

ANNEX - PROJECT SUMMARY INFORMATION

The Annex contains a selection of past, on-going and planned projects. A larger list will be included on the website that can be accessed from <http://europa.eu.int/comm/research>.

The projects are listed according to brochure sections, but some projects cover more than one section and are thus classified somewhat arbitrarily.

RTD = Research, Technology or Demonstration project. For RTD projects, the scientific coordinator is given as contact.

DEV = Development project. For DEV projects, the supervising EC Delegation is given as contact.

BALANCING PEOPLE AND NATURE - ENABLING POLICIES WHICH INTEGRATE DIFFERENT WATER DIMENSIONS

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Water resources management under drought conditions : criteria and tools for conjunctive use of conventional and marginal waters in Mediterranean regions- WAMME	ICA3-CT-1999-00014	RTD	Prof. Federico Vagliasindi University of Catania, Italy fvaglia@iiga.ing.unict.it	36 months 31/03/2003	880 520	Providing water supplies exploiting marginal water sources reduces the necessity of new water reservoirs and minimizes environmental impacts in semi-arid European, North African, and Near East countries. Objective: improve water resources management and environmental control in drought-prone Mediterranean regions. The criteria for an efficient use of marginal water resources, including the reuse of treated waste water for irrigation and the withdrawal of deep groundwater will be defined. Modelling tools and a Decision Support System (DSS) for the conjunctive use of conventional and marginal waters will be developed. Seven partners from six Mediterranean countries participate.
Policy initiative to overcome water competition between the vital economic sectors of agriculture and tourism in the Mediterranean- MED WATER POLICY	ICA3-CT-2000-30002	RTD	Dr. Peter Helm WIP KG, Germany wip@wip-munich.de	24 months 30/04/2003	382 218	Objective: to overcome the present, and prevent future, water competition between the vital economic sectors of agriculture and tourism in the Mediterranean area by developing a trans-boundary policy initiative and an integrated water planning model based on the study of selected arid regions in the area. The current water supply and demand situation, available water saving, reuse, treatment and renewable energy supply options and the socio-economic, legal and administrative framework will be taken into account. The project will investigate policy options with regard to (1) water saving, (2) water reuse, (3) water treatment and desalination, (4) energy supply for the water sector from renewable sources, (5) legal and administrative measures, (6) transboundary co-operation and (7) an integrative and locally adaptable consideration of the entire water chain.
Effects of climate change variability in water availability and water management practices in Western Mediterranean- CLIMED	ICA3-CT-2000-30005	RTD	Prof. Celeste Coelho Universidade de Aveiro, Portugal coelho@dao.ua.pt	36 months 29/02/2004	578 500	The objective: to provide information on the foreseeable climatic changes in the Western Mediterranean through a multiple approach which includes field hydrological databases together with statistical models and physically based models, performing an evaluation on how fresh water resources will vary. The project addresses evapotranspiration of different land uses, by measuring catchment runoff at small catchments, and performs upscaling through statistical methods directed to the analysis of extreme events, through the use of LISEM model. CLIMED has an important socio-economic dimension in order to produce, for the selected river catchments, an assessment of the impacts of changes on water availability. CLIMED will also build a conceptual model based on integrated management methodologies, defining guidelines to support decision-making processes and strategic planning for water resources, as well as defining policy recommendations based on combined top-down and bottom-up approaches.
Thematic network on sustainable policies for promoting "Water conservation technologies and practices"- SUSTAIN-WATER	ICA4-CT-2000-30018	RTD	Shisher Kumra Lunds Universiteit, Sweden shisher.kumra@iiee.lu.se	33 months 31/07/2003	299 990	The main objective of the TN is to study the sustainability & un-sustainability of initiatives undertaken within the water-related policies in relation to rural, urban and industrial water use and to provide the policy and decisions makers with suggestions for new models for enhancing sustainable development within the context of water quality and its availability. The project comprises 7 partners, three from Europe and four from Asia.
Water and ecosystem resources in regional development : balancing societal needs and wants and natural resources systems sustainability in international river basins systems- WERRD	ICA4-CT-2001-10040	RTD	Dr. Elbert Veenendaal University of Botswana Eveenendaal@orc.info.bw	36 months 31/12/2004	799 312	The gradual escalation of water scarcity and threats against natural capital in the Okavango River Basin are widely recognised as fundamental impediments to secure socio-economic development in the region. Mounting pressure from local national and international interest groups on finite, highly dynamic and vulnerable water and ecosystem resources is a reality. Objective: model Okavango River Basin and strengthen contacts/interaction between various stakeholders and policy makers through inter-disciplinary design and through training. Apart from ordinary publishing, results will be available on an interactive home page, developed for regional ownership. A system for ongoing dissemination, feedback and participation for local and national stakeholders will also be developed.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Barriers to and conditions for the involvement of private capital and enterprise in water supply and sanitation in Latin America and Africa : seeking economic, social and environmental sustainability-PRINWASS	ICA4-CT-2001-10041	RTD	Dr. Erik Swyngedouw University of Oxford, UK erik.swyngedouw@spc.ox.ac.uk	30 months 31/04/2004	749 704	Objectives: to identify the socio-economic and policy conditions, and implementation measures, that will favour progress in sustainable water and sanitation management (WSM) systems in Latin America and Africa. The project addresses the environmental aspects of WSM and the need for achieving greater equity and democratic accountability. It examines the impact of the increased but uneven recent expansion of private capital investment in the WSM sector of developing countries. It contributes to the understanding of interactions between international money flow, investment and trade in the provision of water and sanitation services. Specifically, it will a) achieve a better understanding of the reasons for current policy and institutional failure in WSM, b) suggest policy criteria for enhancing the likelihood of practical achievements; c) propose adaptations to the currently-prevailing policy model.
Towards a global evaluation of water resources balance in Asia-GLOBAL	ICA4-CT-2002-50003	RTD	Dr. Caroline Wittwer Bureau de Recherches géologiques et minières, France c.wittwer@brgm.fr	4 months 30/11/2002	110 000	For Asian countries, the challenge is to find solutions for conservation of soil and water resources in irrigated areas, sustainable use of surface and ground water, preservation of areas undergoing fast urban growth, and integration of coastal zones and related wetland into watershed management. Objective: to organise an ASEM workshop with four thrusts (urban and peri-urban development, lowland rural areas, mountainous recharge areas, coastal zones) to set an agenda for future joint research on key researchable aspects. Expected results: priority ASEM research agenda communicated through a Web site, CD ROM, brochure.
Mediterranean cooperation for water desalination policies in the perspective of a sustainable development	IC18-CT-1997-00142	RTD	Dr Dionysis Assimacopoulos National Technical University of Athens, Greece	36 months 30/09/2000	850 000	Objectives: - assessment of water resources in the Eastern Mediterranean Target Countries (Cyprus, Lebanon, Israel, Palestine and Egypt), assessment of water demand in the same regions for domestic, industrial and agricultural usage and identification of areas under water risk conditions; - development of a tool under a Geographical Information System environment on water demand/availability and advanced desalination solutions; - development of regional policies and strategies for water management to assure the water availability and the regional development; - development of a training program and a seminar for desalination and advanced desalination solutions.
Budgetary Support to Water Sector	Djibouti	DEV	EC Delegation in Ethiopia eudeldj@intnet.dj	2003 (start date)	13 000 000	Access to drinking water remains an absolute priority for the population of Djibouti and one of the key elements in the reduction of poverty. Due to the arid climate, the lack of available natural resources and an infrastructure at the limit of its capacity, food and water have become a major preoccupation for both the urban and rural populations. The current institutional structure is considered as insufficient and the EC will aid the authorities to formulate a sectoral policy with appropriate institutional solutions. In addition to institutional reinforcement, the EC will support technical assistance, studies and research and investment programs. Targeted budgetary aid could be used as a financing instrument.
Budgetary support to environment/waste water subsector	Mauritius	DEV	EC Delegation in Mauritius mailto@delmus.cec.eu.int	2003-2006	28 000 000	Mauritius' rapid economic growth poses real threats to its environment, in terms of water supply and wastewater disposal, the past 20 years have seen a concentration on water supply whereas investment in wastewater disposal has been neglected. The National Sewerage Plan (NSP) aims to redress the balance and great strides have been made in the past 5 or 6 years to improve wastewater management. It was concluded that the environment sector – and specially the wastewater sector – was the area to which the bulk of the EC's support could most usefully be directed. The Commission over the past few years has had an increased interest in sector-wide approaches financed via budgetary support.
Reducing vulnerability of Pacific ACP states	Pacific Regional (8 ACP RPA 7)	DEV	EC Delegation in Fiji eudelfiji@eu.org.fj	2002-2006	7 000 000	This project addresses vulnerability reduction in the Pacific ACP States through the development of an integrated planning and management system in the sectors impacting on hazards, aggregates and water and sanitation.
Water Sector (Water Supply & Sanitation)	Dominican Republic	DEV	EC Delegation in the Dominican Republic eudeldom@codetel.net.do	2004-2008	53 000 000	The overall objective in this sector will be the introduction of a new Government water policy which will be coordinated with the other financial backers. This policy will, on the one hand, concern the sustainable management of the country's water resources and, on the other, access to drinking water for the poorest part of its population. Intervention will therefore be composed of two central elements - the creation of an integrated water management policy and the decentralisation of water and hygiene services.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Support programme to the water sector in SADC	SADC	DEV	EC Delegation in South Africa delegation-s-africa@cec.eu.int	2003-2007	7 300 000	The water resources in SADC are unevenly distributed and the region is water scarce. The continental SADC countries share one or more river basins which could be a major source of political instability. Objective: To strengthen the water sector in SADC; implement the SADC strategic action plan for integrated water resource development; Expected results: strengthened capacity in the SADC water sector and Orange-Senqu river commission; successfully complete studies in Orange-Senqu and Maputo river basins; establish effective project regional centre for expansion of SDAC HYCOS.
Land and Water Management Research Programme, SADC	8 ACP RAU 12	DEV	EC Delegation in South Africa delegation-s-africa@cec.eu.int	5 years 12/2007	4 850 000	Research and training on land and water management.
Support to water policy, Chad	8 ACP CD 8	DEV	EC Delegation in Chad eudeltcd@intnet.td	4 years 12/2003	23 000 000	Completion of approximately 1400 drilling for human use in the west of the country, repair of works and creation of 45 small water supply systems (solar and thermal)
Assistance Technique au Ministère de l'Hydraulique et de l'Energie	8 ACP MAU 14 Mauritanie	DEV	EC Delegation in Mauritania delcema@compuserve.com	3 years 6/2005	437 000	Institutional support, sector policy and strategy support.
Improvement of water resources in the west of Burkina Faso (VREO)	8 ACP BK 38	DEV	EC Delegation in Burkina Faso delegation-burkina-faso@cec.eu.int00	6 years 10/2009	10 000 000	Improvement in capacity and regional and local planning ability, of management and use of water resources in the sub-basin of the west of BK, by mobilising local groups, decentralised organisations and private and public actors.

