Contract N°: INCO-CT-2005-013420

CLEANSOIL

– An innovate method for the on-site remediation of polluted soil under existing infrastructure –

Instrument: INCO - Specific Targeted Research Project

Thematic priority: Integrating and Strengthening the European Research Area

Final Activity Report

Part of Deliverable 36

– Month 36 –

Due date of deliverable: April 30th, 2008

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Start date of project: 1st May 2005 Duration: 36 months

Report prepared by: BIOAZUL

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	X

TABLE OF CONTENTS

PUBLISHABLE EXECUTIVE SUMMARY

Project Summary

Soil pollution with harmful substances (heavy metals, PCB, chlorinated hydrocarbons, etc) is a global problem nowadays. Soil pollution most often results in pollution of groundwater and this in turn in harmful consequences for human, animal and plant health. If in the EU 1.5 million polluted sites have been estimated, it is agreed that in the NIS the number is at least comparable, including former military sites, airports, fuel stations, machinery repair stations and industrial production sites.

Today, the most generally used method to address land pollutants is to excavate and remove the polluted land, which is then treated or transported to a landfill at another location. As a rule, this is a costly method that results in a heavy environmental load, due to long transport distances, among other factors. Moreover, in many cases the excavation is not an option due to financial or technical reasons. The development of new technologies for the removal of pollutants from the soil has thus become a priority.

The CLEANSOIL project aims to develop and promote a very simple and cost-efficient alternative to enable the on-site, in-situ treatment of hazardous substances, especially targeted for large areas of polluted land and causing minimum site disturbance. Therefore, the system is applicable to the remediation of soil below buildings, roads, pipelines, railroads, etc, for both local and/or diffuse contamination, and even for preventive applications.

The method consists on the insertion of several chords connecting a multitude of sorbent material containing sockets inside the same number of parallel horizontal holes drilled in the ground. The sorbents can then absorb the pollutants. After a period of time sufficient to attain the desired remediation effect, the system is removed and the sorbent regenerated for further application.

The present project will study the application of this new method for a wide range of contaminated soils by making the necessary adaptations and by testing the performance of different sorbent materials in order to establish selective systems for each kind of pollutant.

Project Objectives

The main **technical objectives** targeted within the CLEANSOIL project are:

- to develop and to test an innovative, simple, easy to handle, applicable under existing infrastructures and cost-effective on-site and in-situ soil remediation method able to achieve a degree of soil remediation that allows its reutilisation for different purposes,
- to find the suitable types, amounts and characteristics for sorbent materials or bacteria able to remove chlorinated solvents, petroleum hydrocarbons, heavy metals etc.,
- to establish soil and hydrological conditions in the system (borings, pipes and absorption system) good enough to allow the application of the CLEANSOIL method to very different soil conditions.

From the **environmental** point of view, the proposed project aims:

- to contribute to the development of methods for the remediation of contaminated soils up to the restoration of its vital functions, applicable both in the EU and the NIS
- to contribute to the development of methods able to avoid groundwater contamination and the spread of pollution from leaching.

The project also has **social** objectives:

- to raise awareness about the environmental/health/economic problems linked to soil pollution, and to inform and involve other relevant actors and stakeholders beyond the consortium.
- to strengthen the exchange of knowledge between EU and NIS scientists.

Contractors List

Participant Role	Participant type	Participant number	Participant name	Participant short name	Country	Date enter project	Date exist project
CO	**RTD**	**1**	Verein zur Förderung des Technologie Transfers an der Hochschule Bremerhaven e.V.	TTZ-BIONORD	Germany	**1**	**36**
CR	**RTD**	**2**	M.V. Lomonosov Moscow State University	MSU	Russian Federation	**1**	**36**
CR	**RTD**	**3**	Institute for Nature Management Problems and Ecology, National Academy of Sciences of Ukraine	INMPE	Ukraine	**1**	**36**
CR	**SME**	**4**	Globe Water AB	GLOBE	Sweden	**1**	**36**
CR	**RTD**	**6**	Ugra State University	USU	Russian Federation	**1**	**36**
CR	**SME**	**7**	Bioazul S.L.	BIOAZUL	Spain	**1**	**36**
CR	**RTD**	**8**	Politechnika Warszawska (Warsaw University of Technology)	PW-WUT	Poland	**1**	**36**
CR	**RTD**	**9**[(1)]	Institute of North Industrial Ecology Problems, Russian Academy of Science	INEP	Russian Federation	**3**	**36**

[(1)] INEP assumed the tasks assigned to the former partner PAGBI from month 2 up to the end of the project.

