total net cost for the thermal treatment of the digested and dewatered sewage sludge (DDSS), at 30% dry matter, including the Phos4life-process to recover the above materials out of the SSIA is around 170 CHF/t DDSS after deducting around 60 CHF (55 €) estimated revenues for phosphoric acid and other products. This is 70 CHF/ t DDSS higher than the thermal treatment only of DDSS today, but is lower than the treatment of DDSS before the system change to a single centralized mono-incineration plant for the entire Zurich Kanton.</p>						
PProduct	Potential of sewage sludge phosphorus in plant production	<p>The purpose of this study is to study the long term fertilizing effect of sludge bound phosphorus, which is not yet fully recognized as a possible alternative resource. One aim is also to study the concentrations of selected hazardous substances and pharmaceutical residues and their possible accumulation to food chain. A novel method for future handling of sewage sludge may be pyrolysis and now also its effect on the above mentioned factors is studied. Sewage sludge is the most significant source of phosphorus (P) that is barely utilized</p>	1-1-2012	31-3-2018	Finland Ministry of Agriculture	?	kari.ylivainio@luke.fi	Kari Ylivainio

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		in plant production in Finland. However, it is estimated that easily exploitable P reserves will be depleted in the near future, requiring more efficient utilization of these unused P resources. Low solubility of sewage sludge based P decreases its value as a fertilizer together with occurrence of hazardous substances and pharmaceutical residues, originating from the various domestic and industrial sources. There is also a concern that these harmful organic substances may have adverse effects to soil ecosystem and end up to surface and groundwater resources and to food chain.						
PREcover	Recovering phosphorus from sewage sludge to fertilizer	The proposed project (PREcover) aims to develop new methods for improving bioavailability of wastewater P capture products, creating a new fertilizer end product. The second aim is to develop a common method for estimating bioavailability of P for efficient and environmentally friendly use of the capture products. World's mineral phosphorus (P) reserves are diminishing, leading to elevated prices of P fertilizers. For sustainable agriculture practices, new ways of recycling P and closing the circulation are needed. In Finland, P in sewage sludge is the most neglected P source in agricultural production due to, among other things, low bio-availability of P in the capture products.	1-1-2015	31-3-2018	Finland Ministry of Agriculture	?	kari.ylivainio@luke.fi	Kari Ylivainio
RAVITA	RAVITA nutrient recovery – innovation for direct nutrient recovery from wastewater	RAVITA DEMO project contains the building project of the demonstration plant for phosphoric acid production. In the RAVITA process, phosphorus is not recovered from sludge streams but it is recovered in the very end of the wastewater treatment process by post precipitation. Because phosphorus is taken directly from the wastewater, it can be recovered in clearly larger quantities than using other methods. The amount of recovered phosphorus can also be regulated if necessary. The end product phosphoric acid contains very little organic impurities or heavy metals. The phosphorus recovery process can be combined with nitrogen	2015	2019	Environmental ministry of Finland (selected as Key project for the circular economy in	https://www.hsy.fi/ravita/fi/etusivulle/Sivut/default.aspx	mari.heinonen@hsy.fi	Mari Heinonen

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		recovery by using recycled phosphoric acid in stripping process. Thus the end product is ammonium phosphate. One of the most central advantages of the RAVITA method is that it can be applied to technically different kinds of treatment plants and treatment plants of different sizes.			Finland) and Helsinki region environmental services authority HSY			
Rec Alkaline	Alkaline battery micronutrient recycling	Rec Alkaline Ltd is developing a method for recycling alkaline batteries, which will raise the recovery rate above 80 percent. The method for chemical processing of alkaline batteries takes place at room temperature so it consumes a fraction of the energy required by the foundry method. Investment costs are also significantly lower than with smelter technology, which requires substantial initial spending. And the recovery rate is almost twice as good as smelters can offer. The company has studied and developed the process for many years. Financing from Tekes facilitated the initial research and helped to chart chemical models. The company has started building the technology in 2015. The factory will be completed during Q3/2017.	?	?	Company funding	http://www.recalkaline.fi/en	tatu@recalkaline.fi jarmo@recalkaline.fi	Jarmo Pudas
Redmedite	Phospahte recovery from WWTP final effluent/ permanent binding of dissolved heavy metals	Approval has been received from EU commissioners to use an industry waste stream to be processed into Redmedite. Redmedite is manufactured into robust pellets or powder and has high percentage recovery rates of phosphorus and extremely high rates for permanently 'binding' dissolved heavy metals in mine water and tailings (Fe,As,Cu,Zn,Cd,Ni) all over 99% success rate. Currently working with the John Innes Centre, Norwich, UK proving non-leachable captured P is bio-available to plants (wheat, oil seed rape).	Ongoing	31-1-2018	KEEP+ Innovate UK funding	http://www.redmediatech.com	Chris.drays@redmediatech.com	Chris Drayson
SAVE	Agricultural application of	Gypsum, mainly consisting of calcium sulphate with some 0.2 % phosphorus is the byproduct of phosphoric acid production from phosphate rock. At Yara's Siilinjärvi	2016	2018	?	http://blogs.helsinki.fi/sa	seija.luomanpera@y	Seija Luomanperä

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	phosphogypsum	plant, Finland, some 1.3 million tons of gypsum is produced yearly. Because of the quality of Finland's phosphate rock resources (igneous deposits) and the phosphoric acid production process operated by Yara, contaminant levels in the gypsum are low (conform to Finland fertiliser regulations and to the proposed EU Fertiliser Regulation values for soil improvers). Following initial trials 2008-2013, the SAVE project 2016-2018 is testing the impact of gypsum application on 1 550 hectares in South West Finland. Gypsum is applied 4 tonnes/ha once per five years. To date, the gypsum application shows a reduction in field losses to water of -30% soluble phosphorus, -60% particulate phosphorus and -50% dissolved organic carbon.				ve-kipsihanke	ara.com, Gauthier.Boels@yara.com	
Sludge P recycling Norway	Increasing availability of phosphorus in the sludge coming from WWTPs (Norway)	Investigations on the use of lime in sludge handling with the aim to increase the phosphorus availability on sewage sludge from sewage treatment plants in Norway. Secondary objectives (1) Explain the effect of different dosage amounts of different types of lime on the phosphorus availability of the digested sludge (biorest); (2) Analyse changes in the odor potential of digested sludge after adding the different types of lime and doses; (3) Analyse the hygienisation effect of applying different types of limes and doses. Sub-objective (4) Determine costs associated with limestone dosage to digested sludge.	2017	2017	Regional research fund - the capital, RFFHST AD, Norway	?	pau@cowi.com	Bjarne Paulsrud
TransBio	Technological transition of the Flemish biogas sector towards innovative business	Despite its high added value, anaerobic digestion as a base technology still has a high investment and operating cost. The technology is still strongly depending on financial support for renewable energy technologies. Clearly all parties involved, such as governments and energy partners, want to reduce the level of support to a minimum, while biogas producers themselves also strive for more independence, robust business models and decreased support dependence. TransBio aims to further optimize the baseline business model for anaerobic	1-10-2015	30-9-2019	Co-funded by Flanders Innovation & Entrepreneurship (IWT-VIS)	http://www.biogas-e.be/transbio	info@biogas-e.be, sam.tessens@biogas-e.be	Sam Tessens

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	models with increased profitability and reduced support dependence	digestion plants by focusing on knowledge and innovation. Within the project four scenarios were identified which could induce a significant cost reduction or revenue increase. One scenario focusses on the recovery and reprocessing of mineral constituents to high quality mineral fertilizers (N/P/K) which can act as fossil based fertilizer substitutes, resulting in a closed nutrient cycle and a more valuable end-product. The TransBio project is led by Biogas-E, platform for anaerobic digestion in Flanders, in cooperation with the Ghent University (Belgium).						
UNEP INMS	International Nitrogen Management System	Targeted Research for improving understanding of the Global Nitrogen Cycle towards the establishment of an International Nitrogen Management System (INMS)' is a project proposal to the Global Environment Facility (GEF) Trust Fund in coordination by United Nations Environmental programme (UNEP). INMS is a science-policy support process that brings together people, information, approaches, indicators, cost-benefit analysis, regional demonstration, etc as a basis to support governments and others through international nitrogen policy processes. The big message is to count the co-benefits of a joined-up nitrogen approach. By addressing better management across the nitrogen cycle, we can contribute to improving Economy-Wide Nitrogen Use Efficiency, while reducing surplus that would often be wasted as pollution.	3-1-2016	?	UNEP funding	http://www.inms.international	wilow.n@ceh.ac.uk?	Will Brownlie?
UPM and Yara recycled fertilisers	UPM and Yara to co-develop recycled fertilisers	The efficiency of recycled fertilisers and the need for their supplementation by mineral fertilisers are studied in the field trials at Kotkaniemi Research Station. The joint project by UPM and Yara concentrates on the possibilities for the agricultural reuse of nutrients retrieved from the sludge originating from the pulp and paper mill's effluent treatment plants and the ash from the incineration process. Together with UPM's R&D team, we are developing a nutrient solution that contains the correct	2017	2018	Raki2, a nutrient recycling programme from the Finnish Ministry	http://www.upm.com/About-us/Newroom/Releases/Pages/UPM-and-	koen.van.keeper@yara.com , Gauthier.Boels@yara.com	Koen Verkeer

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		ratio of recycled and mineral nutrients. Recycled fertilisers do not automatically contain the correct amount of nutrients, so they need to be supplemented by mineral fertilisers that the plants can utilise without difficulties. This ensures that all nutrients move to the plants during the growing season and do not remain in the fields to then be washed up to waterways.			of the Environment	Yara-to-co-develop-recycled-fertiliser-s-001-Thu-10-Nov-2016-10-03.aspx		

5 Finished EU funded projects

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
ALL-GAS	Industrial scale demonstration of sustainable algae cultures for biofuel production	This project will demonstrate on large scale the sustainable production of bio-fuels based on low-cost microalgae cultures. The full chain of processes from algal ponds to biomass separation, processing for oil and other chemicals extraction, and downstream biofuel production, as well as the use in vehicles, will be implemented on a 10 ha site. Depending on the methodology chosen during the research phase of the project, and the sustainability analysis, the most suitable site for the objectives will be selected, among a number of selected locations in the South of Spain (Chiclana, Almeria, Sevilla, Arcos, Canary Islands...) Wastewater influent and nutrients will be re-used to stimulate algae growth. The extracted oils will be processed at an existing biodiesel plant (capacity 6000 t/yr of used oils), designed by a consortium partner, which can be converted at reasonable cost.	1-5-2011	30-4-2016	EU FP7	http://www.all-gas.eu	innovacion@aqualia.es	?
ANPHOS	Environmentally friendly phosphorus removal in anaerobic effluent by means of the struvite process	The project aimed to apply the struvite process in anaerobic conditions to industrial effluents resulting from potato processing. The chemical composition of these industrial effluents is very different from those to which the technology was previously applied on a smaller scale. The struvite process will achieve the removal of both phosphorus and nitrogen (in NH ₄ form). By performing this demonstration project, LWM aimed to contribute to the development, the use and the spread of a new technology that would prevent phosphorus from polluting surface waters, and that would encourage the reuse of, and the recycling of phosphorus from, industrial waste waters. The objectives of the project were: 1. Demonstration of the economic, social and environmental benefits of the struvite process in industrial wastewater treatment with the first trial at	1-12-2002	1-6-2005	LIFE+	http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&proj_id=2335	ceesvanrij@ambw-eston.nl	Cees van Rij

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		industrial scale of this de-phosphorisation process of anaerobic effluents. 2. Obtaining of reliable data (measurements) on the operating conditions. 3. Informing the food industry and other relevant actors about the struvite process.						
AQUA	Achieving good water QUALITY status in intensive Animal production areas	The AQUA project's main objective was to help reduce water pollution from nutrients at the river basin level by optimising the use of nitrogen and phosphorus from livestock farms, thus reducing nutrients losses to water. This aim would be achieved by: (1) Reducing nitrogen in manure by lowering nitrogen inputs in feedstuffs (using feeding techniques based on low-protein diets); (2) Improving efficiency of fertilisation; (3) Maximising the efficiency of nutrient use (N and P); (4) Promoting manure application for crop rotations characterised by a long growing season and high uptakes; (5) Reducing nutrient losses caused by agriculture through agro-environmental measures and practices; (6) Reducing pressures and impacts within intensive livestock agricultural catchments by separating the solid fraction from manure and transferring this fraction to areas characterised by low fertility or declining soil organic matter; and (7) Improving and simplifying monitoring and controls on farming practices by implementing tools for the traceability and certification of good practices in nutrient management at farm level.	1-10-2010	31-3-2014	LIFE+	http://ec.europa.eu/environment/life/projects/projects/index.cfm?fuseaction=search.dspPage&proj_id=3645	m.ligabue@crpa.it	Marco Ligabue
Aquavlan	Sustainable aquaculture in region Flanders-Netherlands	The Aquavlan project focussed on economic, social and ecological aquaculture including closed loop system fish and sea food culture.	31-8-2009	30-8-2012	INTERREG Flanders - Netherlands	http://www.aquavlan.eu	wout.abbink@wur.nl	Wout Abbink
ARBOR	Accelerating	The ARBOR project aims to accelerate the development and use of biomass in North-West Europe in order to	25-9-2009	31-3-2015	INTERREG IVB	http://4b.nweur	t.t.alshem	Prof T T Al Shemmeri