SAFE WATER AND SANITATION - COST EFFECTIVE APPROACHES THAT WORK

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Toxic pollution detection in ground water : from real time early warning to overall assessment-TOXICAL	ICA2-CT-2000-10016	RTD	Prof. Gabor Gaal Geological Survey of Finland gabor.gaal@gsf.fi	24 months 31/08/2002	889 056	Decades of unregulated disposal of toxic wastes in the NIS countries have created major environmental pollution affecting public health. The project involves the collaboration of specialised institutions from Russia, Ukraine, Georgia and Armenia, countries currently facing severe problems of toxic pollution in their ground water, with a European Consortium of highly specialised companies (including three SMEs). Objectives: groundwater pollution monitoring, assessment, environmental management, early warning; training and civil awareness. Expected results: specially trained local scientific and technical groups able to assume project functions during and after its completion.
Biosensor feed-back control of waste water purification : photooxidation followed by biological degradation using highly active surfactant degrading bacteria- BIOFEED	ICA2-CT-2000-10033	RTD	Dr. Margrethe Winther-Nielsen VKI, Denmark mwn@vki.dk	36 months 30/09/2003	589 905	The BIOFEED project seeks new scientific and technological approaches for wastewater clean-up from surfactants. Detoxification process combines two steps: photooxidation and biosorption-biodegradation. Genetic screening technology will be used for selection of new highly active natural bacterial strains capable of effective degradation of surfactants. Optimisation and control of a surfactant clean up will be done by feedback control and ecotoxicity tests. The kinetics of biodegradation, biosensor construction and pattern recognition of biodegradation profiles are among the objectives of investigation.
A new integrated bioleaching process for agricultural applications of wastewater sludges- BIOSLUDGES	ICA2-CT-2000-10042	RTD	Ing. Angelo Delalio ECOMETAL, Italy adelali@tin.it	36 months 30/09/2003	328 906	This research project concerns the bioleaching of wastewater sludge in order to remove the heavy metals and to use the activated fuel fly ash as stabilizing agent. The implemented bacterial leaching aims at being more environmentally friendly and economically attractive than conventional methods. The mechanical activation of carbon compounds greatly improve the reactivity characteristics of fly ash. Complete stabilization of sewage sludge is eventually achieved. Tests for agricultural applications will also be carried out.
Environmental protection in the Balkan countries : reuse of industrial mineral waste for waste water treatment and improvement of landfills- REINTRO	ICA2-CT-2002-10003	RTD	Dr. Joerg Bossert Friedrich-Schiller Universität Jena, Germany p5jobo@uni-jena.de	36 months 30/09/2005	649 778	The objective: to use waste for waste treatment. The waste situation in Bosnia, Macedonia, southern Croatia and the Belgrade region will be assessed. Based on these studies, REINTRO will follow two strategies: (i) Industrial waste resulting from power stations, metallurgical and mining industry will be used to develop innovative products for the biological treatment of municipal waste water plants. These products will be produced in pilot scale in Balkan countries and applied in waste water plants in pilot scale. (ii) The second strategy will provide environmental management strategies to use the industrial waste for securing and redeveloping industrial and municipal landfills.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Assessment of the selected POPs in the atmosphere and water ecosystems from the waste materials generated by warfare in area of former Yugoslavia- APOPSBAL	ICA2-CT-2002-10007	RTD	Dr. Mladen Picer Center for Marine and Environmental Research, Zagreb, Yugoslavia picer@rudjer.irb.hr	36 months 31/08/2005	648 761	The karstic region in former Yugoslavia warrants particular attention because of its exceptional ecological vulnerability to technological and hazardous wastes. Research on the environmental impact of warfare has shown that many highly stable organic contaminants have entered the environment, because the devastation that occurred during warfare, especially burning, introduced a range of materials used in enterprises, infrastructures and households and which produce dangerous ecotoxic, highly stable organic substances. Objective: to investigate the levels and fate of POPs in those areas of the former Yugoslavia, which were affected by the recent war, especially the places where electrical transformer stations were destroyed.
Mediterranean usage of biotechnological treated effluent water- MEDUSA WATER	ICA3-CT-1999-00010	RTD	Dr. José Cardoso Duarte Instituto Nacional de Engenharia e Tecnologia Industrial, Portugal jose.duarte mail.ineti.pt	36 months 28/02/2003	580 000	Treatment and re-use of wastewater is particularly pressing on the Mediterranean area. The traditional olive oil industry in all Mediterranean countries is responsible for highly contaminated wastewater containing organic compounds. These recalcitrant compounds are difficult to detoxify and the effluents need a treatment before being discharged. Conventional physical/chemical methods are very expensive. Objective: to apply novel biotechnological processes to treat effluent waters from olive oil industry and, where possible combine with urban sewage, and re-using the resulting waters in horticulture. A new system of Linear Matrix Multicellular Photoreactors (LMMP) using microalgae cultures for the treatment of the final effluent will be designed, constructed and tested in situ.
Wastewater recycling of olive mills in Mediterranean countries- WAWAROMED	ICA3-CT-1999-00011	RTD	Dr. Apostolos Neskakis University of Applied Sciences, Aachen, Germany neskakis@fh-aachen.de	36 months 28/02/2003	899 240	Objective: cheap, cost-effective WWT technologies for the processing of olive oil wastewater (OMW) in the Mediterranean. At an experimental test plant biological aerobic treatment technologies (reed beds and Epuvalisation) will be compared with classical in-plant processes. Anaerobic treatment will be used to produce biogas (waste as resource). The effluent quality will be adapted to different reuse possibilities. Considering the experimental results a pilot WWTP for the treatment of OMW in Crete will be erected. During the operation of the plant the effluent quality will be economically and ecologically optimised, the biogas production will be maximised. Different reuse possibilities for the WW are investigated: production of plants (treatment and direct production of plants by epuvalisation or water reuse in agriculture) and the production of bricks in a nearby brickyard.
Development of cost-effective reclamation technologies for domestic wastewater and the appropriate agricultural use of the treated effluent under arid climate conditions- CORETECH	ICA3-CT-1999-00012	RTD	Prof. Gatze Letinga Wageningen University, The Netherlands Gatze.Letinga@algemeen.mt.wau.nl	36 months 31/03/2003	895 050	Domestic wastewater is increasingly regarded as a resource, particularly in arid areas. Development of cost-effective reclamation techniques will stimulate the usage of this potential resource. Objectives: to develop such techniques, making a direct link between wastewater treatment and agricultural production, and in the meantime studying the impact of the water quality on the agricultural production systems (including soil and health risks). The core technology for BOD removal will consist of an anaerobic treatment step avoiding any energy demand. This will be followed by appropriate post-treatment for meeting reuse criteria. Based on the effluent criteria, the most suitable water distribution/irrigation system will be researched coupled to agricultural production systems. The agricultural demand sets the effluent criteria and, consequently, the specifications for the treatment system. The advantage is that a low-grade application (e.g. cotton production, trees, animal fodder) will require only a plain, low-cost technique.
Water recycling and reuse by application of membrane bioreactors: textile and municipal wastewater as examples- MBR-RECYCLING	ICA3-CT-1999-00013	RTD	Prof. Alfons Vogelpohl Technical University of Clausthal, Germany vogelpohl@itv.tu-clausthal.de	36 months 28/02/2003	540 000	Objective: development of a new membrane bioreactor (MBR) system for recycling and reuse of wastewater. Textile and municipal wastewater as the main sources of wastewater in North Africa will be used for bench- and pilot-scale tests. Extremely low concentrated and germ free effluents can be achieved with MBR systems, producing only small amounts of excess sludge. The increased biodegradation requires a low cut-off (e.g. ultrafiltration), which is not used in known MBR-systems. To be economically viable in the Mediterranean, the specific costs for wastewater reuse have to be reduced. New membrane materials, innovative module concepts and the combination with anaerobic bioreactors (less energy and CO ₂ -production) will therefore be used.
A strategic approach for the implementation of policies aiming to prevent the environmental problems caused by toxic metal ions in industrial wastewater- TOXMET	ICA3-CT-2000-30006	RTD	Prof. Angela Danil de Namor University of Surrey, UK A.Danil-De-Namor@surrey.ac.uk	36 months 31/12/2003	866 424	The control of industrial wastewater at source (prevention rather than cure) is a priority issue in the design of comprehensive water policies. Objective: to provide the tools for policy decisions geared to prevent the environmental and health problems caused by the discharge of toxic metal ions contained in industrial wastewater. The following tasks will be undertaken: i) An up-to-date account on the levels of toxic metal ions in industrial wastewater of the Marrakech region (CASE STUDY); ii) A socio-economic study of benefits associated with the implementation of preventing policies based on new technologies using easily modified natural resources for the treatment of industrial wastewater. The results are expected to enhance interaction between policy makers, industry and academics in this area for the implementation and dissemination (workshops) of preventive policies in the Mediterranean region.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
PV and thermally driven small-scale, stand alone desalination systems with very low maintenance needs- SMADES	ICA3-CT-2002-10025	RTD	Prof. Matthias Rommel Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschung Germany rommel@ise.fhg.de	36 months 2005	600 000	The overall objective of the project is the advancement of stand-alone desalination systems which are based on the highly innovative membrane distillation technology. The objectives are: (1) Evaluation of the present state of the art for small-scale, stand-alone desalination systems with low maintenance needs. (2) To conduct a socio-economic study to determine the specific needs and possibilities for the application of small-scale desalination systems. (3) Development of appropriate small-scale, stand-alone desalination systems with low maintenance needs based on membrane distillation. (4) Development and testing of the membrane distillation components and systems. (5) Dissimination of results in workshops conducted in each of the participating countries.
Sustaining changes in hygiene behaviour (working towards higher effectiveness of water, sanitation and hygiene promotion programmes)- CAHYG	ICA4-CT-2000-30038	RTD	Eveline Bolt IRC International Water and Sanitation Centre, The Netherlands bolt@ir.nl	36 months 30/09/2003	365 800	Changes in hygiene behaviour are crucial for health impact from water and sanitation facilities. However, systematic research into the sustainability of such changes and developing guidelines for achieving it, received little attention. Objective: understanding why some changes in hygiene behaviour brought about during implementation of water and sanitation projects are sustained and others disappear after the project has terminated. Field research, based on an account of the current state of knowledge and positive and negative experiences, combined with exchange of information through the CA will generate the insight to be disseminated to inform policy.
The policy implications of contamination of rural water between source and point-of-use, in Kenya, South Africa and Zimbabwe- AQUAPOL	ICA4-CT-2000-30039	RTD	Stephen Gundry University of Bristol, UK stephen.gundry@bristol.ac.uk	48 months 30/09/2004	899 994	This project looks at rural water policy in Southern and Eastern Africa and analyses the impact of water quality deterioration following collection from source. Policy options for community interventions are assessed and evaluated for cost-effectiveness.
Managing agrochemicals in multi-use aquatic systems- MAMAS	ICA4-CT-2001-10031	RTD	Dr David Little University of Stirling, UK d.c.little@stir.ac.uk	36 months 31/12/2004	900 000	Objectives: Desirable protection goals for target areas will be developed through a preliminary risk assessment. Realistic worst case scenarios will be explored. The impact of land management and pesticide use on fate and effects within the target areas will be monitored and compared to monitoring of chemical fate and effects. Effects will be monitored following the development of low-cost, ecologically relevant bioassays with local species, both in the lab, and in field deployments. Outputs from environmental monitoring will be used to prepare local risk assessments and develop a DSS to aid management of the ecosystem. Implications on local stakeholders and on regulatory policy will be addressed, and policy recommendations disseminated. Expected result: a localised DSS should be established, with local researchers trained in environmental monitoring and risk assessment.
International conference on rainwater catchment systems- RAINWATER CONFERENCE	ICA4-CT-2001-50009	RTD	Ing. Hans Hartung FAKT, Germany fakt@fakt-consult.de	12 months 14/05/2002	47 300	Europe has a leading position in using rainwater in households, institutions and industry. In order to make available European knowledge/experience and to seek new ways of co-operation/collaboration and new alliances, participants/organisers of the last rainwater conference in Brazil wished to hold the next one in the year 2001 in Europe. Programme abstracts central "open space" session on the present state of the art in view of legal, administrative, political, economic and social framework conditions; exhibition of rainwater equipment; excursions to water recycling & rainwater utilisation applications etc. The AM supports an internat. coordinator, connected consumables and travel for developing country participants.
Pollution monitoring in the Nairobi river : application of new and robust biosensor technologies adapted to locally available resources- AQUA-SCREEN	ICA4-CT-2002-10008	RTD	Prof. Antonius Kettrup GSF - Forschungszentrum für Umwelt und Gesundheit GmbH Germany kettrup@gfs.de	36 months 2005	1 699 994	Most communities living in slum areas along Nairobi river and Nakivumbu wetland use untreated water for drinking and for domestic activities. Pesticide residues, pathogenic bacteria, and heavy metals are thus a major health concern. Objective: to develop and adapt molecular based methods to identify and quantify pesticide residues and pathogenic bacteria directly in given environmental water samples and to assess the state of health. We will combine phage antibody technology, 16s rDNA and rRNA sequences to identify the pesticides, indicate bacterial activity and assess infection risks. These will be combined with biosensor technologies to rapidly monitor the health of the water environment. The applicability will be tested in Nairobi River and Nakivumbu wetland.
Development of viable technologies and monitoring systems for the remediation/detection of mercury in South American waters - Design of chelators with therapeutical properties- MERCURY	ICA4-CT-2002-10055	RTD	Prof. Angela Danil de Namor University of Surrey UK A.Danil-De-Namor@surrey.ac.uk	36 months 31/07/2005	999 406	Mercury contamination in water due to mining, forest burning and industrial activities is a serious threat to aquatic and human life in South America. Typical examples are the Amazon Basin in Brazil (mercury levels in human hair reach up to 170 ppm while at critical levels of 50 ppm, first intoxication symptoms appear), the Manu and the Chili rivers in Peru and several areas in Argentina. Mercury contamination in water is also found in Europe (e.g. Spain). Water treatment is almost non-existent in South America. Existing technologies for mercury removal lack efficiency due to poor selectivity of materials used. Objective: to design selective, recyclable and low-cost receptors for i) 'on site' monitoring of mercury in water, ii) developing of a viable technology for mercury removal to be tested against phytoremediation agents based on natural resources of the region, and iii) exploring their potential for therapeutic use. Expected results are i) a new method for mercury detection, ii) novel receptors for mercury removal from water, and iii) background information for a more efficient treatment for mercury intoxication in humans.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Prevention of sanitary risks linked to rodents at the rural/peri-urban interface- RATZOOMAN	ICA4-CT-2002-10056	RTD	Dr. Steven Belmain Natural Resources International Ltd UK S.R.Belmain@gre.ac.uk	36 months 2005	1 450 000	The rural/peri-urban interface can sustain high rodent populations, increasing the public health risks from zoonosis. The epidemiology of many zoonotic diseases is poorly understood, and management strategies have met with little success. The project will investigate the sanitary risks linked to the proximity of rodents in rural/peri-urban areas of Africa. The disease prevalence and livelihood constraints will be measured for plague, leptospirosis and toxoplasmosis, chosen for their variety of clinical manifestations and transmission routes. Ecological and anthropogenic factors responsible for transmission will be identified and the infection dynamics within the hosts and from the hosts to humans will be studied. GIS-based predictive and simulative tools will be developed for modelling transmission risks and the subsequent testing of cost-effective and sustainable control strategies aimed at reducing the sanitary risk associated with zoonosis.