Table D36-1: Contractors list

Contact details of the co-ordinator

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Work Performed, Results Achieved So Far and Expected End Results

The aim of the CLEANSOIL project is to develop, test and promote a very simple and cost-efficient alternative to enable the on-site/in-situ treatment of hazardous substances able to achieve a degree of soil remediation that allows its reutilisation for different purposes causing minimum site disturbance. The system is especially targeted for large areas of polluted land, and it is applicable to the remediation of soil below buildings, roads, pipelines, railroads, etc, for both local and/or diffuse contamination, and even for preventive applications. This new method is proposed to be tested for a wide range of contaminated soils by making the necessary adaptations and by using different sorbent materials in order to establish selective systems for each kind of pollutants in three testing sites, two in Russia and one in Ukraine.

In order to achieve the above mentioned objectives, the work has been organised in the following eight work packages as stated in the Description of Work (DoW) document:

- WP 1. General problem specification and parameters definition
- WP 2. Field survey and remediation targets definition

- WP 3. Sorbents identification and lab-scale tests
- WP 4. CLEANSOIL system and test programme design
- WP 5. CLEANSOIL construction and operation
- WP 6. CLEANSOIL performance evaluation
- WP 7. Exploitation and know-how dissemination
- WP 8. Project Management

During the first 12 months of the project duration, reporting period from May 1st 2005 until April 30th 2006, a better definition of the problem in its environmental, social and economic dimensions was performed, including the study of legislation in the NIS and the current policies at European level. Besides, it was necessary the review the remediation technologies currently applied and the analysis of CLEANSOIL applicability. After this, measurable and verifiable parameters were identified and the most suitable sampling, analytical and statistical methods to be used during the whole project were chosen. The final agreement of the definitive testing sites was reached. All these tasks belonging to WP1 were completed according to the time frame schedule.

Based on the knowledge acquired in WP1, the main aim of WP2 was to determine in detail the specific situation of the CLEANSOIL system testing areas. Thus, limit values of pollutants were evaluated on legislative framework and according to ecotoxic and health terms. In addition, a detailed soil characterisation was carried out, as well as a description of groundwater pollutants and remediation targets. Knowing the kind of soils and the range of existing pollutants, batch adsorption experiments were executed in order to determine their adsorption isotherms for the identified pollutants in these three different sites. Taking this into account together with further studies about pollutants degradation by endogenous microorganisms, a list of potentially applicable sorbents was elaborated.

As an example, some pictures are included in order to show the work performed in these months, concretely taken during the field work in the selected site in Kola Peninsula, Russian Federation.

Figure D36-1: Soil pits

Figure D36-2: Soil detailed characterisation, field work

Figure D36-3: Soil sampling

Figure D36-4: Monoliths extraction

Figure D36-5: Soil solution sampling

Figure D36-6: Pollutants identification, rhizon soil moisture samples

According to the WP3, after having compiled the potentially applicable sorbents in the testing sites, the most suitable and promising ones were selected and its performance tested according to their specific pollutant by means of lab-scale tests.

The work continued during the second year of the project, reporting from May 1st 2006 until April 30th 2007. During that year, the sorbents identification and lab-scale tests were completed (WP3). A range of potentially applicable sorbents for the system was identified, being chosen the most suitable and promising ones for the different pollutants under study. This choice was done after characterising the sorbents, determining their adsorption isotherms and studying their colonisation by microorganisms. Additionally, lab-scale tests with column samples were done. A small scale CLEANSOIL system with drillings and sockets was integrated in the columns, which were washed with solutions simulating real conditions, i.e., loads of pollutants, and therefore allowing the study of some factors such as amount of sorbent material used and distance between the holders, influence of the moisture of the soil and time of operation necessary to reach a certain remediation level.

Fig. D36-7: Excavation of undisturbed soil columns in the field

Fig. D36-8: Lab-scale soil column experiments

Fig. D36-9: Lab-scale soil column experiments

Fig. D36-10: Sorbent C-verad used by INEP

Fig. D36-11: Sorbent sunflower husks used by INMPE

Fig. D36-12: Sorbent “Irvelen” used by USU

After this, once the sorbents to be used were characterised and selected, the CLEANSOIL system and the test programme were designed and dimensioned for the different testing sites (WP4), including the number of horizontal holes for the introduction of the system, their diameter and the distance between them (depending on the amount and type of contaminants), the distance between sorbent holders connected to the same wire and in contiguous wires, the type and amount of sorbent/reactive agent, etc. In addition, a complete test programme was developed, indicating the frequency of the analysis to be carried out, how and where.

