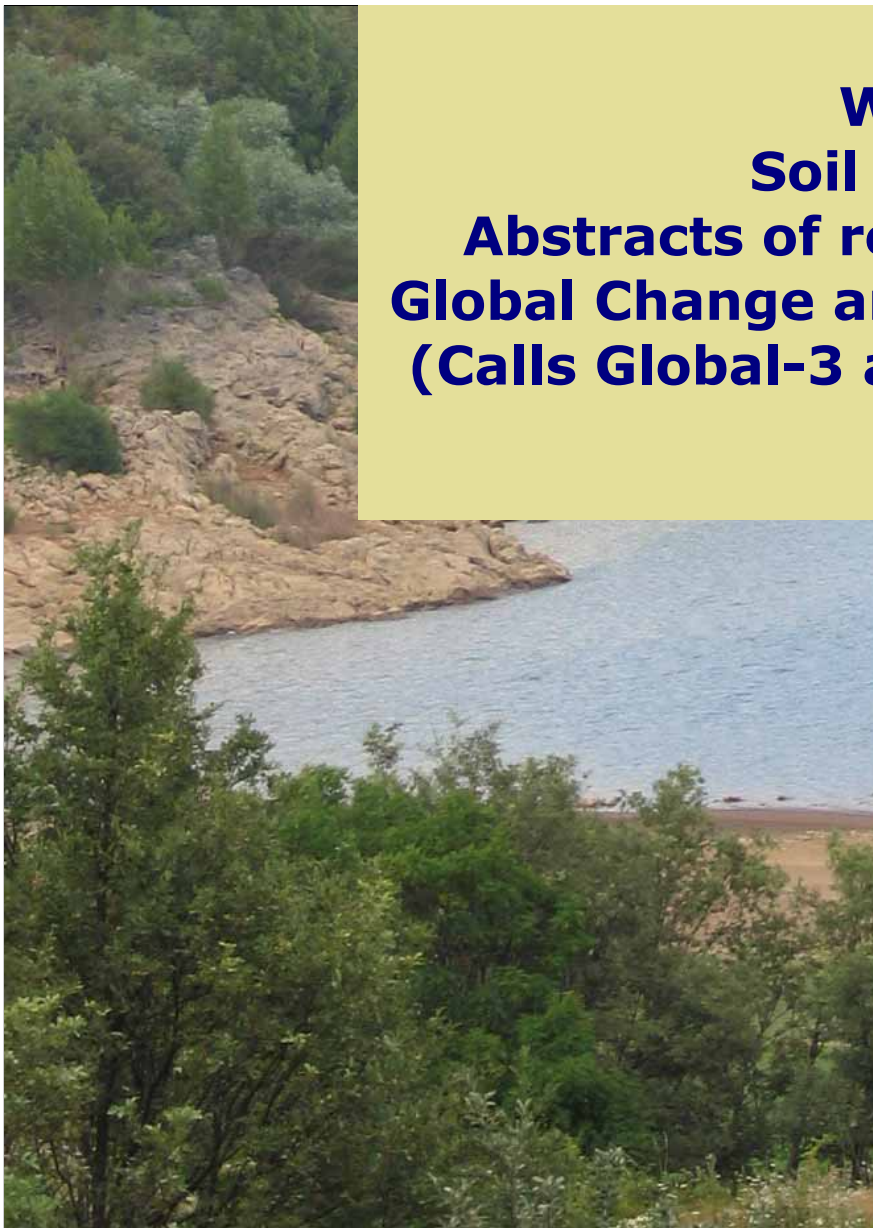




EUROPEAN
COMMISSION

Community research



**Water cycle and
Soil related aspects
Abstracts of related projects
Global Change and Ecosystems
(Calls Global-3 and Global-4 *)**

24/05/2006

GLOBAL CHANGE AND ECOSYSTEMS



* The projects described here have been retained for negotiation. Final data might be different



Title **Observations, Analysis and Modeling of Lightning Activity in Thunderstorms, for use in Short Term Forecasting of Flash Floods**

Activity code: SUSTDEV-2005-3.II.1.2 Instrument: STREP Duration: 36 months

Co-ordinator Prof. Colin Gregory Price

Organization Tel Aviv University
IL-69978 Tel Aviv

Total Costs: 1.644.060 €

Proposed EC grant: 1.207.860 €

Abstract:

Flash floods are a serious problem in the Mediterranean region in particular, and in Europe in general. These floods result from large weather systems with embedded severe thunderstorms that deposit large amounts of rainfall in short periods of time. Since lightning activity can be detected and monitored continuously from thousands of kilometers away, we propose the use of lightning data to better nowcast (3-hour prediction) and forecast (24-48 hour prediction) the location, intensity and timing of heavy convective precipitation events. For this we plan to develop rainfall-lightning relationships using lightning and precipitation data sets in the Mediterranean region, and to use lightning information in conjunction with infrared / microwave observations from geostationary / low Earth orbiting satellites to improve cloud characterization, convection detection and precipitation retrieval from space. With the help of cloud and meso-scale models we plan to simulate numerous cases studies of past flash flood events in Europe to better understand the connection between intense precipitation and lightning activity. Once we have established a methodology to use lightning to help estimate rainfall location and intensity, we plan to develop algorithms for short-term nowcasting, to allow for the short-term flash flood warnings via the internet for the entire Mediterranean region, and perhaps later Europe. Furthermore, using assimilated lightning data in mesoscale meteorological models we plan to investigate the possibility of improving the 24-48 hour forecasts of severe precipitation events. We will validate the new rainfall retrieval algorithms as well as the nowcasting algorithms and forecasting procedures by means of radar and raingauge measurements at several locations across the Mediterranean. The societal benefits of such advanced warnings will be investigated, especially in relation to risk management.

Partners:

Nb	Partner Legal Name	Country
1	Tel Aviv University	IL
2	The Open University of Israel	IL
3	Consiglio Nazionale delle Ricerche	IT
4	National Observatory of Athens	GR
5	Universitat de Barcelona	ES
6	CYPRUS METEOROLOGICAL SERVICE	CY



Title	Hydrometeorological data resources and technologies for effective flash flood forecasting		
Activity code:	SUSTDEV-2005-3.II.1.2	Instrument:	STREP
		Duration:	36 months
Co-ordinator	Prof. Marco Borga		
Organization	Department of Land and Agroforest Environment, University of Padova	Total Costs:	3.489.434 €
	IT-35020 Legnaro (PD)	Proposed EC grant:	2.350.000 €

Abstract:

The management of flash flood hazards and risks is a critical component of public safety and quality of life. Flash-floods develop at space and time scales that conventional observation systems are not able to monitor for rainfall and river discharge. Consequently, the atmospheric and hydrological generating mechanisms of flash-floods are poorly understood, leading to highly uncertain forecasts of these events. The HYDRATE objective is to improve the scientific basis of flash flood forecasting by extending the understanding of past flash flood events, advancing and harmonising a European-wide innovative flash flood observation strategy and developing a coherent set of technologies and tools for effective early warning systems. To this end, the project includes actions on the organization of the existing flash flood data patrimony across Europe. The observation strategy proposed in HYDRATE has the objective to collect flash flood data by combining hydrometeorological monitoring and the acquisition of complementary information from post-event surveys. This will involve a network of existing Hydrometeorological Observatories; all placed in high flash flood potential regions. HYDRATE will develop a freely-accessible European Flash Flood Database to make available the collected hydrometeorological data to the international research community. The final aim of HYDRATE is to enhance the capability of flash flood forecasting in ungauged basins by exploiting the extended availability of flash flood data and the improved process understanding. The Partners include nine universities, seven government research centres, and one SME. These represent eight Member States, one Associated Candidate State and three third-countries. Thus the results of HYDRATE will benefit from assembling international knowledge and scientific expertise and lead to advancements in observation strategy for implementation not only in Europe but internationally.

Partners:

Nb	Partner Legal Name	Country
1	Department of Land and Agroforest Environment, University of Padova	IT
2	Centre National de la Recherche Scientifique	FR
3	Consiglio Nazionale delle Ricerche	IT
4	Vienna University of Technology	AT
5	Ecole Nationale des Ponts et Chaussées - CERERE	FR
6	UNIVERSITAT POLITÈCNICA DE CATALUNYA	ES
7	Technical University of Crete	GR
8	Hellenic Center for Marine Research	GR
9	Slovak University of Technology in Bratislava, Faculty of Civil Engineering	SK
10	NATIONAL METEOROLOGICAL ADMINISTRATION	RO
11	NATIONAL INSTITUTE OF HYDROLOGY AND WATER MANAGEMENT	RO
12	HR Wallingford Ltd.	UK
13	Wageningen University	NL
14	Centre National du Machinisme Agricole, du Génie rural, des Eaux et Forêts	FR
15	Wuhan University	CN
16	University of KwaZulu-Natal, DURBAN, South Africa	ZA
17	University of Wyoming Office of Research and Econ. Devel.	US



Title **WATer and global CHange**

Activity code: SUSTDEV-2005-3.II.1.1

Instrument: IP

Duration: 48 months

Co-ordinator Dr Richard Harding

Organization Natural Environment Research Council - Centre for Ecology and Hydrology
UK-SN2 1EU Swindon

Total Costs: 12.969.729 €

Proposed EC grant: 9.980.096 €

Abstract:

The Integrated Project (WATCH) which will bring together the hydrological, water resources and climate communities to analyse, quantify and predict the components of the current and future global water cycles and related water resources states, evaluate their uncertainties and clarify the overall vulnerability of global water resources related to the main societal and economic sectors. WATCH project will:

- analyse and describe the current global water cycle, especially causal chains leading to observable changes in extremes (droughts and floods)
- evaluate how the global water cycle and its extremes respond to future drivers of global change (including greenhouse gas release and land cover change)
- evaluate feedbacks in the coupled system as they affect the global water cycle
- evaluate the uncertainties in the predictions of coupled climate-hydrological- land-use models using a combination of model ensembles and observations
- develop an enhanced (modelling) framework to assess the future vulnerability of water as a resource, and in relation to water/climate related vulnerabilities and risks of the major water related sectors, such as agriculture, nature and utilities (energy, industry and drinking water sector)
- provide comprehensive quantitative and qualitative assessments and predictions of the vulnerability of the water resources and water-/climate-related vulnerabilities and risks for the 21st century
- collaborate intensively with the key leading research groups on water cycle and water resources in USA and Japan
- collaborate intensively in dissemination of its scientific results with major research programmes worldwide (WCRP, IGBP)
- collaborate intensively in dissemination of its practical and applied results with major water resources and water management platforms and professional organisations worldwide (WWC, IWA) and at a scale of 5 selected river basins in Europe

Partners:

Nb	Partner Legal Name	Country
1	Natural Environment Research Council - Centre for Ecology and Hydrology	UK
2	Wageningen University and Research Centre	NL
3	Vrije Universiteit Amsterdam	NL
4	Danish Meteorological Institute	DK
5	Cemagref	FR
6	Johann Wolfgang Goethe-Universitat Frankfurt am Main	DE
7	The Abdus Salam International Centre for Theoretical Physics	IT
8	Met Office	UK
9	Max Planck Society for the Advancement of Science represented by Max Planck Institute of Meteorology	DE
10	Research Centre for Agricultural and Forest Environment- Polish Academy of Sciences	PL
11	Potsdam Institute For Climate Impact Research	DE
12	Technical University of Crete	GR
13	University of Oslo	NO
14	Universitat de Valencia. Estudi General	ES
15	Department of Physics Oxford University	UK
16	International Institute for Applied Systems Analysis	AT
17	Laboratoire de Meteorologie Dynamique du CNRS	FR
18	Fundacao da Faculdade De Ciencias da Universidade de Lisboa	PT
19	Comenius University in Bratislava	SK
20	Universitat Politecnica de Catalunya	ES