Advanced disinfection and health care aspects of wastewater reclamation and re-use agriculture in Mediterranean regions	AVI-CT94-0010	RTD	Mr Lorenzo Liberti Community of Mediterranean Universities, Bari, Italy	36 months 1997		Objectives: - comparison of different disinfecting technologies in terms of germicidal effect as well as formation of harmful by-products; - investigation of health implications and waterborne disease spread out by partially disinfected wastewater with special attention to epidemiological and toxic effects on aquatic life and humans; - evaluation of low-cost technology systems of wastewater treatment for agricultural reuse appropriate to Mediterranean countries; - optimisation of schemes for wastewater utilisation in agriculture by reference to crops, pedology, groundwater vulnerability, irrigation methods and management aspects.
Distribution comparison between coliphages and anaerobic bacteria phages in water sources	CII-CT91-0907	RTD	Mr Joan Joffre University of Barcelona, Barcelona, Spain	36 months 1994		Objectives: -to evaluate the usefulness of bacteriophages as indicators of human viruses in drinking waters; -to determine which of the three groups of phage, somatic coliphages, F-specific bacteriophages of enteric viruses, best fulfils the indicator function; -to determine the validity of the results in different geographical areas.
Research and information on water purification by means of constructed wetlands (BIO-PLATOS) in the Ukraine, supported by studies in Estonia, the Netherlands and Sweden	IC15-CT-1996-00100	RTD	Dr. A.H. Pieterse Royal Tropical Institute Amsterdam, The Netherlands	48 months 2000	500 000	Water pollution is a major problem in the Ukraine. An unbridled disposal of sewage, industrial waste products and run-off from agricultural areas into the main rivers has created conditions which are harmful to the environment and hazardous to human health. The project provided knowledge for rebuilding or restoring the experimental bioplots (and if necessary at constructing new ones) in support of ecologically sound, effective water purifications (for waste as well as for drinking water).
Evaluation of risks and monitoring of nitrogen and pesticides fluxes at the crop level under Romanian and Bulgarian Danubian plain situation	IC15-CT-1996-00101	RTD	Dr. G. Gosse Institut National de la Recherche agronomique (INRA), France	30 months 1999	250 000	The EC's ecological experience has emphasized the necessity of anticipating non-point source pollutions from agriculture in large-scale farming industry. The nitrates and pesticides fluxes linked to agricultural productions impact drinking water quality and water ecosystems in the Bulgarian and Romanian plains, in the Danube's watershed, with the Black Sea as outlet. Firstly, the study of typical situations will allow an estimation of the risk level in order to define the means to reduce nitrate and pesticides percolation downwards deep ground water and/or rivers. Modelling allowed risk evaluation and an identification of sensitive zones will be done in relation with the current agricultural practices.
Oil and herbicide pollution in the Black sea: detection and biological impact	IC15-CT-1996-00105	RTD	Mr A.L. Etienne Ecole Normale supérieure- Institut de Photorégulation et Dynamique de Membranes Végétales, France	36 months 1999	315 000	The research was focused on the North and North-West sectors of the Black sea and on the deltas of the three major Black sea tributaries: Danube, Dnieper, Dniester. Two types of pollutants were selected for monitoring: oils representing industry/transportation of produced pollutants and herbicides representing pollutants originating from the agricultural sector. The project assessed the potential of total pollutants contained in the water to generate biological damage in the laboratory by unspecific, highly sensitive algal bioassay and in the sea by monitoring response of benthic organisms. It developed novel low-cost techniques for detection of oil and herbicide pollution. Unspecific bioassays were used to estimate the biological impact of the pollutants.
Ecotoxicological risk in the Caspian catchment - AREA (ECCA)	IC15-CT-1996-00106	RTD	Mr L. Weissflog UFZ Centre for Environmental Research, Germany	36 months 1999	210	The Caspian sea, as the largest inland lake, is a highly endangered ecosystem because it has no outflow but a large influx of organic and inorganic anthropogenic pollutants transported by the rivers Volga and Ural, by oil refineries and other industries near the sea shore. The reduction of stratospheric ozone, especially during the last five years, resulted in an increase of the UV-B-radiation that reaches the surface of the earth. This leads to a change, i.e. an increase of the OH radical concentration in the troposphere. An investigation of the future expected change of OH concentration as a consequence of an increase of the UV-B-radiation was thus of high interest. Recommendations for agricultural activities, for forestry and for environmental protection and preservation activities were developed.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribution [€]	Abstract
Re-use and recycling of water in pulping plants rewapulp	IC15-CT-1998-00115	RTD	Mr Carlos Negro Universidad Complutense de Madrid, Spain ablanco@eucmos.sim.ucm.es	36 months 31/12/2001	286 000	The aim of this project was to reach the environmentally sustainable economic development of pulp mills by means of closing the water and chemical cycles: a) the development of alternative methods to recover black liquors when the traditional systems cannot be applied; b) the removal of non-process elements to recover alkaline bleaching liquors in close loops; c) the removal of chloride compounds and metals from bleaching effluents; d) the development of a computer model for process simulation.
Risk assessment of groundwater pollution by interaction with surface waters affected by pulp and paper mills	IC15-CT-1998-00134	RTD	Mr Eckhard Worch Technische Universität Dresden, Germany hydroche@rcs.urz.tu-dresden.de	36 months 31/08/2001	285 000	The serious surface and groundwater pollution in the north-western region of Russia is mainly caused by pulp and paper mill effluents. The project carried out a complex risk assessment of groundwater pollution by direct inputs from pulp and paper mills and indirect inputs by interaction with surface waters from lakes and artificial ponds used for waste water storage and infiltration.
Sustainable water management: application of the advanced bioremediation techniques for an efficient treatment of industrial waste waters	IC15-CT-1998-00145	RTD	Mr Galina Smirnova - Consorzio Interuniversitario Risonanze Magnetiche di Metalloproteine Paramagnetiche, Italy bertini@risc.lirm.fi.cnr.it	36 months 30/11/2001	210 000	This multidisciplinary project concerns the application of bioremediation approaches for the decontamination of industrial waste waters, thus allowing their further recycling. The project represents a close cooperation between a scientific and an industrial team: the different aspects of the bioremediation treatment of the waste waters will be thoroughly studied and then the most appropriate microorganisms will be applied for the decontamination of the waste waters of the industrial unit.
Control of bacterial regrowth in water supply distribution systems in watershort European and Mediterranean countries	IC18-CT-1997-00136	RTD	Mrs Lilian M. Evison University of Newcastle upon Tyne, United Kingdom	36 months 31/10/2000	692 600	The objectives of this project were as follows: a) to examine the bacterial changes which occur during water distribution in both continuous and intermittent systems; b) to uncover the mechanisms involved in the changes; c) to look at methods for controlling any adverse changes. Distribution systems were selected for study in three Eastern Mediterranean countries (Jordan, Lebanon and Palestine) which all had intermittent water supplies, and in two European countries (Portugal and UK) which had continuous water supplies. Each of these distribution systems was intensively sampled for up to two years, to determine any patterns in water quality, especially in bacterial concentration.
Development, application and analysis of raman, fluorescence and absorption spectroscopy using optical fibre remote sensing of chemical species in water for in situ environmental pollution studies in Cyprus, Israël, Italy and the United Kingdom	IC18-CT-1997-00171	RTD	David Jackson University of Kent School of Physical Sciences Canterbury - Kent CT2 7NR +44 1227 823288	36 months 30/09/2000	360 000	The objectives are: To establish a database of hazardous pollutants found in water and identify testing locations in the 4 countries involved; to develop a real time, in situ and chemically specific technique based on optical spectroscopy to detect multi-component pollutant mixtures at concentrations down to a few parts per billion;
Intelligent management system for water and energy minimization in Latin American food industries	IC18-CT-1998-00271	RTD	Prof. Luis Puigjaner Universitat Politècnica de Catalunya, Spain lpc@eq.upc.es	24 months 30/09/2000	474 000	Main objectives: - to establish new criteria and develop the methodology and tools aiming at improving the water management in food processing industries as an integral part of energy efficient, environmental respectful and economically sound process operations; - to minimize water consumption by an efficient management and control of process operations and optimize material and energy balances of the process by applications of advanced optimization strategies aiming at waste reduction; - to integrate optimization and production planning techniques in conjunction with real time plant measurements and control for product quality and minimization of losses; - to enhance intelligent support to the operator by application of knowledge-based decision-making procedures to select those options which best protect the environment; - to validate the different methodologies and associate supporting software in two representative agroindustrial sectors: the sugar industry and citrus processing (concentrated juice and essential oil).
Technical development and demonstration of closed-loop procedures in electroplating and metal chemistry using solar energy or waste heat to avoid wastewater and to minimize solid waste which can be utilized	IC18-CT-1998-00273	RTD	Prof. Hans-Wilhelm Lieber Gesellschaft fuer Umweltvertraegliche, Germany	30 months 30/04/2001	538 800	The main objectives are: - reduction of the specific consumption of chemicals for pretreatment, surface finishing and post-treatment in electroplating shops; - introduction of multiple-step, counter-current rinsing systems to reduce the specific water consumption for rinsing; - avoidance of wastewater to be drained; - minimization of the quantities of solid waste which should be utilized instead of dumping; - use of solar heat and waste heat, respectively, for water recirculation; - putting this mode of operation into practice.
Saranda Water supply and waste water	Albania - 9808	DEV	EC Delegation in Albania mailto@delalb.cec.eu.int	March 2004	4 425 000	Construction of infrastructure and work supervision due for completion March 2003, to be followed by defects liability period
Water Sector (Water Supply & Sanitation)	Nigeria	DEV	EC Delegation in Nigeria abuja@eu-nig.org	2004-2008	230 000 000	Support to an improvement in the delivery of water and sanitation services in the six focal states of Abia, Cross River, Kebbi, Gombe, Osun and Plateau is a priority in co-operation with Nigeria. The major interventions are foreseen as institutional support to reforms, strengthening of the water and sanitation sector in the six states and budget support to fund expanded provision of water and sanitation, conditional on the success of the state's reforms and the institutional support in improving service delivery in the six states in this sector.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribution [€]	Abstract
Rural Water Supply & Sanitation	Papua New Guinea	DEV	EC Delegation in PNG admin@eudelpng.org	2004-2008	24 500 000	The programme aims to facilitate access to safe and hygienic water and sanitation for rural communities in order to improve health and to reduce drudgery for women. The programme will include awareness and training campaigns in water management, systems operation and maintenance, and preventive health/hygienic measures.
Support to Water and Sanitation Sector	Samoa	DEV	EC Delegation in Samoa euoffice@lesamoa.net	2004-2007	15 000 000	Improvement of the quality of public health through the development, management and conservation of water resources and the disposal of waste water, in the framework of sustainable development of Samoa's economic and social environment is the objective of the EU cooperation within the 9th European Development Fund.
Rural water supply programme, Samoa	8 ACP WSO 3, 6 ACP WSO 25, 7 ACP WSO 29	DEV	EC Delegation in Fiji eudelfiji@eu.org.fj	1998-2002	18 700 000	Water shortages and poor quality water should now be a thing of the past for around 55,000 Samoans living in the rural areas as a new water supply system completes in January 2003. This achievement will mean significant progress towards the Government's goal of supplying potable water for all.
Rehabilitation of filtration system S. Joao dos Angolares, Sao Tome	8 ACP STP 3	DEV	EC Delegation in Sao Tome eudelgab@delgab.cec.eu.int	1999-2003	2 800 000	Co-operation between the EU and the Government of the Republic of Sao Tome aims at the improvement of the quality of its water resources and expansion of its water distribution network for the benefit of the population of Sao Tome. The specific objectives of the project are the completion of work necessary for the rehabilitation and extension of the distribution network and the modification of the two existing chlorification systems.
Water supply and sanitation in Santa Cruz, Bolivia	BOD/B7-3100/1997/0229	DEV	Marco Tomasi EC Delegation in Bolivia marco.tomasi@cec.eu.int	7 years 31/12/2006	20 000 000	The main objective of this project is to improve the living standards in the rural area by increasing the water supply and basic waste water treatment services in rural localities in the country.
Water supply and sanitation in rural environment	NIC/B7-310/97/0414	DEV	Antonia Zelaya EC Delegation in Nicaragua maria-antonia.zelaya@cec.eu.int	6 years 31/12/2004	11 000 000	The main goal of the project is to improve the water supply levels for rural population, decrease the rate of morbi-mortality and support cholera prevention through the availability of fresh water (at habitats, schools and social infrastructure levels) and waste disposal with sensibilisation for beneficiaries on hygiene problems and health education with institutional strengthening and improvement of local capacities on fresh water management and basic health in rural areas.
Fresh water for 50 villages in the Oriental Region of Paraguay	PRY/B73100/98/0378	DEV	Emilio Canda European Commission DG AIDCO emilio.canda-moreno@cec.eu.int	6 years 31/12/2004	4 800 000	Water supply and sanitation in rural environment for 50 localities in the Central, Misiones and San Pedro departments which are lacking of the minimal sanitation infrastructure, supply of fresh water and treatment of household waste waters.
Chad rural water supply	9th EDF	DEV	EC Delegation in Chad eudeltcd@intnet.td	5 years 2009	50 000 000	Completion of approximately 3000 drilling (+ small water systems, agricultural wells) - proposed for financing under the 9th EDF - will be a part of a joint rural water program with the KFW and the AFD under the management of the AFD. This project will be submitted to the EDF in May 2003.
Rural water supply in Ouaddai Biltine, Chad	8 ACP CD 27	DEV	EC Delegation in Chad eudeltcd@intnet.td	3 years 12/2004	2 000 000	Completion of drillings for water supply for human consumption and wells for agricultural use in the Ouadai and Biltine areas in the east of the country. Project cofinanced with the AFD and the KFW (total 12 Meuro - AFD 5 Meuro - KFW 5 Meuro).
Eau de l'ESPOIR, Mauritanie	8 ACP MAU 8	DEV	EC Delegation in Mauritania delcema@compuserve.com	3 years 6/2005	4 700 000	The underlying objective of this programme is the installation of 60 solar pumps supplying water to the populations and their livestock along 'Hope Road' (Nouakchott-Néma).
PRS II - CILSS	8 ACP ROC 42	DEV	EC Delegation in Burkina Faso delegation-burkina-faso@cec.eu.int	6 years 10/2007	59 696 000	Regional Solar Program, Phase 2 - consolidation and extension of the area of the country covered by photovoltaic energy water supply systems.
Rural water supply, Guinea	8 ACP GUI 11	DEV	EC Delegation in Republic of Guinea mailto@delce.org.gn	4 years 10/2004	12 000 000	Improvement of quality water provision for the population of 'Guinée forestière' and 'Haute Guinée' with accompanying measures, training and awareness for the management and sanitation.
Water resource management, Wallis and Futuna	8 PTF WF 1	DEV	EC Representation in New Caledonia mailto@delncl.cec.eu.int	4 years 12/2004	1 200 000	Village irrigation and water protection.
Rural and semi urban water supply, Guinea Bissau	8 ACP GUB 10	DEV	EC Delegation in Guinea Bissau - ue@sol.gtelecom.gw	4 years 12/2004	4 412 000	Rural Water Supply.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribution [€]	Abstract
BLUE WATER	IST-1999-10388	RTD	Rory Doyle Caldeira-Saraiva Fernando British Maritime Technology Ltd, UK Roryd@bmttech.co.uk ¹	33 months 30-11-2002	1 800 000	Standard checking for water pollution is done by spot-sampling and chemical analysis. This method is expensive, slow, localised and occasional. It is not known how long pollution has been present, or what its future dispersal pattern may be. This project develops a fast, continuous, reliable, informative and cheap system for monitoring water quality, which is of great interest to authorities responsible for pollution control at sea, beaches and waterways. Such agencies also have an interest in reaching the public with such information. The project will provide a solution that uses a remote camera to sense water-borne pollutants by computerised image analysis. Pollutants in water have a damping effect on the water surface, which can be recovered by wavescape interrogation. A network of internet-linked, pole-mounted cameras will provide constant monitoring of pollution. The installations provide a high-profile promotion platform by means of ruggedised video terminals for publicity and to disseminate information to the public.