Site layout and drilling plan for the testing sites (3D CAD)

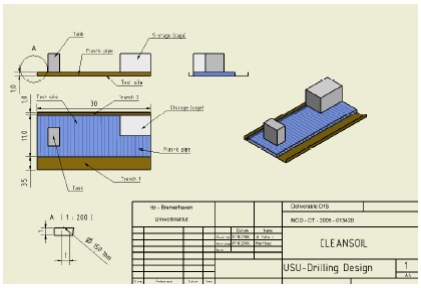


Fig. D36-13: 3D CAD for USU site

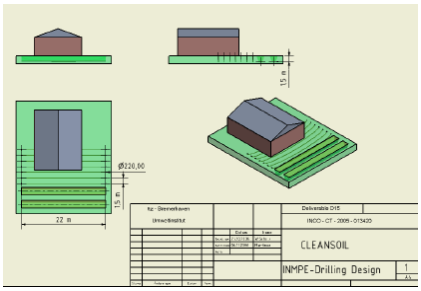


Fig. D36-14: 3D CAD for INMPE site

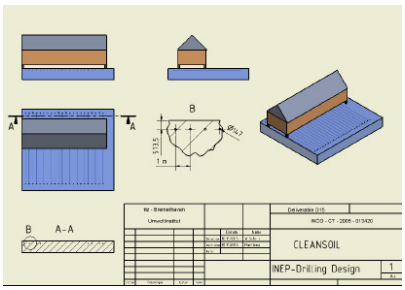


Fig. D36-15: 3D CAD for INEP site

The next step was the installation and operation of the CLEANSOIL system in the testing areas (WP5). Thus, in this WP the main work was the construction of the system on the three selected test sites according to the specifications laid down in WP4 and later on its operation and monitoring according to the procedures defined in WP4.

Within the third year of the project, reporting from May 1st 2007 to April 30th 2008, all remaining tasks were successfully fulfilled. Some details were still to be defined for the Kola Peninsula test site regarding the system design (WP4), and these particularities were finally stated at the very beginning of this reporting period.

On the other hand, drilling took place following the agreed drilling design at each site and the sockets were manufactured specifically for the different test sites and then introduced in the holes (WP5). In addition to this, bioreactor for bacteria cultivation was transported and installed in the Khanty-Mansyisk test site, and the bacteria suspension was used for the colonisation of the sorbent. The system was operated following the program instructions and the test sites were monitored according to the test program developed, including the periodical sampling and analysis of the soil, the groundwater and the soil solution water. Besides the work planned in the Technical Annex, the program developed by MSU for the Kola Peninsula test site included additional irrigation of plots with water, diluted (0.01 M) hydrochloric and citric acids in order to mobilise heavy metals fixed in topsoil and bring them to sorbent placed in subsoil. Periodical sampling of soils and soil solutions both for chemical and microbiological purposes was done for each test site after each monitoring period.

Fig. D36-16: Drilling procedure

Fig. D36-17: Introduction of sorbents into the sockets

Fig. D36-18: System installed

Fig. D36-19: Irrigation of plots with water

Fig. D36-20: Bioreactor for bacteria cultivation

Fig. D36-21: Bacteria suspension

The performance of the CLEANSOIL system was assessed within WP6 according to the indicators selected in WP1. This evaluation included the study of the degree of adsorption reached by the sorbents and their residual capacity, whether the sorbents underwent a certain degradation process and to what extent and the remediation achievements. Microbiological monitoring of soil and toxicity tests were developed. An empirical model describing the process was elaborated as well. After this, the system was finally removed from the test sites and the soil reconditioned by refilling the holes.

In addition to this, an analysis on the technical/economic feasibility of regenerating the sorbents, and even on recovering some of the adsorbed substances, was carried out. Parameters like drilling, sorbents and hoses, regeneration of sorbents and regeneration of the soil extracted with the drillings were taken into account when calculating the economical impact of a concrete remediation system application. Therefore, pollutants disposal methodologies for sorbents and soil regeneration were assessed according to the particular conditions of the project test sites and the range of pollutants extracted with the CLEANSOIL system. The alternatives for disposal of the extracted pollutants in an environmentally friendly way were also analysed according to pollutant categories firstly (heavy metals, organic compound and pesticides) and, later on, to the specific conditions of the CLEANSOIL project.