21	University of Kassel	DE
22	Kiwa Water Research	NL
23	Observatoire de Paris	FR
24	Vyzkumny ustav vodohospodarsky T.G. Masaryka (T.G. Masaryk Water Research Institute)	CZ
25	Norwegian Water Resources and Energy Directorate	NO



Title **Coordination Action on Risk Based Management of River Basins**

Activity code: SUSTDEV-2005-3.II.2.1

Instrument: CA

Duration:

36 months

Co-ordinator Drs Jos Brils

Organization Netherlands Organisation for Applied Scientific Research
NL-2600 JA Delft

Total Costs: 1.880.304 €

Proposed EC grant: 1.612.304 €

Abstract:

In RISKBASE leading European scientists and representatives of major, European stakeholder groups will review and synthesise the outcome of EC RTD Framework Program projects, and other major initiatives, related to integrated risk assessment-based management of the water/sediment/soil system at the river-basin scale. The synthesis will lead to the development of integrated risk assessment-based management approaches enabling the prevention and/or reduction of the negative impacts caused by human activities on that system. RISKBASE aims to deliver: 1) An overarching concept, generic approach and guiding principles to integrated risk based management of river basins; 2) Recommendations towards evolution and implementation of risk based management in national and community policies and towards implementation in management and 3) A proposal for the European research agenda related to risk based management. Based upon ample experience in previous EC CAs, Thematic Networks and/or Accompanying Measures, a simple project structure is chosen, with only a minimum number of Work Packages (WP). Each WP will be managed by one WP-leader, supported by a few other partners (contractors) in the project. The WPs will organise several workshops dedicated to specific issues related to risk based management at the river-basin scale. Furthermore, RISKBASE will annually organise a General Assembly (GA) and will make use of EUGRIS as web-based information exchange structure. The workshops, GA and the website will be open to all who are interested and willing to contribute to achieve the RISKBASE goals and objectives. Furthermore, during the project, each WP will select core-team members to assist the WP-leader in reviewing, synthesising and then reporting of the outcome of WP-workshops. Thus an open, transparent and flexible structure is created ensuring the integration of all essential knowledge, expertise and experience in order to make RISKBASE a success.

Partners:

Nb	Partner Legal Name	Country
1	Netherlands Organisation for Applied Scientific Research	NL
2	DECHEMA Gesellschaft für Chemische Technik und Biotechnologie	DE
3	Bureau de Recherches Géologiques et Minières	FR
4	UFZ-Umweltforschungszentrum Leipzig-Halle GmbH	DE
5	Umweltbundesamt GmbH	AT
6	Consejo Superior de Investigaciones Científicas	ES
7	Universität für Bodenkultur, Wien	AT
8	Vrije Universiteit Amsterdam	NL
9	Vegter Advise	NL
10	University of Bristol	UK



Title **INTEGRATED DECISION SUPPORT SYSTEM FOR RISK ASSESSMENT AND MANAGEMENT OF THE WATER-SEDIMENT-SOIL SYSTEM AT RIVER BASIN SCALE IN FLUVIAL ECOSYSTEMS**

Activity code: SUSTDEV-2005-3.II.2.1 Instrument: STREP Duration: 30 months

Co-ordinator Prof. Eugenio Oñate

Organization CENTRE INTERNACIONAL DE MÈTODES NUMÈRICS EN L'ENGINYERIA
ES-08034 Barcelona

Total Costs: 2.571.980 €
Proposed EC grant: 1.665.040 €

Abstract:

The objective of the project is to develop and validate a new DSS for the risk assessment and management for the prevention and/or reduction of the negative impacts caused by global change and human activities on the water/sediment/soil system at river basin scale in fluvial ecosystems. The DSS will combine and integrate environmental and geo-physical data from earth observation systems, in-situ sensors and geo-referenced information, advanced computer simulation and graphical visualisation methods and artificial intelligence tools for generating knowledge contributing to the assessment of the ecological impact and the design of effective response actions maximising the integrity and safety of the ecosystem and human life. The RAMWASS DSS will be the result of the development, integration and validation of the essential technologies provided by the project partners:- Technology for the transfer of high resolution data emanating from earth observation systems and in-situ sensors into classified and usable information to be ingested as input data for the WASS simulation system (CIMNE)- Advanced computational methods for the fast and accurate simulation of different WASS situations and for evaluating the effect of alternative response scenarios (UPC, CIMNE, CISM, U.Hannover, U.Lüneburg)- Innovative ICT tools for the 3D visualisation of the environment hazard simulations (CIMNE)- An artificial neural network (ANN) based decision model educated using innovative Monte Carlo simulation tools developed by CIMNE A crucial activity of the project will be the in-depth calibration, validation and assessment of the performance, scalability and effectiveness of the DSS in its application to at three relevant aquatic and wetland ecosystems adjacent to river basins in Europe: 1) The marsh area of the Doñana Park in Spain; 2) the biosphere reserve Elbe Riverland in the Elbe river valley in Germany and 3) the marshland and lagoons of the Po river delta in Italy.

Partners:

Nb	Partner Legal Name	Country
1	CENTRE INTERNACIONAL DE MÈTODES NUMÈRICS EN L'ENGINYERIA	ES
2	Universitat Politècnica de Catalunya	ES
3	CONFEDERACION HIDROGRAFICA DEL GUADALQUIVIR	ES
4	University of Hannover	DE
5	University of Lüneburg	DE
6	German Authority of Biosphere reserve of Elbe Riverlands	DE
7	International Centre for Mechanical Sciences	IT
8	STAR ENGINEERING Srl	IT



Title **Twinning European and Latin-American River Basins for Research Enabling Sustainable Water Resources Management**

Activity code: SUSTDEV-2004-3.II.3.1.1 Instrument: STREP Duration: 36 months

Co-ordinator Dr. Sam Ekstrand

Organization IVL, Swedish Environmental Research Institute
SE-SE-100 31 Stockholm

Total Costs: 3.475.237 €

Proposed EC grant: 2.000.000 €

Abstract:

The Latin American and Caribbean region is highly heterogeneous in terms of climate zones, hydro-ecology, socio-political systems etc. Numerous problems in relation to water quality and water availability arise. Flooding occurs frequently and erosion and pollution pressures have also become major problems. Management strategies, legal framework and stakeholder involvement needs to be improved. Activities and research tasks will be conducted within several fields of IWRM; hydrology, modelling of pollution flow, impact assessment, socio-economic impacts, climate change effects, scenario analysis and action efficiency. The river basins selected are: Baker (Chile-Argentina), Catamayo-Chira (Peru-Ecuador), Cauca (Colombia), Lago de Nicaragua (Nicaragua), and Quarai/Cuareim (Uruguay-Brazil). The European river basins are Thames (UK) and Norrström (Sweden). The project addresses the goals of the EU WI "Water for Life", and builds on the methods and guidelines developed for the EU WFD. Interfaces with international organisations have been established. The proposal is designed to enable and facilitate twinning in all fields of activity in order to fill gaps in knowledge. The strong component of public participation and stakeholder involvement will ensure that each component has local ownership. The river basins selected represent a wide variety of conditions, addressing also transboundary water problems. Thus, the applicability of the WFD approach will vary for the third country basins, and methodology applied will be a modification of the WFD process. The final step will be development of tools for the implementation and identification of priority actions analysed in terms of physical/chemical efficiency as well as socio-economic effects. Priority actions are an essential part of an RBMP, and will be a crucial input and an encouragement to the Latin American end-users of TWINLATIN to develop full RBMP's following the finalisation of the project.

Partners:

Nb	Partner Legal Name	Country
1	IVL, Swedish Environmental Research Institute	SE
2	Centre of Ecology and Hydrology, Wallingford	UK
3	Katholieke Universiteit Leuven, Belgium	BE
4	Centro de Ciencias Ambientales Europa-Latinoamérica, University of Concepción. EULA Chile	CL
5	Instituto de Pesquisas Hidraulicas, Universidade Federal do Rio Grande do Sul, Brazil	BR
6	Dirección Nacional de Hidrografía del Ministerio de Transporte y Obras Públicas (National Direction of Hydrography, Ministry of Transport and Public Works)	UY
7	Centro de Investigaciones y Estudios en Medio Ambiente de la Universidad Nacional de Ingeniería, Nicaragua	NI
8	Comisión Binacional Catamayo-Chira, Peru-Ecuador	EC
9	Corporación Autónoma Regional del Valle del Cauca, Colombia	CO



Title **Strategy and methodology for improved IWRM - An Integrated Interdisciplinary Assessment in Four Twinning River Basins in Europe and Asia**

Activity code: SUSTDEV-2005-3.II.3.6 Instrument: STREP Duration: 36 months

Co-ordinator Mr Stig A. Borgvang

Organization Norwegian Institute for Water Research
NO-0411 Oslo

Total Costs: 3.381.600 €

Proposed EC grant: 2.491.850 €

Abstract:

The point of departure for STRIVER is the lack of clear methodologies and problems in operationalisation of IWRM as pointed out by both the scientific and management communities. STRIVER will develop interdisciplinary methods to assess and implement IWRM. Based on the development of a multidisciplinary knowledge base assessment in all case studies (policy, social and natural sciences) and an early stage development of IWRM conceptual framework, the project will undertake IWRM in the four selected twinned catchments covering six countries in Europe and Asia. Twinning activities based on a problem-based approach will be performed in four case river basins: • Tunga Bahdra (2 states in India), • Sesan (Vietnam/Cambodia), • Glomma (Norway), • Tejo/Tagus (Spain/Portugal). Under the IWRM framework, the problems to be covered are (i) water regimes in transboundary regulated rivers, (ii) environmental flow, (iii) land and water use interaction, and (iv) pollution. The research will use sub-basins of each river basin in all cases to allow more detailed studies and easier integration of all stakeholders, for transferability purposes. STRIVER will contribute towards improved interdisciplinary IWRM, based on the coupling and balancing of ecological, social-economic and policy variables in all the four case-basins by twinning activities. To that end, the project will: • develop guidelines for interdisciplinary methods to assess and implement IWRM • assess the transferability of case study results • enhance the dialogue between decision-makers, stakeholders and scientists • disseminate data and information to stakeholders to promote participatory planning and integrated decision-making, taking adequate account of the rights of poor people and gender roles • ensure that project results will benefit all parties also after the end of the project

Partners:

Nb	Partner Legal Name	Country
1	Norwegian Institute for Water Research	NO
2	Joint Research Centre	IT
3	International Water Law Research Institute, University of Dundee	UK
4	Institute of Geography	VN
5	Ministry of Water Resources and Meteorology	KH
6	CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	ES
7	Instituto Superior Técnico	PT
8	University of Oslo	NO
9	Centre for Interdisciplinary Studies in Environment and Development	IN
10	Society for Promoting Participative Ecosystem Management	IN
11	Rheinische Friedrich-Wilhelms-Universität (Universität Bonn)	DE
12	Linköpings Universitet	SE
13	Consiglio Nazionale delle Ricerche	IT



Title **Twinning European and South Asian river basins to enhance capacity and implement adaptive integrated water resources management approaches**

Activity code: SUSTDEV-2005-3.II.3.6 Instrument: STREP Duration: 36 months

Co-ordinator Prof. Wolfgang-Albert Flügel

Organization Friedrich-Schiller-University Jena DE-07737 Jena

Total Costs: 3.787.516 €

Proposed EC grant: 2.871.498 €

Abstract:

BRAHMATWINN will enhance capacity to carry out a harmonised integrated water resources management (IWRM) approach as addressed by the European Water Initiative (EWI) in headwater river systems of alpine mountain massifs already impacted from climate change, and to establish transfer of professional IWRM expertise, approaches and tools based on case studies carried out in twinning European and Asian river basins. With altogether eleven work packages (WP) the project addresses all important IWRM issues in a balanced way, including conflict resolution in the transboundary twinning Upper Danube River Basin (UDRB) and the Upper Brahmaputra River Basins (UBRB) in Europe and Southeast Asia respectively. In altogether seventy work tasks of the jointly identified WP social and natural scientists in cooperation with water law experts and local stakeholders will realize the project outcomes: (i) a integrated holistic approach and assessment of the transboundary UDRB and UBRB for sustainable IWRM; (ii) integrated indicators to quantify the natural environment and human dimension, selected to assess IWRM vulnerabilities; (iii) a integrated water resources management system (IWRMS) comprising the DANUBIA hydrological model, the river basin information system (RBIS) and the network analysis, creative modelling decision support system NetSyMod; (iv) a set “what-if?” scenarios, evaluated using the DPSIR approach, and associated adaptive IWRM options tested by means of the IWRMS to mitigate impacts of likely climate change; and (v) IWRM action plans based on the stakeholder negotiation and the governance assessment. The project consortium of altogether fifteen partners from Europe (10 partner) and Asia (5 partner) shares the financial grant requested proportionally and will guarantee the generation of the necessary synergism required to represent the complex system component interaction and to carry out the required knowledge transfer between Europe and Asia.