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	Renewable Energies through valorisation of Biogenic Organic Raw Material	facilitate the sustainable achievement of 2020 energy objectives and to make EU a world-class centre for biomass utilisation. The project will provide useful intelligence to address where transnational cooperation may help to address individual country supply and demand issues, while innovative pilot projects will inform implementation of biomass energy transformation solutions. ARBOR is delivered by an established cross sector partnership, with representatives from public authorities, private sector, research institutes and private sector intermediaries to ensure consideration of the whole biomass life cycle.			NWE, Member ship network	ope.eu/index.php?act=project_detail&id=5364	meri@staffs.ac.uk	
BioEcoSim	An innovative bio-economy solution to valorise livestock manure into a range of stabilised soil improving materials for environmental sustainability and economic benefit for European agriculture	In the BioEcoSIM project led by Fraunhofer IGB, 14 partners from research and industry developed a technology to convert livestock manure into organic soil improvers and mineral fertilisers. The overall process uses energy-efficient technologies and works on the principle of circular economy. The technology prototype is capable of processing 50 kg of raw manure per hour into fertilisers and organic soil improvers. The products obtained have excellent quality as fertilisers and can then be mixed to match the nutritional requirements of any crop. BioEcoSim aimed to recover a stabilised organic soil amendment product (biochar) and nutrient fertiliser products (P and N salts) from manures. The process involves acidification (sulphuric acid), solid/liquid separation, struvite precipitation and ammonia recovery, supercritical steam drying and pyrolysis of the organic fraction. The project included construction and testing of a pilot plant and assessment, including analysis of regulatory aspects of recovered product marketing. This project targeted to produce sustainable soil improving products that can be easily handled, transported, and applied. BioEcoSIM valorises livestock manure as an important example of valuable bio-waste into 1) pathogenfree, P-rich organic soil amendment, 2) slow	1-10-2012	31-12-2016	EU FP7	http://www.bioecosim.eu	jennifer.bilbao@igb.fraunhofer.de, ramon.a.kuefer@igb.fraunhofer.de	Jennifer Bilbao

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		releasing mineral fertilisers and 3) reclaimed water. The project combined three innovative technologies 1) superheated steam drying 2) precipitation unit of struvite and calcium phosphate and 3) selective separation and recovery of NH3. Water reclaimed from manure will be utilised for livestock production and/or irrigation. The sustainability of this approach was validated against standards ISO14040 and ISO14044. Implementation of the R&D results will help fulfil the need for economically viable and environmentally benign practices in European agriculture to move towards a more resource-efficient and circular economy.						
Biorefine project	Recycling inorganic chemicals from agro- and bio-industrial waste streams	The BIOREFINE project aims to provide innovative strategies for the recycling of inorganic chemicals from agro- and bio-industry waste streams. It wants to maximally close nutrient cycles by minimizing residue flows and economically valorising the minerals that can be recovered from these residue flows. In this way, the BIOREFINE project targets to reduce environmental pollution and the wasting of finite resources and thus to stimulate a sustainable and more bio-based economic growth. Eventually this should create a win-win situation for both the environment and the economy in the NWE region. BioRefine puts a lot of emphasis on cross-sectoral and international networking where the actions include support for the establishment of regional nutrient platforms and dialogue between the different networks. The project also identifies nutrient recovery techniques from different waste streams which would be most suited for quantitative and qualitative nutrient requirements of the market. Good practice techniques are explored at pilot scale and in demonstrations. In this respect, BioRefine is working with industrial operators who are implementing struvite recovery from different waste streams, for example Aquafin at municipal wastewater treatment works in Leuven, Belgium. The	1-5-2011	1-12-2015	INTERREG IVB NWE	http://www.biorefine.eu/biorefine	info@biorefine.eu, erik.meers@ugent.be, eva.clymans@ugent.be	Erik Meers & Eva Clymans

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		project's work should result in new strategies for cross-sectoral resource recovery.						
Bioteam	Optimizing pathways and market systems for sustainable bio-energy	The aim of the BIOTEAM project is to help public and private stakeholders gain better insights on how the bioenergy market works and how private business decisions and EU and national policy instruments (e.g., NREAPs, fiscal instruments, feed-in schemes, land-use/forest management policies, etc.) affect bioenergy pathway competitiveness and sustainability (i.e. environmental, economic and social). The impact of BIOTEAM will be that public and private sector stakeholders in six EU countries (Finland, Germany, Italy, the Netherlands, Lithuania and Poland) revise or at least consider a revision of their decisions (e.g. bioenergy policy incentives, choice of biomass feedstock, investment size of bioenergy production plants) towards more sustainable pathways on the basis of the insights developed by the project. Capitalisation and transfer of tools and results to other EU countries is foreseen.	1-4-2013	1-3-2016	Co-funded by the Intelligent Energy Europe Programme of the European Union	http://www.sustainable-biomass.eu	wytze@jin.ngo, eise@jin.ngo, krisztina@jin.ngo, daniel.e.russolillo@fondazioneambiente.org, alicemontalto@fondazioneambiente.org	Eise Spijker & Krisztina Szendrei
BONUS PROMISE	Phosphorus Recycling of Mixed Substances	Phosphorus recycling from mixed agricultural and municipal wastes to prevent Baltic Sea nutrient input and eutrophication, assessing possible impacts of contaminants (e.g. xenobiotics and pathogens in manures). Agriculture is the largest contributor to the non-point phosphorus load in the Baltic Sea region, and recycling of P from urban and agricultural organic wastes is the only way to conserve the resource and to prevent eutrophication. To produce safe recycled fertilisers, however, handling and treatment procedures need to be improved and implemented, since P-rich materials may contain significant amounts of organic contaminants,	1-4-2014	31-3-2017	BONUS PROMISE project has received funding from BONUS (Art 185), funded	http://www.bonusportal.org/projects/innovation_projects/promise	kari.ylivainio@luke.fi	Kari Ylivainio

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		heavy metals and pathogens. Mono-incineration together with successive processing may be a way to ensure a full recovery of P in a safe fertiliser product. A shining example of cutting-edge solutions to protect water bodies could be demonstrated in the Baltic Sea region through efficient handling and treatment procedures combined with environmentally sound agricultural practices. BONUS PROMISE will convey backbone data on potentially hazardous contaminants in organic and recycled phosphorus fertilisers, assess strategies for P fertilisation that fully acknowledge food safety and food security, establish agro-technological transfer regions and thus pave the way for a fundamental adoption of advanced fertiliser practices in the Baltic Sea region.			jointly by the EU and Ministry of Agriculture and Forestry, PTJ and VINNOVA			
CANTOGETHER	Crops and Animals TOGETHER	Agricultural production faces numerous challenges regarding competitiveness, conserving natural and non-renewable resources and ecosystem services. Society also expects from agriculture to be more environment-friendly in several issues such as climatic change, declining biodiversity, fossil energy depletion, and water shortage. To overcome these limitations, the CANTOGETHER project will design innovative sustainable mixed farming systems (MFS). A design-assessment-adjustment iterative cycle will be adopted to ensure continuous validation and improvement of the innovative investigated MFS through a participative approach involving stakeholders and researchers across Europe.	1-1-2012	31-12-2015	EU FP7	http://www.fp7cantogether.eu http://cordis.europa.eu/project/rcn/101746_en.html	philippe.leterme@agrocampus-ouest.fr, hein.korevaar@wur.nl	Philippe Leterme
CLONIC	Closing the nitrogen cycle from urban landfill leachate by	The objective of the CLONIC project was to demonstrate the effectiveness and environmental benefits of an innovative process (PANI/SBR/ANOMMOX and thermal dry) for the treatment of leachate. Treatments based on a partial biological autotrophic oxidation of ammonium to nitrite (PANI-SBR process), followed by an autotrophic	1-9-2003	31-5-2007	LIFE+	http://ec.europa.eu/environment/life/project/P	e.jimenez@cespa.es	Elena JIMÉNEZ COLOMA

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	biological nitrogen removal over nitrite and thermal treatment	anaerobic ammonium oxidation via nitrite (Anammox process), were to be studied as a more sustainable and cheaper alternative for the nitrogen removal from urban landfill leachates. Following this, thermal drying treatment using biogas as an energy source was to be carried out in order to retain the salt in the dry powder produced.				rojects/index.cfm?fuseaction=search.dspPage&_proj_id=2356		
Combine	Converting Organic Matters from European urban and natural areas into storable bio-Energy	The COMBINE project aims at opening up of abandoned urban, natural and agricultural areas for the energy production. The utilisation and development of environmentally friendly technologies are key factors for the achievement of the ambitious aims of EU to increase the share of renewable energies. The energetic utilisation of biomass has an important role, as in contrast to other renewables (wind/PV), biomass is storable and it is possible to produce storable bio-fuels. However, at present the energy production from biomass is often economically inefficient, e.g. through an insufficient utilization of waste heat in conventional biogas plants. The conventional production of biomass for biogas plants is often eco-inefficient, e.g. due to the dominance of maize and the increased risk of soil erosion and nutrient losses. The competition with food production on fertile land and the resulting increase of prices for land and agricultural products causes ethical and socio-economic problems.	2013	2015	INTERREG IVB NWE	http://www.combine-nwe.eu	mwac@uni-kassel.de	Prof. Dr. Wachendorf
DeBugger	Demonstration of efficient Biomass Use for Generation of Green Energy and Recovery of	Generation of Green Energy and Recovery of Nutrients. Using farmyard manure and human waste as an energy source for fuel or as a supplement to wind and solar energy and at the same time as a fertiliser in agriculture. Efficient and safe exploitation of excrements is hampered by: a) high water content and b) pathogens and organic pollutants. Incineration or gasification destroy pathogens and concentrate nutrients in the residues. The project demonstrates technologies to yield energy and	1-1-2013	31-12-2015	EIT KIC InnoEnergy & LIFE+	http://www.innoenergy.com/case-study/debugger	Ludwig.hermann@outotec.com	Ludwig Hermann

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	Nutrients	renewable fertilisers from waste flows that may have a combined technical energy potential of 3.5 million TJ and a phosphate recovery potential of 6 million tons (as P2O5) in Europe. The challenges are to close and manage the nutrient flows and to exploit the total energy potential of wet biomass waste.						
DemEAU med	Closing the water cycle in Mediterranean tourist facilities	The aim of demEAUmed project was the involvement of industry representatives, stakeholders, policy-makers and diverse technical and scientific experts in demonstrating and promoting innovative technologies, for an optimal and safe closed water cycle in the Euro-Mediterranean tourist facilities, leading to their eventual market uptake. As well as, the reduction of fresh water consumption in hotel installations, green and recreational areas, etc. This was achieved by using alternative water sources, such as treated groundwater, treated rainwater or the reuse of treated grey waters and/or wastewaters within the resort. The project contributed a constructed wetland build vertically in stages, called a vertical ecosystem, suitable to treat greywater and which can be installed on walls indoors and outdoors. The pollutants in the greywater are actually nutrients for the microorganisms in the root zone and the plants. The greywater at the Hotel in Spain evidenced only low quantities of phosphorus and very moderate amounts of nitrogen. About 60% of P was removed and stored in plant biomass suitable for composting, while 75% of N could be removed from the water.	1-2-2014	30-6-2017	EU FP7	http://www.demaumed.eu	gbuttiglieri@icracat, e.mino@semide.org, office@alchemianova.net; th@alchemianova.net	Gianluigi Buttiglieri, Eric Mino, Heinz Gattringer
DIGESMART	Digestate from Manure Recycling Technologies	This project brings together all stakeholders for the installation of a new process to minimize spreading digestate flows and to economically valorize the minerals (nitrogen, phosphorus and potassium, among others). By using digestate instead of synthetic fertilisers, it is possible to save energy, limit consumption of fossil fuels and reduce our carbon footprint.	1-9-2013	31-8-2016	Co-funded by the EU Eco-innovation initiative	http://www.digesmart.eu	info@biogas-e.be, jonathan.de.mey@biogas-e.be,	Jonathan De Mey

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
							denis@detri.con.eu pgomez@ainia.es , remigio.berruto@unito.it , p.rendina@statasrl.it	
DYNAMIX	DYNAMIC policy MIXes for absolute decoupling of environmental impact of EU resource use from economic growth	The DYNAMIX project will propose dynamic and robust policy mixes to shift the EU onto a pathway to absolute decoupling of long-term economic growth from resource use and environmental impacts. DYNAMIX assumes that the tremendous task of reaching absolute decoupling will require paradigm shifts in the way production and consumption is organised and regulated. It will therefore assess how existing and emerging paradigms affecting absolute decoupling can inform concrete policy-making. Combined with an ex-post analysis of existing inefficiencies in resource use and inadequacy of current resource policies, this will allow identifying promising policy mixes for progressing towards decoupling. These policy mixes will then be tested in qualitative and quantitative ex-ante assessments for effectiveness (benchmarked against absolute resource and impact decoupling), efficiency, sustainability and contribution to eco-innovation, using innovative environmental and economic modelling.	1-9-2012	31-3-2016	EU FP7	http://dynamix-project.eu http://cordis.europa.eu/result/rcn/187141_en.html	?	Dr. Martin Hirschnitz-Garbers
ECOPHOS	Waste utilisation	The ECOPHOS project involves the development of a new research and innovation strategy for the waste	1-12-2005	30-11-2008	EU FP7	http://cordis.eu	RBC2consult	Rob de Ruijter

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	in phosphoric acid industry through the development of ecologically sustainable and environmentally friendly processes for a wide class of phosphorus-containing products	minimisation and utilisation in the phosphoric acid industry. The main aim is the development of ecologically sustainable, environmentally friendly, resource and energy saving industrial process technology for the production of a wide-class of phosphorus-containing substances. The project focuses on new technologies for (a) the production of useful phosphorous salts (fodder, food and pharmaceutical phosphates), phosphorus acid and phosphates in a cost efficient and ecologically sustainable way, (b) the improvement of existing methods in the phosphoric acid production for the drastic minimisation of waste, (c) the utilisation and processing of industrial solid waste from the production of phosphoric acid and (d) the production of a new generation of phosphoric fertilisers. Mathematical models and computer-aided process engineering tools guarantee the efficient and sustainable operation of the production systems with key objectives the reduction of cost, waste and energy. The new technological advancements will be accommodated in an information system for easy access and utilisation. The newly developed production systems will be classified with respect to both the waste properties and the environmental and sustainability potentials. An expert system will assist the user to select the appropriate production scheme according to the needs and particular specifications. The new methodology will be validated and in future exploited by two major industrial end users one from the EU and one from the NIS.				ropa.eu /project /rcn/74809_en.html http://cordis.europa.eu/result/rcn/46835_en.html	ancy@gmail.com	
End-o-Sludge	Marketable sludge derivatives from sustainable processing of	This project researches, develops and demonstrates a toolkit of novel processes together with market development for advanced sludge-based products and integration methodologies that can be applied to a range of wastewater treatment plants based on a typical municipal scenario. The project took an overall approach to improving municipal sewage sludge management,	01-012011	1-12-2013	EU FP7	<u>NOT WORKING</u> www.end-o-sludg.eu , see	r.sakrabani@cranfield.ac.uk	Ruben Sakrabani

