

Program	PN - CEEEX 631
Project title (ENG):	Promotion of innovative and sustainable technologies for drinking water treatment (PROAQUA)
Project title (RO):	Promovarea tehnologiilor inovative si durabile pentru tratarea apelor destinate consumului uman (PROAQUA)
Duration	2006-2008
Team Leader	Cristiana COSMA
Summary (short description) ENG	<p>The activities of the project aimed optimization of drinking water present system optimization in order to be in compliance with national and European norms specially referring to developing/implementation of some efficient and sustainable technologies for water treatment according with specific pollution matrix of raw water. Thus, the followings activities were performed:</p> <ul style="list-style-type: none"> • Technical analyse of available data on national level regarding the quality of natural sources • Diagnostic analyse by direct control of water quality on treatment flows • Representative case study selected for optimization/upgrading of treatment flows according with pollutant nature/ type /no complying micro pollutants (raw water/drinking water), frequency, toxicity a.s.o.; • Mobil pilot installations, in continuous flow operating system, having new modules, purchased in the frame of PROAQUA project (installation for ClO₂ generation-dosage, microfiltration + ultrafiltration installation), used for application on field; • Frame methodology to test the technological options for groundwater and surface water treatment on pilot installations; • Alternative technologies for the treatment of underground and surface water with specific pollution matrix (industrial pilot level, laboratory pilot level): ground water with iron, manganese ± ammonia content (medium/low load); ground water with nitrate content (high load); surface water with THM's precursors content (including also technical documentation for DWTP); surface water with low turbidity and associated organic/bacterial load. • Frame scheme referring to the management of chemical sludge and washing water from potabilization treatment flows including treatment technological flows for treatment, recovery of useful elements (Al/Fe); • Technological zone network of excellence (www.potabilizare.ro) for N+V, V areas in order to aggregate the competence from environmental field and to transfer the knowledge to sector level.
Summary (short description) RO	<p>Activitatile desfasurate in cadrul proiectului au vizat optimizarea sistemului de management al apelor destinate consumului uman in vederea conformarii cu reglementarile nationale si cele europene in vigoare, cu referire speciala la dezvoltarea/implementarea unor tehnologii eficiente si durabile de tratarea in concordanta cu matricea de impurificare a resurselor de apa bruta. Astfel, au fost realizate:</p> <ul style="list-style-type: none"> • Analiza tehnica a datelor disponibile la nivel national privind calitatea resurselor naturale • Analiza diagnostic prin controlul direct al calitatii apei pe filiere de tratare • Studiile de caz reprezentative selectate pentru optimizarea/ completarea fluxurilor de tratare, functie de natura/tip poluanti/micropoluanti neconformi (apa bruta/apa potabila) frecventa de aparitie, toxicitate etc • Instalatii pilot mobile, cu functionare continua, avand in componenta module noi, achizitionate in cadrul proiectului (instalatie de preparare-

	<p>dozare ClO₂, instalatie de microfiltrare + ultrafiltrare) pe care s-au efectuat experimentari in teren</p> <ul style="list-style-type: none"> • Metodologie cadru pentru testarea variantelor tehnologice de tratare ape subterane si de suprafata pe instalatii pilot • Tehnologii alternative de tratare surse subterane si de suprafata cu impurificare specifica (testate la nivel pilot industrial, pilot laborator): ape subterane cu continut de fier, mangan ± amoniu (incarcare medie/redusa), ape subterane cu continut de azotati (incarcare ridicata), ape de suprafata cu continut de precursori ai THM, ape de suprafata cu turbiditate redusa si incarcare organica/ bacteriologica asociate • Schema cadru privind gestionarea namolurilor chimice si a apelor de spalare din fluxurile de potabilizare, inclusiv fluxuri tehnologice de tratare, recuperare elemente utile (Al/Fe); • Retea tehnologica zonala de excelenta (www.potabilizare.ro) pentru regiunile N+V, V in vederea agregarii competentelor in domeniu, transfer de cunostinte la nivel de sector.
Dissemination of results	
Full-paper ISI	Nitoi I., Cosma C. , Nicolau M., Aspects regarding the pollution of natural resources with heavy metals, <i>Journal of Environmental Protection and Ecology - JEPE</i> , 2006 , 7(3), 518-522
	Cosma C. , Nicolau M., Patroescu V., Stefanescu M., Ballo A., Florescu S., The incidence of disinfection by-products (THMs) in drinking water, <i>Journal of Environmental Protection and Ecology - JEPE</i> , 2009 , 10(1), 14-22
Full-paper BDI	Podaru C., Danielescu C., Pacala A., Vlaicu I., Cosma C. , Burtica G., Manea F., Orha C., <i>Comparative study of two groundwater treatment pilot plants, Water Pollution IX, WIT Transaction on Ecology and Environment</i> , 2008 , 111,149-157
Conferences (platform, poster, abstract / full-paper)	Cosma C. , Nicolau M., Patroescu V., Moise A., Burtica G., Marsavina D., Critical analyze of potabilisation techniques: performances and limits. Note 1 - Groundwater supplies, <i>International Symposium "The Environment and Industry" - SIMI</i> , 2007 , Bucharest
	Cosma C. , Nicolau M., Patroescu V., Moise A., Burtica G., Marsavina D., Critical analyze of potabilisation techniques: performances and limits. Note 2 - Surface water supplies, <i>International Symposium "The Environment and Industry" - SIMI</i> , 2007 , Bucharest
	Danielescu C., Podaru C, Sonea D., Manea F, Vlaicu I., Pacala A., Cosma C. , Burtica G., Studies on the application of zeolites in treating potable water on a pilot scale, <i>5-th Chemical Engineering Conference for Collaborative Research in Eastern Mediterranean Countries - EMCC5</i> , 2008 , Italia
	Pacala A., Vlaicu I., Radu B., Bogatu C., Cosma C. , Manea F., Danielescu C., Lupsa I., Tehnologii neconventionale cu membrane de microfiltrare si ultrafiltrare in potabilizarea apei - studiu pe statie pilot, <i>Conferinta Internationala ARA: Solutii pentru sisteme de alimentare cu apa si canalizare in localitati pana la 10000 locuitori</i> , 2008 , Bucuresti, Romania
	Ballo A., Cosma C. , Margareta N., Patroescu V., Dinu L., Stefanescu M., Performance of Ultrafiltration for the Treatment of Some Drinking Water Supplies. Pilot Study, <i>The 2nd EuCheMS Chemistry Congress</i> , 2008 , Torino - Universita di Torino, Dipartimento di Chimica, Italia
	Cosma C. , Margareta N., Patroescu V., Stefanescu M., Dinu L., Treatment Possibilities of Groundwater Containing Iron, Manganese and Ammonia. Pilot Study, <i>The 2nd EuCheMS Chemistry Congress</i> , 2008 , Torino - Universita di Torino, Dipartimento di Chimica, Italia

Conferences (platform, poster, abstract / full-paper)	Cosma C. , Nicolau M., Bumbac C., Stefanescu M., Consideration regarding application of unitary treatment flows for underground water sources with high nitrate content, <i>International conference "Solutions for water supply systems and sewage in communities with no more than 10000 inhabitants - ARA</i> , 2008, Bucharest
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