Partners:

Nb	Partner Legal Name	Country
1	Friedrich-Schiller-University Jena	DE
2	University of Munich	DE
3	ETH Zürich	NO
4	Paris-Lodron-University of Salzburg	AT
5	University of Vienna	AT
6	University of Southampton	UK
7	University of DUNDEE	UK
8	University of Oslo	NO
9	Fondazione Eni Enrico Mattei	IT
10	GERCH-Info EEIG	DE
11	Indian Institute of Technology	IN
12	International Center for Integrated Mountain DEvelopment	NP
13	Royal University of Bhutan	BT
14	Institute of Tibetan Plateau Research, Chinese Academy of Sciences	CN
15	Center for Agricultral Resources Research, Insititute of Genetic and Developmental Biology, Chinese Academy of Sciences	CN



Title **Accelerate Membrane Development for Urban Sewage Purification**

Activity code: SUSTDEV-2004-3.II.3.2.2

Instrument: STREP

Duration:

36 months

Co-ordinator Dr. Boris Lesjean

Organization KompetenzZentrum Wasser Berlin gemeinnützige GmbH
DE-10709 Berlin

Total Costs: 5.287.557 €

Proposed EC grant: 3.034.808 €

Abstract:

Over the past decade, membrane bioreactors have been increasingly implemented to purify municipal wastewater. However, even with submerged membranes which offer the lowest costs, the MBR technology remains in most cases more expensive than conventional processes. In addition, the European municipal MBR market is to date a duopoly of two non-European producers, despite many initiatives to develop local MBR filtration systems. The proposed AMEDEUS research project aims at tackling both issues, accelerating the development of competitive European MBR filtration technologies, as well as increasing acceptance of the MBR process through decreased capital and operation costs. The project will target the two markets for MBR technology in Europe: the construction of small plants (semi-central, 50 to 2,000pe, standardized & autonomous), and the medium-size plants (central, up to 100.000pe) for plant upgrade. Technological development of new MBR systems will be fostered by a consortium composed of 11 partners, of which five SMEs proposing novel concepts of low-cost and high-performance filtration systems. Two end-users, three non-profit institutions and a university, all of them well versed in R&D in the MBR field, will investigate solutions to reduce operation costs such as fouling control, membrane cleaning optimisation, aeration decrease, or optimise capital costs through improved implementation of membrane bioreactor process. Furthermore, an analysis of the potential for standardisation will be performed, and a technology transfer towards Southern and Eastern Europe will be organised in order to facilitate the penetration of these new markets. AMEDEUS will achieve concrete and realistic technological breakthroughs for the MBR technology, and improve the current process engineering and operation practices. It will improve the competitiveness of the MBR European market and render common this high-tech process for municipal wastewater treatment.

Partners:

Nb	Partner Legal Name	Country
1	KompetenzZentrum Wasser Berlin gemeinnützige GmbH	DE
2	A3 Abfall-Abwasser-Anlagentechnik GmbH	DE
3	Anjou Recherche	FR
4	Aquafin NV	BE
5	ENVI-PUR, s.r.o.	CZ
6	Vlaamse instelling voor technologisch onderzoek	BE
7	inge AG	DE
8	Millenniumpore Limited	UK
9	POLYMEM SA	FR
10	Technische Universitaet Berlin	DE
11	Tecnotessile Società Nazionale di Ricerca Tecnologica r.l.	IT



Title **Membrane bioreactor technology (MBR) with an EU perspective for advanced municipal wastewater treatment strategies for the 21st century**

Activity code: SUSTDEV-2004-3.II.3.2.2 Instrument: STREP Duration: 36 months

Co-ordinator Prof. TorOve Leiknes

Organization Norwegian University of Science and Technology
NO-N-7491 Trondheim

Total Costs: 4.621.145 €

Proposed EC grant: 3.000.000 €

Abstract:

The World is running out of clean, safe, fresh water. By 2025 one third of humanity (ca. 3 billion people) will face severe water scarcity. This has been described as the “single greatest threat to health, the environment and global food security”. Water is essential and preservation of its safety in quantity and in quality is critical to the sustainable development of any society. The goal of this project is to make a contribution to meet this challenge. The protection of water in the European Union has been encouraged through the Water Framework Directive (WFD). The intention of WFD is to protect water resources (quality and quantity) through an integrated water resource management policy. Wastewater treatment is an important aspect of water management. Efficient, cost effective treatment processes are needed for transforming wastewater into water free from contamination which can be returned to the hydrological cycle without detrimental effects. The development and application of MBR for full scale municipal wastewater treatment is the most important recent technical advance in terms of biological wastewater treatment. It represents a decisive step further concerning effluent quality by delivering a hygienically pure effluent and by exhibiting a very high operational reliability. The overall objective of EUROMBRA is to develop a cost-effective, sustainable solution for new, efficient and advanced municipal wastewater treatment based on MBR technology. This will be achieved through a multi-faceted, concerted and cohesive research programme explicitly linking key limiting phenomena (fouling, clogging) observed and quantified on the micro-, meso- and macro-scale. Key to the success of the programme is the harnessing specialist knowledge, conducting of dedicated yet interlinked experiments and incorporating key aspects of both system design and operational facets, the latter encompassing hydrodynamics and mass transfer, foulant speciation and dynamic impacts

Partners:

Nb	Partner Legal Name	Country
1	Norwegian University of Science and Technology	NO
2	Cranfield University	UK
3	Rheinisch-Westfaelische Technische Hochschule Aachen	DE
4	INSTITUTO DE BIOLOGIA EXPERIMENTAL E TECNOLÓGICA	PT
5	Institut National des Sciences Appliquées de Toulouse	FR
6	Montpellier II	FR
7	Delft University of Technology	NL
8	Swiss Federal Institute for Environmental Science and Technology	CH
9	Università degli Studi di Trento	IT
10	University of Technology, Sydney	AU
11	University of KwaZulu-Natal	ZA
12	POLYMEM S.A.	FR
13	PURON AG	DE
14	FlowConcept GmbH	DE
15	Milleniumpore Ltd.	UK
16	Waterschap Hollandse Delta	NL
17	Erfstverband	DE



Title **WATER SUPPLY AND SANITATION TECHNOLOGY PLATFORM**

Activity code: SUSTDEV-2004-3.IX

Instrument: SSA

Duration:

19 months

Co-ordinator Mrs Adriana Hulsmann

Organization Kiwa N.V.

Total Costs: 976.054 €

NL-3430 BB Nieuwegein

Proposed EC grant: 670.000 €

Abstract:

This Specific Support Action concerns the Water Supply and Sanitation Technology Platform. The SSA will provide the organisational, management and scientific support necessary to facilitate the process of the Technology Platform in order to produce the deliverables: Vision Document, Strategic Research Agenda and an implementation plan for the water sector in Europe. This is done by the Secretariat a delegation of members of the WSSTP Board, together with and on behalf of the Board. The three deliverables will be used as input for FP7. The mission of the WSSTP is “to strengthen the competitiveness and the potential for technological innovation of the European water industry, of water professionals and research institutions through the development of a strategic science and research agenda, to meet global challenges and regional demands of ensuring safe, secure and sustainable water supply for human societies and for the environment and sanitation services, within the framework of the available water resources”. The WSSTP will contribute to the MDG’s of the Johannesburg Summit and the European Union Water Initiative, through active participation of developing countries and of organisations that work in developing countries in the platform. The joint focus of the production of the three main is a very unique process of bringing together the various groups of stakeholders. The Water Supply and Sanitation Technology Platform will have a number of important measurable objectives, to which this SSA will contribute significantly:

- The production of the abovementioned documents.
- competitiveness, by providing a multi-stakeholder framework.
- results of the platform.

Partners:

Nb	Partner Legal Name	Country
1	Kiwa N.V.	NL
2	European Committee of Environmental Technology Suppliers Associations	BE
3	Netherlands Organisation for Applied Scientific Research	NL
4	UK Water Industry Research Limited	UK
5	NTNU - Norwegian University of Science and Technology	NO
6	Institute of Advanced Studies on Sustainability of the European Academy of Sciences and Arts	DE



Title **TECHNEAU: technology enabled universal access to safe water**

Activity code: SUSTDEV-2004-3.II.3.2.3

Instrument: IP

Duration:

60 months

Co-ordinator Dr. Adriana Hulsmann

Organization Kiwa N.V.

NL-2280 AB Rijswijk

Total Costs: 19.076.340 €

Proposed EC grant: 13.245.000 €

Abstract:

Many of the numerous small supply systems in rural areas in Europe and developing countries do not comply with regulations. Large centralised supply systems in industrialized regions are struggling to meet the challenge of a reliable, uninterrupted supply of water with a high level of compliance with standards and of minimal risk to human health, including the risk from deliberate contamination of water, whilst being accepted and trusted by consumers. It is the vision of TECHNEAU that, in order to cope with present and future challenges, water supply systems should consider a transformation from 'mono-scale' to flexible 'multi-scale' systems i.e. interlinked centralised and decentralised satellite treatment, monitoring and control systems. TECHNEAU will develop and demonstrate adaptive supply system options and new and improved supply and monitoring technologies and management practices. Treatment strategies will be based on robust multi-barrier schemes and control methodologies, providing safety against a broad spectrum of chemical and microbiological contaminants and avoiding organoleptic problems at the tap. Monitoring technologies will provide 'on-line' and 'at the site' information on water quality including parameters that relate to malicious contamination. Practices for risk assessment/risk management, operation and maintenance, and models for consumer acceptance will constitute the framework for these technologies. These technologies and management practices will enable end-users to make informed choices, appropriate to their own circumstances and constraints, for cost-effective and sustainable source-to-tap solutions for the provision of safe high quality drinking water that has the trust of the consumer. This step-change will be achieved by a critical mass of researchers, technology developers and users from across Europe and developing countries.

