Used Oil’s Highway

The Creation of a selective collecting Network for used oils in the Western Region of Romania
The Region have an important natural thesaurus, about 350,000 hectares of nature reserves and parks, and a lot of transboundary Rivers. The Danube River have also here its entrance in Romania, constituting the South limit of the Region. In this context, anybody can understand why the anthropic pressure in general and the used oil pollution in particular it is a very sensible theme for this Region.
Until the project start in 1999, the collected quantity of used oils from the entire Romania area overpassed 1000 tonnes (from OILREG Refinery statistical data), under the circumstances that the capacity for re-refining in Romania was currently at 80,000-90,000 tonnes per year. Nobody knewed or monitorised until 1999 the quantity of lubricants entered on Romania market, but we estimated that at a regional scale, in the most industrialized region of Romania, the Western Region, it was generated more than 500 thousand litters of waste engine oil per year.

The inexistence here until the project start of a clear vision and effective solution associated with crude motor oil usage (such as material, labor, storage, and waste disposal) makes usage reduction a primary environmental policy consideration in this zone.

In the past, problems associated with this hazardous waste were virtually unknown and Romania didn't have a program in place to prevent environment degradation associated with improper disposal of used oil. Similarly, no person was required to store or properly dispose of this hazardous waste.

Before the project inception, the Romanian regulation in the field was incomplete. Having the experience won by this pilot project, the Romanian Government brink forward the Regulation no. 662/2001, in order to real attain the European Directives in the field of used oil management.
The former communist system left in Romania a legacy of enormous inefficiency in the dangerous waste recycling and reusing system. This anomaly continues to subsist even before the start of the LIFE00 ENV/RO/989 project, the absence of used oil management and regulations being the biggest gap and the most severe risk not only for the project implementation, but also for the environment and for human health, too. Before the project, even though car and truck owners from the Western Region of Romania, who changed their motor oil on their own, generated each year about 0.4 million to 1 million litters of used oil, not even 1 percent of this used oil has been recycled before 1999— the year of project start. The resulting carry-over has been, this way, dumped either into sewers, directly on the ground, or in trash containers. In addition, the industrial sector from this region generates every year about 1 million litters of used oil, but none of this quantity has been recycled during 1999, the year of project inception.

From an ordinary motor oil consumer's perspective, improperly disposed used oil wasn't the most important source of oil pollution fouling the Romanian's waters. But from Environmental Protection Agency point of view, at a consumption in Western Romania Region of a lube oil quantity estimated at 0.8 - 1.2 million litters per year, we consider most of a quarter of used oil resulted as a very dangerous calamity; quantity that were dumped illegally or accidentally into sewers, streams, drains, landfills and backyards, with the following damaging consequences for the Region:

- 60% of the pollution waterways in Western Region of Romania (where is the most developed industry) were caused by the used motor oil.
- The main and trans-frontier rivers from the Region were in some portion listed as second degree water sources (very polluted).
- About 1000 tons of used oil was produced annually in Western Region of Romania and approximately two-thirds of it we presume that it was disposed improperly in local landfills, sewer systems (which end up in the Danube River), ditches, arroyos, and open spaces.

Until the project start, it was generalised the myth that is good to reuse boundlessly the used oil from the engines in the hydraulic operation gears as a hydraulic fluid. Being very old, these hydraulic systems had a lot of losses, but the mechanics weren't informed that used motor oil could have long-term negative effects on the environment and on human health too. In addition, many people with questions about used oils pollution haven't known where to turn to get correct information. As a consequence, the project proposed for an efficient and attractive communication strategy in the environmental sector, focussed especially on used oil impact.

Under the slogan “Every drop of used oil is important for us!” a revolution of minds has begun...
Using specific advertising produces (e.g., leaflets, billboards, posters on gas station and tram, brochures, a special web page etc) and having the mass media as a permanent partner for a quick and efficacious awareness campaign, the project communicated to general public that once lubricating oil is drained from engines, gearboxes, hydraulic systems, turbines and air compressors:

- the high concentration of metal ions, lead, zinc, chromium and copper in used oil can be toxic to ecological systems and to human health if they are emitted from the exhaust stack of uncontrolled burners and furnaces,

- some of the additives used in lubricants can contaminate the environment. E.g. zinc dialkyl dithiophosphates, molybdenum disulphide, and other organometallic compounds,

- certain compounds in used oil e.g. polyaromatic hydrocarbons (PAH) - can be very dangerous to one's health,

- and some of them are carcinogenic and mutagenic.
For the first time in Romania a web page was dedicated to the used oils collecting issues. The site is continuously updated having as aim to inform general public about the necessity to participate to the general effort of used oil recycling and about the importance of the proper handling of motor used oil.

The web page main goal is to change minds about changing oil and having as specific aim to spread the word: "Every drop of used oil is important for the Nature!"

You too can find on our web page the specific rules imposed by UOD in the collecting process, like:

**If you are a do-it-yourselfer:**
If you prefer to be a do-it-your-seller changing his motor used oil, you have now a network of collecting sites in each PETROM Companies’ gas station. The addresses of all these collecting points can be find on our web site. But if you are an industrial generator or you store this hazardous waste on site, you can now call UOD’s trucks to evacuate it.

**Attention:** the UOD collects your used oil at each PETROM gas station, but you have the obligation to declare on your own the category of used oil and, not at least, you must have some minimal knowledge about:

### Proper Disposal of Used Oil

**Put your used oil in a clean plastic container with a tight lid.**

Don’t mix it with anything else. Paint, gasoline, solvents, antifreeze, etc. will make the oil unsuitable for recycling.