CATCHMENT BASIN APPROACHES - STRATEGIES INTEGRATING MULTIPLE DEMANDS ON LIMITED RESOURCES

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribution [€]	Abstract
Prevention of land degradation in the Aral sea region undergoing disastrous desertification by increasing tolerance of symbiotic nitrogen fixation (SNF) to salinity- PLADADINFIS	ICA2-CT-2000-10001	RTD	Prof. Marco Bazzicalupo Universita di Firenze, Italy Marcobazzi@dbag.unifi.it	36 months 30/09/2003	600 000	Kazakhstan and Uzbekistan form a coast of the Aral Sea, now suffering from a major man-induced ecological disaster in Central Asia. Over-usage of water in arid areas was followed by dramatic desertification, loss of plant cover, soil erosion and salt storms. Combining new methodologies and recent advances in symbiotic nitrogen fixation (SNF), the project will focus on the selection of several rhizobia-legume (Medicago, Melilotus and Galega) symbioses tolerant to salinity and beneficial for sustainable agriculture in saline soils. By planting legumes, which form deep root system, it will be possible to cease the soil erosion, to enrich soils by fixing atmospheric nitrogen, to develop legume pastures and thus increase crop productivity for Central Asian farmers on these marginal lands.
Sustainable development of the Pechora region in a changing environment and society- SPICE	ICA2-CT-2000-10018	RTD	Dr. Peter Kuhry University of Lapland, Finland pkuhry@levi.urova.fi	36 months 31/03/2003	518 774	The SPICE project assesses alternative scenarios for the sustainable development of the Pechora region (Northeast European Russia), which ensure the economic and social well-being of its population and protect the unique natural environment, its high biodiversity and wilderness areas on the Barents Sea coast, the Arctic tundra and the Ural mountains. An integrated evaluation of current state of formal and informal (subsistence) economic sectors, population and employment, public opinion, the environment and biodiversity in relation to anthropogenic impacts. Objective: present strategies for sustainable development of the Pechora region, formulated in consultation with stakeholders, to regional government.
Desertification in the Aral Sea Region : a study of the natural and anthropogenic impacts- ARAL-KUM	ICA2-CT-2000-10023	RTD	Prof. Jacques Nihoul University of Liège, Belgium mgregoire.at.ulg.ac.be	36 months 31/10/2003	409 202	The Aral Sea and the surrounding lands suffer from one of the worst environmental disasters in recent history. As the lake has shrunk with increasing diversion of Amu-Darya and Syr-Darya rivers for irrigation, various types of salts have precipitated on its former bed. Most of these salts are subject to wind erosion. The exposed bed of the Aral has thus become the major source of salt and dust storms in the region. Salt in the atmosphere provides condensation nuclei and thus has an impact on world climate - a global concern. The objective of the project is to elaborate recommendations for the most effective remedy against desertification. The project methodology includes a) monitoring of the land, river and sea parameters for an information system b) modelling of the Aral desertification process in support of environmental management.
Crop irrigation management for combatting irrigation induced desertification in the Aral Sea Basin- CIRMAN-ARAL	ICA2-CT-2000-10039	RTD	Prof. Luis Santos Pereira Instituto Superior de Agronomia, Portugal lspereira@isa.utl.pt	42 months 31/12/2003	908 265	The CIRMAN-ARAL project focuses on developing crop irrigation management strategies for combatting irrigation induced desertification in the Aral Sea Basin. Strategies concern water saving irrigation scheduling and field practices, reduction of water demand for agriculture, improved control of drainage water, and soil and water salinity. These approaches promote increased water available for natural rivers, water bodies and riparian ecosystems and the preservation and improvement of land resources while favouring the sustainability of irrigated agriculture. The project shall produce a DSS to be used by decision makers and creates the conditions to implement research findings in the farmers' practice.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribution [€]	Abstract
INCO project cluster for water resource management in Mediterranean- MEDAQUA	ICA3-CT-1999-50002	RTD	Dr. Thies Wittig IT Consult GmbH, Germany ITConsult@acm.org	15 months 31/08/2001	322 700	MedAqua will facilitate wide dissemination and enable synergy among ongoing and new INCO projects in the area of water resource management in the southern Mediterranean Countries by (a) bringing these projects closer together on several joint conferences, (b) assessing the emerging scientific progress and identifying the future needs for research in the water management area, and (c) ensuring a widespread dissemination of their activities and results in the Mediterranean region.
Water supply watershed planning and management: an integrated approach- WADI	ICA3-CT-2000-30007	RTD	Mr Bruno Le Dantec European Research Consortium for Informatics and Mathematics, France office@ercim.org	36 months 31/03/2004	1 000 000	The WADI project focuses on the development of tools and methodologies that can be used to assist decision making in watershed management boards and water planning authorities having to determine where to locate new dams/reservoirs. The tools and methodologies will address the elements related to reservoir identification (geographic location, water volume, infrastructure cost) given the watershed characteristics (water demand requirements, water resources, MNT, etc) in an integrated manner that considers socio-economic issues as well as environmental aspects related to flood and drought risks. WADI will also develop advanced data processing tools for modelling and simulation related to floods, reservoir design, and optimisation of the complete planned network of a watershed. Field applications will be performed on pilot basins in Morocco and Lebanon.
Geo-information for sustainable management of land and water resources in the Mediterranean region- LAND WATER MED	ICA3-CT-2000-30008	RTD	Dr. Richard Escadafal Institut de Recherche pour le Développement, France escadafa@ird.fr	30 months 31/10/2003	310 000	The objectives are to examine the need of the participating Mediterranean Partner Countries (MPCs) for monitoring land and water resources, the institutions and tools currently in use and the potential role of remote sensing as a tool for reaching a sustainable environment. The goal is to develop a co-operative process whereby the MPC institutions would have better access to up-to-date tools for land and water management. The watershed is the basic unit for this management. A series of meetings will be held, involving experts on environmental monitoring techniques and those on water and land management. The meetings will cover classification of watershed types and their problems, the existing infrastructures and tools for monitoring land and water resources, the details of monitoring and modeling techniques and the development of an integrated decision support system.
Decision support system for ecosystem upgrading and flood control of a sustainable development in the Red River system (China, Vietnam) - Pilot phase- FLOCODS	ICA4-CT-2001-10035	RTD	Prof. Dan Kim Nguyen Université de Caen, France nguyen@meca.unicaen.fr	24 months 31/08/2003	1 000 000	FLOCODS is an interdisciplinary long-term research project on the functioning of the Red River System (RRS) floods in the face of increasing degradation of the ecosystem and climate change. The final product of this project will be a full DSS for ecosystem upgrading and flood prevention with particular emphasis on the RRS. In the short-term (2001-2002), the pilot phase of FLOCODS serves for applied research to lay the scientific foundations and allow initial validation for a generic DSS using RRS as its test bed. A pilot system of DSS (hydrological, hydraulic models, overland and dyke-break flow models, socio-economic model) will be developed, using the most advanced techniques (computer vision, remote-sensing, GIS); possible measures for ecosystem upgrading and flood mitigation will be identified.
Management policies for priority water pollutants and their effects on foods and human health : general methodology and application to Chinese river basins- MANPORIVERS	ICA4-CT-2001-10039	RTD	Prof. Serge Cescotto Université de Liège, Belgium Serge.Cescotto@ulg.ac.be	48 months 31/12/2005	600 000	The goal is to identify effective and sustainable policies for the management of surface and ground water pollutants, taking account of their relationships with food production and human health. Based on scientific methods for the evaluation of pollutant input and transport by water, of sanitation techniques, of the use of water for human needs, food production and industrial activities and based on the analysis of relationships between pollutants and human health, fuzzy logics, multicriteria decision and geographical protection zoning approaches will be applied to define priority policies for water pollutant management. The expected result is a comprehensive and rigorous methodology to define water pollution management policies valid for different river basins in China.
Impact of changing land cover on the production and ecological functions of vegetation in inland valleys in West Africa- VINVAL	ICA4-CT-2001-10047	RTD	Dr. Pieter N. Windmeijer Alterra B.V., The Netherlands p.n.windmeijer@alterra.wag-ur.nl	48 months 31/10/2005	799 997	Objective: the development of a watershed-level land use planning tool for sustainable inland valley system development, balancing improved agricultural production systems with production and conservation functions of areas under natural and fallow vegetation. To be able to develop such a tool, information will be collected on the impact of land clearing on the natural resource base, the economic importance of gathered products from natural land compared to agricultural production, and how agricultural production systems can be optimised. For promising production systems, attainable yields will be estimated and input-output relations established to estimate the effect of the various parameters on production. Through the GIS-interface the spatial effects of various land use scenarios on production and the impact on the natural resource base can be estimated and visualised.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribu -tion [€]	Abstract
Research into and modelling of the impacts of river catchment developments on the sustainability of coastal resources, which support urban and rural economies : the case of Maputo Bay - Incomati River- CATCHMENT2COAST	ICA4-CT-2002-10059	RTD	Dr. Pedro Scheel Monteiro South Africa monteir@csir.co.za Dr. Marcel Marchand Stichting Waterloopkundig Laboratorium (WL/Delft Hydraulics) marcel.marchand@wldelft.nl	36 months 30/09/2005	1 195 056	This project takes an interdisciplinary systems approach to understand the linkages between river catchments and their associated coastal environments. It uses linked dynamic numerical models as tools to translate the impacts of human development in the river basins into cost-based consequences to rural and urban economies in the coastal domain. At the core of this research is the hypothesis that human activity in the Incomati catchment is impacting on the shrimp industry in Maputo Bay. The tools and capabilities produced from this R&D project will support the internalisation of delayed costs of upstream developments on the delivery of goods and services from coastal ecosystems. The technical and institutional training modules in this project will strengthen RTD co-operation over periods outlasting this project and ensure that project partners benefit from each other's skills and experience.
Facilitating negotiations over land and water conflicts in Latin American periurban upstream catchments : combining agent-based modelling with role game playing- NEGOWAT	ICA4-CT-2002-10061	RTD	Dr. Raphaële Ducrot CIRAD France ducrot@cirad.fr	34 months 31/10/2005	1 098 426	In a rapidly urbanising world, population densities no longer allow for unlimited access to safe water. Competition for water, often associated with a struggle for land, is exacerbated in periurban areas. The NEGOWAT project will elaborate, structure and test a methodology combining an agent-based modelling approach and role game play as a mediating tool for facilitating negotiations over land and water management, in the context of metropolitan upstream catchments in Latin America. The research aims to provide (i) a conceptual tool that will allow to analyse land and water management in this context (ii) a methodology and computing tools (including implementation guidelines) to explore, test and discuss scenarios, reinforcing the participation of marginalised stakeholders in all stages of the negotiation.
Bioremediation approach for recovering and protection of the Caspian sea from petroleum pollution	IC15-CT-1996-00102	RTD	Dr. M.S. Viezzoli University of Florence, Italy	36 months 1999	350 000	The project studied ways of recovering the Caspian area from hydrocarbons's pollution. Monitoring of the composition of oils which are produced in the Caspian region - Isolation of organisms able to grow and to use as carbon source hydrocarbon substrates - Monitoring in situ of biodegradation activity - Understanding of the molecular aspects of biodegradation and to detect the degradative pathways of the hydrocarbons which are present in that environment - Application of bioremediation directly in the endangered regions.
New organisms and enzyme pathways for the bioremediation of the Caspian sea and its ingressing rivers	IC15-CT-1996-00103	RTD	Mrs I. Rietjens Agricultural University, The Netherlands	24 months 1998	250 000	Bioremediation is the most advanced frontier for trying to resolve the increasing environmental problems of industrialized countries where the widespread use of organic polychlorinated substances and the spills from oil- and gas production and -transportation represent major sources of pollution of soil, surface and deep water resources. The project aimed at bioremediation of the Caspian sea, including its ingressing rivers, such as Volga'Oka and Kama Belaya, which are badly contaminated. The isolation and identification of new microorganisms capable of degrading a large spectrum of (poly)aromatics and able to survive in the mixed microorganism population when reintroduced into polluted environments represents a great technological progress in the field of bioremediation.
Actions for the environmental rehabilitation of the Aral Sea	IC15-CT-1996-00109	RTD	Prof. T.W. Tanton University of Southampton, United Kingdom	24 months 1998	200 000	The general objects of the programme were a) to bring together scientists and engineers at a technical level in order to identify how the constraints that have arisen in finding solutions to the water resource problems of the Aral basin can be overcome; b) to produce costed collaborative proposals for the development of tools which will allow rational planning and management of the water resources of the Aral basin.
Ecosystems of the Volga basin and effects on the Caspian Sea - Volgamap	IC15-CT-1997-00100	RTD	Mr J-F. Dobremez Université de Savoie, France	36 months 2000	160 000	This project focuses on the problem of conservation and utilization of natural resources with a view to promote a balanced and environmentally sustainable long term development. The basic aim of the project is to show the relationships between vegetation, land use and contribution from the catchments to the quality of water and ecosystems in the Caspian Sea and surroundings.
Large system for water monitoring and sustainable management based on ground stations and satellite images	IC15-CT-1998-00107	RTD	Mr Rudolf Scherer Universität Karlsruhe, Germany scherer@math.uni-karlsruhe.de	36 months 30/09/2001	210 000	A monitoring system in water management of the transborder rivers in the southern part of the Balkans was developed. The rivers in this region have become extremely polluted as a result of industrial growth. This project concerned the analysis of water quality, sources of pollution as well as forecasts and recommendations about future industrial productions. It also forecast balance and quantity of the water by observation of the snow cover in the catchment areas and of meteorological conditions. Main objective: to create a selfacting radio-computer system for the ground stations, and further to develop mathematical models of the river systems. The data from the ground stations together with the satellite information were collected, organized and processed for effective use by modern information technologies and knowledge-based decision support systems.
Groundwater recharge in the Eastern Mediterranean (GREM)- A comparative study on integrated evaluation techniques for groundwater resources	IC18-CT-1997-00143	RTD	Mr Peter Udluft University of Würzburg, Germany	36 months 30/09/2000	560 000	The GREM project had three main objectives: a) quantification of natural recharge in four different hydro-climatic environments in the Eastern Mediterranean in Greece, Cyprus, Israel and Jordan; b) comparison of the suitability of different methods for groundwater recharge estimation in the Eastern Mediterranean; c) development of an integrated model for groundwater resources evaluation including water quality and water quantity.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribution [€]	Abstract
A participatory approach for soil and water conservation planning, integrating soil erosion modelling and land evaluation, to improve the sustainability of land use	IC18-CT-1997-00158	RTD`	Dr. Coen J. Ritsema Alterra Green World Research, Wageningen c.j.ritsema@alterra.wag-ur.nl	36 months 30/11/2000	700 000	Soil erosion is the major cause of degradation of agricultural and non-agricultural land on the Loess Plateau in the northern provinces of China, inhibiting sustainable use of the land resources. The EROCHINA project aimed to develop alternative land use and soil and water conservation strategies for this area, focusing on reducing soil and water losses and increasing sustainability. A new participatory planning method, which integrates both soil erosion modelling and land evaluation, was used. Soil erosion can be controlled and/or reduced by a change in land use and/or adoption and application of soil conservation techniques, however, solutions cannot be found independently of land user motivation, knowledge and perceptions.
A system approach to wastewater biotreatment for the protection of Mediterranean coastal areas- BLOWATSYST	IC18-CT-1997-00163	RTD	inco@cec.eu.int	36 months 31/10/2000	850 000	The main objective of the project was to develop the scientific basis for an integral management plan of water resources and their use in the Lower Jordan Valley. The outputs of the project were expected to provide a scientifically sound basis for better understanding the situation and for a better future water management.
Hydrological Cycle Observation System - HYCOS, IGAD	7 ACP RPR 688	DEV	christopher.ingelbrecht@cec.eu.int	2004-2007	2 000 000	Natural resources are a focal point of the Regional Indicative Program. HYCOS is an acronym standing for Hydrological Cycle Observation System. The project's aim is the assessment in qualitative and quantitative terms of the water flowing along rivers and lakes at different regional levels and by integrating these levels, to obtain a global vision of the water situation on Earth. It consists of the installation or repair of Data Collection Platforms (DCP) which measure the quantity and quality of the water flowing along the rivers. The information is stored in a central server and shared with other countries.
Zambeze Valley Integrated Water Resources and Water Supply Development, Mozambique	8 ACP MOZ 019	DEV	EC Delegation in Mozambique mailto@delmoz.cec.eu.int	2001-2004	7 600 000	Overall objective: improved sustainability of equitable water use and reduced conflict potential amongst users in the Zambezi River area of Mozambique. Purpose: improved management of water resources through the establishment of a management authority; promote the development of integrated programmes of water supply, sanitation and hygiene education in rural areas enabling effective and sustainable provision of these services. Expected results: ARA-Zambeze functioning effectively and in a financially sustainable manner capable of taking decisions allowing for the participation of its beneficiaries; integrated programmes for promotion of rural water, sanitation and hygiene education.

