

ENV-PR # 6

PROGRESS REPORT # 6

Period:

01-11-03 to 30/04/04

V1.0



IPS-2000-0035

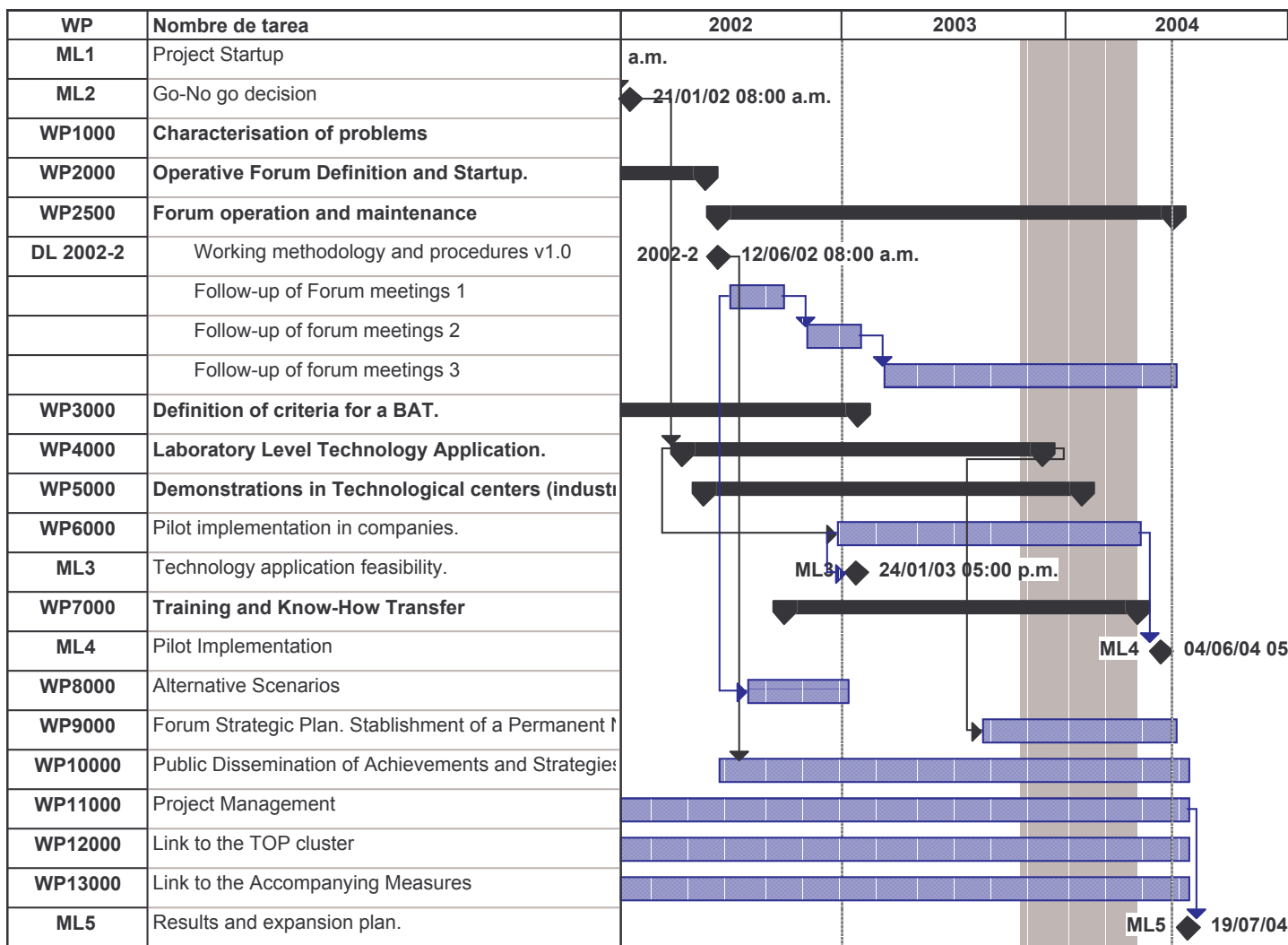


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1. Description of the work carried during the considered period.

The period covered by this PR#6 is highlighted in the general Gantt Chart of the project. The version of the Gantt Chart is corresponding to the actual course of the project, based on the updated workprogramme that arose from the GO-No GO.