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	wastewater in a highly integrated treatment plant	looking at sludge reduction, solid-liquid separation by air flotation, recovery of biopolymers (BioPOL) and recycling of nutrients (phosphorus, nitrogen and carbon) by production of an organo-mineral fertiliser. BioPOL is produced by milling the sewage sludge to break down cell structures and release biopolymers, then treated with alkali salt (NaOH). BioPOL was tested as a flocculant, and showed potential for replacing petro-chemical polymers in sludge treatment. This would enable use of a renewable product derived from the sewage itself for this process, and would avoid spreading of the petro-chemical polymer flocculants. The organo-mineral fertiliser produced from treated sewage sludge showed good agricultural performance, with nutrient plant availability contributing to crop growth, as well as increasing soil carbon (positive for nutrient plant use, water retention and so drought resistance, and for soil structure thus reducing soil loss and erosion). Contaminant levels measured were considered not problematic. However, difficulties were encountered in producing pellets of the organo- mineral product with sufficient density and physical resistance for use with farmers' fertiliser spreading equipment.				http://cordis.europa.eu/result/rcn/172107_en.html		
ES-WAMAR	Environmentally-friendly management of swine waste based on innovative technology: a demonstration project set in	The LIFE ES-WAMAR project aimed to improve the management of pig slurry so as to minimise its environmental impact by introducing an integrated management model for the processing and distribution of pig slurry. It sought to match the needs of arable farmers for fertilisers with the need of pig farmers to dispose of their slurry appropriately and economically through collective action. It thus planned to: reduce soil, water and air contamination - especially nitrates from non-point sources – in areas around pig farms; and maximise nutrient recycling through the valorisation of the pig slurry on arable land. The management model also aimed to improve economic efficiency and minimise	1-10-2006	31-3-2011	LIFE+	http://www.life-eswamar.eu http://ec.europa.eu/environment/life/project/Projects/index.cf	adauden@so-demas.com	Arturo Dauden Ibanez

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	Aragón (Spain)	the energy requirements of the waste management. The project planned to demonstrate the feasibility and sustainability of the correct integrated management model of swine waste at three sites in Aragón: Tauste, Maestrazgo and Peñarroya. It thus showed that the same model adapted to local circumstances could respond effectively to different locations.				m?fuseaction=search.dspPage&n_proj_id=3070		
EURoot	Enhancing Resource Uptake from Roots Under Stress in Cereal Crops	The overall goal of the EURoot project is to help farmers to face both climate change, which is expected to result in increasingly uneven rainfall, and meet the societal demand for sustainable agriculture with reduced use of water and fertilisers. EURoot objective is to enhance the cereal plant capability to acquire water and nutrients through their roots and maintain growth and performance under stress conditions. Making use of joint phenotyping and modelling platforms, EURoot will conduct a suite of experiments designed to better understand and model: (1) The genetic and functional bases of root traits involved in soil exploration and resource uptake, (2) The bio-geochemical properties of the soil, including beneficial association with mycorrhizal fungi, influencing extraction of nutrient and water by the root system and (3) The plant signalling processes involved in soil environment sensing and responsible for adaptive root system response enhancing soil exploration and resource acquisition.	1-1-2012	31-12-2015	EU FP7	http://www.euroot.eu http://cordis.europa.eu/result/rcn/187842_en.html	emma.nuel.guiderdoni@cirad.fr, anne.marie.schelstraete@ciraad.fr, a.price@abdun.ac.uk	Emmanuel Guiderdoni
Fertiplus	Reducing mineral fertilisers and agro-chemicals by recycling treated organic waste as	The FERTIPLUS project will take up the challenge to identify innovative processing technologies and strategies to convert urban and farm organic waste to valuable and safe products for agriculture and allow industries to develop projects and provide adequate information on use and quality of the products. The focus in FERTIPLUS is in understanding why a given processing of a selection of combination of feedstocks will make a good product and to provide a tool for SME's to determine the best strategy	1-12-2011	1-11-2015	EU FP7	http://www.fertiplus.eu	peter.kuikman@wur.nl , fertiplus@idconsortium.eu	Peter Kuikman

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	compost and bio-char products	(what feedstock and what processing conditions will produce product with fertiliser value – what to put on the bag of the product?). The focus for feedstocks in FERTIPLUS is on urban and agricultural waste including garden and park waste, municipal household waste, residues from anaerobic digestors for nitrogen and phosphorus recuperation. FERTIPLUS will assess the available organic waste and estimate how much N and P could be made available if returned to agriculture and whether this could be realised according to regulatory safety standards currently under development. The general objective of FERTIPLUS is therefore to identify and develop innovative strategies and technologies to: (1) Reduce and replace the application of mineral fertilisers and agrochemicals and; (2) Stimulate industry to implement necessary and cost-effective organic waste treatment and recycling processes to produce safe compost and biochar that allow agriculture to improve the efficient utilization of nutrients.						
FUSIONS	Food Use for Social Innovation by Optimising waste prevention Strategies	The FUSIONS project will contribute to achieving a Resource Efficient Europe by significantly reducing food waste. It will achieve this through a comprehensive and experienced European partnership covering all key actors across the food supply chain, including regulatory, business, NGOs and knowledge institutes, all with strong links to consumer organisations. FUSIONS will establish a tiered European multi-stakeholder Platform to generate a shared vision and strategy to prevent food loss and reduce food waste across the supply chain through social innovation: new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. The overall aim of the project is to contribute significantly to the harmonisation of food waste monitoring, feasibility of social innovative measures for optimised food use in the food chain and	1-8-2012	31-7-2016	EU FP7	http://www.eu-fusions.org	eu-fusions@live.com, toine.timmermans@wur.nl, hilke.bos-brouwers@wur.nl, mgheoldus@deloitte	Toine Timmermans

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		the development of a Common Food Waste Policy for EU27. Utilising the policy and behavioural change recommendations from the delivery of the key objectives, the FUSIONS European multi-stakeholder platform will enable, encourage, engage and support key actors across Europe in delivering a 50% reduction in food waste and a 20% reduction in the food chains resource inputs by 2020.					e.fr	
GR3	GRass as a GReen Gas Resource: Energy from landscapes by promoting the use of grass residues as a renewable energy resource	The GR3 project promotes the use of grass and other herbaceous residues from landscape management as a sustainable feedstock in biogas plants in the partner countries Belgium, Italy, Germany, Denmark and Portugal. The energy potential of these residues remains underutilized across Europe. Barriers are insufficient awareness and acceptance of suitable technologies for the mowing, storage and anaerobic digestion of grass residues, absence or lack of cooperation between stakeholders along the value chain, as well as legal barriers. The project aimed for an increase of the renewable energy production without competing with food production, increasing the ecological landscape management as well as protect permanent grasslands from land use changes. Therefore value chains for grass residues were analysed and evaluated to increase their market uptake as biogas feedstock. The project encouraged the knowledge transfer between different actors along the potential value chains on a regional and national level. Furthermore grass producers as municipalities, road authorities, conservancies were brought together with biogas producer. Tools and technical, economic as well as legal advice were delivered in order to trigger investments in the establishment of supply chains.	1-1-2013	1-12-2016	Co-funding EU Intelligent Energy Europe Programme	http://www.grassgreenresource.eu	lies.bamelis@dlv.be	Lies Bamelis
HTCycle	Sewage sludge reuse	The objective of the HTCCycle project is to demonstrate and commercialize the technology for hydrothermal carbonization (HTC) to the conditions of sewage sludge,	1-7-2015	31-12-2015	Horizon 2020	http://cordis.europa.eu	tk@av-a-co2.co	Thomas M. Kläusli

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	Phosphate recovery with an innovative HTC technology (HTCycle)	showing clearly technical and economic advantages against the current sludge incineration method. HTCCycle aims to increase the amount of sludge converted into high value products such as fuel, activated carbons for water treatment, recovered phosphorus, soil remediation material, carbon sequestration schemes and other applications. The HTCCycle process turns the present sewage sludge disposal (incineration) from a costly process into an income-generating activity.				/project/rcn/197563_en.html	m.k.germund@ruc.de	
INEMAD-GR3	Improved Nutrient and Energy Management through Anaerobic Digestion	The INEMAD project will concentrate on innovative strategies to reconnect livestock and crop production farming systems. New flows of energy and materials within the agricultural sector (or linked to the agricultural sector) will be analysed and will create opportunities for re-thinking the relation between crop and livestock production. New nutrient and energy flows are re-thought to generate growth opportunity for the agricultural and industrial sectors. Nutrient recycling can be done by biogas production and the use of digestate as fertiliser. The idea for INEMAD arose from the paradoxical situation where in certain European areas on the one hand livestock farming has an excess of nutrients and faces problems with manure disposal, while crop farming imports more and more nutrients through chemical fertilisers. The INEMAD project hopes to bring in some strategies and policy recommendations in that way that nutrient and energy flows between crop and livestock production become more in balance. INEMAD has a distinct focus on techniques and strategies for optimized nutrient recovery, with additional attention for opportunities for renewable energy production and carbon sequestration.	1-4-2012	31-3-2016	EU FP7	http://www.inemad.eu	info@inemad.eu , J.buysse@ugent.be	Jeroen Buysse
IPHYC-H2020	EU market research for an innovative	The Industrial Phycology (I-PHYC) project has developed a wastewater treatment (WWT) process that can meet increasingly stricter discharge consents for the concentration of nitrogen (N) and phosphorus (P) in	1-5-2015	31-10-2015	Horizon 2020	http://cordis.europa.eu/project	?	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	algae based tertiary wastewater treatment system	wastewater (WW) effluents. Elevated levels of N & P are linked to detrimental environmental events e.g. eutrophication. WWT operators require a treatment process that is able to remove nutrients in an energy efficient manner which current technology cannot meet. I-PHYC's novel patented treatment process uses microalgae (MA) to remove nutrients from WW effluents. MA reproduce rapidly when sufficient nutrients, light and CO2 are supplied. The MA consume the nutrients of the WW until exhausted producing a clean effluent that meets new EU consents and allows the operator to meet its statutory commitments while avoiding financial penalties. The biomass is retained for reactor seeding or harvested for valorisation e.g. anaerobic digestion of biomass to produce electricity. The process has been validated by I-PHYC in a recent field trial (late 2013) at Avonmouth WWT, UK. The field trial was based on a 1 m3 system which replicated all the functions of a commercial scale system. Results from the trial demonstrated a reduction in the tertiary treatment effluent concentration of P and ammonia by >70% and COD by >30%. Currently, I-PHYC is trialling a 20 m3 system onsite at a municipal WWT works with our strategic partner 'Wessex Water'.				/rcn/196663_en.html		
Manev	Evaluation of manure management systems in Europe	The Manev project aims were to: (1) Demonstrate that both the use of treatment technology and an adequate management scheme of pig manure can contribute to a reduction of GHG emissions, while at the same time improving the situation of farmers; (2) Improve environmental protection and the sustainability of pig farming by increasing the use of manure treatment technology in various livestock-dominated areas of Europe; (3) Unify criteria for the evaluation of different manure treatment technology; (4) Unify criteria for the evaluation of different manure treatment technology systems and management schemes; (5) Develop a	1-1-2011	31-12-2015	LIFE+	http://www.life-manev.eu	lifemanev@sarga.es , mteresa@sarga.es	Marta Teresa

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		common protocol among European regions for the evaluation of manure treatment technology and management schemes that take into account environmental, technological, energy, economic, legal and health factors; (6) Develop and test a decision supporting and planning tool to evaluate different manure treatment and management strategies in various European countries: Italy, Denmark, Poland, and various sites in Spain; (7) Define the fertilising properties of directly applied manure and of treated waste in order to provide a real value in the market; (8) Evaluate the know-how related to the treatment technologies and management methods, its strengths and weaknesses, within the different countries and areas in Europe. The following treatment systems were assessed: acidification, solid-liquid separation, anaerobic digestion, aerobic biological treatment, composting, evaporation, thermal drying, ammonia stripping and recovery, filtration / osmosis, phytoepuration and land spreading.						
ManureEcoMine	Green fertiliser upcycling from manure: Technological, economic and environmental sustainability demonstration	Intensive agriculture is heavily dependent on the input of synthetic fertilisers to sustain food and feed production. Manure represents an unexploited resource of organic carbon and nutrients, and therefore an exquisite 'mining' opportunity. ManureEcoMine proposes an integrated approach to the treatment and reuse of manure in nitrate vulnerable and sensitive areas and beyond, by applying the eco-innovative principles of sustainability, resource recovery and energy efficiency. The project is testing technologies at pilot scale to recover nutrients and energy from manures: pig manure (Netherlands) and cattle manure (Spain). It is using a combination of biological nutrient removal, anaerobic digestion, ammonia stripping and H2SO4 absorption, precipitation of struvite or potassium struvite (4 litres/hour lab scale reactor), production of an organic fertiliser product from manure solids and use of treated water for irrigation.	1-11-2013	31-10-2016	EU FP7	http://www.manureco mine.ugent.be	siegfried.vlaeminck@ugent.be , cristina.pintucci@ugent.be , nico.boon@ugent.be , info@biogas-e.be ,	Siegfried Vlaeminck