PROTECTING MOUNTAINOUS UP-STREAM AREAS

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribution [€]	Abstract
An interdisciplinary approach to analyse the dynamics of forest and soil degradation and to develop sustainable strategies for fragile Himalayan watersheds- HIMALAYAN DEGRADATION	ICA4-CT-2001-10049	RTD	Prof. B.R. Singh Agricultural University of Norway balram.singh@ijvf.nlh.no	48 months 31/10/2005	892 994	This project will develop sustainable land use management strategies for the benefit of the people of ecologically fragile Himalayan region by studying present situation in the context of the recent history of land use, forest degradation and soil erosion. A systems approach will be implemented to link socio-economic development through bio-economic models to land-use scenarios. In selected watersheds, GIS models of the recent trajectory of land use will be derived through remote sensing to give a baseline for future predictions. Field experiments, household surveys and participatory research will drive soil erosion and bio-economic models to define sustainable management strategies aimed at avoiding further land degradation. The major outputs will be models linking development with land degradation and recommendations for sustainable land management practices in the Himalayan region.
Mise en valeur en petite hydraulique autour des barrages collinaires	Tunisia TUN/RELEX/1999/2108	DEV	EC Delegation in Tunisia delegation-tunisia@cec.eu.int	5 years 12/01/2006	14 500 000	Favoriser la gestion appropriée des ressources en eaux et des sols, dans le cadre d'un développement durable et participatif, dans les zones d'influence de 18 barrages collinaires existantes
Aménagement anti-érosif du bassin versant de Sidi-Driss	MAD/RELEX F03/1996/004	DEV	EC Delegation in Morocco delegation-morocco@cec.eu.int	9 ans 31/12/2006	5.500.000	L'objectif spécifique est de conserver et réhabiliter les ressources naturelles de la zone du projet en particulier les ressources en sols, avec la participation de la population rurale. Le projet Sidi-Driss s'inscrit dans la politique nationale qui, en favorisant les investissements dans le monde rural, doit permettre, notamment dans les zones de montagne de développer la participation et la responsabilité des populations et parallèlement de contribuer à une redéfinition du rôle de l'Etat. Le programme d'intervention comprend : (i) des aménagements anti-érosifs dans le domaine agricole et dans les parcours; (ii) des interventions de reboisements de protection, des ouvrages mécaniques, des fixations de berge; (iii) des aménagements et des équipements collectifs choisis par les communautés villageoises (réhabilitation de périmètres irrigués, écoles, dispensaires, pistes, aménagement de point d'eau, desserte électriques), (iv) un important volet de formations appropriées, destinées aux animateurs et aux cadres.

SUSTAINABLE LOWLAND-USE AND IRRIGATION

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Partial root drying : a sustainable irrigation system for efficient water use without reducing fruit yield- IRRISPLIT	ICA3-CT-1999-00008	RTD	Prof. William Davies University of Lancaster, UK w.davies@lancaster.ac.uk	36 months 28/02/2003	1 179 900	Objective: to improve the efficiency of water use for Mediterranean agriculture through sustainable approaches via an investigation of the effects of partial root drying on the vegetative and reproductive growth of a range of fruit crops. Irrigation down one side of a row of plants allows soil drying around roots on the other side. If the wetting zone is alternated from one side of the row to the other then some roots of plants are always in contact with drying soil. This technique will be used to control vegetative vigour, save irrigation water and reduce fertiliser use without influencing fruit yield and quality. We will assess the possibility of adding low concentrations of fertilisers to irrigation water in this system to increase fertiliser use efficiency. Better understanding of the physiological mechanisms controlling carbon allocation to fruit will serve as a basis for developing approaches to the optimisation of irrigation.
Sustainable water use in protected Mediterranean horticulture- HORTIMED	ICA3-CT-1999-00009	RTD	Prof. Nick Sigrimis Agricultural University of Athens, Greece n.sigrimis@computer.org	42 months 31/08/2003	950 000	As irrigation is bound to rely increasingly on low quality water, the project seeks to adapt protected horticultural practice to this new condition. The idea is to exploit the advanced technologies involved in protected cultivation to improve salt tolerance of high valued crops and to diminish environmental risks associated with the use of marginal water. The project will compile information on crop salinity tolerance and analyse the data in the context valid in Mediterranean protected cultivation. The experimental research consists of crop response measurements to fertilisation and salinity supplemented by studies of specific effects obtained under protected cultivation. Expected results: Improved management of multiple water resources and determination of the feasibility of water collection and treatment schemes.
Water use efficiency in natural vegetation and agricultural areas by remote sensing in the Mediterranean basin- WATERMED	ICA3-CT-1999-00015	RTD	Prof. Jose Antonio Sobrino Universitat de Valencia, Spain sobrino@uv.es	48 months 31/01/2004	764 800	The objective: to develop a comprehensive method for the study of the water use and the resistance to drought of the rain-fed and irrigated vegetation in the Mediterranean Basin, by means of a combined historical and current space-based remote sensing databases, vegetation models and field measurements by integrating all available data on the studied environments. The scientific approach relies heavily on the experience and results already gained including the estimation of land cover change indicators using remotely sensed data. This approach will be applied to historical records to identify long term changes. The consortium brings together three European partners (Spain, France, Denmark) with two Northern African countries (Morocco and Egypt) involved in desertification research.
Water saving in Mediterranean agriculture- WASAMED	ICA3-CT-2002-10013	RTD	Dr. Claudio Bogliotti Dr. Pasquale Steduto Centre international de Hautes-Etudes agronomiques méditerranéennes, Italy steduto@iamb.it bogliotti@iamb.it	48 months 2006	1 500 000	WASAMED is a Thematic Network that contributes to the achievement of an effective regional planning and management of water resources under scarcity to enhance sustainable development in the Mediterranean area. In particular, WASAMED addresses to the improvement of co-ordination and dissemination of research, information and construction of knowledgebase in the Mediterranean countries on the various opportunities of water saving in agriculture to reduce pressure on freshwaters, to mitigate the increasing impact of climate change in arid-semiarid environment and to reduce the tensions originated from the increasing water conflicts. The network aims at providing research reviews, knowledgebase, dissemination, communication and coordination among the relevant key players (researchers, decision makers, end-users).
Multipurpose nitrogen fixing trees and their associated microsymbionts for soil nutrient enrichment in Sub Saharian Africa- ENRICH	ICA4-CT-2000-30022	RTD	John Deans Natural environment Research Council, Centre for Ecology and Hydrology, UK jdd@ite.ac.uk	42 months 31/03/2004	850 000	Objective: to reverse declining crop yield in dryland Africa by using N fixing trees to improve soil fertility in a novel agroforestry system. Wet season tree leaves will be used as mulch to improve soil fertility. Dry season leaves will be sold as dry season fodder to generate secondary income for the purchase and application of rock P. N fixation will be maximised by matching tree and symbiont genotypes. P availability will be increased by mycorrhizas. Success of the applied microsymbionts will be followed in the field using DNA techniques. Economics will be examined and laboratory microbiological procedures used to maximise N fixation and P availability. Water use will be assessed to ensure sustainability in terms of water balance. N fixing tree fodder sales and P application will provide a positive feedback to increase farm income generation. The high value indigenous <i>Pterocarpus erinaceus</i> and more promising exotic <i>Gliricidia sepium</i> will be compared.
Zero discharge aquaculture by farming in integrated recirculating systems in Asia- ZAFIRA	ICA4-CT-2001-10025	RTD	Prof. Johan Verreth Wageningen University, The Netherlands Johan.Verreth@alg.wenu.wau.nl	48 months 31/12/05	899 763	The project ZAFIRA (Zero discharge Aquaculture by Farming in Integrated Recirculating Systems in Asia) will focus on the combination of Western recirculating and traditional Chinese techniques to outline a zero nutrient discharge facility. Different (local and commercial) feeds will be evaluated in growth experiments for salt and freshwater fish. Different treatments with ozone will be tested to use sludge for later use through the production of single cell protein by bacteria or to be used as feed for <i>Nereis</i> or sea cucumber. For each organism the nutrient balance and growth performance under these special conditions will be determined. Experiments will be done on lab scale and up scaled to semi-farm level. Data derived from these experiments are used to develop a bioenergetic process model in such systems.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribution [€]	Abstract
Development of integrated farming approaches for sustainable crop production in environmentally-constrained system in the Pacific region- CROPPRO	ICA4-CT-2001-10048	RTD	Dr. Coen Ritsema Alterra, Green World Research, The Netherlands c.j.ritsema@alterra.wag-ur.nl	39 months 31/01/2005	1 170 054	Increasing population pressures and emerging trends of socio-economic marginalisation or rural populations are putting a heavy strain on the delicate ecosystems of the Pacific Island Countries. In response to the rapidly increasing demands for food, Pacific farmers abandon traditional farming systems to adopt high input commercial production methods for short term gains, which are often unsustainable, in particular on sloping lands. The resulting erosion causes rapid depletion of soil fertility, and pollution of ground- and open water systems. Objective: to analyse the relation between agricultural activities and the surrounding environment; to develop tailor-made farming approaches for major crop/ soil units while maximizing agricultural production and minimizing environmental deterioration. Special attention is paid to knowledge and participatory, culture-sensitive training for stakeholders and end-users.
Systems research for integrated resource management and land use analysis in South and Southeast Asia- IRMLA	ICA4-CT-2001-10055	RTD	Dr Reimund Roetter Alterra B.V., The Netherlands r.p.roetter@alterra.wag-ur.nl	48 months 30/11/2005	649 997	The problems of increased pressure on scarce resources (land, water, labour), particularly in intensive rice-growing environments in S and SE Asia is such that it is no longer sufficient to evaluate management options at the field and farm level. The current project develops a multi-scale analysis framework for natural resource management and sustainable rural development and evaluates this in selected areas characterised by increasing intensification and diversification. The project builds on a modeling framework (LUPAS) and solid network for regional scale analysis. To apply a multi-scale approach (farm to region), LUPAS will be broadened: - in width (incorporation of environmental impacts) - in length (incorporation of long-term effects) and - in depth (incorporation of farmers' decisions).
Rainfall forecasts and strategic irrigation management	AVI2-CT93-091	RTD	Mr Stefano Clementel Società di Ricerca e Servizi di Ingegneria (ISMES) S.P.A., Bergamo, Italy	30 months 1995		The overall objective of the project was to develop and test a methodology for the optimal utilisation of meteorological rain forecast in the North of the Nile delta for a better understanding and protection against extreme hydrometeorological events and for the optimal use of available resources for irrigation purposes.
Low-input agriculture and soil sustainability in Eastern Europe (LASSEE)	IC15-CT-1998-00101	RTD	Mr Peter Smith IACR-Rothamsted Experimental Station Ltd, United Kingdom pesmith@bbsrc.ac.uk	36 months 31/08/200	205 000	Since the political changes in Eastern Europe in the early 1990s, state subsidies to agriculture have greatly decreased or ceased, meaning that in many Eastern European countries, the application of inorganic fertilizers to agricultural land has greatly decreased. These changes have led to widespread decreases in yield. The project a) defined the likely effects of the new low-input fertilizer regimes in Eastern Europe on soil sustainability and fertility; b) provided a methodology for assessing these impacts at the regional scale; c) suggested alternative, sustainable management practices to preserve soil fertility and examine the impact of these practices at the regional level; d) suggested policy options for long-term, environmentally sustainable agricultural development, with particular emphasis on Eastern Europe.
SIDASS- a spatially distributed simulation model predicting the dynamics of agrophysical soil state within Eastern and Western Europe countries for the selection of management practices to prevent soil erosion based on sustainable soil-water interactions	IC15-CT-1998-00106	RTD	Mr Rainer Horn Christian-Albrechts- Universität Kiel, Germany dez132zentri-verw.uni-kiel.de	36 months 30/11/2001	214 100	The project provided sub-programmes linking the available (site-specific and regional) simulation models for water dynamics, soil erosion and crop yield formation, with management and machinery induced problems on soil-water interactions related to soil erosion problems. The project focused on the overlaps between various models related mainly to soil input parameters which are affected by soil-machine interactions.
Developing sustainable water management in the Jordan valley	IC18-CT-1997-00161	RTD	Dr. Rudolf Orthofer, ARC Seibersdorf Research, Seibersdorf, Austria rudolf.orthofer@arcs.ac.at	42 months 30/04/2001	630 000	Funds for the maintenance of irrigation systems in many parts of the developing world are scarce. The consequence is often that channels and structures deteriorate and production is lost. It is therefore essential to target available funds to works that will have most effect in sustaining production. The aim of the project was to develop scientific methods to set priorities for maintenance at irrigation systems. Such methods should improve the judgements presently used by irrigation managers.
Lowlands (study leading to works), Lesotho	8 ACP LSO 011	DEV	EC Delegation in Lesotho mailto@dello.sec.ec.eu.int	2002-2004 (study)	1 750 000	As part of the objectives outlined in the Country Strategy Paper (identification, design and development of a long-term solution for the provision of water for both domestic and industrial use, institutional strengthening measures and private sector participation), the expected results of this project concern the creation of a long term strategy for the supply of potable water to the Lesotho Lowlands.
Aménagement hydro-agricole périmètre Sahla	Morocco - MAR/B7-4100/IB/99/0102	DEV	EC Delegation in Morocco delegation-marocco@cec.eu.int	5 years 16/10/2005	28 600 000	Travaux d'aménagement (génie rural); appui aux organisations des usagers; appui à la mise en valeur; appui institutionnel; approche participative (la programmation des actions est basée sur l'implication des associations des usagers des eaux agricoles (AUEA) ainsi que des Organisations Professionnelles (OP).