Partners:

Nb	Partner Legal Name	Country
1	Kiwa N.V.	NL
2	SINTEF-The Foundation for Technical and Industrial Research	NO
3	Riga Technical University	LV
4	Swiss Federal Institute for Environmental Science and Technology	CH
5	Norwegian University of Science and Technology	NO
6	DVGW-Technologiezentrum Wasser	DE
7	Laboratório Nacional de Engenharia Civil	PT
8	UNESCO-IHE Institute for Water Education	NL
9	WRc plc	UK
10	University of Surrey	UK
11	European Committee of Environmental Technology Suppliers Association	BE
12	BioDetection Systems BV	NL
13	Rheinisch-Westfaelische Technische Hochschule Aachen	DE
14	Chalmers University of Technology	SE
15	ALPHA MOS SA	FR
16	scan Messtechnik Ges.m.b.H.	AT
17	vermicon AG	DE
18	Groupement d'Intérêt Economique Anjou Recherche	FR
19	Mekorot Water Co. Israel	IL
20	Kompetenzzentrum Wasser Berlin gGmbH	DE
21	Water Research Commission	ZA



22	bbe Moldaenke GmbH	DE
23	Forschungsverbund Berlin e.V. / IGB	DE
24	Technische Universiteit Delft	NL
25	Aqualyng AS	NO
26	Chris Swartz Water Utilization Engineers	ZA
27	Freie Universität Berlin	DE
28	Indian Institute of Technology, Delhi	IN
29	National Institute of Public Health	CZ
30	Opalium	FR



Title	Sustainable Water management Improves Tomorrow's Cities' Health		
Activity code:	SUSTDEV-2004-3.II.3.2.1	Instrument:	IP
		Duration:	60 months
Co-ordinator	Mr. Huub Gijzen		
Organization	UNESCO-IHE Institute for Water Education	Total Costs:	25.191.396 €
	NL-2601DA Delft	Proposed EC grant:	14.750.000 €

Abstract:

Context With increasing global change pressures, and due to existing limitations, and un-sustainability factors and risks of conventional urban water management (UWM), cities experience difficulties in efficiently managing the ever scarcer water resources, their uses/services, and their after-use disposal, without creating environmental, social and/or economic damage. In order to meet these challenges, SWITCH calls for a paradigm shift in UWM. There is a need to convert ad-hoc actions (problem/incident driven) into a coherent and consolidated approach (sustainability driven). This calls for an IP Approach. **Research concept** SWITCH therefore proposes an action research project which has as a main object "The development, application and demonstration of a range of tested scientific, technological and socio-economic solutions and approaches that contribute to the achievement of sustainable and effective UWM schemes in 'The City of the future'". The project will be implemented by different combinations of consortium partners, along the lines of several complementary and interactive themes. The research approach is innovative for the combination of: • action research: address problems through innovation based upon involvement of users. • learning alliances: to link up stakeholders to interact productively and to create win-win solutions along the water chain; • multiple-way learning: European cities learn from each other and from developing countries, and vice versa. • multiple-level or integrated approach: to consider the urban water system and its components (city level) in relation to its impacts on, and dependency of, the natural environment in the river basin (river basin level), and in relation to Global Change pressures (global level). **Instrument and scope** An IP with 30 partners, their resources, and a total budget of € 25191396, including budget for demonstration activities in 9 Cities in Europe and developing countries.

Partners:

Nb	Partner Legal Name	Country
1	UNESCO-IHE Institute for Water Education	NL
2	Stichting International Water and Sanitation Centre	NL
3	ETC Foundation	NL
4	Wageningen University	NL
5	Middlesex University Higher Education Corporation	UK
6	The University of Birmingham	UK
7	Ove Arup and partners Limited	UK
8	UGMT Limited	UK
9	Technische Universität Hamburg - Harburg	DE
10	Mekorot Israel National Water Co.	IL
11	The Hebrew University of Jerusalem	IL
12	Ministry of Construction of P.R. China	CN
13	Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences	CN
14	Ayuntamiento de Zaragoza	ES
15	University of Lodz	PL
16	International Water Management Institute	SI
17	Department of Civil Engineering, Kwame Nkrumah University of Science and Technology	GH
18	Prefeitura Municipal de Belo Horizonte	BR
19	Universidade Federal de Minas Gerais	BR
20	ICLEI - European Secretariat, GmbH	DE
21	Swiss Federal Institute of Technology Lausanne	CH



22	United Nations Human Settlements Programme	KE
23	Centro Inter-Regional de Abastecimiento y Remocion de Agua	CO
24	IPES - Promocion del Desarrollo Sostenible	PE
25	Ingenieurgesellschaft Prof. Dr. Sieker mbH	DE
26	Technische Universität Berlin	DE
27	Loughborough University	UK
28	House of Water and Environment	PS
29	Institute of Graduate Studies & Research	EG
30	UNIVERSIDAD NACIONAL	CO



Title **Innovative and integrated technologies for the treatment of industrial wastewater**

Activity code: SUSTDEV-2005-3.II.3.2 Instrument: STREP Duration: 36 months

Co-ordinator Dr Antonio Lopez

Organization CONSIGLIO NAZIONALE DELLE RICERCHE Total Costs: 5.023.215 €
IT-00185 ROMA Proposed EC grant: 2.750.000 €

Abstract:

The main objective of the proposed project is to investigate, assess and significantly enhance the potentiality of promising technological options (i.e., technologies, processes and concepts) for the treatment of industrial wastewater with the specific aim to provide tailor-made solutions to end-users for a wide range of wastewaters. Such solutions will be essentially based on the improved integration of the investigated options and on technological improvements with respect to treatment system components, operation and control. Referring to the investigated options and the envisaged technological solutions, the project's goals are:

- Detailed investigation and performance enhancement of promising wastewater treatment options such as aerobic granulation, advanced oxidation processes (AOP) and membrane-based hybrid processes
- Achieving fundamental and technological knowledge advancements necessary for advanced wastewater treatment application in different industrial sectors
- Assessing the economic and environmental sustainability of promising wastewater treatment options
- Developing integrated tailor-made solutions for end-users in different industrial sectors
- Transferring the developed know-how to potential end-users inside and outside the project
- Favoring their actual implementation for enhancing the EU Water Industry competitiveness.

In order to achieve such goals, coordinated research activities will be carried out on selected options treating different types of wastewater. The experiences from such activities will be merged to define tailor-made solutions for end-users in different industrial sectors. A major goal will be the definition of treatment needs and framework conditions for a wide range of wastewaters based on the features of the options investigated (i.e., aerobic granulation, AOP combined processes, membrane contactors, membrane chemical reactors).

Partners:

Nb	Partner Legal Name	Country
1	CONSIGLIO NAZIONALE DELLE RICERCHE	IT
2	Rheinisch-Westfaelische Technische Hochschule Aachen	DE
3	Delft University of Technology,	NL
4	IVL Swedish Environmental Research Institute Ltd	SE
5	Cranfield University	UK
6	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	CH
7	CENTRO DE INVESTIGACIONES ENERGÉTICAS, MEDIOAMBIENTALES Y TECNOLOGICAS	ES
8	Norwegian Institute for Water Research	NO
9	SolSep BV	NL
10	Bayer MaterialScience AG	DE
11	WEDECO GmbH	DE
12	Austep Austeam Environmental Protection Srl	IT
13	ALBAIDA recursos naturales y medio ambiente, s.a.	ES
14	AnoxKaldnes	SE
15	Water Innovate Ltd.	UK
16	DHV	NL
17	Advanced Wastewater Management Centre The University of Queensland	AU



Title	New sustainable concepts and processes for optimization and upgrading municipal wastewater and sludge treatment		
Activity code:	SUSTDEV-2005-3.II.3.2	Instrument:	STREP
		Duration:	36 months
Co-ordinator	Prof. Hansruedi Siegrist		
Organization	Eidgenössische Anstalt für Wasserversorgung Abwasserreinigung und Gewässerschutz CH-8600 Duebendorf	Total Costs:	4.908.100 €
		Proposed EC grant:	2.800.000 €

Abstract:

The scope of sewage treatment is changing: Up to date municipal wastewater treatment plants (WWTP) were seen as an end-of-pipe treatment just before discharge, having the aim to avoid eutrophication and hygienic health hazard in surface water. Due to the global demographic trends as well as new legislations (e.g. the Water Framework Directive, WFD) increased focus is put on quantity and quality of effluents: WWTP are more and more seen as interface between sanitation and environment, delivering resources to the environment or human activities (recharge of drinking water reservoirs, recycling of nutrient, efficient energy use). This focus shift has implications on the quality goals set for WWTP products: • land requirement • effluent N, P load • effluent pathogen load • energy optimization New focus: • nutrient recycling • micropollutants: ecotoxicology of the effluent

• energy production NEPTUNE is focusing on technology solutions allowing to meet present and future standards via upgrading of existing infrastructure (new control strategies with online sensors; effluent upgrading with oxidation, activated carbon or wetland treatment; sludge processing for safe nutrient recycle) as well as via new techniques (fuel cell applications; new oxidative agents; polymer production from sludge). By including pathogen and ecotoxicity aspects into life cycle assessment studies (LCA), the project is helping improve the comparability of various technical options and propose a suitability ranking. The new focus given by the WFD and the emerging interest on organic (eco-)toxic compounds requires characterizing treated effluent and treatment technologies concerning ecotoxicologic aspects and micropollutants. The project is contributing to this discussion by ecotoxicity assessment and micropollutant fate studies.

Partners:

Nb	Partner Legal Name	Country
1	Eidgenössische Anstalt für Wasserversorgung Abwasserreinigung und Gewässerschutz	CH
2	Bundesanstalt für Gewässerkunde (Federal Institute of Hydrology)	DE
3	Laboratory of Microbial Ecology and Technology, UGent	BE
4	Consiglio Nazionale delle Ricerche	IT
5	University of Frankfurt	DE
6	Technical University of Denmark, Department of Manufacturing, Engineering and Management	DK
7	NATIONAL INSTITUTE OF RESEARCH AND DEVELOPMENT FOR ISOTOPIC AND MOLECULAR TECHNOLOGY	RO
8	Aquafin NV	BE
9	Deutsche Projekt Union GmbH	DE
10	Institute for Product Development	DK
11	SILUET B - Blaga Petrova	BG
12	Pyromex AG	CH
13	Gebr. Hunziker AG engineering company	CH
14	SCAN MESSTECHNIK GMBH	AT
15	CAMBI A/S	NO
16	AnoxKaldnes Biopolymer AB	SE
17	Université Laval	CA
18	The University of Queensland	AU



Title **Source control of priority substances in Europe**

Activity code: SUSTDEV-2005-3.II.3.1

Instrument: STREP

Duration: 36 months

Co-ordinator Dr John Munthe

Organization IVL Swedish Environmental Research Institute Ltd.
SE-10031 Stockholm

Total Costs: 3.103.000 €

Proposed EC grant: 1.720.000 €

Abstract:

With the new regulations included in the Water Framework Directive (WFD) (2000/60/EC), new strategies are needed for control of Priority pollutants (PP). For decision making and implementation of the WFD, the industrial sector, local water authorities and EU policy makers need guidelines for the selection and introduction of feasible and cost-effective measures. The overall objective of this project is to support the implementation process for the WFD by providing guidelines and decision support tools for the management of priority pollutants. To fulfil this overall objective the following activities are proposed: - To conduct a material flow analysis for selected priority pollutants. - To evaluate available and emerging measures and management options for PPs. - To develop a decision support tool for identification and selection of relevant measures on European, national and regional level. - To evaluate different potential measures by applying the decision support tools in case studies. - To facilitate the development of collective action plans (i.e. river basin management plans) involving all stakeholders (industries, authorities, citizens, NGOs). - To disseminate results to stake-holders and to strongly interact with industrial organisations, research networks, authorities and NGOs. A Stakeholder Advisory Group (SAG) will be formed with representatives from industries, authorities and NGOs. The SAG will be consulted during all steps in the process of collecting information, developing the decision support tool and the suggested set of management measures. The cooperation with the industrial sector, the different authorities and other stakeholders (public, NGOs) will ensure the accuracy and relevance of basic data collection, as well as the applicability, acceptance and relevance of the results from this project.