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		Moreover, the effects of the fertilizing properties and trace contaminants of recovered nutrients on plant growth and soil health will be established. Life cycle analyses will determine the concept sustainability, and identify the most environmentally friendly and effective reuse strategy, together with the boundaries of economic viability.					oliver.grunert@greenyardhorticulture.com	
MIX-FERTILIZER	Valorisation of the digestate from pig manure as new fertilizers with an organic / mineral base and gradual release	The objective of the MIX_FERTILIZER project is to demonstrate an innovative system for the agronomic valorisation of waste from the anaerobic digestion (decomposition without oxygen consumption) of pig manure (digestate) and to improve the associated environmental impacts. As a result of the project actions, a new type of fertiliser will be obtained with a mixed organic/mineral base and with gradual release by the addition of the nitrification inhibitor 3-4 dimethylpyrazole phosphate (DPPP). An aqueous effluent will also be obtained and employed in fertigation.	1-9-2013	31-8-2016	LIFE+	https://www.lifemixfertilizer.eu/en http://ec.europa.eu/environment/life/projects/index.cfm?fuseaction=search.dspPage&proj_id=4678	lifemixfertilizer@cartif.es , external@cartif.es	Raquel López
Mubic	Mushroom and biogas production in a circular economy	Growing certain biological foods requires a substrate such as straw, wood, chicken litter, horse manure and poultry litter for organisms to grow. Producing substrate today has low energy efficiency, has as a consequence that nutrients are lost, and is labour intensive. The innovation in the Mubic project, a new production method for substrate, enables resources for biogas production and mushroom production to be used in a circular system that recovers energy and nutrients in an	1-4-2015	30-9-2015	Horizon 2020	http://cordis.europa.eu/project/rcn/196175_en.html	?	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		<p>ecological and economically sustainable way. By creating a value circle between biogas production, mushroom production and energy and nutrient recovery it is possible to:</p> <p>(1) Generate high value growth media that is the basis for high value food production</p> <p>(2) Increase the feasibility of mushroom production by using a cheaper and transportable advanced substrate</p> <p>(3) Increase the feasibility of biogas production by re-entering the spent mushroom substrate back into biogas production</p> <p>(4) Increase energy efficiency from existing 50-55% to 80-85% of biomass in biogas production</p> <p>(5) Recover nutrients from biogas production</p>						
NECOVER Y	Nutrient and Energy Recovery in Wastewater Treatment Plants by Up-concentration and Adsorption processes	<p>Rethinking the waste water treatment plant flow sheet of tomorrow to optimise energy (biogas) and nutrients recovery (phosphorus recovery as struvite and nitrogen adsorption onto natural zeolites). WWTP of the future: Nutrients and energy recovery from wastewater. The LIFE NECOVERY project aims to demonstrate an efficient process for recovering energy and nutrients from the wastewater treatment process. Specifically, it aims to demonstrate, by means of a prototype, an innovative WWTP flowchart based on a cradle-to-cradle approach. The new system will be based on an innovative up-concentration – biosorption - step at the inlet of the WWTP. This will produce an upper effluent with very little solids and a bottom effluent with a high quantity of solids. The downstream process focuses on handling the two streams from the up-concentration step to produce maximum energy and nutrient recovery. The anaerobic digestion of the up-concentrated sludge in a continuous stirred-tank reactor (CSTR) will produce biogas more efficiently than conventional anaerobic digestion.</p>	1-7-2013	1-12-2016	LIFE+	http://www.life-necover.y.eu	slopez.p@cet.aqua.com	Silvia Lopez Palau
NEWAPP	New technologic	The NEWAPP project focuses on hydrothermal carbonization (HTC) of wet biomass residues. By means	1-11-2013	30-4-2016	EU FP7	http://www.new	info@newap	Andrea Salimbeni

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	al applications for wet biomass waste stream products	of HTC, wet biomass is converted into carbonaceous solids at relatively high yields in water, with pressure and temperatures at the lower region of liquefaction process. The lack of need for energy-intensive drying before the process opens up new possibilities for waste streams like manures, sewage sludge, municipal solid waste or agricultural waste. These organic waste streams can be used as feedstock for HTC technology, producing hydrochar and carbonaceous liquids, high value products that can be used as fuel, activated carbons for water treatment, soil remediation, carbon sequestration schemes and other applications. In the year 2011, the EU-27 imported carbon products for a value of 22.666.570.073 €1. At the same time, EU generates yearly 80.000.000 tons of wet biowaste2 that can be effectively recycled to carbon materials by means of HTC. NEWAPP project paves the way to provide economically attractive and environmentally friendly alternatives for the utilization of wet biomass, while strengthening Europe's competitiveness and reducing resource dependency.				app-project.eu http://cordis.europa.eu/result/rcn/189826_en.html	p-project.t.eu	
NOSHAN	Sustainable Production of Functional and Safe Feed from Food Waste	The NOSHAN project has created a broad portfolio of relevant food wastes/by-products in Europe for feed production according to multiple criteria. From this portfolio several wastes were selected and characterized down to a molecular level. This data base is public in order to be used for the scientific community for further studies and projects. The cascade approach strategy allowed the identification of several waste streams with high potentiality to be exploited. But only part of them have been scaled up and validated. In this way NOSHAN project identified interesting candidates for future research. This full characterization allowed the identification of the most interesting food waste streams to be processed and the best valorization path per each stream for bulk feed ingredients or additives. A variety of	1-8-2012	31-1-2016	EU FP7	http://www.noshan.eu/index.php/en	mjorba@leit.at.org, rdesouza@leit.at.org	Montse Jorba

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		high-advanced technologies for conditioning, stabilising by physico-chemical and biological strategies, extracting biofunctional feed additives with high-added value and suitable raw materials for bulk feed were evaluated. A range of compounds and feed production were successfully developed, tested and integrated to produce safe and functional feed. Additionally, relevant technologies have been developed during the project demonstrating the application of these innovative technologies for the production of feed ingredients by the use of by-products.						
NUTREC	Green nutrients recovery systems	NUTREC project focuses in the recovery of ammonia and phosphorus from wastewater, in particular rejected water from biogas production (rich in these nutrients) and leachates (rich in nitrogen) from landfills. It is intended to improve and optimise a recently developed, innovative technological process for recovering ammonia, as well as extending such process for the recovery of phosphorus from diverse wastewater, and transforming the nutrient-rich by-streams into useful fertilisers.	1-11-2013	28-2-2017	EU FP7	http://www.igb.fraunhofer.de/en/research/competences/physical-process-technology/nutrient-management/projects/nutrec.html	jennifer.bilbao@igb.fraunhofer.de	Jennifer Bilbao and Christoph Schulte
PHARMA FILTER	Innovative waste and wastewater management concept for	The PHARMAFILTER project aims to demonstrate a new concept for the specific treatment of wastewater and organic waste from hospitals that is cost-effective, easy-to-operate and leads to reduced risk of human contagion and contamination of surface water.	1-1-2009	30-6-2012	LIFE+	http://ec.europa.eu/environment/life/project/Projects/i	vellinga@rdg.nl	Steve Vellinga

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	hospitals					ndex.cf m?fusea ction=se arch.dsp Page&n _proj_id =3298		
PharmDe grade	Degradatio n of pharmaceu ticals in wastewater s from nursing homes and hospitals	The PharmDegrade project general objective is to introduce an efficient and financially viable technology for the removal of pharmaceuticals (PH) from the effluent of wastewater treatment plants. The technology is based on the advanced oxidation processes (AOP) associated with electrochemical degradation of PH, using different electrodes (graphite electrodes, mixed metal oxide electrodes and boron-doped diamond electrodes). AOP processes are based on generation of hydroxyl radicals (OH); OH radicals are powerful oxidisers capable of oxidative decomposition of practically all known organic pollutants and microbes; they are appropriate for the removal of heavily degradable pollutants from waters. Unlike noxious fluoride radicals the OH radicals have a short viability period and are, therefore, safe to use. The project will demonstrate technology on a sufficiently large scale to fully evaluate its effectiveness and economic viability. The aim is to demonstrate a solution that it is applicable to all wastewater containing PH and other persistent substances, which also include wastewater from old people's homes and hospitals in the EU. At the same time it is a flexible technology, suitable for different applications, with low maintenance costs and high efficiency.	1-9-2014	30-11- 2016	LIFE+	http://lifepharmdegrade.arhel.si	info@arhel.si , marko.gerl@arhel.si	Marko Gerl
PhoReSE	Phosphorus Recovery from Secondary Effluents of	The objective of the PhoReSE project is the examination of phosphorous removal from a secondary effluent of a municipal WWTP aiming to its recovery as a precipitant that can be utilized as a fertiliser. The expected benefits from the project include the reduction of environmental	12-5-2014	31-6-2015	Europea n Regional Develop ment	http://www.phorese.gr	kpalasantza@aktor.gr , zoubou	Dr. Panagiota- Aikaterini Palasantza

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	municipal wastewater plants	impact from WWTPs and the confrontation to guidelines defining a low phosphorous content for the discharge of effluents to environmentally sensitive water bodies (1 mg/L); the development of a low cost process for P recovery that can be implemented in existing units at the 'end-of-pipe'; the utilization of phosphorous that is otherwise wasted, contributing to the conservation of mineral phosphorous that is currently exploited from limited reserves.			Fund of the European Union and National Implementing Entity		uli@chem.au.th.gr , manasis@eng.auth.gr , info@phores.e.gr	
PhorWater	Integral Management Model for Phosphorus recovery and reuse from Urban Wastewater	The main objective of PHORWater is to increase awareness of the environmental problem of phosphorus and to give an innovative solution for the recovery of phosphorus at the WWTP facilities that decreases its environmental problem, so the project is focused on the development of a good practice manual to maximize phosphorus recovery at the WWTPs as well as on showing the advantages of its recovery as struvite. This demonstration project pursues an integrated nutrient management model and phosphorus recovery as struvite at a pre-industrial scale (4.4 m ³ , 3m height), implemented at the El Cidacos municipal wastewater treatment works, Calahorra, Spain (23 000 m ³ /day, biological nutrient removal). Around 20-30% of the P entering the sludge line could be recovered by this technology. At present, some 70% of inflow phosphorus precipitates in the anaerobic sludge digesters. The project involves modelling (using DESASS©) and rethinking of the treatment plant configuration, sludge / liquor management lines and recirculation paths in order to optimise phosphorus removal performance and phosphorus recovery for recycling. The project final conference in Madrid, 14th July 2016, presented DAM (Depuración de Aguas del Mediterráneo) success operating a 20 m ³ /day struvite recovery stirred reactor, designed by LAGEP Lyon, at Calahorra, Rioja, sewage	1-9-2013	1-9-2016	LIFE+	http://phorwater.eu/en	laura.pastor@dam-aguas.es , alberto.bouzas@uv.es , denis.mangin@univ-lyon1.fr	Laura Pastor

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		treatment works. The project showed that struvite recovery and nuisance deposit avoidance can be optimised by mixing different sludge/digestate flows, which can also reduce chemical consumption by changing the reactor inflow pH. Field tests of the recovered phosphate are underway on potatoes and wheat in Spain.						
PhosFarm	Process for sustainable phosphorus recovery from agricultural residues by enzymatic process to enable a service business for the benefit of European farm community	The PhosFarm project addresses the needs of an increasing market for economically and environmentally sustainable phosphorus (P) recovery from agricultural residues to meet the growing demand for food, bio-fuels and bio-materials. Although new technologies have already been developed for the recovery of inorganic phosphate salts from liquid waste streams, P is also present as organic compounds, which cannot be recovered as P salts by current technologies. PhosFarm is a partnership of European SMEs that recognized the business opportunity of recovering P from agricultural residues by a novel process that recovers both organic and inorganic P. They have identified scientific information about the feasibility to convert organic P to phosphate by an enzymatic mineralization method and aspire to come up with an industrial process. The key innovation will be the advanced P recovery through a controlled enzymatic mineralisation of more than 90% of the organic P. This will result in an increased phosphate concentration in the liquid fraction of the residues, which is available for phosphorus-salt precipitation. The solid fraction will be dried and compounded with the precipitated salts on customer's demand, achieving an optimal nutrient ratio (N:P:K) for the specific crop needs. The result of the project will be a semi-mobile on-site or a mobile trailer-mounted unit that can be operated stand-alone or easily integrated into already existing manure facilities or anaerobic digesters.	1-9-2013	1-9-2015	EU FP7	http://www.phosfarm.eu	jennifer.bilbao@igb.fraunhofer.de	Jennifer Bilbao
POLFREE	Policy	The POLFREE project will construct a theoretical	1-10-2012	31-3-2016	Horizon	http://w	p.ekins	Paul Ekins

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	Options for a Resource Efficient Economy	framework for the analysis of resource efficiency, with detailed comparison of the trends and policies at EU and Member State (MS) level, cross-country econometric analysis to derive resource-reduction cost curves, and an analysis of business barriers to resource efficiency; thereby developing an enhanced understanding of the drivers of inefficient resource use. This will lead to an exploration of new concepts and paradigms that can bring about a radical increase in resource efficiency, and a vision for a resource-efficient economy in the EU, with suggestions also for new more resource-efficient business models for firms, and ideas for a global governance regime that can promote resource-efficient economies among the EU's trading partners and more widely will be explored. From its new vision for a resource-efficient Europe, the project will propose new policy mixes, business models and mechanisms of global governance through which resource-efficient economies may be promoted. This will lead in turn to intensive work on creating, modelling and visualising scenarios for the emergence of resource-efficient economies, through linking quantitative economic and ecological models, and simulating the policies and policy mixes derived in the earlier work, supplemented with appropriate LCA analysis for selected products and sectors, to ensure that the policies and business models in the scenarios lead to adequate absolute decoupling of economic activity from resource use and environmental degradation. The scenarios and associated policy analysis will be given an integrated interpretation across economic, ecological and social dimensions.			2020	www.polfree.seriat.at	@ucl.ac.uk	
P-REX	Phosphorus recovery from wastewater by ash,	Strategies and recommendations for an efficient and wide-spread wastewater phosphorus recovery in the EU. For the implementation to market, new technologies need to be proven capable and feasible. Within P-REX, novel and available technical solutions for phosphorus	1-9-2012	31-9-2015	EU FP7	http://www.p-rex.eu/	christian.kabbe@kompetenz-	Christian Kabbe