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribution [€]	Abstract
Aménagement hydro-agricole du Haouz Central et de la Tessaout Aval, Morocco	MAR/B7-4100/IB/99/0102	DEV	EC Delegation in Morocco delegation-marocco@cec.eu.int	9 years 31/12/2003	21 500 000	Amélioration des conditions d'irrigation sur environ 23.000 Ha, dont 10.000 dans le Haouz Central et 13.000 dans le Tessaout Aval (versant nord occidental du Haut Atlas). Aménagements prévus.
Programme de Développement Rural Intégré et de Gestion des Ressources Naturelles, Tunisie	TUN/B7-4100/IB/96/293	DEV	EC Delegation in Tunisia elegation-tunisia@cec.eu.int	6 years 01/07/2004	50 000 000	Renforcer et développer la protection durable des ressources naturelles; conservation des eaux et des sols; augmentation des disponibilités en eau (eaux de ruissellement et recharge des nappes); implication des populations locales dans la gestion durables des ressources.
Conservation des eaux et des sols – CES II, Tunisie	SEM/04/212/019	DEV	EC Delegation in Tunisia delegation-tunisia@cec.eu.int	8 years 30/06/2004	20 000 000	Lutte contre l'érosion; contrôle des eaux de crue; aménagement bassin versant; appui à la stratégie tunisienne pour la conservation des eaux et des sols.
Création de palmeraies-dattiers dans la région de Régim Maatoug	Tunisie - SEM/03/212/010	DEV	EC Delegation in Tunisia delegation-tunisia@cec.eu.int	13 years 31/12/2002	15 000 000	Amélioration des productions agricoles en zone quasi-désertique; sédentarisation populations nomades; drainage d'oasis; appui à la commercialisation des dattes.
Bustan Agricultural Development Programme, Egypt	SEM/02/220/039/A SEM/03/220/042/A	DEV	EC Delegation in Egypt delegation-egypt@cec.eu.int	8 years 31/12/2004	15 000 000	Supporting Government's efforts to establish an economically viable and environmentally sustainable farming system for small holders on reclaimed desert land (New Land) in the West Delta in Bustan; Improvement of irrigation efficiency; reduction of waterlogging; extension; training.
Tihama V, Baquqa Irrigation System Programme, Yemen	ALA/93/61	DEV	Jose.Mesquita@cec.eu.int (AIDCO/B/5)	8 years 31/12/2003	7 300 000	Construction works and supervision for the building of the Baquqa irrigation scheme, comprising of 100 m long diversion structure, 7,8 km main canals, 3,7 km secondary canals
Northern Plain Irrigation Programme, Mauritius	7 ACP MAS 32	DEV	EC Delegation in Mauritius mailto@delmus.cec.eu.int	4 years 12/2004	9 000 000	Mise en place d'un pipeline pour amener l'eau du barrage "Midland Dam" vers le nord de l'île et mise en valeur de 3500 hectares de cultures irriguées dont 700 hectares en cultures de diversification.
Programme de Développement rural, Madagascar	9 ^{ème} FED	DEV	EC Delegation in Madagascar mailto@delmdg.cec.eu.int	5 years 2009	50 000 000	Dans les provinces de TULEAR et de FIANARANTSOA, programme de développement rural avec une composante de réhabilitation de périmètres irrigués (environ 10 millions d'euros).
LUSIP Small holder irrigation Project, Namibia	7 ACP SW 46/47, 8 ACP SW 20/21	DEV	EC Delegation in Namibia mailto@delnam.cec.eu.int	8 years 12/2011	11 450 000	The objective of the programme is to alleviate poverty by creating infrastructures (dam, canal, off-river reservoir, plus on farm development, plus accompanying measures, in order to allow 2,600 farm households to use irrigation for agriculture. That will concern 6,500 ha for a first phase and 11,500 ha on completion of the second phase by 2015. This programme is cofinanced by several donors plus the Government of Swaziland . Final design, works survey and coordination will be financed under European Development Fund."
Développement Economique de la région du Lac d'Aleg	7 ACP MAU 45 Mauritania	DEV	EC Delegation in Mauritania delcema@compuserve.com	8 years 12/2003	3 000 000	Une composante vise la réhabilitation et la construction de petits barrages.
Aménagement Rural en Zone pluviale	8 ACP MAU 6 Mauritania	DEV	EC Delegation in Mauritania delcema@compuserve.com	4 years 12/2004	5 175 000	Une composante vise la réhabilitation et la construction de petits barrages.
Aménagement Rural dans les Oasis de l'Adrar	8 ACP MAU 26 Mauritania	DEV	EC Delegation in Mauritania delcema@compuserve.com	5 years 1/2 12/2007	10 000 000	Ce programme comprend un appui à l'agriculture irriguée dans les oasis pour permettre l'amélioration de la vie et des revenus pour les populations ainsi que la fixation des jeunes au pays .
Etude pour la réhabilitation de la Digue du Gorgol	8 ACP MAU 32 Mauritania	DEV	EC Delegation in Mauritania elcema@compuserve.com	2 months 2002	76 000	Réhabilitation d'une digue qui protège les périmètres du Gorgol.
Programme de développement d'une zone pastorale, Niger	7 ACP NIR 53	DEV	EC Delegation in Niger delnig@intnet.ne	8 years 12/2002	18 000 000	Hydraulique pastorale.
Small scale irrigation project, Zimbabwe	6 ACP ZIM 31/32	DEV	EC Delegation in Zimbabwe hod.ecdelzwe@delzwe.cec.eu.int	12 years 3/2003	14 000 000	Small scale irrigation.
Dambo irrigation, Malawi	8 ACP MAI 22	DEV	EC Delegation in Malawi eudelmwi@malawi.net	4 years 12/2005	830 000	Irrigation villageoise et protection des eaux.
WSS, Malawi	7 ACP MAI 70	DEV	EC Delegation in Malawi eudelmwi@malawi.net	5 years 12/2003	1 500 000	Promotion soil conservation.

