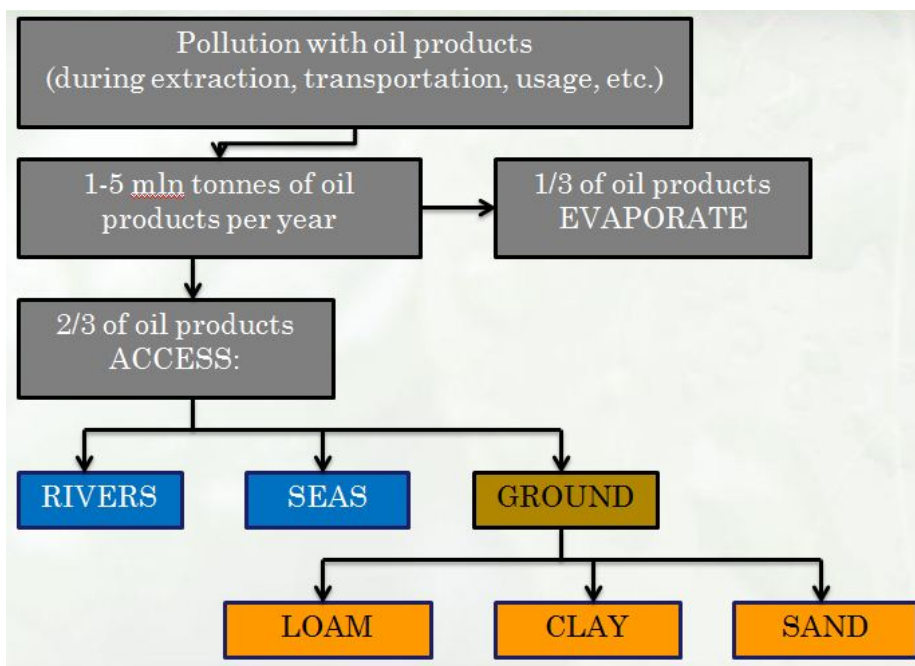


Science, technology and innovation in “Biocentras” (Lithuania)

JSC “Biocentras” has been successfully operating since 1988 and has lots of experience in biological cleaning of oil pollution in various natural and industrial objects, e.g., Lake Onega, West Siberia, oil production companies “YUKOS” and “TNK”. Moreover, ‘Biocentras’ participates in international biotechnology (e.g., environment protection) development projects partially funded by European Union. In order to improve further and keep the current position, the company pays a big attention to acquiring high qualification human resources and modern laboratory and industrial equipment that are essential for the planning of future perspectives.



JSC “Biocentras” currently employs about 60 people. 42 of them have acquired higher education in the areas of chemistry, biochemistry, microbiology, bioengineering and ecological biology. Four of these specialists are continuing their scientific studies for a doctorate degree. In 2007 the make-up of the collective changed significantly as the company accepted lots of promising new young employees. Additionally, not a small number of students from various universities prepare their final theses in the laboratories of JSC “Biocentras” every year. The company has acquired partnership contacts in the areas of scientific research and its application with many research centres in Europe (Spain, Germany, G. Britain, Russia, Latvia, etc.) and other countries (USA, UAE, S. Korea, Iran).

As part of the expansion of JSC “Biocentras” scientific research and industrial activities, the biological methods for the environment cleaning from oil hydrocarbons have been patented in 1996:

- water cleaning from oil pollutants;
- the cleaning of wastewater polluted with oil hydrocarbons;

- the cleaning of groundwater polluted with oil hydrocarbons;
- closed cycle automobile washing;
- the cleaning of territories constantly polluted with oil products.

These biological oil pollution cleaning methods are based on:

- the ability of microorganism synthesized surface active substances of biological origin (SASBO), to create micelles with oil products and to wash them from soil and water;
- the further degradation of oil pollutants using microorganisms oxidizing oil hydrocarbons.

To that end, the most effective oil degrading microorganisms have been chosen. Oil bacterial preparation “Degradoilas” has been created and the applied technology of its use for oil pollutant degradation has been made. Later SASBO were synthesized from microorganisms and the technology for their application was established. By joining the aforementioned processes, the technological plan for the cleaning process of soil polluted with oil hydrocarbons, has been developed.

Later, the *in situ* cleaning method for soil polluted with oil hydrocarbons was created. It is designed to remove the technological process wastes that have a small amount of light hydrocarbons from soil. SASBO is used as an additional component in order to generate a better access for microorganisms and to cheapen the cleaning process. The technology is a unique one as after its use there is no secondary pollution. The achievements of JSC “Biocentras” have been recognized in an international arena – the company got nominated for “Eureka” award for the best accomplishments in the areas of environmental protection and economy.

JSC “Biocentras” is a well known biotechnology company in the world and still searches for new biotechnological solutions. Currently the projects for ecological heat production technology (ECOFUEL) and the building of microcapsulation research centre are being worked on. A new ecological fuel would help to solve the economical problems and the lack of alternative energy sources that appeared after the closure of Ignalina Nuclear PP. The new capsulation technologies not only would help to improve the current bacterial and enzymatic preparations, but would help to look for their new application in food and medical industries.

JSC “Biocentras” was nominated as top five finalist for EuropaBio’s Most Innovative Biotech SME Award 2011.

The innovation of JSC “Biocentras” in biological cleaning of oil pollution in natural and industrial objects – is the significant step forward in environmental protection, promotion of green energy and sustainable development. The significant and real step towards achieving MDGs.