Partners:

Nb	Partner Legal Name	Country
1	IVL Swedish Environmental Research Institute Ltd.	SE
2	The Netherlands Organisation of Applied Scientific Research	NL
3	INSTITUT NATIONAL DE L'ENVIRONNEMENT INDUSTRIEL ET DES RISQUES	FR
4	Consejo Superior de Investigaciones Cientificas	ES
5	Norsk institutt for luftforskning	NO
6	Institute for Ecology of Industrial Areas/International Scientific Thematic Network of Environmental Technologies	PL
7	Suomen ympäristökeskus	FI
8	Water Research Institute	SK
9	Kiwa N.V.	NL
10	University of Southampton, School of Civil Engineering & the Environment	UK



Title **Source Control Options for Reducing Emissions of Priority Pollutants**

Activity code: SUSTDEV-2005-3.II.3.1

Instrument: STREP

Duration:

36 months

Co-ordinator Dr. Peter Steen Mikkelsen

Organization Danmarks Tekniske Universitet (Technical University of Denmark)

Total Costs: 3.961.192 €

DK-2800 Kgs. Lyngby

Proposed EC grant: 2.600.000 €

Abstract:

The overall aim of the SCOREPP project is to develop comprehensive and appropriate source control strategies that authorities, cities, water utilities and chemical industry can employ to reduce emissions of priority pollutants (PPs) from urban areas into the receiving water environment. The SCOREPP project focuses on the 33 priority substances identified in the Water Framework Directive (WFD), and specifically on the 11 priority hazardous substances. However, this list may be expanded to include emerging pollutants or reduced if appropriate model compounds can be identified, depending on the local context. The specific scientific objectives of the SCOREPP project are to identify the sources of PPs in urban areas, to identify and assess appropriate strategies for limiting the release of PPs from urban sources and for treating PPs on a variety of spatial scales. Furthermore to develop GIS-based spatial decision support tools for identification of appropriate emission control measures, to develop integrated dynamic urban scale source-and-flux models that can be used to assess the effect of source control options on PP-emissions and to optimise monitoring programmes, and to assess the direct and indirect costs, the cost-effectiveness and the wider societal implications of source control strategies. The developed approaches, models and assessments will be used to formulate a set of appropriate PP-emission reducing strategies, and a multi-criteria approach will be used to compare and evaluate these strategies in relation to their economic, societal and environmental impacts. The SCOREPP project will interact with the European chemical industry and water utility trade associations together with representatives from ministerial, regional, municipal and community organisations to ensure that these key urban stakeholders can provide input to framing the scope of the project, adapting the project outcomes and communicating the results of the project to a wide audience.

Partners:

Nb	Partner Legal Name	Country
1	Danmarks Tekniske Universitet (Technical University of Denmark)	DK
2	Middlesex University Higher Education Corporation	UK
3	Ghent University	BE
4	Anjou Recherche	FR
5	ENVICAT Consulting	BE
6	University of Ljubljana Faculty of Civil and Geodetic Engineering	SI
7	Desenvolupament i Societat Estudis S A	ES
8	City of Stockholm, Environment and Health Administration	SE
9	Université Laval	CA



Title **Integrated High Resolution Imaging Ground Penetrating Radar and Decision Support System for WATER PIPEline Rehabilitation**

Activity code: SUSTDEV-2005-3.II.3.3 Instrument: STREP Duration: 36 months

Co-ordinator Prof Nikolaos Uzunoglu

Organization Institute of Communications and Computer Systems
GR-15773 Athens

Total Costs: 3.337.717 €

Proposed EC grant: 2.155.000 €

Abstract:

Many EU cities are experiencing increasing problems with their water pipeline infrastructure. The cost of replacing these old, worn-out systems, if left to deteriorate beyond repair, is astronomical and clearly beyond the resources of many communities. Replacement, however, is not the only choice as many of these systems can be rehabilitated at 30 to 70 percent of the cost of replacement. Accordingly, resources are now increasingly being allocated to address pipeline rehabilitation management issues. Due to the emphasis on sustainable management, risk-based approaches for the rehabilitation management of the water supply network need to be developed. Rehabilitation decisions should be based, inter alia, on inspection and evaluation of the pipeline conditions. Yet, utilities cannot locate a number of their old pipes and current inspection technologies typically do not provide the needed detailed information on pipeline damage. The objectives of this work are: 1. To develop a novel, high resolution imaging ground penetrating radar for the detection of pipes, leaks and damages and the imaging of the damaged region and evaluate it at a test site. 2. To produce an integrated system that will contain the equipment in '1' and a Decision-Support-System (DSS) for the rehabilitation management of the underground water pipelines that will use input from the inspections to assess, probabilistically, the time-dependent leakage and structural reliability of the pipelines and a risk-based methodology for rehabilitation decisions that considers the overall risk, including financial, social and environmental criteria. 3. To field test the equipment and the DSS.

Partners:

Nb	Partner Legal Name	Country
1	Institute of Communications and Computer Systems	GR
2	Azienda Mediterranea Gas e Acqua S.p.a.	IT
3	Regia Autonoma Aquaserv	RO
4	PIPEHAWK PLC	UK
5	Huberg di Huber Guenther & C. S.a.s.	IT
6	HYDROSAVE UK LTD	UK
7	TECNIC Consulting Engineers S.p.A.	IT
8	RISA Sicherheitsanalysen GmbH	DE
9	Advanced Microwave Systems Ltd.	GR
10	Tbilisi State University, Laboratory of Applied Electrodynamics	GE
11	Istanbul Technical University	TR



Title **Optimised Radar to Find Every buried Utility in the street**

Activity code: SUSTDEV-2005-3.II.3.3

Instrument: STREP

Duration: 36 months

Co-ordinator Mr Howard Frederick Scott

Organization OSYS Technology Limited

Total Costs: 5.042.440 €

UK-NE6 1LL Newcastle upon Tyne

Proposed EC grant: 2.700.000 €

Abstract:

This project addresses the requirement for advanced technologies for locating, maintaining and rehabilitating buried infrastructures (area II.3.3). Specifically it fulfils the requirement for locating buried assets. Ground Penetrating Radar (GPR) is the only known non-invasive technique that can detect metallic and non-metallic buried objects, but conventional pulse time-domain technology has reached the limit of its development potential. This project will use innovative techniques to provide a clear advance in the state of the art. The project has three major objectives: • To provide a step change in the depth penetration and spatial resolution of GPR used for surveys carried out from the ground surface. This will be achieved by increasing the frequency and dynamic range of the radar by researching and developing Stepped Frequency Continuous Wave techniques and ultra wide-band antennas whose performance is independent of ground characteristics. • To prototype an innovative GPR-based real-time obstacle detection system for steerable bore- heads of Horizontal Directional Drilling (HDD) pipe and cable laying systems so that they can operate more safely below ground. This will require new antenna designs to be developed to provide a look-ahead capability and robust systems to be designed to protect against the hostile mechanical environment • To increase knowledge of the electrical behaviour of the ground, by means of in-situ measurements to enhance understanding of the sub-soil electrical environment, and to provide information for scientifically based antenna design. The project will lead to practical solutions that can be implemented cost-effectively to provide a capability to locate buried infrastructure with accuracy and reliability. This will reduce the need for excavations in the highway, thus minimising direct and indirect costs, reducing the incidence of pollution and enhancing safety.

Partners:

Nb	Partner Legal Name	Country
1	OSYS Technology Limited	UK
2	IDS INGEGNERIA DEI SISTEMI	IT
3	Gaz de France	FR
4	Tracto-Technik Spezialmaschinen GmbH	DE
5	UK Water Industry Research Ltd	UK
6	EUROPEAN UNION OF THE NATURAL GAS INDUSTRY - EUROPEAN GAS RESEARCH GROUP	BE
7	Delft University of Technology, Department of Geotechnology	NL
8	Università degli Studi di Firenze	IT
9	VYSOKÉ UCENÍ TECHNICKÉ V BRNE	CZ



Title **Knowledge and Need Assessment on Pharmaceutical Product in Environmental Waters**

Activity code: SUSTDEV-2005-3.IX

Instrument: SSA

Duration:

18 months

Co-ordinator Mr Benoît ROIG

Organization Association pour la Recherche et le Développement des Méthodes
et Processus Industriels
FR-75272 Paris

Total Costs: 877.012 €

Proposed EC grant: 630.000 €

Abstract:

The presence of pharmaceutical and veterinary products or even illicit drugs in the environment provokes harmful and very worrisome consequences. During the last decade, the consumption of these substances reached '12500' tons and their use does not stop increasing. These substances are partially metabolised by the body, but thousand tons are rejected in the environment, every year, by way of human or animal excretions. The rates of elimination of these various products and their metabolites by classic wastewaters treatments are variable, and some actual techniques are not effective enough to insure their total elimination. On the basis of European projects and dedicated literature, the objectives of this project is to provide a holistic assessment of the impacts of PPs on the European environment by pulling together results of previous and ongoing EU projects and published data. More precisely, it aims to aggregate the knowledge available on pharmaceutical products (PP) in environment and to propose priority actions to be taken in order to limit the environmental and health effects of these molecules. The knowledge concerns the identification of all pharmaceutical molecules founded in European water, their described impact on ecosystems and aquatic and terrestrial organisms, their elimination, the current analytical methods of control and finally the new development in detection. A typology of pharmaceutical products according to environmental management and risk assessment of PP will be proposed. This approach can be considered as a decision making tool and appears to be relevant for stakeholders such as environmental managers, regulatory institutions and industrials.

Partners:

Nb	Partner Legal Name	Country
1	Association pour la Recherche et le Développement des Méthodes et Processus Industriels	FR
2	University of Portsmouth Higher Education Corporation	UK
3	Consejo Superior de Investigaciones Cientificas	ES
4	Bureau de Recherches Geologiques et Minieres	FR
5	University of York	UK
6	Bundesanstalt für Gewässerkunde (Federal Institute of Hydrology)	DE
7	Centre National du Machinisme Agricole, du Genie Rural, des Eaux et des Forets	FR
8	Ecologic- Institute for International and European Environmental Policy gGmbH	DE
9	Université de Sherbrooke	CA
10	Politechnika Slaska	PL



Title **Water reclamation technologies for safe artificial groundwater recharge**

Activity code: SUSTDEV-2004-3.II.3.3.1 Instrument: STREP Duration: 36 months

Co-ordinator Prof. Thomas Melin

Organization Rheinisch-Westfaelische Technische Hochschule Aachen DE-52056 Aachen Total Costs: 4.809.584 € Proposed EC grant: 3.000.000 €

Abstract:

Solutions to global water stress problems are urgently needed yet must be sustainable, economical and safe. The utilisation of alternative water sources like reclaimed municipal wastewater is one of the most obvious and promising options in integrated water management. Among the various beneficial uses of reclaimed wastewater Aquifer Recharge (AR) receives growing attention because it features advantages such as additional natural treatment, storage capacity to buffer seasonal variations of supply and demand as well as mixing with natural water bodies which promotes the acceptance of further uses, particularly indirect potable use. Major concerns about the safety of this exploitation route of an alternative water source are connected to microbial and chemical contaminants occurring in wastewater, among which are emerging trace organics like endocrine disrupters and pharmaceuticals. The strategic objective of this proposal is to develop hazard mitigation technologies for water reclamation providing safe and cost effective routes for artificial groundwater recharge. The proposed work will assess different treatment applications in terms of behaviour of key microbial and chemical contaminants. The knowledge generated in the project and the technologies developed will also be suited to the needs of developing countries, which have a growing need of supplementation of freshwater resources. The participation of partners from China and Australia demonstrate the anticipation of the global dimension of the water reclamation and aquifer recharge issue. The proposed project will strategically support the competitiveness of European technology suppliers and water services in the context of water reclamation and groundwater recharge.