URBANISATION AND WATER

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Development of cost-effective methods for minimising risk from heavy metal pollution in industrial cities : a case study of mercury pollution in Pavlodar-TOXICMANAGEMENT	ICA2-CT-2000-10029	RTD	Prof. Trevor Tanton University of Southampton twt@soton.ac.uk	28 months 01/02/2003	386 534	The project will investigate environmental management options for remediation/mitigation of pollution by soluble heavy metals in industrial cities. It will develop a methodology for identifying cost-effective pollution management options that take into account both economic realities and the best estimates of risk. It will pay particular attention to establishing cost effective ways of understanding the extent of groundwater pollution and managing risk. Expected results: methodology developed and tested in a case study at Pavlodar, a heavily industrialised city where there has been a catastrophic release of mercury in the industrial zone; practical, economically feasible recommendations for resolving the Pavlodar crisis and a manual for investigating similar industrial sources of pollution in arid continental climates.
Sustainable agroecosystem management and development of rural-urban interaction in regions and cities of China-SUSDEV-CHINA	ICA4-CT-2002-10004	RTD	Leif Soderlund MTT Agrifood Research Finland leif.soderlund@mtt.fi	36 months 31/08/2005	1 215 000	China's national water resources constitute about one quarter of the world average and water pollution is one of the most severe in the world. Four fifths of the population, one billion people, are drinking polluted water and shortages have caused a conflict between the agricultural, industrial and residential sectors. Objective: to study the main issues of the agroecosystem and rural-urban interaction as related to human health and the welfare of society. The project area includes five regions including Beijing and Shanghai. The focus is on water management, re-orientation of agriculture and the urbanisation process. Expected output: Reach a better understanding of and to improve sustainable agroecosystem management and rural-urban interaction in China in order to provide environmental and socio-economic factors for an integrated sustainable development strategy.
Efficient operation of urban wastewater treatment plants-EOLI	ICA4-CT-2002-10012	RTD	Prof. Denis Dochain Université Catholique de Louvain Belgium dochain@csam.ucl.ac.be	36 months 31/10/05	1 573 666	Objective: to design a low-cost, modular and reliable monitoring and control system for treatment of wastewater from urban settlements, especially from those urbanised areas where industries contribute heavily to water pollution. The framework of the project will integrate the data collected by sensors, detect faulty or abnormal working conditions and activate model-based controllers to optimise the technology and operation of sequential batch reactors (SBR's). The efficient, low-cost and safe operation of the SBR's will be achieved by the integration of high performance controllers, low-cost hardware and software sensors and a supervision system to guarantee the reliability of the process operation. Relative simplicity and cost are of particular concern.
Women, well being, work, waste and sanitation: Action research on alternative strategies of environmental sanitation and waste management for improved health and socio-economic development in peri-urban coastal communities in South Asia- 4WS	ICA4-CT-2002-10013	RTD	Dr. Marielle Snel International Water and Sanitation Center The Netherlands Snel@irc.nl wijk@irc.nl	36 months 2005	443 222	Reuse of nightsoil and organic domestic waste in agriculture is a common practice in South-east Asia. This is not the case in India, Bangladesh and Sri Lanka. Here, waste is still deposited in public spaces. The potential to collect, recycle and reuse biologically degradable domestic waste for reuse in agriculture has hardly been explored. Access to proper sanitation is low and sanitation programmes focus on containment and dumping and not recycling. Few peri-urban sanitation programmes use participatory approaches that are gender and poverty sensitive and create employment for women as latrine masons and in solid waste collection and recycling. Multi-disciplinary action research will compare the cost-effectiveness of existing sanitation programmes with innovative approaches that address the above mentioned problems.
Utilisation of wastewater for fuel and fodder production and environmental and social benefits in semi-arid peri-urban zones of Sub-Saharan Africa- UBENEFIT	ICA4-CT-2002-10017	RTD	John Deans Natural environment Research Council, Centre for Ecology and Hydrology, UK jdd@ceh.ac.uk	48 months 2006	1 100 000	We aim to improve efficiency in water use and create novel high yielding peri-urban sources of fuel and fodder. Low-cost irrigation systems that recycle wastewater, reduce health risks and downstream pollution will be set up by specialists and used to irrigate fast growing trees that are managed to maximise either leaf (fodder) or wood (fuel) production. Good growth and establishment will be ensured by inoculation with effective microsymbionts whose persistence will be assessed using molecular tools. Irrigation will be based on measurements of soil water and tree water use thus avoiding salinization/pollution. Training in water management, molecular biology and use of ecological instrumentation will be provided to DC partners. Results will include reusable wastewater, novel peri-urban sources of fuel and fodder, an economic analysis, species selection and plantation management prescriptions and trained DC researchers.
Improved sustainability of small-holder peri-urban vegetable production in South Asia-SUSVEG-ASIA	ICA4-CT-2002-10018	RTD	Dr. Alan Cork Natural Resources International Ltd, UK a.cork@gre.ac.uk	36 months 2005	744 947	Farmer surveys have identified eggplant, tomato and legumes as major vegetable crops in South Asia where pesticide and fertiliser use is excessive, with eggplant borer, whitefly, American bollworm, root knot nematode and legume pod-borer as the main pest and disease vectors. The objective of the project is to bring together researchers from Europe and South Asia to develop and adapt a range of alternative biorational control technologies for these target pests. The new technologies, together with complementary technologies currently available, will be refined in partnership with smallholder farmers through a series of farmer participatory trials, facilitated by farmer field schools. Such an approach will enhance the acceptability and sustainability of the technology developed to ensure that pesticide and fertiliser use and the associated pollution they create are minimised.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Biotechnological approach to water quality improvement in tropical and subtropical areas for reuse and rehabilitation of aquatic ecosystems	IC18-CT96-0059	RTD	Prof. Wolfgang Grosse Universität Köln, Botanisches Institut Germany aeb18@uni-koeln.de	36 months 31/08/1999		The objectives were: Development of low-cost procedures of water purification by constructed semi-natural wetlands using plant species from tropical and subtropical areas, checked for their purification capacity and allelopathic effects to eliminate contaminants and harmful bacteria. Outcomes: Low-cost and low-tech water purification systems using constructed wetlands for quality improvement of untreated domestic, municipal and industrial effluents.
Cooperative applied environmental systems research of urban-rural interface - Sustainability in water management and land use in Havana-region- CAESAR	ICA4-CT-2002-10019	RTD	Prof. Otfried Baume Ludwig-Maximilians Universität München, Germany o.baume@geographie. uni-muenchen.de	36 months 31/08/2005	1 192 970	The main aim is the development of sustainable environmental management systems for land use and water management for the urban-rural interface in the Havana Region. An integrated and interdisciplinary geoeological analysis and assessment of environmental systems are the basis of the project. In accordance with natural, economic and social basic conditions, guidelines will be drawn up for sustainable territorial planning from which a suitable land use planning and an adequate water management can be derived. Application orientated transferability of lessons from the Havana region shall be illustrated in urban-peri-urban regions in Latin America with similar conditions. In proposing environmental friendly utilisation alternatives orientated on sustainable geoeological principles, an improvement in quality of life in rural-urban interface can be achieved. Expected technical output is a geo-ecological database and a problem-focused and application-orientated GIS.
Sustainable farming at the rural-urban interface- An integrated knowledge-based approach for nutrient and water-recycling in small-scale farming systems in peri-urban areas of China and Vietnam- RURBIFARM	ICA4-CT-2002-10021	RTD	Prof. Ingrid Oeborn Swedish University of Agricultural Sciences ingrid.oborn@mv.slu.se	48 months 31/08/2006	1 250 000	Rapidly urbanising areas in Asia cause a growing concern about contamination of waters, soils and crops due to inappropriate use of urban wastes and agrochemicals and (wet and dry) atmospheric deposition. Objective: to contribute to participatory farming strategies that focus on effective water and nutrient recycling and stakeholders' interaction, to sustain integration between rural and urban areas. A multidisciplinary research consortium involving farmers and extensionists will do this via an Integrated Knowledge Based System approach, where modelling, database development will be combined with participatory methods. Expected results: Methods for strategic applied research and secure interactions with policy makers and extension. Two sites in lowland peri-urban areas of China and Vietnam will provide contrasts and similarities as a basis for extrapolation.
Improvement of Water Supply to Cotonou	Benin	DEV	EC Delegation in Benin mailto@delben.cec.eu.int ¹	2004-2007	13 000 000	Migration and urbanisation, particularly towards Cotonou, are factors which have characterised Benin's recent history (from a population of 70,000 in 196, Cotonou currently numbers 800,000). Due to its location, Cotonou is subject to periods of flooding. Through the interconnection of flood zones via a canal network, water will be channelled in the most clean and cost effective manner into the Nokoué lake and into the sea. The protection of enclosed and isolated zones will be achieved by the construction of works to stop the infiltration of water coming from west of the zone.
Drinking Water Supply Ouagadougou - ZIGA, Burkina Faso	8 ACP BK 028	DEV	EC Delegation in Burkina Faso delegation-burkina- faso@cec.eu.int	2002-2007	30 000 000	Objective: to contribute to the social and economic development of the country through an improvement in the health of the population of Ouagadougou. This will be achieved through an increase in the availability of drinking water (sufficient to satisfy demand until 2010) and a limited number of additional works. As part of a multi-donor program the EU intervention aims specifically at the construction of reservoirs and pumping stations as well as other additional measures.
Water Network Infrastructures	Cape Verde	DEV	EC Delegation in Cap Vert eudelcpv@mail.cvtelecom.cv	2004-2008	20 000 000	The specific objective of co-operation is the sustainable improvement of the quality of life of the population, particularly in regard to the availability of food and drinking water and improvements in sanitary conditions. Within this framework, the construction and/or extension of drinking water and sewage networks as well as treatment of used and surface water are envisaged as areas requiring a particular focus.
Drinking Water Supply - Malabo, Equatorial Guinea	7 ACP EG 20/21	DEV	EC Delegation in Guinea mailto@delce.org.gn	1998-2003	8 000 000	This project is split into two main phases. The first concerns putting in place the infrastructure responsible for the management of the drinking water system. The second involves the construction of the supply system itself.
Addis Ababa Water Supply, Ethiopia	ACP 7 ET 101	DEV	EC Delegation in Ethiopia mailto@deleth.cec.eu.int	2001-2007	25 600 000	Addis Ababa has an inadequate water supply to which low income households have insufficient access. Overall objective: improve environmental health in Addis Ababa. Purpose: to increase the quality, quantity and reliability of water supply to Addis Ababa and increase access of the urban poor to water and sanitation services. Expected results: Gafasara dams made safe and rendered capable of passing extreme flood flow; Gafasara treatment works upgraded; Gafasara transmission mains replaced; 12 KM of pipelines replaced; Community water and sanitation program implemented.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Environment programme, Fiji	8 ACP FIJ 005	DEV	EC Delegation in Fiji eudelfiji@org.fj	2002-2005	8 500 000	The area concerned by the project includes the municipalities of Suva, Nausori and Lami which house over a quarter of Fiji's population. The purpose of this project is the installation of a new sea outfall at the Kinoya Sewage Treatment Plant. In conjunction with other initiatives in the area its objective is to upgrade the urban environment of the Greater Suva area, providing improved conditions for increased economic activity and enhanced welfare of the population including underprivileged groups.
Small Towns Water Supply, Ghana	7 ACP GH 061	DEV	EC Delegation in Ghana mail@delcomgh.org	1998-2004	15 000 000	As part of the overall objective of improving health and living conditions of the population particularly in the small towns, this project aims to ensure the consumption of safe water and to facilitate the use of sanitation facilities in about 20 towns in the Ashanti, Brong-Ahafo and Western regions (350,000 inhabitants) and make communities responsible for management of their own water supply. Expected results: rehabilitation and construction of water supply system with private connections for 10-30% of the population; increase in local and national institutional capacity.
Small Towns WS & Sanitation in Central & W. Regions, Ghana	8 ACP GH 077	DEV	EC Delegation in Ghana mail@delcomgh.org	2002-2004 feasibility study. 2004-2008 construction	2.000.000 for feasibility study + 25.000.000 for construction	Following the establishment of the Community and Sanitation agency in 1998, it was estimated that only 30% of the rural population had access to recognised water supply facilities and even less to hygienic sanitation. Objective: to design appropriate measures to improve water and sanitation in prioritized towns of the two regions, and to ensure their sustainability by capacity building of the relevant Ghanaian institutions. Expected results: exploratory drilling to confirm resource availability; capacity building to ensure sustainability
Rural water supply & sanitation in the Northern Region, Ghana	8 ACP GH 19	DEV	EC Delegation in Ghana mail@delcomgh.org	2001-2007	14 800 000	Objective: to improve the living conditions of the population of 3 districts in the Northern region by providing water supply and sanitation facilities. Objective: to increase access to drinking water; to ensure that the Ghanaian institutions are capable of taking care of the operation and maintaining the facilities. Expected results: water points constructed; latrines constructed; families aware of water supply program; increased capacity of specific organisations to perform tasks without assistance of the projects.
Water supply project	Grenada	DEV	A. Zacharas Anastase.Zacharas@cec.eu.int	2003-2005	6 500 000	The water supply system in Grenada is very old and shortages of drinking water occur at some locations in the dry season. Objective: Construction and institutional strengthening elements should be combined with the overall aim of increasing the planning capacity of the responsible organisation, the NAWASA. Expected results: Cost savings through less repairs and fewer investment postponements. Improved planning capacity of the organisation introducing possibilities for better investment planning.
Support to the low income housing sector, Guyana	8 ACP GUA 15	DEV	EC Delegation in Guyana mailto@delguy.cec.eu.int	2003-2007	9 100 000	The objective of the project is to improve access to affordable housing for low-income groups in Guyana with an emphasis on those presently living in squatter areas. The specific project purpose is to develop well-planned house-lots with basic infrastructure and services (e.g.: roads, water and sanitation). The project will support the development of about 4,000 serviced lots in new settlement areas for occupation by low-income groups and the upgrading of about 1,500 existing squatter lots. Depending on the sustainable results of the project, a similar project might be funded from EDF resources. (7,5 m)
Rural Water Supply (design and supervision tender), Jamaica	8 ACP JM 11	DEV	EC Delegation in Jamaica delegation-jamaica@cec.eu.int	2001-2005	10 000 000	The social and economic development of Jamaica's rural population has been hindered by a lack of adequate infrastructure, especially water supplies. The specific objective of the project is to extend and improve water supply services to the communities of Milk River, Hope Bay, Christiana/Spalding and Shettlewood (28,000) contributing to the overall objective of the Rural Water Supply Projects - poverty reduction. Expected results: improved quality of life for rural communities either directly or by providing a catalyst reduce poverty and improve sanitation in rural areas.
Six Towns Water Supply (Preparations study leading to works project), Lesotho	8 ACP LSO 17	DEV	EC Delegation in Lesotho mailto@dellso.cec.eu.int	2003-2007	1 900 000	Within the parameters set out in the long term national sector targets (to improve the standard of living of the rapidly urbanising population of Lesotho through the provision of domestic and industrial water in the urban and peri-urban areas of the country) the expected results of this project would be Water system developed/constructed in Six Towns and the public and private sector capacity for water supply and waste water treatment enhanced. An indicative amount (9 EDF) of € 17 M is foreseen for improved access to water and sanitation.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Maseru Waste Water Study, Lesotho	8 ACP LSO 18	DEV	EC Delegation in Lesotho mailto@dellso.cec.eu.int	2003-2004 (study)	750 000	The works for this project will be funded by the EIB and will focus on the Ratojomose (Maseru) Wastewater Treatment Plant.
Reintegration Program-Water Component, Liberia	8 ACP LBR 2	DEV	EC Delegation in Liberia euliberia@liberia.net	2001-2003	3 000 000	Civil war (1989-1997) destroyed most of the country's basic infrastructure. Over two thirds of the population (1,800,000) were displaced. Objective: as part of the overall program, the water component will play an important part in the reintegration of displaced Liberians, stopping the country slipping back into a situation where a new refugee problem might require massive humanitarian aid. Expected results: access to clean water and sanitation improved; expansion in piped water to further parts of the city; increased number of wells in rural areas; construction of family latrines.
St Martin Sewage Treatment Plant Expansion, Mauritius	8 ACP MAS 05	DEV	EC Delegation in Mauritius mailto@delmus.cec.eu.int	1999-2003	16 900 000	This project concerns the construction of the expansion of the St Martin Treatment Plant to serve a population of 220,000 to be connected to the sewerage system. Tertiary treatment will produce effluent to the internationally accepted quality for use in irrigation. This treatment plant is a major part of the National Sewerage Programme aiming to enhance sustainable water resources management.
Rehabilitation of sewerage infrastructure in CHA Housing Estates, Mauritius	8 ACP MAS 11	DEV	EC Delegation in Mauritius mailto@delmus.cec.eu.int	2002-2004	4 000 000	The project relates to the rehabilitation of sewerage infrastructures in low cost housing built to provide shelter to some 100,000 habitants who became homeless as a result of severe cyclones. This project will permit the connection of 3,200 households.
Technical Assistance to Waste Water Management Authority	Mauritius, 8 ACP MAS 17	DEV	EC Delegation in Mauritius mailto@delmus.cec.eu.int	2002-2004	750 000	This Technical Assistance will support the new Agency in charge of the provision operation and maintenance of wastewater services in Mauritius.
KAEDI and MEDERDRA Food and Water Supply, Mauritania	8 ACP MAU 12	DEV	EC Delegation in Mauritania delcema@compuserve.com	1998-2003	2 600 000	Objective: by meeting the medium term demand for drinking water in the towns of Kaedi (pop: 50,000) and Mederdra (pop:3,200) the project aims to reduce or reverse the migration of their respective populations by increasing the quality of life and health in both locations. Expected results: optimal use of existing installations using simple and uncostly technology for both exploitation and maintenance. In the case of Kaedi supply will rise from 32% of the population to 84% by 2010 and in the case of Mederdra, 75% to 100%
Water Supply - Tombwa	Namibia	DEV	EC Delegation in Namibia mailto@delnam.cec.eu.int		7 600 000	The town of Tombwa currently has a population of 35,000 and is expected to rise to 45,000 by 2015. It is served by a water distribution system constructed during the 1950's which was intended for a population of 5,000. By consolidating previous work, this project aims to meet the water needs of the town's population until 2015 through the construction of two new reservoirs (2,000 cubic metres), a 4,800 metre aquaduct and three deep wells. The supply network will also be extended.
Small Towns Water Supply & Sanitation, Nigeria	7 ACP UNI 56	DEV	EC Delegation in Nigeria abuja@eu-nig.org	2001-2008	15 000 000	About 35% of the total Nigerian population (120 mio) live in 2,000-3,000 small towns and urban settlements, many of which have underdeveloped water supply infrastructure. Objective: to develop the best delivery mechanism for water supply and sanitation in small towns to be replicated later across Nigeria. Expected results: improved water supply and sanitation infrastructure for about 500,000 residents; institutions to maintain this infrastructure; employment of large and small private sector operators, mechanics, spare parts retailers, managers; lessons learnt to define future strategy.
SABAMAR, Dominican Republic	8 ACP DO 18	DEV	EC Delegation in the Dominican Republic eudeldom@codetel.net.do	2000-2006	21 800 000	Economic growth of the country has not been accompanied by equivalent progress in the quality of life for its most disadvantaged people. This is most evident in the 16 areas which are located along the three rivers which cross the town of Santo Domingo (480,000 inhabitants). Objective: to sustainably improve the hygiene, social and environmental conditions. Expected results: Improved access to drinking water; interaction between community and local organisations to resolve problems on a cooperative basis; increased planning and administration capacity of local and central government.
AEP Bugesera / Karengu, Rwanda	8 ACP RW 32	DEV	EC Delegation in Rwanda eudelrwa@delrwa.cec.eu.int	2003-2007	19 600 000	The semi-urban and rural areas situated south-east of Kigali have a population of 357,600, 160,000 of which are estimated to have insufficient access to drinking water. Objective: to ensure the supply of food and drinking water in sufficient quantities to satisfy the demand of the population from 2006-2020. This constitutes a key component in the fight against poverty. Expected results: beneficiaries will have access to drinking water and will participate in the management of its systems; they will no longer be obliged to migrate during dry periods; extension of the Bugesera distribution network to the east. In addition to this amount, € 12 M (9 EDF) could support better access to water and sanitation in Rwanda.