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	sludge and biosolids valorization	recovery and recycling will be demonstrated in full-scale. Based on real operational data their performance and feasibility will be systematically assessed and validated, as well as the quality of obtained recycling products. Together with the analysis of the market barriers and the market potential for novel recycling technologies and their products, strategies and recommendations will be developed for efficient and wide-spread phosphorus recovery and market penetration with regards to specific regional conditions, aiming to substantially increase the European phosphorus recycling rate from municipal wastewater.					wasser.de	
PROTEIN SECT	Enabling the exploitation of Insects as a Sustainable Source of Protein for Animal Feed and Human Nutrition	<p>The overarching goal of the PROteINSECT project was to evaluate the potential use of insects as a novel source of protein for inclusion in animal feed. Focus on organic manures as rearing substrates for fly larvae enabled us to evaluate the possibility of deriving safe, high quality and sustainable feed protein whilst at the same time reducing volumes of low value wastes.</p> <p>New rearing systems have been established in Ghana, China and the UK and improvements have been made to those already established in Mali and China. Systems ranged from semi-commercial scale production to those designed for use by small-scale livestock farmers. Whilst overall emphasis was placed on the rearing of houseflies (<i>Musca domestica</i>), production systems were also developed for black soldier fly (<i>Hermetia illucens</i>) and blowfly (<i>Chrysomya megacephala</i>). Considerable improvements to the efficiency and productivity of the rearing systems were made through, for example, the development of separation and drying techniques. Data was used as the basis for economic, social and environmental impact assessments allowing recommendations for the future development of insect rearing stations at different geographical locations to be defined.</p>	1-2-2013	30-4-2016	EU FP7	www.proteinsect.eu http://cordis.europa.eu/project/rcn/105074_en.html http://cordis.europa.eu/result/rcn/191985_en.html	info@proteinsect.eu	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
R3Water	Demonstration of innovative solutions for Reuse of water, Recovery of valuable Substances and Resource efficiency in urban wastewater treatment	<p>The R3Water project focuses on the demonstration of innovative waste water treatment technologies for resource efficiency, reuse and recovery, including hydrothermal carbonisation.</p> <p>The main objective of the project is to demonstrate solutions that support the transition from a treatment plant for urban wastewater to a production unit of different valuables.</p> <p>The project aims to: (1) Demonstrate new technologies and solutions for increased resource efficiency in existing UWWTP performance thanks to innovative monitoring, advanced control strategies and management measures, (2) Demonstrate innovative wastewater technologies that enable reuse of water, recovery of valuables such as nutrients, (3) Facilitate market uptake for the demonstrated solutions for the European and global market by demonstrating solutions in different geographical context and reaching relevant stakeholders. Within the field of these topics, new and innovative technologies will be tested and demonstrated. For demonstration, 3 sites are involved in Belgium, Spain, and Sweden.</p>	2014	2017	EU FP7	http://www.r3water.eu	uwe.fortkamp@ivl.se, klara.westling@ivl.se	Uwe Fortkamp & Klara Westling
R4R	Chemical Regions for Resource Efficiency	Chemical Regions for Resource Efficiency (R4R) is the project that will overcome the European fragmentation of ambitious and innovative regions. Through its methodology, R4R could lead the path to promising and positive impacts on resource efficiency. R4R will achieve a major step improvement in regional and transnational cooperation among the participating regions and R4R will develop practices, tools and examples which shall be easily disseminated to and adopted by multiple European regions to improve regional and cross-regional collaboration in general, and on resource efficiency in the process industry in particular. Last but not least, R4R will create the platform for international collaboration on resource efficiency with clusters in third countries to	1-1-2007	31-12-2008	EU FP7	http://www.regions4resource.eu	anna.sager@sp.se	Anna Sager

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		improve and accelerate innovation and promote European eco-innovative technologies globally.						
RecoPhos (thermal)	Recovery of Phosphorus from Sewage Sludge and Sewage Sludge Ashes with the thermo-reductive RecoPhos-Process	RecoPhos is a thermo-chemical process involving the fractioned extraction of phosphate and heavy metals from sewage sludge ash at high temperatures under reducing conditions. The chemical principle of the core reaction is modelled on the "Wöhler process", in which phosphates react with carbon and silicon dioxide in a furnace and is reduced to phosphorus. The RecoPhos process follows a novel approach by using the innovative InduCarb retort, where a coke bed is heated inductively, and the reduction of the phosphorus contained in the sewage sludge ash takes place in a thin melt film on the surface of the coke particles. The reduced phosphorus can evaporate from the film without significantly reacting with other elements and can subsequently be retrieved either as white phosphorus or oxidised into phosphoric acid. A special advantage of the RecoPhos process is that it not only transforms a problematic waste with high heavy metal content into valuable phosphorus but also produces several streams of secondary raw materials that can be used in other industrial applications. Such materials include an iron alloy, a silicate slag for use as a binder in cement industry and a high calorific syngas for thermal energy generation. The process will enable optional use of waste materials as heat sources, reducing agents or additives, including dried sewage sludge, foundry ash, waste salts or meat-and-bone meal. Concepts to recover a maximum of the heat of the high-temperature process will be developed, turning RecoPhos into a near-zero waste process.	1-3-2012	28-2-2015	EU FP7	http://www.reco-phos.org	harald.raupenstrauch@unileoben.ac.at, karin.rehatschek@unileoben.ac.at	Prof. Dr. Harald Raupenstrauch and Karin Rehatschek
REFERTIL	Reducing mineral fertilisers & chemicals use in	The REFERTIL project is combining applied science and advanced industrial engineering for market competitive compost and zero emission biochar technology and product developments. Added value, safe and economic "ABC" Animal Bone bioChar Phosphorus fertiliser nutrient	1-10-2011	30-9-2015	EU FP7	http://www.refertil.info	biochar@3ragrocarbon.com,	Edward Someus

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	agriculture by recycling treated organic waste as compost and bio-char products	is recovered with 30% high P2O5 concentration for horticultural/adsorbent applications. A 10 000 tonnes output product/year industrial pilot plant is being finalised. The project has also developed a draft EU safety standards protocol for biochar. The objective of the REFERTIL project is to improve the currently used compost and biochar treatment systems, towards advanced, efficient and comprehensive bio-waste treatment and nutrient recovery process with zero emission performance. The improved output products are safe, economical, ecological and standardized compost and bio-char combined natural fertilisers and soil amendment agricultural products used by farmers. The added value and energy efficient transformation of urban organic waste, farm organic residues and food industrial by-product streams made by improved carbonization, biotechnological formulation and upgraded composting technologies, with particular attention to the recovery of nutrients, such as phosphorous and nitrogen. The targeted high quality output products aiming to reduce mineral fertilisers and intensive chemicals use in agriculture; enhancing the environmental, ecological and economical sustainability of food crop production; reducing the negative footprint of the cities and overall contributing to climate change mitigation. In this context the improved bio-waste treatment process opens new technical, economical, environmental and social improvement opportunities, while improving the use, effectiveness and safety of the resulting compost and bio-char products in agriculture. The output products developed in a standardized way to meet all industrial, agricultural and environmental norms and stands in European dimension.					edward.som@usmail.com	
REMPHOS	Implementation of a new	The REMPHOS project has as main aim to improve water quality reducing pollutants concentration and improving environment protection according to "Water European	1-9-2013	28-2-2017	LIFE+	http://www.remphos-	lurederra@lurederr	Claudio Fernandez

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	phosphate removal tertiary treatment in WWTP	Directive". Main scientific goals of the Project are: development of a more efficient and economic technology for phosphates removal of waste water, viability demonstration of technology use in WWTP and phosphate removal efficiency demonstration. Furthermore, the project will work valorisation of a by-product to be used as chemical agent for phosphates removal.				life.es/en	a.es, claudio.fernandez@lurederra.es	
reNEW	Valuable product recovery from sewage sludge	The treatment of sewage sludge represents one of the biggest problems for small and medium sized wastewater treatment plants. In the reNEW project a process is developed to transform sewage sludge biologically into volatile fatty acids (VFA) and valuable nutrients (NPK), which are recovered. These products represent important market value: VFA as raw material for eco labelled cleaning agents, and NPK as fertiliser. The project aim to develop a detailed commercialization and business plan for the products as well as to prepare a design for upscaling application. The final aim is to roll-out the technology and widely implement it all over Europe.	1-7-2016	31-12-2016	Horizon 2020	http://cordis.europa.eu/project/rcn/204296_en.html	?	?
REPHATER	Electrochemical water treatment pilot plant in the dairy industry with phosphate recovery	The aim of REPHATER project is the development of a water treatment pilot plant based on the sequential combination of two innovative electrochemical technologies: Electrocoagulation and Electrooxidation. The plant also includes a recovery/recycling phosphate unit from residual electrochemical waste in an innovative eco-innovative integrated approach. The project implements the pilot plant in a Spanish SME belonging to the food and drink sector, -i.e. a dairy industry-, which will further act as a show case facility. The food and drink sector is the largest industrial sector in Europe in turnover terms, and has been identified as one of those that may find beneficial the application of REPHATER solution. The novel prototypes developed by the consortium members may improve existing electrochemical solutions and will allow the take-up of	1-6-2009	30-11-2011	CIP-EIP-Ecoinno vation 2008	https://ec.europa.eu/environment/ecoinnovation/projects/en/projects/rephater	jgarcia@leita t.org	Julia García-Montaño

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		such eco-effective techniques through the market, which are not currently used enough in most industrial sectors. The integration of a phosphate recovery unit will increase its environmental credentials allowing the recycling of valuable phosphate for different agricultural and industrial applications.						
ReuseWaste	Nutrient recovery from manure	<p>The ReUseWaste project provides a unique opportunity for young researchers to obtain the knowledge and skills needed to develop and utilise new technologies for a socially and environmentally responsible management of animal wastes. The ReUseWaste network brings together major EU research groups from leading universities and research institutes, key agri-environmental technology companies and public authorities, from the countries and regions of most intensive livestock production in Europe. The ReUseWaste network will:</p> <p>(1) provide new ideas and systems that lead to a major rethink in the current, established animal waste management systems</p> <p>(2) train thirteen researchers in developing new technologies for improved and sustainable utilisation of valuable organic matter and plant nutrient resources in animal waste</p> <p>(3) provide companies with improved and new technologies to produce both bioenergy and green bio-fertilisers, leading to improved soil, water and air quality</p>	1-1-2012	31-12-2015	EU Marie Curie Training Network	http://www.reusewaste.eu http://cordis.europa.eu/result/rcn/187990_en.html	reusewaste@life.ku.dk , lsj@pl.en.ku.dk , oene.oenema@wur.nl	prof. Lars Stoumann Jensen
Revawaste	Recovery and valorization of waste	<p>The general aim of the REVAWASTE project is the sustainable management of a broad spectrum of wastes (non-recyclable fraction proceeding from waste treatment plants and industrial, together with biomass, livestock and agro-food wastes) in an integrated plant. This objective will be reached by means of the technological development and practical application of the “mixed plant” concept. This development will support a new waste management strategy, based on the separation, pre-treatment, recycling and valorisation</p>	30-10-2013	30-9-2016	LIFE+	http://www.revawaste.eu	revawaste@cartif.es	Dr. M. Dolores Hidalgo Barrio

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		steps.						
Routes	Novel processing routes for effective sewage sludge management	<p>The Routes project aimed to set up new technical solutions for solving typical problems of wastewater treatment plants of different capacities. Ten reference-scenarios (2 for small, 4 for medium and 4 for large plants) were compared with parallel new scenarios including new techniques and strategies under study.</p> <p>This comparison was carried out both from technical and environmental point of view. Quality of the sludge deriving from the investigated enhanced stabilization processes was assessed including heavy metals and organic micropollutant concentration, phytotoxicity and ecotoxicity. Specific attention was paid to the performance of the different enhanced stabilization processes on hygienization, including the possible regrowth of pathogens during sludge storage. Organic contaminants were studied in sewage sludges under different treatments (ultrasound, thermal at 135°C, anaerobic digestion) and in agricultural spreading. Organohalogenes (EOX), detergent surfactants, polyaromatic hydrocarbons (PAH), PCBs and phthalates were analysed, as well as four pathogen families. The treatments considered reduced levels of these contaminants by 2 – 5 times. Sewage sludge has been used in agriculture over decades without any negative impacts. ROUTES project proved that usual sludge application rates to soil assure negligible ecological or toxicity risks.</p>	1-5-2011	30-4-2014	EU FP7	http://cordsis.europa.eu/project/rcn/98727_en.html	mininni@irsa.cnr.it, braguglia@irsa.cnr.it gianico@irsa.cnr.it	Mininni Giuseppe
Sludge2Energy	Waste prevention through sewage sludge reuse for efficient energy	The aim of the Sludge2Energy project was to demonstrate the decentralised reuse of sewage sludge in an efficient small-scale heat and power generation plant on the premises of the wastewater treatment plant (WWTP). The innovative sludge processing technique was intended for market introduction. The energy self-sufficient plant would reduce the amount of sewage sludge for disposal to 1/8 of the dewatered sludge.	1-10-2006	30-9-2011	LIFE+	http://www.sludge2energy.de http://ec.europa.eu/en	sonja.wiesgickl@sludge2energy.de, info@sludge2	Sonja Wiesgickl

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	generation at waste water treatment sites	Amounts of sludge are increasing and disposal routes are limited, but this technique offers an environmentally sound alternative for sludge management. The residues of the process are an ideal resource for phosphorous recycling.				vironment/life/project/Projects/index.cfm?fuseaction=search.dspPage&proj_id=3079	energy.de	
SMART Fertigation	Subarea specific irrigation system for pivot- and linear fertigation techniques (SMART Fertigation)	Irrigation practices put more and more pressure on scarce freshwater resources and mineral fertilisers are often overused leading to environmental problems and heavy impacts on the production costs of producers. Increasing resource efficiency, productivity and competitiveness of agricultural practitioners are crucial for addressing the aforementioned societal challenges. Fertigation, a novel concept merging irrigation and fertilisation to one process, poses an innovative alternative to conventional cultivation practices. The SMART Fertigation project developed and integrated the concept of fertigation with pivot- and linear irrigation systems. Using GPS & GIS data in conjunction with sensor based soil and crop property parameters the SMART Fertigation system enables sub area specific farmland management and fertigation. Optimised resource application leads to an immense savings potential in production costs (water & fertiliser by 20%) besides increasing crop yield from growth phase adjusted water and nutrient supply. This 'saving & gaining' makes.	1-3-2016	31-8-2016	Horizon 2020	http://cordis.europa.eu/project/rcn/200342_en.html	?	?
SMARTS OIL	Sustainable farm Management Aimed at Reducing	The SmartSOIL project will identify and develop options to increase carbon (C) stocks and optimise C use (flows) whilst maintaining sustainable SOC stocks. The flow and stocks concept will delineate short- versus long-term management effects on vital soil functions through meta-	1-11-2011	31-10-2015	EU FP7	http://www.smartsoil.eu	jorgen.e.olesen@agisci.dk , peter.	Jørgen E. Olesen