Partners:

Nb	Partner Legal Name	Country
1	Rheinisch-Westfaelische Technische Hochschule Aachen	DE
2	Consiglio Nazionale delle Ricerche	IT
3	Technische Universitaet Berlin	DE
4	Swiss Federal Institute for Environmental Science and Technology	CH
5	Cranfield University	UK
6	Universitat de Barcelona	ES
7	DHI Water & Environment	DK
8	Institute for Ecological Engineering - Institut za ekološki inženiring	SI
9	Microscreen BV	NL
10	Mekorot Water Company Israel	IL
11	Unesco-IHE	NL
12	Bundesanstalt fuer Gewässerquete (Federal Institute of Hydrology)	DE
13	Tsinghua University	CN
14	Bureau de Recherches Géologiques et Minières	FR
15	Aquafin N.V.	BE
16	United Water Pty Ltd	AU



Title **Groundwater Artificial recharge Based on Alternative sources of water: aDvanced INtegrated technologies and managEment**

Activity code: SUSTDEV-2004-3.II.3.3.1 Instrument: STREP Duration: 36 months

Co-ordinator Prof. Martin Sauter

Organization Georg-August-Universität Göttingen DE-37073 Göttingen

Total Costs: 3.457.872 €

Proposed EC grant: 2.500.000 €

Abstract:

Aquifers are the main source of water in most semi-arid areas of the Mediterranean basin. As a result of over-exploitation hydrologic deficits of varying acuity prevail in these areas. Seawater intrusion and pollution have been identified as the primary factors for quality degradation. Further deterioration can be expected based on trends in the precipitation regime attributed to climate change. The objective of this project is to identify alternative sources of water and to investigate the feasibility, both environmental and economic of their utilization. Alternative water sources to be artificially recharged comprise: surface water runoff, treated effluent, and imported water. Furthermore, brackish water bodies, present in many aquifers could be utilised after desalination. The project structured into eight work-packages comprehensively addresses all issues related to the problem: expected precipitation rates, recharge and water budgets, identification of potential alternativewater sources and technologies for their utilization, development of tools for the management of groundwater resources under artificial recharge conditions, aquifer vulnerability assessment, characterization of the unsaturated zone, and mixing effects. Four test sites have been selected for practical application of the approach. Substantial field testing, integration of technologies and findings to ensure optimal implementation of aquifer recharge alternatives, quantification of socio-economic impacts and development of dissemination platform are planned. Finally a carefully designed project management shall drive and accompany the project execution in order to ascertain consistency and efficiency.

Partners:

Nb	Partner Legal Name	Country
1	Georg-August-Universität Göttingen	DE
2	Universitat Politècnica de Catalunya	ES
3	Laboratório Nacional de Engenharia Civil	PT
4	Technion - Israel Institute of Technology	IL
5	University of Liège	BE
6	ARISTOTLE UNIVERSITY OF THESSALONIKI	GR
7	GEOSERVICE	GR
8	THESSALONIKI'S WATER SUPPLY AND SEWERAGE COMPANY S.A.	GR
9	University of Nottingham	UK
10	PALESTINIAN HYDROLOGY GROUP for water and environment resources development	PS
11	Palestinian Water Authority	PS
12	Environmental & Water Resources Engineering	IL
13	Hydrological Service of Israel	IL



Title **MEmbrane-based Desalination: an INtegrated Approach**

Activity code: SUSTDEV-2005-3.II.3.4

Instrument: STREP

Duration: 36 months

Co-ordinator Prof. Enrico Drioli

Organization University of Calabria

Total Costs: 6.349.500 €

IT-87030 Arcavacata di Rende (CS)

Proposed EC grant: 3.300.000 €

Abstract:

RO is today the dominant technology in water desalination. However, some critical issues remain open: improvement of water quality, enhancement of the recovery factor, reduction of the unit water cost, minimizing the brine disposal impact. With the aim to solve these problems, an innovative approach based on the integration of different membrane operations in pre-treatment and post-treatment stages is proposed. Expected outcomes and contributions of the research are: i) the development of advanced analytical methods for feedwater characterization, appropriate fouling indicators and prediction tools, procedures and protocols at full-scale desalination facilities; ii) identification of optimal seawater pre-treatment strategies by designing advanced hybrid membrane processes (submerged hollow fiber filtration/reaction, adsorption/ion exchange/ozonation) and comparison with conventional methods; iii) the optimization of RO membrane module configuration, cleaning strategies, reduction of scaling potential by NF; iv) the development of strategies aiming to approach the concept of Zero Liquid Discharge (increasing the water recovery factor up to 95% by using Membrane Distillation - MD; bringing concentrates to solids by Membrane Crystallization or Wind Intensified Enhanced Evaporation) and to reduce the brine disposal environmental impact and cost; v) increase the sustainability of desalination process by reducing energy consumption (evaluation of MD, demonstration of a new energy recovery device for SWRO installations) and use of renewable energy (wind and solar). The research team embodies science and engineering from both the practitioner and academic perspectives. Potential end-users and participating utilities will be involved in research activities and applications. Linkages with ongoing research activities and demonstration studies at full-scale desalination plants will be conducted to ensure the applicability and transfer of the findings of the proposed research project.

Partners:

Nb	Partner Legal Name	Country
1	University of Calabria	IT
2	Anjou Recherche – Veolia Water	FR
3	UNESCO-IHE	NL
4	Kiwa N.V.	NL
5	Rheinisch-Westfaelisches Institut fuer Wasserforschung Gemeinnützige GmbH	DE
6	Ben Gurion University	IL
7	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	FR
8	Institut National des Sciences Appliquées	FR
9	Octave	FR
10	GVS S.P.A.	IT
11	University of Technology, Sydney	AU
12	University of New South Wales	AU
13	Carl von Ossietzky University Oldenburg Institute for Chemistry and Biology of the Marine Environment	DE



Title **Seawater desalination by innovative solar-powered membrane-distillation system**

Activity code: SUSTDEV-2005-3.II.3.4 Instrument: STREP Duration: 36 months

Co-ordinator Dr Julián Blanco Gálvez

Organization Centro de Investigaciones Medioambientales y Tecnológicas Total Costs: 2.160.144 €
ES-28040 Madrid Proposed EC grant: 1.385.000 €

Abstract:

Despite the advantages of solar membrane distillation (MD) systems very few experimental systems have been developed as opposed to the mature technologies solar PV-driven RO and solar distillation. Therefore, main objective of MEDESOL Project is the development of an environmentally friendly improved-cost desalination technology to fresh water supply in arid and semi-arid regions in EU and Third Countries based on solar MD. The layout involves the innovative concept of multistage MD in order to minimize specific energy and membrane area required and also to substantially reduce the brine generation. The aim of this work was to evaluate the technical feasibility of producing potable water from seawater by integrating several membrane distillation modules (Multi-step Membrane Distillation System). The aim is to develop systems for a capacity ranging from 0.5 to 50 m³/day. Technical simplicity, long maintenance-free operation periods and high-quality potable water output are the very important aims which will enable successful application of the systems that are based in membrane distillation. The heat source will proceed from an advanced compound parabolic solar concentrator, developed to the specific concentration ratio to achieve the specific needed range of temperatures (90°C) and the seawater heater will include the development of an advanced non-fouling surface coatings to avoid the deposit formation (i.e. scaling) at such temperature. Laboratory tests under defined testing conditions of all components are very important for the preparation of successful field tests under real conditions.

Partners:

Nb	Partner Legal Name	Country
1	Centro de Investigaciones Medioambientales y Tecnológicas	ES
2	Universidad de La Laguna	ES
3	ACCIONA, S.A.	ES
4	AGUAS DE LA CUENCA DEL SUR, S.A.	ES
5	AOSOL- Energias Renováveis, Lda.	PT
6	Universität Stuttgart	DE
7	TINEP S.A. de C.V.	MX
8	Centro de Investigación en Energía- Universidad Nacional Autónoma de México	MX
9	Kungl Tekniska Högskolan	SE
10	Scarab Development AB	SE



Title **Farm Level Optimal Water Management: Assistant for Irrigation under Deficit**

Activity code: SUSTDEV-2005-3.II.3.5 Instrument: STREP Duration: 36 months

Co-ordinator Mr. Jos Balendonck

Organization Agrotechnology & Food Innovations B.V. Total Costs: 1.557.446 €
 NL-6700 AA Wageningen Proposed EC grant: 1.021.000 €

Abstract:

The objective of FLOW-AID is to contribute to sustainability of irrigated agriculture by developing, testing in relevant conditions, and fine-tuning through feed-back, an irrigation management system that can be used at farm level in situations where there is a limited water supply and water quality. The project integrates innovative sensor technologies into a decision support system for irrigation management, taking into consideration relevant factors in a number of third country partners. The specific objectives are to develop and test new and innovative, but simple and affordable, technical concepts (hardware and software) for irrigation under deficit at farms in a large variety of set-ups and constraints, particularly a maintenance free tensiometer; wireless, low-power data networks; an expert system to assist in farm zoning and crop planning, in view of expected water availability (amount and quality); a short-term irrigation scheduling module that allocates available water among several plots and schedules irrigation for each one. The scientific results from the research will be evaluated in four test-sites, three of them located in Mediterranean Party Countries (Turkey, Lebanon and Jordan), where the large future market for deficit irrigation systems will be. The test-sites are chosen in such a way that they differ in the type of constraints, irrigation structures, crop types, local water supplies, availability of water and water sources in amount and quality, the local goals, and their complexity. The SME partners will take up research results and build prototypes, which will be installed at the test-sites. In close co-operation all partners will adapt the general concepts of water management to the local situation, by using appropriate parts of it, based upon the test-results. The involvement of SME-partners will ensure that the results will be implemented in a short time into adequate and appropriate products for the end-user irrigation market.

Partners:

Nb	Partner Legal Name	Country
1	Agrotechnology & Food Innovations B.V.	NL
2	Rothamsted Research	UK
3	LEBANESE AGRICULTURAL RESEARCH INSTITUTE	LB
4	UNIVERSIDAD DE CASTILLA-LA MANCHA	ES
5	Ege University Faculty of Agriculture	TR
6	UNIVERSITY OF PISA	IT
7	Delta-T Devices Ltd.	UK
8	ZENON SA	GR
9	Spagnol Srl	IT
10	Jordan University of Science and Technology	JO



Title **Participatory multi-Level EO-assisted tools for Irrigation water management and Agricultural Decision-Support**

Activity code: SUSTDEV-2005-3.II.3.5 Instrument: STREP Duration: 36 months

Co-ordinator Dr. Anne M. Jochum

Organization Universidad de Castilla-La Mancha Total Costs: 3.185.000 €

ES- Albacete Proposed EC grant: 2.697.000 €

Abstract:

This project addresses the efficient and sustainable use of water for food production in water-scarce environments. It aims at improving the technical, environmental and economic performance of irrigation schemes by means of a range of measures. Major technical innovation is made possible by the comprehensive space-time coverage of Earth observation (EO) data and the interactive networking/connecting capabilities of Information and Communication Technologies (ICT). Therefore, a key feature will be a set of EO- and ICT-assisted integrated systems and services which are the fundament for integrated water resources management of river basins, irrigation schemes, and farms. It also is the basis for technical and social learning that enables farmers to act responsibly by fine-tuning their on-farm irrigation management in accordance with the river-basin water status and management decisions. We consider the economic, environmental, technical, social, and political dimensions and pursue a synergy of leading-edge technological innovation (that facilitates active participation) with participatory approaches (that require distributed spatial information and networking technology). A set of pilot Case Studies has been selected to represent a sample of the wide range of conditions found in the European and Southern Mediterranean and in Latin America, covering Portugal, Spain, Italy, Greece, Turkey, Morocco, Mexico, Peru, and Brazil. We will benchmark the technical, environmental, and economic performance of irrigation systems in our pilot river-basins, conduct trial campaigns with EO- and ICT-assisted products in a participatory evaluation with stakeholders, and assess the effect of the new tools on water productivity and performance of our pilot irrigation systems.