The main milestones covered during this period are summarized in the following list:

- Testing of the evaluation methodology in the ENVIREDOX applications.
- Input for the ENVIREDOX Strategic Plan from the Forums.
- All technical applications finalised.
- Launching of the Expansion Phase of the ENVIREDOX Project through the celebration of the anticipated ENVIREDOX Final Day in Porto.

1.1. Project progress.

1.1.1. Breakdown of Project progress.

WP		Progress (%)	Main progress highlights
WP 1000	Characterisation of problems in the referenced geographic areas	100	Finalised WP
WP 2000	Operative Forum Definition and Startup.	100	Finalised WP
WP 2500	Forum operation and maintenance	100	Methodology fully documented and tested.
WP 3000	Characterisation of alternative solutions and applicability. Definition of the ideal parameters of a BAT.	100	Finalised WP
WP 4000	Laboratory Level Technology Application.	95	All applications finalised. Deliverables available.
WP 5000	Demonstrations in Technological centers (industrial pilot level)	95	Results for all applications available. Detailed results not available for one in Portugal.
WP 6000	Pilot implementation in companies.	90	Results for all applications available. Testing pending for one application in Portugal.
WP 7000	Training and Know-How Transfer	75	Training to stakeholders in the forums completed. Development of technical documentation. Training to technicians in the companies completed.
WP 8000	Alternative Scenarios	100	Finalised WP. Conclusions included on WP2500 and wp11000
WP 9000	Forum Strategic Plan. Stablishment of a Multi-regional Permanent Network.	50	V2.0 Available as a refinement. Input from the forum participants in the ENVIREDOX Strategic Plan.
WP 10000	Public Dissemination of Achievements and Strategies.	42	ENVIREDOX Final Day. ENVIREDOX dissemination pack available 90%.
WP 11000	Project Management	92	Linear progress. Consortium Agreement completed and undergoing signing process.
WP 12000	Link to the Clustering approach	92	Link to the SUSDEV Cluster. Participation in the Florence Event.
WP 13000	Link to the Accompanying Measures	92	Linear progress (accumulated to WP12000)
Resulting Project Progress		83.5%	

As remarked in some of the project meeting minutes, a current bottleneck is documentation generation.

1.1.2. Summary of tasks carried out and highlights on the results achieved.

WP 2500

The technology evaluation methodology has been consolidated. Final versions of both DL2501-2 and DL2503 have been reviewed, approved and issued. DL-2502 is pending for final conclusions on every forum.

Social and economical criteria proposal has been worked out by forums and Consortium contributions. In the same way, specific environmental criteria research have been carried out in the French and Portuguese forums

In the Spanish forum, working groups were created so as to assess the newly developed Enviredox techniques and trying the methodology. Useful conclusions were reached related with the Forum System Management.

Technical Day in Porto was held in April 2004 organisation with participation in the Portuguese Fair: EXPONOR- SUBCONTRATA. Conclusions on the whole aspects of the project were drawn.

WP3000

The reworked list of criteria, in compliance with the Annex 4 of the IPPC directive, has been considered as definite. This set of criteria has been included in v2.0 of the methodology.

WP4000

All applications have been completed in the Laboratory phase.

WP5000

Applications ended in Spain.

Cooling liquids were completed in Portugal. With the **degreases** application, there have been some complications with the definition of pretreatments and the work has been recently finalised. Painting booths waters has showed to be a complex problem. As in the spanish case, standardisation of the painting formulation led to good results.

WP6000

Cooling liquids have been completed in Spain. In Portugal, degreases are not finalised, although they are fairly advanced. Technical-economic studies in the three selected applications have been developed by VEOLIA, with AIMME and CATIM. There is still one pending Technical economic study in Portugal.

WP7000

Technical exchange and mutual training take place in the project meetings. A technical training session at AIMME took place in March 04, around fundamentals and possibilities of the BDD technology.

During the last forums, non-technical training to stakeholders has been provided, as the methodology is in final status.

Training to technicians in the participant companies has continued. AUTOBALMI and BAVIERA are the companies where this training has taken place.

WP8000

Finalised the report on the french scenario. A "light" version has been produced with a view on dissemination.

WP9000

Forum participants have provided input for the ENVIREDOX strategic plan, based on two simultaneous visions: transnationality and application to other types of problems.