**Take your used oil to a service station or other location that displays this sign.** Used oil collection centers will collect up to 5 gallons a day from do-it-yourselfers.

**After depositing your used oil, take your reusable container home to use it again.**

**If you are an industrial used oil generator:**
you must conclude a pre-contract for used oil delivery with UOD. Be careful, and your used oil must have some parameters of quality to be taken it in charge by UOD.

**To find the nearest Oil Collection Center call UOD at:** 0255-217003
This was the background for the “Creation of a Selective Collecting Network for Used Oils in Western Region of Romania” in 1999 with financial support by the LIFE Environment Programme of the European Commission. Used Oil’s Highway is now a functional network of collecting centres that was built-up by the partners for industrial used oil generators and for the “do-it-yourselfers”, which change on their own the engin oil. Initially, the network had a regional scale, but very soon it was extended from a regional-wide crusade against pollution from used oil to a national scale, and the ambitious goals that was setting for the establishment of a complete used oil management system was assumed by the main partners: SNP Petrom SA.

Now, we can say that the “Used Oil Highway” was set out from Resita, which is the first Romanian industrialized town without used oil pollution.

Resta used oil center from Resita Town functions now as a hub for the entire used oil collecting network, having connection with used oil generators from whole Region and with two re-refinery plants from Romania for used oil delivering.

This system needed a good co-ordination. That’s why the partners created an operative structure: the Used Oil Division (UOD), which was an implementing unit and a model for the project transferability at the national scale.
The benefit for the environment?

The prototype assures now the single one safe and authorized storage location in West Romania Region for used oils disposal, a location where the used oil impact on environment can be now surveyed and evaluated continuously from the point of view of physical and chemical parameters. The project created a success model for other industries, like service stations, repair facilities, gas stations or lubes shops that must accept used oils from their clients or for others that intent to implement a collection programs but do not have yet safe felicities for used oil storage.

**The project prototype components:**

- the separator of petroleum phases from the rain water, which equip the west water treatment plant of the main storage centre from Resita City;
- the electronic equipments for SAS (Automatic Supervising System), which monitorys the physical parameters of the used oil centre with the display of parameters for the specialists on PC and for the general public on an electronic display on wall.

The overall objective envisaged by the project was to minimise the impact of used oil on the environment in the entire Western Region of Romania by implementing, for the first time in this region, an integrated environment policy for used oil handling and recycling process, extended through our main partner effort at the national scale. About 400 tons of used oil has disappeared in the last two years and none of those responsible for it was brought before justice accordingly. Now, EPA Resita is able to monitorys not only used oil quantity generated by the industrial generators, but also the entire crude engine oil market. The project decreased with about 90% the global used oil quantity existing now in the Western Region in uncontrolled industrial storage and thus eliminated 95% storage losses.

We admit that the problem of used motor oil that is collected by „do-it-yourselfers” is not solved yet and is critical to the used oil recycling system, but

*Adapting mentalities to change was the real challenge of the project.*

One of the project beneficiaries: The Danube River
The statistical basis for the project effects exhibits that after project implementation the waterways pollution decreased by 30% and will continue to fall in the coming year to less than 20%. About 100 tonnes of used oil can be delivered now monthly to the refinery or burned safely in hot-fired air furnaces.

Currently, after EPA's recommendations and its monitoring 90% of used oil changes in industrial equipment is continuously monitored and 95% of unauthorized storehouses of used oil was eliminated. Although this monitoring concept ensures permanently that the industrial equipment is well maintained and the impact of used oil on the environment is eliminated. It does not reduce oil consumption and waste. The problem continues to be in the “do-it-yourselfers” sector, where only 10% (estimated) was collected yet.

During last tree years, from the project start, the quantities of used oil dispatched for re-refinery from the Region increased from an insignificant quantity to 500 tones in 2003, and will continue to increase continuously (800 tones estimated for 2004).

Conclusion: Recycling’s up, pollution’s down!
We consider that The Used Oil's Highway was in all aspects a European demonstration project. It can serve very well as an example for the accession and third countries’ transition from an intensive industry to a sustainable development policy.

The model character of Used Oil's Highway project is particularly obvious in the fields of waste management policy. The proposed discount concept may easily be transferred to other regions (after amendment to local needs if required) or used for different purposes. It is equally applicable in other recycling programs, like PETs, used oil filters etc. Corresponding recommendations were adopted by the participants of the international conference in August 2004, when the implementing team proposed to address at Romanian Ministry of Environment to fill the gaps of Romanian Regulation no. 662/2001 (which interdict a discount system to used oil collection), in order to real attain the European Directives in the field of used oil management.

After this tree years of project implementation, we can say that Romania is under way to accomplish the European Directives in the field of used oil management. But also, we must observe that Romanian regulation in the field it is incomplete.

The project participated at the OEGUT Environmental Award, Austria, a competition for environmental projects for Central and Eastern European Countries, where our project, among 39 other projects, was awarded with the First Prise in the category of “Environmental Protection and Technology in Central, Eastern and South-Eastern Europe”, Vienna, 29th November 2001.

In addition, the brochure: “USED OIL'S HIGHWAY A Regional-wide Crusade Against Pollution from Used Oil” represented the project to the LIFE project's exhibition in Madrid (TEM-TECMA), June 2002.