Partners:

Nb	Partner Legal Name	Country
1	Universidad de Castilla-La Mancha	ES
2	Dirección General de Investigación, Desarrollo Tecnológico e Innovación. Junta de Extremadura	ES
3	Instituto de Agricultura Sostenible, Consejo Superior de Investigaciones Científicas	ES
4	INSTITUTO DE DESENVOLVIMENTO RURAL E HIDRAULICA	PT
5	ASSOCIAÇÃO DE BENEFICIÁRIOS DO CAIA	PT
6	Fundação da Faculdade de Ciências e Tecnologia Universidade Nova de Lisboa	PT
7	Instituto Superior de Agronomia, Research Centre for Agricultural Engineering	PT
8	Istituto NAzionale di Economia Agraria	IT
9	Università di Napoli Federico II	IT
10	ARIESPACE srl	IT
11	Institut de Recherche pour le Développement	FR
12	UNIVERSITY OF THESSALY	GR
13	National Agricultural Research Foundation - Institute of Soil Mapping and Classification	GR
14	INTEGRATED RESOURCES MANAGEMENT (IRM) COMPANY LTD	MT
15	Agrohydrology Research and Training Centre	TR
16	FACULTE DES SCIENCES ET TECHNIQUES DE MARRAKECH	MA
17	INSTITUTO DE PROMOCION PARA LA GESTION DEL AGUA	PE
18	Instituto Tecnológico de Sonora	MX
19	Universidad de Sonora	MX
20	Colegio de Posgraduados	MX
21	Empresa Brasileira de Pesquisa Agropecuaria	BR





Title **Sustainable and Safe Re-use of Municipal Sewage Sludge for Nutrient Recovery**

Activity code: SUSTDEV-2004-3.II.3.2.4 Instrument: STREP Duration: 36 months

Co-ordinator Dr. Gerd Kley

Organization Bundesanstalt für Materialforschung und-prüfung Federal Institut Total Costs: 1.566.000 €
for Materials Research and Testing Proposed EC grant: 1.159.800 €
DE-12489 Berlin

Abstract:

Municipal sewage sludge (MSS) is a carrier of nutrients but is often contaminated by hazardous organic and inorganic pollutants. Therefore, it must be disposed of or the pollutants must be removed before agricultural use to protect farmland and human health. Disposal or immobilisation results in an irreversible loss of nutrients. The project is aimed to develop a sustainable and safe strategy for nutrient recovery from sewage sludges using thermal treatment. Mono-incineration of the sludges will completely destruct the organic pollutants in a first step. The incineration residues are ashes with a high phosphorus (P) content that still contain heavy metal compounds above the limits for agricultural use. Phosphorus in the ashes exhibits low bioavailability - a disadvantage in farming. Therefore, in a second thermochemical step heavy metals will be removed and P transferred into mineral phases available for plants. First investigations have shown that volatile heavy metal chlorides are formed by adding magnesium chloride at temperatures of 900-1000 °C and can be separated. Additionally, magnesium phosphates are built up resulting in P-bioavailability of up to 100%. These technologies will be developed and improved with focus on large-scale application aiming at P-fertiliser products. Intense agricultural investigations will guarantee marketability of the fertiliser. Advantages and disadvantages of the proposed technology will be analysed and compared to other treatment and management options. The comparison will be based on energy, material and substance balances as well as established evaluation methods and will quantify the contribution of all options to environmental protection and resource recovery. The method is both technically and economically feasible, it will solve an environmental protection problem and utilize a potential raw material. As a result, approx. 300,000 tonnes of phosphorus can be recovered as fertiliser in Europe.

Partners:

Nb	Partner Legal Name	Country
1	Bundesanstalt für Materialforschung und-prüfung Federal Institute for Materials Research and Testing	DE
2	Vienna University of Technology	AT
3	Federal Agricultural Research Center	DE
4	ASH DEC Umwelt AG	AT
5	Bamag GmbH & Co. KG	DE
6	N.V. Slibverwerking Noord-Brabant	NL
7	Kemira GrowHow Oyj	FI



Title **Reduction, modification and valorisation of sludge**

Activity code: SUSTDEV-2004-3.II.3.2.4

Instrument: STREP

Duration: 36 months

Co-ordinator PROF. AZAEL FABREGAT LLANGOSTERA

Organization UNIVERSITAT ROVIRA I VIRGILI

Total Costs: 3.659.410 €

ES-43003 TARRAGONA

Proposed EC grant: 3.120.000 €

Abstract:

The adoption of the Urban Waste Water Treatment Directive 91/271/EEC imposes the sewage sludge to be subsequently treated so it is expected by 2005 to increase twofold in comparison with 1992. However, classical incineration to treat this vast amount of sludge must be no longer accepted from an environmental point of view. In addition, the Sewage Sludge Directive 86/278/EEC regulates the uses and properties of stabilised sludge for being either recycled or disposed. Both directives drive specific actions in two complementary ways. Firstly, a deep knowledge of current sludge treatment, such as mesophilic, thermophilic or autothermophilic processes, must be promoted to solve that problem in the UE ambit, taking in account the particular considerations of each treatment facility. In second place, the development of new processes must be supported to open new alternatives that could valorise that waste. The proposal aims at developing strategies for the disposal and reuse of waste sludge. The scope envisages to develop several processes for reducing both amount and toxicity of sludge, with simultaneous transformation into green energy vectors such as methane or hydrogen. In outline, mesophilic and mainly thermophilic and autothermophilic conditions will be deeply explored as classical alternatives for sludge stabilisation, assuring sanitary conditions of the treated sludge. Also, valuable materials will be obtained from sludge, such as activated carbons, which will be used in conventional adsorption processes and in innovative advanced oxidation processes. The main outcomes expected at the end of the projects are guidelines for technology selection in agreement with the geographic, economic and technical characteristics of the sewage plants, demonstration of the feasibility of new applications for the sewage sludge, manufacturing of activated carbon from sludge sewage as innovative recycling of sludge waste, and a deep understanding of the methods involved.

Partners:

Nb	Partner Legal Name	Country
1	UNIVERSITAT ROVIRA I VIRGILI	ES
2	GEPEA, UMR-CNRS 6144	FR
3	UNIVERSITAT AUTÒNOMA DE BARCELONA	ES
4	UNIVERSITY OF GLAMORGAN	UK
5	INSTITUT NATIONAL POLYTECHNIQUE DE TOULOUSE	FR
6	GESTIÓ AMBIENTAL I ABASTAMENT, S.A.	ES
7	TRATAMIENTOS Y RECUPERACIONES INDUSTRIALES, SA	ES
8	INSTITUTE OF CHEMICAL TECHNOLOGY PRAGUE	CZ
9	TECHNICAL UNIVERSITY OF LODZ	PL
10	TECHNISCHE UNIVERSITÄT BERLIN	DE
11	FACULTY OF SCIENCES AND TECHNOLOGY - UNIVERSITY OF COIMBRA	PT
12	COSVALADO-INDÚSTRIA, COMÉRCIO E SERVIÇOS VITIVINICOLAS E ALIMENTARES, S.A.	PT
13	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE DÉLÉGATION RHÔNE-ALPES (SITE VALLÉE DU RHÔNE)	FR
14	IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY & MEDICINE	UK
15	SALSNES FILTER AS	NO
16	CHEMVIRON CARBON LIMITED	UK



Title **Action to promote involvement of African water researchers in the Framework Programme**
 Activity code: SUSTDEV-2004-3.IX Instrument: SSA Duration: 24 months
 Co-ordinator Mr. Neil Runnalls
 Organization Natural Environment Research Council Total Costs: 231.600 €
 UK-SN2 1EU Swindon Proposed EC grant: 231.600 €

Abstract:

The "African Water" SSA will take immediate action, and establish a framework, for long term improvement in the involvement of African researchers in the water research components of the Framework Programme. The "African Water" SSA is a vital component in the delivery of major EU and member state political commitments to strengthen African water research capacity. This SSA underpins the delivery of water specific commitments made at the Johannesburg WSSD and UN 12th Commission on Sustainable Development (New York 2004). In particular this SSA is an integral part of the EU Water Initiative, to deliver research capacity building in Africa. The "African Water" SSA undertake a range of actions, developed by and in partnership with, African researchers. The SSA will bring together information, key researchers and research administrators in a targeted programme to provide African researchers with the knowledge and tools to more actively participate in all aspects of the Framework Programme. A key output of this SSA will be for Africans to define their own research priorities and to feed these topics through to the FP7 programme. This SSA will have the catalytic effect of increasing African involvement in other research programmes (member states, international agencies, etc). Actions to be undertaken as part of this SSA will include : information dissemination through workshops, conference presentations, publicity actions, email bulletins, focussed explanatory guidance documents. All will be made accessible thorough the web and as hard copy. Actions will also be taken to increase European awareness African research capacity in order to foster outreach to Africa from EU researchers. The "African Water" SSA will increase cost effectiveness by working in partnership with complementary action being undertaken by donors, international agencies, NGO's, charitable foundations and the private sector.

Partners:

Nb	Partner Legal Name	Country
1	Natural Environment Research Council	UK
2	Ungemi Water	ZA
3	Loughborough University	UK
4	Hydrophil	AT



Title **Low cost water test for developing countries – a preparatory study**

Activity code: SUSTDEV-2005-3.IX

Instrument: SSA

Duration:

12 months

Co-ordinator Dr Stephen Gundry

Organization University of Bristol

UK-BS8 1TH Bristol

Total Costs: 480.400 €

Proposed EC grant: 446.000 €

Abstract:

This project is a preparatory study for the development of a low-cost water quality test and associated management systems for use in developing countries and in disasters/emergencies. Contaminated drinking water remains a major cause of morbidity and mortality in developing countries, with 1.8 million deaths per year being attributed to water-borne disease. In addition, following major disasters such as hurricanes or earthquakes, many deaths result not from the disaster itself but from subsequent outbreaks of disease caused by contaminated drinking water. Existing water tests are largely designed for use in developed countries and not in situations where laboratory infra-structure, resources and trained personnel are lacking. There is thus a need for more appropriate water testing technology for use in resource-poor and disaster settings. This support action will lay the foundations for a subsequent grant application to develop a water test, with associated management systems, for use in developing countries and in emergency situations. The project will demonstrate to policymakers, donors and research funding organisations that there is an urgent and clear need to provide a low cost water test. Following an assessment of developing country and disaster relief agency needs, a network of experts will be formed to address these needs. This network will meet with stakeholders at the World Water Congress in Beijing. The project will establish how an appropriate water test can be developed from existing technologies within the near term. A follow-on funding application to develop this water test will then be submitted based on these activities. The principal delivery of this preparatory activity is therefore a carefully specified bid for further research funding based on a needs assessment and review of existing water test technology, supported by a high quality international consortium.