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	Threats to SOILs under climate change	analyses of data from European long-term experiments (LTEs), as well as new measurements within LTEs. The new understanding will be used to improve existing soil and crop simulation models and test the models against independent LTE data. The models will then be used to derive a simplified model to estimate the short- and long-term effects of management on crop productivity and SOC storage. Scenarios of future management systems in Europe for improved productivity and enhanced SOC sequestration will be evaluated under current and future climate. The cost-effectiveness of alternative policy measures and options for managing SOC flows and stocks for improved productivity and SOC storage will be assessed based on the simplified model. SmartSOIL will develop a decision support tool (DST) to enable farmers, advisors and policy makers to discuss and select the most appropriate and cost-effective practices for particular farming systems, soils and climates. SmartSOIL will engage key stakeholders in case study regions and the wider EU in the development of the DST, guidelines and policy recommendations, and will inform the scientific and user community on progress and results.					kuikman@wur.nl	
Stop CyanoBloom	Innovative technology for cyanobacterial bloom control	The objective of the Stop CyanoBloom project is to demonstrate a new system for triggering lysis (break down) of cyanobacteria, decreasing its concentration and preventing mass blooming. This new technology, which will be implemented through a pilot device on two selected water bodies, will not destroy the entire population of the bacteria. It will simply prevent its mass occurrence. The project will also test new online sensors that determine concentrations and detect certain physical and chemical parameters of cyanobacteria in water bodies. This system simultaneously transfers the measured data via a GSM network. Programmes for interpreting measured data will also be designed. Data will be available on the project website. The device will	1-7-2013	31-12-2016	LIFE+	http://lifestopcyanobloom.arhelsi.nl	marko.gerl@arhelsi.nl	Marko Gerl

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		also collect and store samples for laboratory analysis. Using the new technology will improve the ecological status of the chosen water bodies.						
SusPhos	European Training Network for sustainable industrial phosphorus chemistry	The SusPhos project represents the first systematic investigation of the eco-friendly production, smart use, recycling and commercial exploitation of phosphorus-based processes and materials that use the precious element phosphorus in a sustainable manner. This approach will lead to fundamental insights into sustainable technologies and create an ideal platform for the training of young, ambitious researchers in a superb collaborative European setting. Currently, SusPhos educates 14 broadly-oriented researchers (12 PhD students and 2 post-docs) at the interface of synthetic chemistry, catalysis, materials science, process chemistry, industrial phosphorus chemistry, and technology transfer. SusPhos combines the complementary strengths of nine academic and three industrial (Arkema, DSM & Magpie Polymers) teams to promote intersectoral mobility of top-class multi skilled researchers to enforce cross-fertilisation of enhanced research synergies between the market and the academic world. The training programme uses highly innovative and timely methodologies to provide comprehensive multidisciplinary training of a new generation of young researchers capable of understanding and applying green chemistry to the conservation of phosphorus by environmentally benign conversions. The three industrial teams, as well as associate partner Willem Schipper Consulting, will ensure a rapid and effective technology transfer. As such, the network will facilitate Europe's continued global leadership on the sustainable use of phosphorus in an increasingly fierce competition for resources.	1-2-2013	1-2-2017	EU Marie Curie Training Network	http://www.susphos.eu	marissa.de.boer@uva.nl , Chris (J.C.Slootweg@uva.nl)	Marissa de Boer & Chris Slootweg
SuWaNu	Sustainable Water	SuWaNu is a network identifying and promoting technologies for wastewater treatment and agriculture	1-7-2013	31-12-2015	EU FP7	http://www.suw	alorenzo@bi	Antonia Lorenzo

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	Treatment and Nutrient Reuse Options	resource recycling, with an emphasis on ensuring contaminant-safe routes for reuse of nutrient rich waste waters. The main goal of SuWaNu is to develop technologies offering a transnational cooperation service within “research-driven clusters”, involving universities, regional authorities, research centers, technology developers, enterprises, farmers, and farmer’s associations related to wastewater treatment and to agriculture from five different countries: Germany, Spain, Greece, Malta and Bulgaria. Such service will provide and facilitate exchange of know-how on alternatives for water and nutrient resources for all project members, create business opportunities in the area of focus and further expand support to stakeholders from countries outside the consortium, concurrently providing solutions to the aforementioned problems Europe is faced with.				anu.eu	oazul.com, rcasielles@bi-oazul.com	
TREAT&USE	Safe and efficient treatment and reuse of wastewater in agricultural production schemes	TREAT&USE project has brought together 6 European SMEs and one RTDs to prove and disseminate the technical and economic viability of a method for safe and economic wastewater treatment that allows a direct reuse of the water and nutrients in agricultural production with minimal operational and maintenance costs. TREAT&USE is based on the outcomes of two successful finished EU research projects: PURATREAT and WACOSYS on wastewater treatment, reuse technologies and fertigation systems. The produced technical and scientific results of both projects were excellent and very promising in terms of energy and cost efficiency. The most promising MBR system developed in PURATREAT run successfully with reduced energy consumption (90 % less than RO). The tested MBR lab-prototypes generated an effluent not suitable for drinking water but an excellent source for irrigation and fertilization purposes (rich on nutrients such as N and P and free of pathogens). In WACOSYS, the application of wastewater in agricultural production schemes has been successfully	1-6-2012	30-11-2014	FP7	http://www.treatanduse.eu	rcasielles@bi-oazul.com , alorenzo@bi-oazul.com	Rafael Casielles

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		applied and monitored. Based on these valuable outcomes, within TREA&USE it was constructed a pre-commercial prototype unit which combined the treatment of substantial amounts of communal wastewater in an up scaled MBR system and the safe application of the effluent as irrigation and fertilization water in agricultural production schemes. The tailor-made MBR effluent was applied directly for irrigating and fertilizing fruit trees and vegetables in commercial agricultural production site in Southern Spain. To measure the performance and the reliability of the approach, the pre-commercial prototype included a feedback and control unit based on soil sensors.						
ValueFromUrine	Demonstration of a bio-electrochemical system for recovery of nutrients from urine	The ValuefromUrine project will develop, demonstrate and evaluate an energy-efficient system for the recovery of nutrients from urine. This technology is based on research on Bio-electrochemical systems conducted in the Wetsus Resource recovery Theme and an urine treatment concept developed in the Separation at source Theme. ValuefromUrine is a collaborative research project of Wetsus, centre of excellence for sustainable water technology (NL), Centre de Rescherche Public Henri Tudor (LU), Universidade do Minho (PT), Magneto special anodes (NL), DeSaH (NL), MAST Carbon International (UK) and Abengoa Water (ES).	1-9-2012	31-8-2016	EU FP7	http://www.valuefromurine.eu	Martijn.Bijmans@wetsus.nl , valuefromurine@wetsus.nl , Philipp.kuntke@wetsus.nl	Dr. ir. Martijn Bijmans
WW4ENVIRONMENT	Integrated approach to energy and climate changes: changing the paradigm of waste	The WW4ENVIRONMENT project aimed to implement a tool to optimize the management of wastewater treatment plant following the objectives set by the EU in terms of energy efficiency and environmental impact. The project developed a methodology to investigate the ecotoxicity of WWTP, and developed a procedure to assess the carbon footprint of the WWTP in order to reduce the environmental costs of the wastewater treatment process.	1-1-2010	1-12-2012	LIFE+	http://www.w4environment.eu	andrea.amaral@ist.utl.pt	Andreia Amaral

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	water treatment management							
WW-SIP	From Urban Wastewater Treatment Plant to Self Sustainable Integrated Platform for Wastewater Refinement	The aim of the WW-SIP project is to redefine the urban wastewater treatment plant (UWWTP) by transforming it into an integrated platform for sustainable and profitable sewage refinement. The project will create an economically, socially and environmentally sustainable wastewater refinement platform (WW-SIP) by integrating innovative technologies into the infrastructures and processes of a typical UWWTP.	1-1-2012	31-12-2016	LIFE+	http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&nproj_id=3949	A.Malucelli@umbraacque.com	Andrea Malucelli
ZIPRU	Zinc Interaction with Phosphorus in Root Uptake	The overall goal of the ZIPRU project is to understand phosphorus (P) and zinc (Zn) interactions in the mineral nutrition of Brassica oleracea, a species that has been bred into a wide range of crops such as broccoli, cabbage, kale and cauliflower. To achieve this, we will develop a comprehensive understanding of key mechanisms and coordination of P-Zn cross-talk that allows high P-use-efficiency (PUE) plus high Zn accumulation and thereby provide the basis for breeding programmes combining improved PUE and increased shoot Zn concentrations. Selected B. oleracea genotypes with extreme PUE and shoot Zn concentrations identified recently by the host lab and collaborators will be studied stepwise using a multidisciplinary approach including state of the art methods. Firstly, the genotypes will be characterised phenotypically, specifically for yield, root architecture traits and bulk mineral element concentrations. Secondly, root exudates will be characterised biochemically initially	1-5-2015	30-4-2017	Horizon 2020	http://cordis.europa.eu/project/rcn/189891_en.html	ellis.hoffland@wur.nl	Ellis Hoffland

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		<p>using Fourier Transformation Infrared for general overview followed by Liquid Chromatography-Mass Spectrometer for detailed analysis. Thirdly, tissue-specific localization of mineral elements, specifically P and Zn, will be determined using multielemental and quantitative imaging technique micro-Proton-Induced X-Ray Emission. Fourthly, gene expression profiles will be studied using the Brassica Exon Array. The anticipated results will be used to promote sustainable agriculture, through a reduction in fertiliser inputs and to improve dietary mineral intakes by increasing the mineral content of edible crops. Breeding varieties with greater PUE, without having a significant negative impact on shoot Zn content, is one strategy to simultaneously reduce the use of P fertilisers and combat dietary Zn deficiencies.</p>						

6 Finished non-EU funded research

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
Agri4Value	?	?	?	?	?	?	hermus@3-n.info	Sascha Hermus
AquaEnviro UK	Novel fertilisers from anaerobic digestion and thermal conversion technologies	Developing novel soil conditioners and plant fertilisers from waste streams derived from anaerobic digestion and thermal conversion technologies.	?	?	NERC funding (United Kingdom)	http://www.nerc.ac.uk/research/funded/programmes/waste/2014-sample	paullavender@aquaeconomics.co.uk	Paul Lavender
AVA-CleanPhos	AVA-CleanPhos phosphorus recovery process from sewage sludge by hydrothermal carbonization (HTC)	In Germany, the AVA cleanphos pilot plant in Karlsruhe, sponsored by the German Federal Environment Foundation (DBU), came online at the beginning of July 2016. Leading biotechnology company AVA-CO2 has developed the AVA cleanphos process which enables efficient and cost-effective recovery of phosphorus from sewage sludge. The process also allows for co-incineration in the future and therefore the direct substitution of fossil fuels such as lignite. Over summer 2016, AVA cleanphos process will be tested at a pilot scale at AVA Green Chemistry Development GmbH in Karlsruhe. For industry, AVA cleanphos represents a breakthrough in phosphorus recovery as required by the German amendment to the Sewage Sludge Ordinance. The process has the potential to be more efficient and cost-effective than existing phosphorus recovery methods, as municipal sewage sludge is converted first into HTC-coal before the phosphate is isolated. This creates two commercially interesting products – a valuable fertiliser and phosphorus-free HTC-coal. In the	?	?	DBU (Germany)	http://sustainabilityconsult.com/news/159-press-release-valuable-phosphorus-from-sewage-sludge-ava-cleanphos-pilot-plant-comes-	tk@ava-co2.com , k.germund@ruc.de	Thomas M. Kläusli

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		future, CO2-neutral HTC-coal could be used as a direct substitute for lignite, which would lead to substantial CO2 emission reductions.				online		
Bio-Ore	Recovering metals from sewage sludge and similar substances by hyperaccumulator plants	The enrichment of metals from diffusely distributed concentrations (e.g. sewage and sewage sludges) under currently available technology systems is possible only with great expenditure of energy. This exploratory project investigated the usability of the adaptation strategy of plants that hyperaccumulate metals in their tissue. An array of tests and analysis demonstrated which plants under which conditions provide good accumulations of antimony, chromium, cobalt, manganese, nickel, zinc and rare earths when grown on communal sludge „enriched“ with fly ashes from waste incineration plants. In addition lead, cadmium, copper and mercury were analysed because they represent limit values for heavy metal concentrations in sewage sludge. While the aim was to explore best-fit plants for antimony, chromium, cobalt, manganese, nickel, zinc and rare earths accumulation, the macro-nutrient concentration (N, P, K, Ca, Mg) in the sludge was very high. It was observed that some plants rather absorbed the macronutrients while „blocking“ toxic components at the root level. Particularly in some sunflower-varieties very high concentrations of phosphorus and potassiums were found in the leaves and stem, while very low toxic „pollutants“ were observed. The concentration in the plants was so high, that theoretical calculations resulted in the harvest of one ha of sunflowers grown on sludge could serve to sufficiently fertilize as green manure 5 to 7 ha of crop land with P and K for others crops.	1-1-2013	16-4-2014	75% funded by FFG from the Austrian Ministry of Infrastructure and Innovation	http://www.alchemia-nova.net/en/projects/bio-ore/	office@alchemia-nova.net , office@mjkissner.at	Heinz Gattringer, Monika Iordanopoulos-Kisser
BIOUREA	Innovative fertilizer products used in closed	The project aims at creating a model for and to test large scale utilisation of toilet based fertiliser products. Key objectives are to develop and test technologies for collection and management, acquire official acceptance and permit for using these fertilizers in agriculture in	2015	2016	Finland Ministry of Environment,	http://www.huusinet/en/activities/on-	toimisto@huusinet.fi	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	nutrient cycles	Finland, and to demonstrate the efficiency and safety of the use of these products. In addition, the cost efficiency of the alternative models and systems are estimated.			RAKI-programme	going-projects/biourea		
BioVakka Vehmaa biogas / digestate	Nutrient recovery and closing loops with biogas technology in Western Finland	?	?	?	?	https://ec.europa.eu/eipp/agriculture/sites/agriculture/files/field_event_attachments/ws-circular-economy-20151028-pres07-teija_paavola.pdf	teija.paavola@biovakka.fi	Teija paavola
ExtraPhos	Low temperature CO2 phosphorus extraction from sewage sludge to produce phosphoric acid (Budenheim process)	?	?	?	Private company	https://www.budenheim.com/en/budenheim-the-company/history/conquering-the-world-	eva.stoessel@budenheim.com	Eva Stoessel