- Transnationality: The ENVIREDOX Forum has the objective of becoming a transnational forum, where the evaluation of not only technological solutions, but emerging technologies will be carried out.
- Applications to other types of problems: the potentiality of the ENVIREDOX methodology as a mean to deal with industrial/environmental topics with a strong social side has been detected. At a local level, this application is one of the most interesting progress lines in the non-technical part of the project.

DL9002 has been generated as a refinement of the methodology, rather than a different v2.0. This is more related to the actual project progress, where different versions of the Forum methodology have been completed during three years.

The transnationality, levels of participation, etc concepts will be included as a part of DL9001: ENVIREDOX Strategic Plan.

WP10000

Development of the ENVIREDOX Dissemination Pack, which will be used for the general and technical dissemination. Currently under review.

Continuous ENVIREDOX dissemination in media.

Organisation of the anticipated ENVIREDOX Final Day in Porto (April 15th 2004). The event included participation of all ENVIREDOX partners and was organised in the framework of the SUBCONTRATA and PORTUGAL AMBIENTE Technical Fairs, where CATIM arranged an special stand for the ENVIREDOX project.

WP 11000

Consortium Agreement undergoing signing progress.

Addenda #2 to the contract has been asked for. The reasons were the change in nature of one of the partners (AQUATEC responsibilities and rights were taken over by VEOLIA), the special consideration of the JRJ EMSE/ARMINES and some minor budgetary modifications.

WP12000

AIMME and CATIM attended the Cluster workshop in Florence (December 2003). AIMME has been integrated in the SME Growth Cluster and CATIM in the SUSDEV Cluster, both representing the main ideas behind the ENVIREDOX project.

During the anticipated ENVIREDOX final day, a SUSDEV Cluster meeting was organised. Partners from the CLEANTOOL and SEDIS projects attended the meeting. As a consequence of that, a common dissemination strategy with the CLEANTOOL Project was defined and will take place during the coming months, taking advantage of the common audience of both projects (metal goods sector, with special interest in the surface treatment activities).

WP13000

No highlights.

1.1.3. Modifications over the Workplan (if any).

Only minor modifications have been produced in this period over the initial workplan:

- In this period #6 a new addenda, previously explained has been asked for. No schedule modifications
- Application painting booths has been completed at the pilot level, and as stated in previous PRs, will not take place at the industrial level. All this work is reflected in WP5000 and 6000.

Laboratory tasks and work with pilots are completed, although the availability of the final data has delayed the the start of dissemination phase. Technical deliverables are issued in this period.

- While collecting technical data and structuring the technical-economical reports, it has been detected that the separation between dl6001-6004 and 6005 is no longer needed. Therefore, DL6005 will disappear and will be integrated in the different technical-economical reports of each application.
- The Dissemination pack is delayed from the forecast. It will be ready for the extensive dissemination actions of the last period.

1.1.4. Activities per WP.

WP2500

1. DL25xx documents

The input from the different forums celebrated has been included in all the DL25xx deliverables, which where in almost definite versions. DL2501-2 and DL2503 are now final documents that take into account the view from the actors in the forums.

The consortium has decided to wait till the final meeting (June 28, 29 and 30th) to discuss the global view of the different forum operations, along with the project's global results and the future issues. Final version of DL2502 will be issued in these dates.

2. Organization and participation in the different forums launched.

During the sixth period of the project, two forums were held in Portugal, two in Spain and none in France, due to difficulties in getting a representative participation to perform a meeting. Experiences have been included in the DL-2502 document.

This period has allowed consolidating in all the forums the proposal of the generic assessment criteria (technical, environmental, social and economic) and therefore the content of the assessment request form. In the meanwhile, French and Portuguese forums also started to develop some specific indicators that could be applicable to Enviredox techniques and could also be useful in making the request form easier to fill in. This initiative was directly worked up by forum members without a previous proposal document. Though a complete screening of environmental, social and economic factors could not be concluded, this work is a complementary approach in establishing the ideal content of the form. It was agreed that further standardization of the content was necessary to be carried out.

As a consequence of the on-going work, the application scope of the Enviredox forum has also evolved due to the perception that efforts made by stakeholders must be balanced by benefits they should get from validating the technique by the forum.

The methodology has been actually tested during the 4th Spanish forum by using available data from the technical pilots' implementation. It has been a very interesting session during which the working groups have assessed some of the Enviredox Techniques. Homogeneity of concepts, quality of available information and stakeholder skills have been found key points to rely on in order to produce a valuable assessment report.