Finally, and based on the results of the previous tasks, a feasibility study comprising technical, environmental, practical and economical aspects was carried out for Russia, Ukraine, Poland, Spain and Sweden. Thus, after testing it in three different locations and extracting the results and conclusions of its performance, the elaboration of this study revealed the system practicability in the countries addressed in the consortium to the partners. With this aim, issues like needs, economics, technical requirements and market trends for the different countries were taken into account.

Strong dissemination activities were carried out within WP7 since the beginning of the project in order to widespread to a major public the main outcomes of the project.

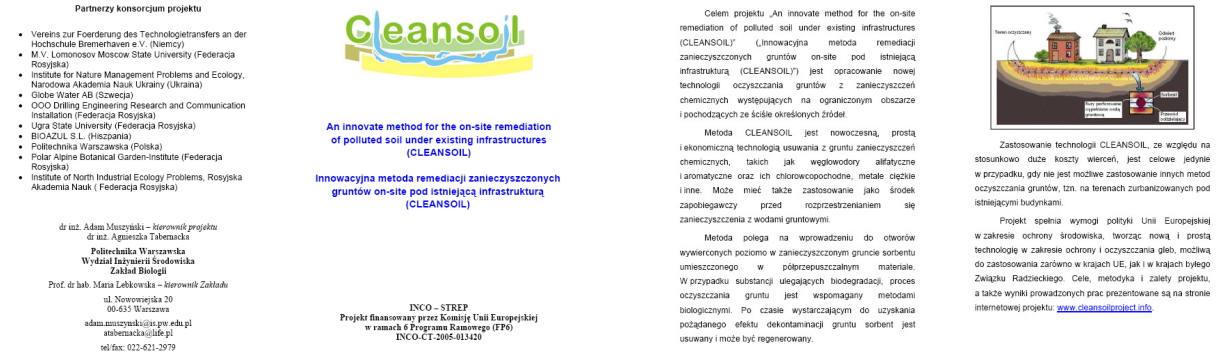
One of the main tools for the wide dissemination of the project and its results was the development during the first year of the official project website **http://www.cleansoilproject.info**, launched in October 2005. It consists on a public access site containing a short description of the project, information about the objectives, partnership and progress of the CLEANSOIL project, and a restricted access site for the consortium partners in which all important information, project deliverables and other documents are hung down. The website was updated during the whole duration of the project.

Some partners prepared other CLEANSOIL websites as well, like the English/Russian website (**http://soil.msu.ru/projects/cleansoil**) or the Polish one (**http://www.is.pw.edu.pl/cleansoil**). Moreover, the partners gradually introduced references about the CLEANSOIL project in their own websites.

In addition, an official logo of the project was developed and included in all websites and dissemination materials produced in the CLEANSOIL project:

Fig. D36-22: CLEANSOIL project logo

Apart from those explained above, other important dissemination activities were carried out. The most important one was the preparation of the official project seminars. One of these seminars was organised by PW-WUT and took place at their facilities in Warsaw. Another one was organised by MSU in parallel with the final meeting of the project, and it took place at their facilities in Moscow. These two seminars, carried out in Polish and Russian languages respectively, brought together local governments representatives, consulting companies and companies offering services in the field of environmental protection, amongst others. Press releases about CLEANSOIL have been done by many partners in order to generate a widespread knowledge about the objectives of the project and to disseminate it, and dissemination material on the CLEANSOIL project were distributed among partners contacts at conferences, workshops, seminars, etc, where they also presented CLEANSOIL.