Partners:

Nb	Partner Legal Name	Country
1	University of Bristol	UK
2	University of Southampton	UK
3	AES-CHEMUNEX SA	FR
4	Royal College of Surgeons in Ireland	IE
5	Institute of Water and	ZW
6	University of Cape Town	ZA



Title **NETWORK FOR THE DEVELOPMENT OF SUSTAINABLE APPROACHES FOR
LARGE SCALE IMPLEMENTATION OF SANITATION IN AFRICA**

Activity code: SUSTDEV-2005-3.II.3.7 Instrument: CA Duration: 24 months

Co-ordinator Mr Mirko Hänel

Organization Verein zur Förderung des Technologietransfers an der Hochschule Total Costs: 1.593.720 €
Bremerhaven e. V. Proposed EC grant: 1.542.000 €
DE-27568 Bremerhaven

Abstract:

Without a sharp acceleration in the rate of progress, the world will miss the MDG sanitation target by half a billion people. For instance, in sub-Saharan Africa almost two-thirds of the population (64%) are lacking adequate access to excreta disposal facilities. In African countries the sanitation coverage varies from 84% in urban areas to 45% in rural areas. To achieve the year 2015 goal for urban water supply coverage an additional 210 million (194 in rural areas) people over the next 15 years will have to be provided with service. The proposed Coordination Action, aims to congregate the most relevant stakeholders in the field of sustainable sanitation in the Sub-Saharan African and European frame. NETSSAF will promote international cooperation between research organisations, associations, universities and social and governmental stakeholders in a European and Sub-Saharan African context, focussed in particular in the West African countries. A sustainable sanitation expert and research co-ordination platform and an expertise network will be established, in order to co-ordinate, assess and guide suitable research and strategic activities with the aim of identifying best practices, gaps in knowledge and barriers to further execution and to propose directions for futures research. The aim of the proposed network will be to develop a variety of innovative, adaptable and replicable approaches to sustainable sanitation, integrating appropriate low cost technologies in the context of community based management and their relevant governance, institutional frameworks and socio-economic constraints. The main outcome will be the development of a Participative Multi-stakeholder Sanitation Management Support Tool aimed for the end-users to be able to apply large scale sanitation concepts and technologies adapted to the different conditions prevailing in Africa.

Partners:

Nb	Partner Legal Name	Country
1	Verein zur Förderung des Technologietransfers an der Hochschule Bremerhaven e. V.	DE
2	Hamburg University of Technology	DE
3	Centre Regional pour l'Eau Potable et l'Assainissement a faible cout	BF
4	BIOAZUL S. L.	ES
5	Bureau Ouest Aricaïn d'Appui Organisationnel et de Technologies Appropries	ML
6	International Ecological Engineering Society	CH
7	Water and Sanitation Program - Africa (an initiative administered by the World Bank - legal entity is the World Bank)	KE
8	International Water Association	UK
9	Universite Abobo - Adjame	CI
10	Swedish University of Agricultural Sciences	SE
11	Commune de Matam	SN
12	Swiss Federal Institute of Aquatic Science and Technolgy	CH
13	Commune Bobo-Dioulasso	BF
14	EcoSan Club Austria	AT
15	Kwame Nkrumah University of Science and Technology	GH
16	University of Leeds	UK
17	Centre d'Etudes pour la Promotion, l'Amenagement et la Protection de l'Environnement	BF
18	Stockholm Environment Institute	SE
19	Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH	DE





Title **Resource-Oriented Sanitation concepts for peri-urban areas in Africa**

Activity code: SUSTDEV-2005-3.II.3.7 Instrument: STREP Duration: 36 months

Co-ordinator Dr. Guenter Langergraber

Organization University of Natural Resources and Applied Life Sciences, Vienna Total Costs: 3.030.320 €
AT-1190 Vienna Proposed EC grant: 2.900.000 €

Abstract:

The UN Millennium Development Goals (MDGs, target 10) call for halving the proportion of people without access to safe drinking water and basic sanitation by 2015. ROSA promotes resource-oriented sanitation concepts as a route to sustainable and ecologically sound sanitation in order to meet the MDGs. These concepts shall be applied in four cities in East-Africa, namely Arbaminch (Ethiopia), Nakuru (Kenya), Arusha (Tanzania) and Kitgum (Uganda). The consortium comprises 2 partners from each of these countries, a university and an end-user. For the model cities strategic sanitation & waste plans (SSWPs) will be developed for the whole city area. These SSWPs will come up with the best solution for the city combining several techniques (resulting in hybrid systems) according to the local requirements. Within the project a part of the SSWPs will be developed in peri-urban areas, where there is a lot of research need for resource-oriented sanitation. Research topics addressed within ROSA are targeting the gaps for the implementation of these concepts in peri-urban areas. They include e.g. an implementation study of the updated WHO-guidelines for use of waste and excreta, the improvement/adaptation of resource-oriented sanitation technologies and the development of community based operation and management strategies. For the implementation of the complete SSWPs the ROSA consortium will develop possibilities for financing. This will be facilitated by the already existing international network of the consortium and the strong link of the activities to on-going programmes/projects in East Africa (e.g. the "Lake Victoria Initiative" of the UN Habitat, the WSP of the Worldbank, the Dutch ISSUE Programme, the Swedish EcoSanRes Programme, etc.). Dissemination activities will be focused on establishing the local East African network between universities, end-users, etc. This network will ensure the consolidation and the replication of the knowledge gained within the region.

Partners:

Nb	Partner Legal Name	Country
1	University of Natural Resources and Applied Life Sciences, Vienna	AT
2	Technische Universität Hamburg-Harburg	DE
3	EcoSan Club	AT
4	WASTE Advisors on Urban Environment and Development	NL
5	London School of Hygiene & Tropical Medicine	UK
6	Makerere University	UG
7	University of Dar es Salaam	TZ
8	Egerton University	KE
9	Arbaminch University	ET
10	Kitgum Town Council	UG
11	Arusha City Council	TZ
12	Municipal Council of Nakuru	KE
13	Arbaminch Water Supply and Sewerage Enterprise	ET



Title	A knowledge Network for solving real-life water problems in developing countries: Bridging contrasts		
Activity code:	SUSTDEV-2005-3.II.3.8	Instrument:	CA
		Duration:	36 months
Co-ordinator	Prof Dino Borri		
Organization	Dipartimento di Architettura e Urbanistica, Politecnico di Bari	Total Costs:	1.149.420 €
	IT-70125 Bari	Proposed EC grant:	1.149.000 €

Abstract:

The proposal aims at contributing to global and local knowledge networks for solving real life water supply and sanitation (WSS) problems in developing countries in view of reaching the MDGs. Based on an account of failures of WSS interventions in the last decades, ANTINOMOS aims at making an impact through bridging contrasts (between conceptual approaches, or between perceptions of global and local knowledge networks) and knowledge gaps (between knowledge areas which have only recently been recognized by decision makers as a key issue in reaching the MDGs). The core part of the proposal will be devoted to try to bridge these contrasts and knowledge gaps. For this purpose, special attention will be devoted to link state-of-the-art technological advancement in WSS with local resources and grassroots innovations, in order to enable context-specific learning opportunities for more sustainable solutions to real water problems. First, based on a systems approach, a number of technological systems and practices for WSS will be studied and analysed. Both technological systems based on “outside knowledge”, i.e. “expert knowledge” as well as systems based on “inside”, i.e. “indigenous knowledge”, will be studied. Then, special learning devices and knowledge management tools will be developed (where feasible in cooperation with international and local knowledge networks) and applied, in order to foster cross-fertilization between knowledge frames and global-local interaction. Involvement of key decision-makers and change agents at the local level will be a key step to facilitate uptake and integration of solutions in real life. In this perspective, the two primary objectives of the proposal will be: 1. Bridging contrasts and antinomies through the development of learning spaces across individual disciplines 2. Support both international and local knowledge networks through the generation of new knowledge and the development of innovative knowledge management tools

Partners:

Nb	Partner Legal Name	Country
1	Dipartimento di Architettura e Urbanistica, Politecnico di Bari	IT
2	Centre for Environmental Management and Decision Support	AT
3	Lettinga Associates Foundation	NL
4	Cranfield University	UK
5	Swedish Institute for Infectious Disease Control	SE
6	Ecole Nationale du Genie Rural, des Eaux et des Forets	FR
7	University of KwaZulu-Natal	ZA
8	Instituto Mexicano de Tecnología del Agua (Mexican Institute of Water Technology)	MX
9	Facultad Latinoamericana de Ciencias Sociales	MX
10	Centre for Science and Environment	IN
11	Indian Institute of Management, Ahmedabad	IN
12	Reforms Support & Project Management Unit of the Department of Water Supply and Sanitation, Government of Maharashtra	IN
13	UNESCO-Institute for Water Education	NL



Title **Water Scenarios for Europe and for Neighbouring States**

Activity code: SUSTDEV-2005-3.II.4.1

Instrument: IP

Duration: 48 months

Co-ordinator Prof. Juha Kämäri

Organization Suomen ympäristökeskus (Finnish Environment Institute)
FI-00251 Helsinki

Total Costs: 10.204.981 €

Proposed EC grant: 6.993.477 €

Abstract:

The SCENES project will develop and analyse a set of comprehensive scenarios of Europe's freshwater futures up to 2025, covering all of "Greater" Europe reaching to the Caucasus and Ural Mountains, and including the Mediterranean rim countries of north Africa and the near East. These scenarios will provide a reference point for long-term strategic planning of European water resource development, alert policymakers and stakeholders about emerging problems, and allow river basin managers to test regional and local water plans against uncertainties and surprises which are inherently imbedded in a longer term strategic planning process. The scenarios developed by SCENES will be policy-relevant by identifying the requirements of stakeholders and decision makers, and including stakeholders in the scenario-building process. The SCENES project will deliver combined qualitative and quantitative scenarios. The qualitative scenarios (storylines) provide an internally-consistent picture of how water resources in different parts of Europe may develop up to 2025. The quantitative scenarios, produced by state-of-the art models, complement the story-lines by providing numerical information, and by "enriching" the qualitative scenarios by showing trends and dynamics not apparent in the storylines. The qualitative scenario analysis will also focus on water quality, ecological and hydrological aspects, with special regard to the requirements of the WFD. Scenarios will be interactive and adaptive in the sense that they will be developed through a three phase approach. The first phase will be a 'fast track' pan-European scenario exercise using existing information. The second phase will involve regional and pilot area scenario enrichment. The final phase will be the drawing together of results and dissemination of the scenario outputs. SCENES is planned as a 4-year Integrated Project with a total budget of 10.2 million €, of which 7 million € is requested as EC contribution.

Partners:

Nb	Partner Legal Name	Country
1	Suomen ympäristökeskus (Finnish Environment Institute)	FI
2	University of Kassel	DE
3	International Institute for Applied Systems Analysis	AT
4	Universidad Politécnica de Madrid	ES
5	Stichting Waterloopkundig Laboratorium	NL
6	Natural Environment Research Council - Centre for Ecology and Hydrology	UK
7	Alterra, Wageningen University and Research Centre	NL
8	Warsaw Agricultural University	PL
9	Baltic Environmental Forum	LV
10	Tallinn University of Technology	EE
11	Ecole National du Génie Rural, des Eaux et des Forêts	FR
12	International Center for Advanced Mediterranean Agronomic Studies - Mediterranean Agronomic Institute of Bari	IT
13	Middle East Technical University	TR
14	Institut Agronomique et Veterinaire Hassan II	MA
15	Technical University of Crete	GR
16	Budapest University of Technology and Economics Department of Sanitary and Environmental Engineering	HU
17	Magyar Tudományos Akadémia Talajtani és Agrokémiai Kutatóintézete	HU
18	National Institute for Research and Development for Environmental Protection	RO
19	South Russian Regional Centre for Preparation and Implementation of International Projects	RU
20	Institute for Hydraulic Engineering and Land Reclamation	UA
21	Institute for European Environmental Policy	UK



22	International Water Association	UK
23	Wageningen University	NL