Work has also been done with respect to the diffusion of Enviredox methodology in collaboration with Spanish legal authorities and a relative influence has been obtained in the transposition of National IPPC law to the Regional one, as for the stakeholder's participation in the process of assessing the environmental integrated permit.

In Portugal, CATIM developed the third and forth forum meetings (4th of December 2003 and the 11th of February, respectively), where the interest of the different parties were discussed together with a methodology to evaluate any new Best Available Technique (BAT).

CATIM continued to animate the Enviredox Portuguese forum site in the Internet, placing messages and documents available to be discussed by the members.

WP3000

Finished workpackage. All criteria have been integrated in the DL25xx deliverables.

WP4000

It must be noted that CATIM has decided to be intensively involved in WP4000, 5000 and 6000, when initially it was only foreseen to work in industrialisation of the applications (wp5000 and –mainly- wp6000). Main work in this WP is still carried out by AIMME, AQUATEC and ECS.

All the tasks related to wp4000 have been completed, except the structuration of the documentation, which is currently taking place. Activities carried out have been extensively described in previous progress reports.

WP5000

As stated, work in Spain has been finalised. Main conclusions are listed:

- **Cyanides:** the technology reaches, under the conditions stated in the project, the threshold value. Theoretically, direct discharge is possible. Additionally to the elimination of toxicity, DBO decreases remarkably.
- **Cooling liquids:** conductivity is a key parameter and saline additives have been needed to decrease energy consumption. Thresholds values have been not reached but come fairly close.
- **Painting waters:** the performance of the technique depends on composition of the painting system. Pretreatments are a must and should be taken into account in the *industrial* phase. Cooling is also needed due to presence of volatile species. Toxicity is additionally decreased.
- **Degreases:** As in other cases, pretreatments are as important as the ENVIREDOX technique. The choice of anodes (thickness of the catalytic coating) is the most important parameter. As said in former reports, a big deal of testing has been carried out with this application. Toxicity was eliminated, as in other applications.

In Portugal, same conclusions apply. Work also completed in this period.

- Finalise the cyanides pilot application. CATIM terminated the tests in course and determine the best set of parameters for the industrial application.
- Developed the Degrease pilot application. CATIM tried to treat several saturated degreasing baths but none of them had the expected results, it was not possible to have feasibility to determine a good set to start an industrial test. Due to the difficulties found in this application a lot more tests than expected have been done.
- Developed the Refrigeration fluids pilot application. Several tests have been done to select the best set for an industrial application.

WP6000

All applications completed in Spain.

- Ending of industrial implementation¹ at GALOL (**degreases**). It must be said that work in this application has showed to be complicated since the work at the company has to take into account the circumstances of their production (changes, re-formulations, etc.), and this has been the case. In order to have consistent results, two types of degreases were processed. The case of complex mixes is not suitable to be treated –efficiently- by the ENVIREDOX technique.

¹ It must be noted that an industrial application includes training of the technicians in the company

- Work at AUTOBALMI (application **cooling liquids from automotion**) has been completed. Treatment of the wastes corresponding to this application has been quite succesful. Due to the volatility of such liquids, a Cooling system was arranged.

In Portugal:

- Cyanides industrial application to validate the technology in this particular application. Three long tests helped to determine not only if it functions but also it's feasibility.
- Refrigeration fluids industrial application to validate it on an industrial level with two tests having results even better than the expected.
- Problems with anodes in the degreases application. To be developed furtherly.

Technical economical studies

- Technical-economic studies use the results in the industrial testing to evaluate industrial solutions with "commercial" technologies. This has led to interesting conclusions:
 - The electrolytic cells used are designed for batch working. Depending on the dimension of waste generation, this may be a limiting factor, not directly related to the ENVIREDOX technique. Otherwise, it is specially suited for batch generation of residuals, such as in the case of degreases, cooling liquids, etc.
 - Expected Returns on Investments (RoI) are surprisingly good for some applications. *Industrial* life span of the anodes could be an issue.
 - Some applications will still need conventional treatment modules. However, the project has demonstrated that threshold values are reachable, although not industrially efficient.

WP7000

- Technical session with about BDD technology. The session took place in Valencia, in March 04. Attendants were ECS and 4 technicians from AIMME. The results were duly transferred to CATIM.
- Internal technical sessions among french partners (St Etienne January 2004).

WP8000

- Finalised Workpackage.

WP9000.