Partnerzy konsorcjum projektu

- Vereins zur Foerderung des Technologietransfers an der Hochschule Bremerhaven e.V. (Niemcy)
- M.V. Lomonosov Moscow State University (Federacja Rosyjska)
- Institute for Nature Management Problems and Ecology, Narodowa Akademia Nauk Ukrainy (Ukraina)
- Globe Water AB (Szwecja)
- OOO Drilling Engineering Research and Communication Installation (Federacja Rosyjska)
- Ugra State University (Federacja Rosyjska)
- BIOAZUL S.L. (Hiszpania)
- Politechnika Warszawska (Polska)
- Polar Alpine Botanical Garden-Institute (Federacja Rosyjska)
- Institute of North Industrial Ecology Problems, Rosyjska Akademia Nauk (Federacja Rosyjska)

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Cleansoil

An innovate method for the on-site remediation of polluted soil under existing infrastructures (CLEANSOIL)

Innowacyjna metoda remediacji zanieczyszczonych gruntów on-site pod istniejącą infrastrukturą (CLEANSOIL)

INCO – STREP
Projekt finansowany przez Komisję Unii Europejskiej w ramach 6 Programu Ramowego (FP6)
INCO-CT-2005-013420

Celem projektu „An innovate method for the on-site remediation of polluted soil under existing infrastructures (CLEANSOIL)" („Innowacyjna metoda remediacji zanieczyszczonych gruntów on-site pod istniejącą infrastrukturą (CLEANSOIL)") jest opracowanie nowej technologii oczyszczania gruntów z zanieczyszczeń chemicznych występujących na ograniczonym obszarze i pochodzących ze ściśle określonych źródeł.

Metoda CLEANSOIL jest nowoczesną, prostą i ekonomiczną technologią usuwania z gruntu zanieczyszczeń chemicznych, takich jak węglowodory alifatyczne i aromatyczne oraz ich chlorowcopochodne, metale ciężkie i inne. Może mieć także zastosowanie jako środek zapobiegawczy przed rozprzestrzenianiem się zanieczyszczenia z wodami gruntowymi.

Metoda polega na wprowadzeniu do otworów wywierconych poziomo w zanieczyszczonym gruncie sorbentu umieszczonego w półprzepuszczalnym materiale. W przypadku substancji ulegających biodegradacji, proces oczyszczania gruntu jest wspomagany metodami biologicznymi. Po czasie wystarczającym do uzyskania pożądanego efektu dekontaminacji gruntu sorbent jest usuwany i może być regenerowany.

Zastosowanie technologii CLEANSOIL, ze względu na stosunkowo duże koszty wierceń, jest celowe jedynie w przypadku, gdy nie jest możliwe zastosowanie innych metod oczyszczania gruntów, tzn. na terenach zurbanizowanych pod istniejącymi budynkami.

Projekt spełnia wymogi polityki Unii Europejskiej w zakresie ochrony środowiska, tworząc nową i prostą technologię w zakresie ochrony i oczyszczania gleb, możliwą do zastosowania zarówno w krajach UE, jak i w krajach byłego Związku Radzieckiego. Cele, metodyka i zalety projektu, a także wyniki prowadzonych prac prezentowane są na stronie internetowej projektu: www.cleansoilproject.info.

Fig. D36-23: CLEANSOIL brochure for the Polish seminar

Other dissemination activities, i.e. preparation and presentation of diffusion material like different kinds of brochures, posters and papers were carried out by all partners, as well as press releases, attendance to conferences and meetings, and the introduction of the project to relevant stakeholders and authorities.

INCO - STREP Project supported by the European Commission under the 6th Framework Programme (FP6). INCO – CT – 2005 – 013420

CLEANSOIL

An Innovate Method for the On-Site Remediation of Polluted Soil Under Existing Infrastructures

THE CLEANSOIL PROJECT SUPPORTED BY THE EUROPEAN COMMISSION IS FOCUSED ON THE FOLLOWING GOALS:

- TO FIND THE SUITABLE TYPES, AMOUNTS AND CHARACTERISTICS OF SORBENT MATERIALS OR BACTERIA ABLE TO REMOVE CHLORINATED SOLVENTS, PETROLEUM HYDROCARBONS, HEAVY METALS, ETC.
- TO ESTABLISH SOIL AND HYDROLOGICAL CONDITIONS IN THE SYSTEM GOOD ENOUGH TO ALLOW THE APPLICATION OF THE CLEANSOIL METHOD TO VERY DIFFERENT SOIL CONDITIONS.
- TO ACHIEVE TARGETED REMEDIATION DEGREES OF CONTAMINATED SOILS UP TO THE RESTORATION OF THEIR VITAL FUNCTIONS, APPLICABLE BOTH IN THE EU AND THE NIS.
- TO DEVELOP METHODS TO AVOID GROUNDWATER CONTAMINATION AND THE SPREAD OF POLLUTION FROM LEACHING
- TO RAISE AWARENESS ABOUT THE ENVIRONMENTAL/HEALTH/ECONOMIC PROBLEMS LINKED TO SOIL POLLUTION, AND TO INFORM AND INVOLVE OTHER RELEVANT ACTORS AND STAKEHOLDERS BEYOND THE CONSORTIUM
- TO STRENGTHEN THE EXCHANGE OF KNOWLEDGE BETWEEN EU AND NIS SCIENTISTS.
- TO GATHER DEEPER KNOWLEDGE ON POLLUTANTS ABSORPTION PROCESSES IN SOILS, BY FINDING THE MOST SUITABLE SORBENT MATERIALS AND BACTERIA ABLE TO REMOVE DIFFERENT POLLUTANTS IN DIFFERENT SOILS.