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
						with-phosphate		
DemoWare	?	?	?	?	?	?	Christian.Remy@kompetenz-wasser.de	Christian Remy
EDASK	ElectroDialytic recovery of sludge incineration ashes (Danish: ElektroDialytisk genanvendelse af slamASke)	Development of an electrodialectic process for phosphorus recovery from sewage sludge incineration and other ashes. The EDASK project is aiming to develop a technology enabling continuous recovery of phosphorus bound in the incineration ash. The method is using just water and electricity, thanks to a new electro-dialysis technology. Moreover, the process is 'cleaning' the ashes of heavy metal impurities allowing the inorganics to be reused in the construction industry instead of going to landfill. The ongoing activity is demonstrating the technology in a pilot plant giving the necessary design figures for the technology to be upscaled in order to meet industrial volumes in a second phase. An expected business case and value chain will be developed.	1-1-2015	1-1-2016	Danish EPA & MUDP 2014 (Environmental Technology Development and Demonstration Program, 2014)	http://www.kruger.dk/en	mdj@kruger.dk	Mette Dam Jensen
ePhos	Fraunhofer IGB ePHOS® electrochemical nutrient recovery unit	A 2 m ³ /hour pilot unit for electrochemical recovery of phosphorus from waste waters has been presented at IFAT (the global waste and water treatment show) and is ready for market deployment. ePHOS® is a patented electrochemical process, requiring no chemical input, using a sacrificial magnesium anode to produce magnesium phosphates such as struvite (magnesium ammonium phosphate) or K-struvite (potassium magnesium phosphate), which can be used as fertilisers. Energy consumption is stated as 1,5 kWh/m ³ wastewater. Fraunhofer IGB indicate that the process can recover up	2014	2018	Fraunhofer IGB private funding	https://www.fraunhofer.de/en/press/search-news/2016/June/ifat2016-fertilizer	jennifer.bilbao@igb.fraunhofer.de	Jennifer Bilbao

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		to 98% of soluble phosphorus from sewage sludge dewatering liquors, food or industrial wastewaters. The technology has been licensed to OVIVO the water treatment technology company, for the North American market. First commercial installation will be in operation in 2017 treating sewage sludge dewatering liquors for the recovery of struvite as fertiliser.				-from-wastewater.html		
Resource Container	Finland Resource Container project for phosphorus, nitrogen and carbon recovery from wastewater	VTT has designed a Resource Container concept that consists of physico-chemical methods used or under development in the industrial sector. They will be combined in such a manner that the focus of substance extraction will be specifically on the products (nutrients, bio-carbon and clean water), rather than on their disposal. The operating model does not include biological treatment, and can therefore be flexibly implemented in various scales locally or as a seasonal solution.	?	?	?	http://www.vttresearch.com/media/news/production-of-nitrogen-phosphorus-and-carbon-from-wastewater http://www.goodnewsfinland.com/vtt-makes-wastewater-work	hanna.kyllonen@vtt.fi , Moni.arnold@vtt.fi	Kyllonen Hanna
FIX-PHOS	Phosphorus recovery from	Prevention of Struvite Scaling in Digesters in Combination with Phosphorus Removal and Recovery. The fixation of phosphorus (FIX-Phos) combines struvite prevention and	?	?	BMBF (Germany)	http://www.iwar.tu-	M.Engelhart@iwar	Prof. Dr.-Ing. Markus Engelhart

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	sewage sludge with calcium silicate hydrate (CSH)	phosphorus recovery by the addition of calciumsilicatehydrate (CSH) particles into the anaerobic digester. The CSH fixates phosphorus as calcium phosphate and reduces the phosphorus concentration in the sludge water that allows for control of struvite formation. The phosphorus-containing recovery product can be separated and recovered from the digested sludge. In pilot plant experiments, 21% to 31% of phosphorus contained in digested sludge could be recovered when CSH was added at concentrations of 2 g/L to 3.5 g/L to a mixture of primary sludge and waste activated sludge (WAS) from enhanced biological phosphorus removal. The recovery product contained few heavy metals and a phosphorus content of 18 wt % P ₂ O ₅ , which allows for recycling as fertilizer. The fixation of phosphorus within the digester may increase wastewater sludge dewaterability. The phosphorus recycle stream to the headworks of the wastewater treatment plant is reduced.				darmstadt.de/media/iwar_abwasser_tech_nik/abgeschlossene_forschungspr_ojekte/FIXPhos_Poster_1_FAT2012.pdf	.tu-darmstadt.de, m.wagner@iwar.tu-darmstadt.de	
Global TraPs	Transdisciplinary processes for sustainable phosphorus management	Global TraPs is to engage key stakeholders through transdisciplinary mutual learning in building a human-environment system- based understanding of the complete phosphorus supply and demand chain, identifying pools, sinks, and the underlying dynamics of flows so as to jointly identify with strategic stakeholders through case study research alternatives in use, reuse and recycling. Answering the guiding question “What new knowledge, technologies and policy options are needed to ensure that future phosphorus use is sustainable, improves food security and environmental quality and provides benefits for the poor?” shall lead to improved resource understanding and awareness, funneling into sustainable P management and stewardship. The objectives were: (1) To be a leading global learning forum for sustainable P use, management and stewardship in providing an open	6-2-2011	31-12-2014	IFDA and private funding	http://www.globaltraps.ch	scholz@env.ethz.ch, aroy@ifdc.org, a.pham@gmx.ch, DHellums@ifdc.org	Prof. Dr. Roland W. Scholz & Amit H. Roy

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		<p>discourse space for all stakeholders along the P supply chain in a transdisciplinary (joint, eye-level, transparent), complementary and non-politicized arena.</p> <p>(2) To define the current state of knowledge on phosphorus and its use, and new knowledge which is necessary to ensure sustainability over the whole P value chain from diverse case studies which are being conducted by partners in 2013 and 2014.</p> <p>(3) To define new technologies which are needed to better process, use and re-use phosphorus.</p> <p>(4) To define most valuable areas for policy intervention to ensure sustainable P use in the future.</p>						
GOBI	The holistic optimization of the biogas process chain focusing on its operational, material, energetic and ecological efficiency.	The holistic optimization of the biogas process chain focusing on its operational, material, energetic and ecological efficiency. Fraunhofer IGB developed and tested at pilot scale a technology to recover nitrogen and phosphorus from digestate originated the fermentation of biowaste in a biogas plant and convert it to valuable fertilisers and soil improvers.	1-5-2013	31-12-2016	German Ministry of Education and Research	https://www.igb.fraunhofer.de/en/research/competences/molecular-biotechnology/function-al-genomics/next-generation-sequencing/gobi.html	jennifer.bilbao@igb.fraunhofer.de	Jennifer Bilbao
GreenSpeed	GreenSpeed – Integrated	GreenSpeed® is a new method in which algae technology is integrated into traditional wastewater treatment. This transforms into a resource capture plant with binding of	1-10-2015	1-7-2017	Foundation for Development	?	mth@envs.au.dk	Marianne Thomsen

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	wastewater treatment and biobased production	NPK in an algal mass and a greatly increased carbon capture for biogas production. In addition, the symbiosis between bacteria and algae will reduce the emission of greenhouse gases considerably.			ment of Technology in the Danish Water Sector			
H2O-C2C	Water cradle-to-cradle (C2C) in intensive livestock farming	The H2O-C2C project wants to provide sustainable alternatives for the water supply in intensive livestock farming, such as the valorization of low value water resources, in response to a possible future (ground)water shortage in Flanders. By the use of constructed wetlands, manure gets biologically converted to dischargeable greywater. The H2O-C2C project subsequently researches the purification of this greywater to reusable high quality water (e.g. drinking water for pigs) by means of membrane filter techniques. The project is a cooperation between UGent and VLAKWA, VITO, Ivaco, Innova Manure, Inagro, DLV-InnoVision and De Watergroep.	1-1-2013	1-12-2013	Province West-Flanders (Belgium)	http://www.biorrefine.eu/cluster/projects/h2oc2c	erik.meers@ugent.be , vd@vlakwa.be	Erik Meers & Veerle Depuydt
IF2O - COOPERL	Manufacture of organic fertilizers derived from livestock manure	?	?	?	?	http://www.phosphorusplatform.eu/images/Conferences/ESPC2-materials/Conferences%20IF2O%20poster%20ESPC2.pdf	bconv@coopperl.com , tephanie.sommier@evalor.fr , gabriel.menguy@nutrea.fr	Bertrand Convers
KIVIREKI	Urban	The aim of this project is to develop and test different	?	?	?	http://w	toimist	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	agriculture as a part of resource efficient business	business opportunities of urban agriculture based on closed nutrient cycles in urban areas. In addition to volunteer and free-time urban agriculture, urban agriculture can also be widespread, professional and economically profitable. This kind of urban agriculture would not only meet the requirements of low carbon and energy efficient food production, more resource efficient nutrient use, but also the challenges that are related to the welfare of urban citizens. This project aims at increasing the know-how of the project participants in professional urban agriculture. It also works as an innovation platform for different urban agriculture solutions. The project is implemented in cooperation with the Tampere University of Applied Sciences and the Global Dry Toilet Association of Finland along with numerous collaborative entrepreneurs, urban agriculture farmers, and authorities. The main partners in the project are four fine dining restaurants from Tampere, Finland. In 2016 urban farming pilots were started with the restaurants.				www.huusi.net/en/activities/ongoing-projects/kivireki	o@huussi.net	
KRN-Mephrec	Transforming sewage sludge to energy, fertiliser and iron in a single step using metallurgical phosphorus recycling	The joint partners in the project aim to investigate the technical feasibility, cost-effectiveness and ecological sustainability of metallurgical phosphorus recycling as an integrated, thermal process of melt-gassing sewage sludge. With the aid of a pilot system on a semi-technical scale, the process is to be tested in its core components and developed until it is suitable for constant operation.	?	?	BMBF (Germany)	https://bmbf.nawam-erwas.de/en/project/krn-mephrec https://www.nuernberg.de/internet/krn_mephrec	burkard.hagspiel@stادت.nuernberg.de	Burkard Hagspiel

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
						ec		
MAB3	The MacroAlgae Biorefinery – sustainable production of 3G bioenergy carriers and high value aquatic fish feed from macroalgae	MAB3 is a four-year research project promoting biomass resources from the sea, namely algae. The overall goal is to contribute to solving the challenges with food and energy supply and find ways to exploit the sea instead of farm land. The project aim is to develop new technologies in laboratory and pilot scale that will lead to sustainable growth and subsequent conversion of two brown algae (<i>Saccharina latissima</i> and <i>Laminaria digitata</i>) into three energy carriers - bioethanol, biobutanol and biogas - and a high-protein fish feed supplemented with essential amino acids. Besides the above mentioned biobased products, seaweed cultivation is an instrument for circular nutrient management, returning excess nutrient from aquatic system back into the economic system. Multiple output products from biorefinery have been explored including also biofertilizer products contributing to climate change mitigation, water quality restoration and nutrient self-supply.	1-2-2012	30-3-2016	Danish Innovation fund	http://www.mab3.dk http://envs.au.dk/fileadmin/Resources/ENVS/EMMI/MAB3_web.pdf	mth@envs.au.dk	Marianne Thomsen
Manuvalor	Manure valorization with manure treatment	Full scale pilot manure treatment plants, in the Netherlands (100 000 tonnes manure raw weight per year) and one in Germany.	?	?	?	?	oscar.schoumans@wur.nl	Oscar Schoumans
Nutricycle	Green fertilizers from digestate and manure	This project focusses on the clear need of the market to recycle nutrients out of organic streams, and the reprocessing of the organic streams to green replacers of inorganic fertilizers. The project (1) investigates the possibility of the recuperation of nutrients out of manure and digestate and the reuse as green replacers of organic fertilizers (cradle to cradle) and (2) contributes to the sustainable development of industrial livestock and bio-fermentation as renewable (energy) technology in Flanders.	1-1-2012	31-12-2013	MIP ICON	http://www.dlvinnovision.be/dlvinnovision/en/mip-icon-2011-nutricycle	erik.meers@ugent.be	Erik Meers

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
Nutrient Clearing House	Centralized upgrading plant for the recovery of mineral nutrients and critical metals	?	?	?	?	NOT WORKING http://www.i-cleantechvlaanderen.be/nl/nch	gert.debruyn@rhdhv.com	Gert de Bruyn
Nutrient recovery Grødaland	Evaluation of technologies for nutrient recovery at Grødaland biogas plant in Rogaland, Norway.	The discharge permit of the new Grødaland biogas plant required a preliminary study for the implementation of nutrient recovery technologies for the reject streams of the plant. The project evaluated, technologically and economically, the potential implementation of struvite production processes and evaporation processes for the recovery of nitrogen, potassium and phosphorous.	1-4-2015	1-11-2015	Private company	-	mmes@cowi.com	Maria M. Estevez
NUTS	Transition towards Sustainable Nutrient Economy in Finland	NUTS is a unique three-year project developing sustainable nutrient economy together with different domains and stakeholders. The project is a part of the Tekes program – Towards a Sustainable Economy. In addition, the project involves pioneer work in studying how extensive transitions can be managed and executed within a whole society.	?	?	Finnish government?	http://www.nutrient.fi/en	mirja.mikkila@lut.fi assi.linnanen@lut.fi	Mirja Mikkilä
Ochre and biochar research	Ochre and biochar: technologies for phosphorus capture and re-use	This project comprised Jessica Shepherd's PhD research in the School of GeoSciences and UK Biochar Research Centre at the University of Edinburgh. The research aim was to design and test tailored biochars to be used as P recycling materials as a way of using wastewater effluent P to meet agricultural crop P requirements. Biochar created from combined anaerobic digestate and ochre feedstocks had higher P removal rates than other sorbents in laboratory experiments and contained	1-9-2012	30-9-2016	University of Edinburgh & Icon Water, Australia	For links to papers arising from this research see: http://www.earthstudies.ed.ac.uk/research/ochre-biochar	k.heal@ed.ac.uk	Kate Heal (University of Edinburgh)