- Development of a toolkit in technology watch for the ENVIREDOX applications. Experts from the University of Alicante have been involved. The toolkit is currently a list of sources (databases, providers, technical fairs, etc.) and their updating procedures. The information obtained is then analysed by the expert group. Although the work is currently being developed mainly in Spain, its application will include in the last period all the technical partners.
- Feasibility study of the ENVIREDOX Consortium as a network of excellence in industrial environment. This feasibility study will be part of the DL9001, with the eventual network being supported by the forums. The consortium has decided to hire an external consultant specialist in Strategic Planning to evaluate the impact and future of the Forum Methodology and the sustainability of the current groups in the different countries.
- Participation in the Final Day in Porto, in the part of the analysis of the future of the ENVIREDOX Consortium.
- As a result of the tests carried out with the stakeholders in wp2500 a report was sent to EIPPCB of Sevilla in order that the European organisation evaluates the possibility to have Enviredox technique included as an emergent technique, in the

BREF document on Surface treatments which is actually under elaboration (1st. Draft).

- All the remarks and analysis carried out in the forums have been included in DL9002, as a refinement of the methodology.
- As a key event the Enviredox final day in Porto (15th of April), organised by CATIM in co-operation with AIMMAP included all the most relevant stakeholders at the Portuguese level, with presence of the rest of the consortium members.

WP10000

- Elaboration of different parts of the ENVIREDOX dissemination pack.
 - Leaflets (already done).
 - A sheet on the technique description (AIMME)
 - Application sheets
 - A consortium Sheet. (Not done).
 - A document on IPPC related issues (EMSE/ARMINES), with an analysis of the IPPC situation in France.
 - A document on the forums instruments and participants (customized by each region) (Already prepared by INNOVE).
 - A glossary (not done).
 - A common presentation of results in the different countries (loosely based on the Porto Event presentations).
- FEMEVAL attended the technical day “Gestión Medioambiental Sector Metalúrgico” at Gijón, in which a description of the ENVIREDOX activities and its impact as emergent technique in the treatment of industrial residuals was presented.
- A TV report on ENVIREDOX has been re-issued in the regional TV channel in Valencia during this period (see PR#5).
- Writing of an article (EMSE/ARMINES) for the European Roundtable on sustainable and cleaner production (Bilbao, 11th to 14th May 2004)
- Two numbers of the newsletter “Forum Noticias Enviredox” were published, distributed and placed in CATIM’s web page.
- The “Portugal Ambiente” fair (14-17th Of April) was also used for the Project dissemination by CATIM that reserved a site to present some documentation and expose the Anodic oxidation pilot, so that people could see how it works. All the work behind the presence in the fair such as the selection of information to disseminate, the place arrangement, the poster design and print including the people needed to explain the project and the Anodic oxidation functioning was also developed by CATIM.

WP11000

- Three Official meetings have taken place during this period (ENV-M-11, 12 and 13). The minutes are annexed information. The host partners (EMSE/PESE, FEMPA and CATIM/AIMMAP have dealt with organisation and logistics).
- Internal meetings for regional co-ordination in Porto, Paterna, and Saint Etienne.
- Circulation of the Consortium Agreement for signature.
- 2nd addenda asked, because of contractual modifications due to the change in nature of one of the partners (AQUATEC -> VEOLIA).

WP 12000

- The main tasks developed in this Workpackage are explained in point 1.4 Clustering Activities.

WP 13000

- The main tasks developed in this Workpackage are explained in point 1.3 Links to Accompanying Measures.

1.1.5. Work in progress concerning DLs

DL1001, DL1002, DL1003: No modifications in this documents.

DL2001: No modifications

DI2002-1 (Currently **DL2501-2**): N/A. See 2501-2.

DL3001: No modifications.

DL3002: No modifications.

DL2501-2: Finalised with the feedback in the Forums.

DL2502: Conclusions pending. One additional Forum is expected in Valencia.

DL2503: Finalised.

DL11002: No modifications.

DL11001: Finalised. Partner VEOLIA taken into account..

DL4001: Final version

DL5001: No modifications. Deliverable on its final version.

DL8001: No modifications.

DL9001: Gathering data to start deliverable.

DL9002: Deliverable in its final version.

PR10 (eTIP): Partners coordinating the results and evaluating the project impact. eTIP contents will be finalised in ENV-M-14.