6th Framework Programme

SOIL IS A VITAL AND LARGELY NON-RENEWABLE RESOURCE

(In the 50-100 years timescale) which performs a number of key environmental, social and economic functions vital for life, but increasingly threatened by a range of human activities, thus causing its degradation. Unfortunately this problem is aggravated due to diffuse contamination, which in most cases result in damage or loss of several functions of soil, groundwater contamination and possible transfer of pollutants to humans.

IN THE EU 1,5 MILLION POLLUTED SITES have been estimated, data at least comparable with the NIS countries, due to former military sites, airports, fuel stations, machinery repair stations and industrial production sites. Heavy metals, PCB, chlorinated hydrocarbons, pesticides and nitrates lead to severe consequences for the environment, agricultural production system and human health (i.e. gastro-intestinal, respiratory diseases, blood exchange disorders, oncological diseases).

THE MOST COMMON METHOD used for land pollutants removal is excavation and removal of the polluted land, which is then treated or transported to a landfill at another location. Apart from being costly, the method results in a heavy environmental load and many times not financial or technically feasible. The development of new technologies for the removal of poisons from the soil has thus become a priority. Further research has been carried out in the field of bioremediation, phytoremediation and sorption based methods as alternative method to excavation.

IN ORDER TO COPE WITH THIS SITUATION, CLEANSOIL proposes an economically friendly sound alternative to enable the on-site/in-situ treatment of hazardous substances, by means of adsorption mechanisms. Based on its simplicity, it is specially targeted for large areas of polluted land, and highly recommended when the removal is not practicable (under buildings, roads, railroads, etc) as it causes minimum disturbance.

Soil remediation methods like CLEANSOIL reduce the risk potential and are a first step to revitalise valuable space in inner city areas.
This here proposed CLEANSOIL method will prevent health damages and improve the quality of life for humans, animals and plants.

THE CLEANSOIL PROJECT will develop a system for the remediation of soil and the protection of water resources up to a degree that allows to recover soil initial capacity for the full performance of its functions, specially appropriate when excavation and removal of polluted lands is not an option. That will indeed lead to beneficial socio-economic and environmental impacts, even encouraged by the CLEANSOIL method's preventive properties if it is installed in zones with a high contamination risk. The system consists of several inserted cords connecting a multitude of sockets inside perforated pipes laid along the same number of parallel horizontal holes drilled in the ground. The sorbents can then absorb the pollutants. After a period of time sufficient to attain the desired remediation effect, the system is removed and the sorbent regenerated for further application.

INCO (Specific Measures in Support of International Co-operation) is a programme that deals with dedicated international co-operation activities which are relevant to some groups of countries or regions and which are not addressed by the 7 thematic priorities of FP6. These specific international co-operation activities give support in particular to the Community's external relations and development aid policies.

CO-ORDINATOR CONTACT DETAILS

The authors are the only responsible for the content of this leaflet, which does not necessarily represent the opinion of the European Commission.

Fig. D36-24: CLEANSOIL project official brochure

Fig. D36-25: CLEANSOIL project official poster

In addition, the possibilities of integrating the project results in the development of new ecological legislation in Russia and Ukraine were also analysed. In order to achieve this, the modern Russian and Ukrainian legislations in the sphere of environmental protection, management of natural resources, soil conservation and rehabilitation were reviewed. The possibilities of integrating the project activities and results with regular education activities at the participating universities and institutes were also discussed.

A more detailed explanation of the dissemination activities carried out, as well as several routes for the exploitation actions agreed to date regarding the results, are available in the “Plan for Using and Disseminating the Knowledge”.

The management of the project (WP8) has been carried out in parallel to the research activities during all this time, ensuring the correct coordination, communication and cooperation between the partners.