Title -Acronym	Contract or Project n°	Nature of the action	Coordinator or contact point	Duration-Ending date	EC contribution [€]	Abstract
Improvement of Living Conditions in disadvantaged areas	Senegal	DEV	EC Delegation in Senegal delegation-senegal@cec.eu.int	2003-2006	10 000 000	Objective: Improvement in the infrastructure of the disadvantaged areas of Pikine, Saint Louis, Khouma and Richard Toll with the aim of increasing the overall level of health of the population. The project's water component is to be carried out alongside its other elements to reduce the general levels of poverty in the target areas. Expected results: The areas will have a rain water drainage system and access to drinking water; the area of Khouma will be protected from rises in water levels of the Senegal river.
Regional Development (St Louis), Senegal	ACP 7 SE 11/ 8 SE 13	DEV	EC Delegation in Senegal delegation-senegal@cec.eu.int	1993-2003	24 600 00	The overall objective of the project, to improve the conditions of life and the wellbeing of the regional population at economic, sanitary and environmental levels, necessitates a project with three specific objectives. Essential to a general increase in the level of health of the populations is an improvement in the provision of water to the villages. Expected results: public works will facilitate the restructuring of urban areas to guard against the threat of floods ; the villages involved in the programme will benefit from an operational and accessible drinking water network.
Kombito Water Supply Study	SOL	DEV	EC Delegation in the Solomon Islands ecsol@welkam.solomon.com.sb	2001-2002	300 000	The study aims to improve the water supply of a major neighborhood of Honiara to a reliable standard and good quality. The intervention of the study implies capacity building at the Solomon Island Water Authority, repair of major leakages and the improvement of pumping and storage facilities. The ultimate objective is to advise on strengthening the capacities of SIWA, rehabilitation, maintenance and potential extension of the existing network with a strong component on water resource management.
Water service support programme, South Africa	SA 00-73200-030	DEV	EC Delegation in South Africa delegation-s-africa@cec.eu.int	2000-2003	1 200 000	Objective: Provision of basic water supply and sanitation services through support of strategic policy development, providing water and sanitation services to selected poor rural communities and through institutional support to assist public sector institutions. Expected results: Reviewed and updated policy and legislation for the water/sanitation services; water/sanitation services orientated toward consumer-driven interventions (2,4 mio people provided with sustainable services); Health and hygiene education; Integrated planning and co-ordinated management strengthened.
Water supply regional centers	Tanzania	DEV	EC Delegation in Tanzania delegation-tanzania@cec.eu.int	2003-2008	44 000 000	The project is the first of a series of three making up a Water Supply Programme Regional Centre. It concerns the rehabilitation and extension of the water supply system in Mwanza (390,000), immediate measures for the water supply and sewerage systems in Mbeya (295,000) and supplementary studies to prepare a water supply, sanitation and waste water management project in Iringa (100,000). Purpose: to improve the access of the target group to reliable, affordable and sustainable quality water supply and waste water management services in the supply areas of the three beneficiary Urban Water and Sewerage Authorities.
Mwanza Sewerage System Rehabilitation (project leading to works), Tanzania	ACP 8 TA 017	DEV	EC Delegation in Tanzania delegation-tanzania@cec.eu.int	2001-2003	14 000 000	Current treatment of effluent is unsatisfactory due to the inadequacy of the sewerage pumping station. A significant part of the effluent is discharged into Lake Victoria without treatment. Purpose: the project aims to ensure that the wastewater from the sewerage network is treated before being discharged into the Lake with a view to improving the quality of water extracted for potable use. The results of the project will be an improved sewerage system and the improvement of the quality of the emissions into Lake Victoria leading to less pollution and waterborne disease.
Mid Western Towns Water Supply, Uganda	ACP 6 UG 22, 7 UG 89, 8 UG 90	DEV	EC Delegation in Uganda mailto@deluga.cec.eu.int	2000-2006	17 500 000	The project should contribute to the improvement in health of urban and peri-urban populations of 3 towns in Mid-Western Uganda (100,000 inhabitants) The objective is to provide improved, reliable and sustainable water and sanitation facilities. Activities include design, construction/rehabilitation and supervision of water and sanitation supplies resulting in an improvement of the facilities available to the population and extensions to meet demand. Institutional strengthening also forms part of the activities that should result in the clarification of institutional responsibilities and effective management.
Gaba I Water Supply, Uganda	ACP 8 UG 16	DEV	EC Delegation in Uganda mailto@deluga.cec.eu.int	2000-2003	1 970 000	The project concerns the replacement or improvement of untreated water and low-life pumping plant, chemical equipment, supervision and training. The project will contribute to supplying safe water to the population of Kompala until a full rehabilitation of the existing water supply facilities has taken place. Expected results: to maintain the output of the existing Gaba I water treatment plant at the level of 35,000 cubic meters per day.
Water supply and sanitation in Pando, Bolivia	BOD/B7-310/1997/0406	DEV	Marco Tomasi RELEX DEL Bolivia marco.tomasi@cec.eu.int	7 years 31/12/2006	6 000 000	This project intends to improve health standards and living conditions of the inhabitants of Pando by up-grading the quality of water supply and sanitary services, so that preventing endemic diseases, reducing the hauling of water by women and children, protecting the environment by treating waste water before discharging and reinforcing capacity at municipal level.

BALANCING PEOPLE AND NATURE - ENABLING POLICIES WHICH INTEGRATE DIFFERENT WATER DIMENSIONS

Title -Acronym	Contract n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribu -tion [€]	Abstract
Sewage Treatment Plant of Sortavala, Russia	CBC 2001	DEV	EC Delegation in Russia delegation-russia@cec.eu.int	Nov. 2003	4 200 000	Rehabilitation works of the sewage treatment plant of the municipality of Sortavala, Karelia, Russian Federation. Includes supervision of the works as well as institutional strengthening of the local water utility.
Kaliningrad Waste Water Treatment, Russia	CBC 2002	DEV	EC Delegation in Russia delegation-russia@cec.eu.int		1 000 000	Studies to identify and support small scale municipal waste water projects in Kaliningrad.
Sludge Incineration Plant, St. Petersburg, Russia	Russia2002	DEV	EC Delegation in Russia delegation-russia@cec.eu.int	Dec. 2006	24 000 000	A consortium of donors is funding the St Petersburg South West Waste Water Treatment plant (SWWWTP) in order to reduce the discharge of untreated effluents into the Baltic Sea. In this framework the EC is funding the construction and equipment of the sludge incineration plant.
Support project for reconstruction, Angola	7 ACP ANG 62	DEV	EC Delegation in Angola delago@uniao-europeia.netangola.com	8 years 12/2003	4 000 000	Rehabilitation municipality WS.
Hydrographic monitoring- Neva bight- HYMNE	ICA2-CT-2000-10034	RTD	Dr. Friedwart Ziemer GKSS Forschungszentrum Geesthacht GmbH, Germany friedwart.ziemer@gkss.de	24 months 30/09/2002	291 341	The river Neva flows into the Gulf of Finland via the Neva Bight. Its fresh water discharge ranks first for the entire Baltic Sea transporting the freight of the metropolitan area of St. Petersburg. Water resource quality varies due to accidents and other factors. This region needs comprehensive management of the water resources relying on operational pollution monitoring, which will be provided by HYMNE linking modern observation and prediction techniques. The system will be evaluated during spring time, when the river Neva has its seasonal maximum discharge rate. The system will be established together with and further exploited by the environmental administration of St. Petersburg.
Development of components of environmentally compatible system for economic progress in arctic coastal and based on the use of regional renewable resources- MARINECO	ICA2-CT-2000-10049	RTD	Dr. Alexander Temeev Applied Technologies Cy, Russia atemeev@orc.ru	36 months 30/11/2003	564 070	The objectives of this project are: development of the structure and substantiation of Arctic power-industrial system based on the use of local renewable resources: an offshore Float Wave Electric Power Station (FWEPS) as a device for sea wave energy conversion; development of methodology of FWEPS use for sustainable power provision and for scaled hydrogen and oxygen production on the basis of sea water electrolysis followed by environmentally benign use of these fuel components in the metal and chemical sectors of industry. Expected results: Scientific and technical and economic substantiation of the system. Making and testing of FWEPS pilot module. Definition of applications of system components.
Mediterranean co-ordination and dissemination of land conservation management to combat land degradation of natural resources in the Mediterranean coastal zone- MEDCOASTLAND-NET	ICA3-CT-2002-10002	RTD	Dr. Pasquale Steduto Dr. Claudio Bogliotti Centre international de Hautes-Études agronomiques méditerranéennes, Italy bogliotti@iamb.it steduto@iamb.it	48 months 30/09/2006	1 305 001	Objectives of the TN: more effective dissemination of research, studies and projects carried out on Land Degradation Management (LDM) in the Mediterranean coastal zone. The network aims at providing research and project reviews, indications-guidelines to implement LDM through the assessment of interactions among major factors of resources management such as soil, water, biota, human activity, cultural resources, soil erosion, land degradation. Expected results: a) better understanding of research and research needs; b) better communication between players involved in landscape and soil degradation management, improved accessibility to information on relevant research; c) better approach to real participatory ecosystem and economically-based land-soil conservation management.
Sustainable water management in Mediterranean coastal aquifers : recharge assessment and modelling issues- SWIMED	ICA3-CT-2002-10004	RTD	Prof. Jose Benavente Universidad de Granada, Spain jbenaven@ugr.es	36 months 2005	655 717	Objective: development of an integrated approach combining advanced computational tools (numerical modelling and optimisation) and GIS for sustainable water resources management in Mediterranean coastal aquifers. Particular emphasis will be on artificial recharge (including wastewater reuse). Six field sites are selected for demonstration, validation and assessment. Data sets are first collected and embodied within a GIS for easy access and search, visualisation and thematic mapping. 3D Numerical models for groundwater flow, seawater intrusion and optimisation are developed and implemented. The tools are then applied for investigating field sites. Scenarios varying recharge location and storage capacity are simulated to assess best control of seawater intrusion and meeting demand requirements.
Sustainable management of scarce resources in the coastal zone- SMART	ICA3-CT-2002-10006	RTD	Dr. Kurt Fedra ESS GmbH, Austria info@ess.co.at	36 months 31/08/2005	1 104 619	The coastal zones of the Mediterranean are undergoing rapid development with growing and conflicting demands on the natural resources and at the same time subject to often irreversible degradation of these resources and thus the very basis for development. Water resources and the related land use issues are a key element for the sustainable development of coastal regions. They illustrate the dependency of the usually dynamic and fast growing coastal areas on their resource catchment. This project will explore methods and tools for long-term policy analysis and strategic decision support for integrated coastal development with special emphasis on water resources and land use and the resource balance between the coastal region and inland areas.

BALANCING PEOPLE AND NATURE - ENABLING POLICIES WHICH INTEGRATE DIFFERENT WATER DIMENSIONS

Title -Acronym	Contract n°	Nature of the action	Coordinator or contact point	Duration- Ending date	EC contribution [€]	Abstract
Hydrological and hydrodynamic studies and predictions of the Caspian sea water level rise - Impact of climate factors and man's activities - CASSEAS	IC15-CT-1997-00101	RTD	Mr. M. Erlich Laboratoire d'Hydraulique de France S.A.	27 months 1999	289 800	A significant rise of the water level in the Caspian sea since 1978 was accompanied by inundation of large areas and by a rise in the water table, which resulted in a disastrous situation in the Caspian sea basin. The project aims at understanding numerous hydro-meteorological factors involved, without which effective protection of the population on the coastal areas and of their environment are impossible. The project adopts multi-disciplinary approaches to: a) detailed water balance study of the Caspian sea; b) study of water exchange within the sea basin; c) the hydrology of the Volga river (80% of the inflow to the sea). These studies analysed the reasons for the present sea level rise and an assessment of the most probable sea level trends over the next 10 to 20 years and the possible consequences of climate change and global warming.
Analysis and management of organic matter and nitrogen in aquaculture ponds for a minimal waste production and optimal efficiency	IC18-CT-1997-00202	RTD	Dr. Johan Verreth Wageningen University The Netherlands johan.verreth@alg.venv.wau.nl	42 months 30/06/2001	525 000	A research project was implemented to collect empirical data on carbon and nitrogen fluxes in feed-driven fish and shrimp ponds and to use these data to construct, calibrate and validate a dynamic simulation model that can be developed into a management tool. Specifically, the objectives were to quantify the nitrogen and organic carbon flows under different levels of nutrient input, to investigate nitrogen and carbon conversions in the water column and sediment along the algal and bacterial food chains up to fish and shrimp, to model the flows of organic matter, carbon and nitrogen, and to use the model for designing and testing feed compositions and pond management procedures.
CoastBase	IST-1999-11406	RTD	Jan Bosman Hugo Niesing Ministerie van Verkeer en Waterstaat, The Netherlands j.bosman@rikz.rws.minvenw.nl	24 months 31-12-2001	1 098 886	Coastal areas are important for a wide variety of human and natural uses. Authorities need sound information concerning these uses and the interactions between actors developing and implementing policy for integrated coastal zone management. At different policy levels within Europe, the need for tailor-made information, which is essential for sustainable marine and coastal management, has been recognised. The search and access to aggregated and interpreted information is essential, but is costly and time consuming. Mechanisms for accessing information on the European coastal zone are lacking, notably in the area of maintenance of metadata/data links to search and access data, as well as tools for filling information gaps within organisations and for facilitating information sharing. CoastBase has developed an automatically updated electronic system architecture providing multilingual search and access facilities to distributed information sources and a European coastal database "CoastBase", holding European level products as indicators, maps and reports.
EDEN-IW	IST-2000-29317	RTD	Palle Haastrup Joint Research Center, Italy +39 03 32 789 95 11 +39 03 32 78 58 07 Palle.Haastrup@jrc.it	36 months 30-06-2004	2 419 865	The Environmental Data Exchange Network for Inland Water (EDEN-IW) project aims to develop at European level a service integrating disparate heterogeneous government databases on inland water. This will make existing distributed environmental data available to users through an intelligent interface acting as a one-stop shop.
I-MARQ	IST-2001-34039	RTD	Jonathan Williams Marinetech South Ltd, UK +44 23 80 59 61 40 +44 23 80 59 61 49 md@marinetech.co.uk	36 months 30-04-2005	2 249 975	i-MARQ will deliver real-time information on coastal water quality into a variety of end-user markets, via a dynamic GIS-based system. The project will develop and validate advanced data fusion, modelling and management algorithms to generate high-quality data content. The system will support decision-making by various end-user groups including:* Citizens concerned about environmental quality in recreational waters;* Local authorities seeking a quality tourism cachet and wishing to avoid hazard to public health;* Companies seeking to validate environmental performance and avoid liabilities from pollution incidents.
RAPSODI	IST-1999-12290	RTD	Stéphane Charron France stephane.charron@detexis.thomson-csf.com	39 months 31-03-2003	845 315	Oil-spills regularly pollute maritime waters and coasts of western Europe year after year. The integration of data from aircraft and satellite sensors is an important aspect of any effort to abate such pollution damages. In addition strong co-operation between radar signal and image-processing researchers, radar designers and anti-pollution operators is targeted to build up additional know-how and to strengthen European understanding on image processing and interpretation for maritime oil-spills. In this framework, the RAPSODI project proposes to develop an airborne Synthetic Aperture Radar (SAR) remote sensing system, dedicated to oil-spill. This platform is based upon a technology developed as part of the AMED project The RAPSODI prototype will be developed in close co-operation between signal processing experts and pollution remediation experts. It will be tested in real-life conditions and, if event occurs, on real oil-spill emergency situation.