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		environmentally acceptable concentrations of potentially toxic elements. Probing the mechanisms of P capture by the biochars highlighted the importance of Fe minerals and subsidiary roles for Al, Ca and Si. Crop growth experiments using rhizoboxes showed that the biochars were as effective as conventional fertiliser in promoting spring barley growth.				www.research.arch.ed.ac.uk/portal/en/persons/kate-heal(aa3451d2-c9c3-4802-9874-a03baa9b7fc5)/publications.html		
Organic waste P recycling Norway	Better utilisation of phosphorous derived from organic waste products in Norway.	COWI and NIBIO conducted a feasibility study for better utilisation of phosphorous derived from organic waste products. Norway has an excess phosphorous excluding the import of phosphorous from mineral fertiliser. The challenge is to make better use of Norway's phosphorous resources regardless of uneven regional distributions. Furthermore, there is a need for redistribution of phosphorous from the West of Norway to areas that need it in the East of Norway.	1-7-2016	1-3-2017	Norwegian Environmental Directorate	-	ldbl@cowi.com	Line D. Blytt
Phosph'Or	Struvite from manure	?	?	?	?	NOT WORKING https://phosphor.cemagref.fr	sperandio@insa-toulouse.fr, apaulhe-massol@arterris.fr	?
PIDA	Phosphorus	The recovery of nutrients, especially phosphorus, is a	1-6-2014	1-9-2016	AiF	-	thoma	Thomas

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	recovery in decentralized wastewater treatment – Development of a novel method for electrochemical enhanced phosphate adsorption using ferric (hydr)oxide-based adsorbents and adsorbent regeneration	major innovation in decentralized wastewater treatment. Closing the phosphorus cycle could provide a contribution to the development of sustainable resource management. Therefore, in collaboration with GEH Wasserchemie GmbH & Co. KG, an effective process for phosphorus recovery using iron oxide adsorbents is developed for decentralized wastewater treatment. The focus of the investigations is the establishment of an economically viable process for adsorbent regeneration. The aim of the regeneration is the recovery of adsorption capacity for a subsequent reloading as well as the recovery of a phosphate concentrate which makes it possible to produce a phosphate with fertilizer properties. Moreover, by developing an electrochemical fixed bed adsorption module (EFA module), the loading dynamics and capacity of the granulated iron hydroxide (GEH) should be substantially increased, which would contribute to a considerable improvement of the overall process. In addition, the EFA module is to allow a complete and selective loading with phosphate and can be easily integrated into newly built or existing small wastewater treatment plants.			(Germany)		s.dittmar@mailbox.tu-dresden.de	Dittmar
Polonite	Polonite reactive filter systems	Reactive filter systems (a calcium silicate based material) have proved successful in removing phosphorus from farmland drainage and in individual household sewage treatment systems, with 4 000 installations sold to date. The used material can be spread to land to recycle the phosphorus. Industrial-scale pilot trials are currently underway at a UK sewage works and a Russian chicken farm.	?	?	Private company	http://www.ecofiltration.se/en	info@ecofiltration.se	Anders Norén
POWER	Renewable P-fertilizer from livestock effluent to	Looking at different routes for nutrient recycling from digestates. Projects include production of fertiliser pellets from digestate and wood ash, struvite precipitation from manure digestate. Assessments of fertiliser value of digestates have been carried out on a range of crops	?	?	CARIPO Foundation	http://www.ifib2015.talkb2b.net/membe	fulvia.tambone@uni.mi.it, fabrizi	Fulvia Tambone and Fabrizio Adani

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	prevent water eutrophication	including lettuce, beetroot and maize (data under publication).				rs/details/41 http://users.uni-mi.it/ricicla	o.adani@uni-mi.it	
RecoPhos Germany	Chemical treatment of ash with phosphoric acid to produce a phosphate fertiliser	?	?	?	?	http://www.reco-phos.de	info@reco-phos.de	?
Recovering and Reusing Resources in Urbanized Ecosystems	Multi-project CGIAR program on business models for Resource Recovery and Reuse (RRR)	Several projects including (1) Reducing the human and environmental cost of growing cities, (2) Solutions for a growing sanitation problem, (3) Exploring business avenues for human waste reuse, and (4) A new vision for waste, and the future.	?	?	Multiple donors	http://www.le.cgiar.org/rrr	p.drechsel@cgiar.org, m.dubbeling@ruaf.org	Pay Drechsel & Marielle Dubbeling
RECYPHOS	Recycling of phosphorus – contribution to sustainability in small domestic waste water	The aim of this research project was the recovery of phosphorous (P) compounds from waste water in small domestic waste water treatment plants. Therefore an adsorption module was developed which selectively removes phosphate from wastewater and reduces the phosphorous concentration to less than 2 mg/L P. In a first step different potential adsorbents were tested in adsorption equilibrium tests. The highest P loading was observed using the iron hydroxide material goethite. The influence of dissolved carbon and dissolved anions was very low. In the following study the breakthrough	1-9-2008	1-8-2011	BMBF (Germany)	-	thomas.dittmar@mailbox.tu-dresden.de	Thomas Dittmar

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	treatment plants	behaviour of the materials was tested in small columns also using different matrices. Also the regeneration of the different materials was analysed. The best results were observed using sodium hydroxide. To practical test the method a pilot plant was established which run over 330 days with different filter velocities. Also the formation o biofilms was analysed. Additionally rapid small scale column tests (RSSCT) were performed to model the breakthrough behaviour of the pilot plant. In another sub-project the cost effectiveness was analysed and a concept of logistics was developed. In the third sub-project a manufacturer of small waste water treatment plants tested adsorption modules in existing treatment plants and proofed the practical suitability of the concept.						
Short-Rotation-Plantation nutrient recycling	Safe use of sewage sludge and sewage sludge for the production of high-efficiency biomass in high-speed energy shale	The project aimed to enable an efficiency increase in Short-Rotation-Plantation (SRP) biomass production up to 3 times throughout Europe, by reusing wastewater and sewage sludge for irrigation and fertilisation, and to enable the safe and efficient application of wastewater and sewage sludge in SRPs.	2015?	2015?	?	https://ec.europa.eu/eip/agriculture/en/find-connect/project/reove-e-ja-j%C3%A4%C3%A4kmud-a-ohutu-kasutus-e-v%C3%B5imalused-k%C3%B	Katrin.heinsoo@emu.ee	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
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SLURRY-MAX	Holistic decision support for slurry storage and treatment	For farmers, slurry can be both a blessing and a curse: in the right place at the right time, it's a valuable source of fertilizing nutrients; in the wrong place at the wrong time, it's a dangerous and heavily-regulated potential pollutant. A number of decision support tools—such as RB209, Crap App and Planet—have been produced with the aim of helping farmers ensure their slurry and manure is a blessing, rather than a curse. But how useful are these tools to farmers in the field? How can they be made better? SLURRY-MAX is an interdisciplinary project led by Claire Waterton at Lancaster University. Claire, alongside her colleagues Lisa Norton (Lancaster), Katrina Macintosh (Queen's Belfast), Ruben Sakrabani (Cranfield), James Gibbons and Dave Chadwick (Bangor), Shailesh Shrestha (SRUC) and Emma Cardwell (Lancaster), working alongside ADAS and AHDB, will investigate what decision support tools actually do for farmers, and how they can be made to do more.	?	?	NERC (United Kingdom)	http://www.p.lancs.ac.uk/slurry-max	c.waterton@lancaster.ac.uk, e.cardwell@lancaster.ac.uk	Claire Waterton and Emma Cardwell
Sustainable Airport Cities	Pilot for phosphorus recycling from wastewater of airport/planes	A key component of this project involves selecting a technology, so that a number of different technologies were tested. One of the most important selection criteria was the quality, and therefore saleability, of the phosphorus recovered from Schiphol's wastewater by the technology. In the end, a technology was chosen that produced struvite (NH ₄ MgPO ₄ ·6H ₂ O, or magnesium ammonium phosphate) in pellet form, because this bore the greatest resemblance to traditional fertilisers. However, the pellets produced were generally smaller (ca. 0.5 mm) than regular fertiliser pellets. During the pilot, about 700 kg of struvite was extracted from centrate (water from digested sludge) and from toilet wastewater from aircraft (faecal water). On the basis of the results, it was concluded that phosphorus recovery by means of struvite production at the Schiphol WWTP is feasible, even if on only a small scale. An important	1-1-2013	31-12-2015	TKI (Netherlands)	https://www.kwrwater.nl/en/projecten/sustainable-airport-cities	Kees.Roest@kwrwater.nl	Kees Roest

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		prerequisite for struvite recovery is the implementation of biological phosphorus removal at the WWTP. At the moment the main uncertainty concerns whether the phosphorus removal efficiency of 85% in the struvite reactor is feasible on a continuous basis. The cost savings resulting from the production of struvite affect the WWTP primarily, and are related to the reduction in the use of iron and the disposal of chemical sludge (iron phosphate).						
Tetraphos	Phosphoric acid dissolution of ash then purification	Sewage treatment plants are no longer a place for disposing of waste materials but for recovering clean water, energy and minerals. By using REMONDIS' processes and services, the wastewater can be treated, the sewage sludge used for materials recycling or to produce energy and valuable salts recovered from the ash – in particular when the facility uses TetraPhos®, a process developed by REMONDIS Aqua itself. With this new method, the sewage sludge ash is not dissolved in hydrochloric acid – the standard procedure – but in phosphoric acid. The phosphoric acid is enriched with the phosphorus contained in the ash and then processed in a number of different stages. This procedure produces a number of final products including RePacid® phosphoric acid for the production of phosphates (inc. fertilisers), gypsum for the building supplies trade, and iron and aluminium salts which can be returned to the sewage treatment plant to be used as a precipitating agent to treat wastewater and eliminate phosphorus. TetraPhos® is, therefore, an exceptionally efficient and cost-effective process that also contributes greatly towards conserving our planet's natural resources. REMONDIS has, however, gone a step further. The ideal salt for recovering phosphorus is calcium phosphate, which can be produced at sewage treatment plants with ReAlPhos®. By using aluminium (e.g. ALUMIN®) as a precipitating agent, the phosphorus can be recovered from the sewage sludge in	?	?	Remond is Aqua	http://www.remond is-aktuell.com/en/remond is-aktuell/032014/water/phoenix-from-the-ashes http://www.remond is-sustainability.com/en/acting/phosphorus-recovery	info@remond is-aqua.de	?

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
		a more accessible form.						
Tianshui Shui Sweetest Apples Ltd	Growing apples with urine	?	?	?	SOHO China Foundation	NOT WORKING: http://www.toiletchina.com.cn	szqa@sina.com	?
VALODIM	Optimal Valorization of Digestate with nitrogen, phosphorus and potassium recovery	The objective of the VALODIM project is to optimize and standardise the digestate valorization units, evaluating the nutrient recovery techniques (nitrogen, phosphorus and potassium), considering both the nature of various substrates used in co-digestion units and the cultivation needs. The project will include an inventory of digestate characteristics, modullisation of nutrient recovery processes and drying as a function of different digestate properties, and tests with farmers' cooperatives of recovered struvite and organic pellets. The development of methanisation raises issues on the management of by-products (the digestate) and the profitability of facilities. VALODIM works to resolve these two issues simultaneously by providing technologies that will enable methaniser operators and cooperatives to better recover the fertilising value from digestates for a win-win result: the profitability of the methanisation unit on the one hand and the compatibility of the fertilisers with local farming methods on the other.	1-1-2014	31-12-2018	French Bank for industry (BPI)	http://www.ovalie-innovation.com/en/valodim-2	marie-line.daumer@cemagref.fr , sperandio@insatoulouse.fr , apaulhe-massol@arterris.fr	Marie-Line Daumer or Mathieu Spérandio
Waste to Product (W2P)	Valorization of industrial wastes brines containing nitrogen, phosphorus, calcium,	Integration of technologies for valorization of phosphorus and nitrogen for agronomical applications using industrial by products. Solutions needed for valorization of diluted dissolved salts (e.g. P and N streams of urban and industrial WWTPs) need to implement selective separation, concentration and purification processes.	?	?	Spanish RD (Mineco)	http://www.phosphorusplatform.eu/images/Conference/ESPC2	jose.luis.cortina@upc.edu	Jose Luis Cortina

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person
	magnesium as chemicals/fertichemicals					materials/Cortina%20poster%20ESPC2.pdf		
Wetsus Phosphate Recovery theme	Phosphate recovery from iron phosphate and iron based phosphate adsorbents	Phosphate is an important fertilizer needed for food production. The sources of phosphate are finite and mining and processing of the ore is an energy intensive and polluting process. An appreciable part of the phosphorus in food ends up in the wastewater and manure. Currently chemicals and energy are used to remove the phosphate from the wastewater as emissions from phosphate to the surface water is unwanted. This theme focuses on new approaches to remove phosphate from wastewater and manure in such manner that the phosphate becomes available as fertilizer and the water will be clean. These new approaches need to remove phosphate from wastewater and manure in such manner that costs for recovery are reduced and high value products are produced at the same time.	?	?	Kemira, ICL, STOWA	http://www.wetsus.nl/phosphate-recovery	leon.korving@wetsus.nl	Leon Korving
ZAWENT	Integrating water, energy and nutrient recovery in the cities of the future	?	?	?	MIP	NOT WORKING http://www.i-cleantechvlaanderen.be/nl/zawent	peter.de.smet@cleanenergyinvest.be	Peter de Smet

7 Projects to add (PLEASE FILL IN)

Acronym	Full name	Project description	Starttime	Endtime	Funding	Website	Email	Contact person