The CLEANSOIL project officially started on May 1st, 2005, and launched during the Kick-Off Meeting in May 30th - 31st, 2005, held at the scientific co-coordinator’s facilities in Lomonosov Moscow State University, Moscow, Russian Federation. Since then, the project has been managed by the three coordinators, TTZ (being the general and financial coordinator), MSU (the scientific coordinator) and BIOAZUL (the administrative coordinator), as it was expected without problems with a strong highly efficient team work that has ensured a fluent communication and information transfer within the consortium.

In addition to daily management activities, several extraordinary activities were carried out during the first year of the project. A periodic report on the distribution of the EC’s contribution was submitted due to the first distribution of the advance payment among the partners, as well as a supplementary report (six months report presented in October 2005).

Two of the initial project partners BIIKS and PAGBI withdrew the project in June 15th, 2006; whereas the new partner INEP was included in the consortium to carry out the tasks allocated for PAGBI, those tasks of BIIKS were distributed among the consortium. An amendment of the contract with all these changes was prepared and approved by the EC in January 2006, as well as a new Consortium agreement agreed by all

partners. In addition, the electronic versions and hard version copies of the interim reporting questionnaire on workforce statistics and the interim socio-economic reporting questionnaire (completed by all partners), together with the interim science and society reporting questionnaire (completed only by the coordinator), were submitted.

The first year meeting was held in May 18th - 19th, 2006 at the general co-ordinator's facilities in the Technologie-Transfer-Zentrum Bremerhaven – BIONORD (TTZ), Bremerhaven, Germany. During that meeting the activities carried out within the first year were discussed and further reported to the EC. These activities were described exhaustively in the first periodic reports which were submitted to the EC on June 12th, 2006. Additionally, a mid-term review report was submitted on December 15th, 2006.

Once more, several extraordinary activities were carried out during the first months of the second year of the project. After finishing the first reporting period, the 70% of the advanced payment provided by the Commission at the beginning of the project was not spent, therefore the consortium did not receive a second payment. This caused an important lack of funds and, therefore, of the work to be done. That is why it was decided to request to all partners their additional cost statements and submit them to the Commission in January 15th, 2007, when the 70% of the advanced payment had been already spent. These cost statements covered the first seven months of the second reporting period, i.e., since May1st, 2006 until November 30th, 2006.

The second year meeting was held in June, 4th - 5th, 2007 at USU facilities in Ugra State University, Khanty-Mansiysk, Russian Federation. A visit to the test site of this region was scheduled in this meeting. Additionally, a technical meeting was held on June 7th, 2008 in Dnepropetrovsk between the general co-ordinator, TTZ-BIONORD, and the local partner. Within the second year meeting, the work performed during that year was discussed and further reported to the EC. The second periodic reports were submitted to the EC on May 31st, 2007.

As explained previously, two important seminars were held in Warsaw (March, 14th 2008) and Moscow (April, 16th 2008), being the last one scheduled together with the third year and final meeting. This final meeting was held again at the scientific co-ordinator's facilities in Lomonosov Moscow State University, Moscow, Russian Federation by April 17th - 18th, 2008. The activities corresponding to the third year of the project and the final project results were discussed within this meeting and further submitted to the EC in the third periodic reports and the final project reports.

The following table summarises the workpackages in which the consortium has worked during the project:

WP no.	Workpackage title	Lead-contractor Short name	Start month	End month	Deliver-able No	Status
WP1	General problem specification and parameters definition	INMPE	0	4	D01-D05	✓
WP2	Field survey and remediation targets definition	MSU	4	8	D06-D11	✓
WP3	Sorbents identification and lab-scale tests	TTZ-BIONORD	7	20	D12-D14	✓
WP4	CLEANSOIL system and test programme design	TTZ-BIONORD	13	26	D15-D18	✓
WP5	CLEANSOIL construction and operation	USU	14	25-29	D19-D21	✓
WP6	CLEANSOIL performance evaluation	MSU	23	35	D22-D26	✓
WP7	Exploitation and know-how dissemination	MSU	0	36	D27-D32	✓
WP8	Project Management	TTZ-BIONORD	0	36	D33-D36	✓

Table D36-2: Workpackages list of the CLEANSOIL project

The partners of the consortium have been working on the tasks foreseen and the results have been achieved as expected. The work carried in the CLEANSOIL project should not stop now; it should be the basis for the other activities in the future.