1.2. Project Management.

1.2.1. Project meetings.

Three official ENVIREDOX meetings took place during this sixth period.:

Code	Date	Venue
ENV-M-12	Nov 2003, 4 th and 5 th	Saint-Etienne
ENV-M-13	Feb 2004, 4 th and 5 th	Alicante
ENV-M-14	Apr 2004, 14 th to 16 th	Porto

1.2.2. External actors involved.

The main contacts with external actors have been related to both the development of the forums and the work related to the IPPC. The list of the actors involved has been extensively described in the previous PRs. From now on, only the additions to the list will be described:

Valencia

- No new additions. Actors stated in PR#3

Alicante

- No new additions. Actors stated in PR#3

North Portugal

- No new additions. Actors stated in PR#5

Rhône-Alpes.

- No new additions. Actors stated in PR#4

1.3. Links to Accompanying Measures.

During this period, only one Accompanying Measure has been contacted:

- LIFESTYLE (support to clustering activities).

1.4. Clustering Activities.

AIMME (Manuel Sánchez) and CATIM (Claudia Ribeiro) attended a clustering meeting at Florence. The partners in the ENVIREDOX consortium got involved in two sub-clusters: Sustainable development and SME Growth.

Taking advantage of the Porto Event, a cluster meeting of the SUSDEV Cluster was arranged. A part of the agenda for ENV-M-13 included a common discussion of environmental issues between the members of the cluster. SUSDEV Cluster members also participated in the Porto Event.

Although not specifically within the clusters operative, a coordinated dissemination strategy has been defined between the ENVIREDOX and CLEANTOOL projects.

1.5. Dissemination activities.

The following references may be highlighted in the dissemination Strategy:

Media	Title	Audience.
Technical day	Gestión Medioambiental Sector Metalúrgico (Gijón, Dec 10 th Spain)	Technicians from the companies and regional stakeholders
TECNOMETAL	Article "Forum Debate ENVIREDOX" 01-02-2004	Portuguese companies.
Porto Event. ENVIREDOX Stand.	Stand in the Portugal AMBIENTE technical Fair (Porto, Apr 14 to 16 th 2004)	Mostly portuguese attendants to the Fair.
Porto Event. ENVIREDOX technical day.	ENVIREDOX - Proyecto ambiental europeo (Apr 15 th 2004)	50 attendants
Europa al día (TV) (Rebroadcasting)		Comunidad Valenciana. General

2. Conclusions regarding progress of the project

2.1. Operative conclusions (related to WPs).

The ENVIREDOX technical solutions have resulted in excellent applications for “simple” environmental problems. More complex problems have not had such successful results, although combinations of the ENVIREDOX techniques yield promising evolutions of the main parameters. The conclusion is that, to accomplish the objectives of the project, “complex” applications such as degreases and waters from painting booths must be limited in order not to become “black holes”. The interesting combination of ENVIREDOX techniques (including the novel BDD cells) may become a subsequent RTD project, but for the purpose of an innovation project, the detail level achieved matches the objectives of the project. A limited industrialisation of both degreases – although feasibility has been achieved in this case- and water for painting booths has been, therefore, developed.

Dissemination depends strongly not only on the results available, but also in the right identification of the audiences. The first efforts carried out in terms of dissemination have shown that the project results have a wider scope than expected, both geographically and sectorially. Thus, it is extremely complicated to address very specifically the sectors initially defined. The consortium has decided not to be strongly specific in the definition of the so called dissemination pack, instead producing a more generic dissemination tool that can be widely used.

2.2. General conclusions (related to the project objectives).

General conclusions relate to the main objectives of the project :

1. *Development of a transregional innovation model involving all relevant decision makers and actors in order to integrate all main aspects of the IPPC Directive and European harmonization.*
2. *Demonstration of the technical feasibility of industrial liquid waste treatment by anodic oxidation techniques as an alternative to incineration and evaporation-incineration processes.*

Conclusions:

- Being not unitary, the transregional innovation model, lacks interaction at the stakeholder level. This is something that needs to be taken into account in the ENVIREDOX Forum Strategic Plan. The strong participation of the collective entities, that was considered as mandatory in previous periods has been achieved in a lower level than expected, being the regional coordinators the entities in charge of the “animation” of the Forums. A sort of “pull” approach (with direct participation of the regulatory agents) looks like more feasible than the mere level of information exchange.
- The waste treatment techniques developed must be applied at the source, rather than at the abatement facilities, because of the selectivity of the technique (above explained). Selective applications allow feasible solutions in the case of the ENVIREDOX technology.