

## **Parallel Session 19: Scientists and science institutions as PCST agents: experiences**

### **BEST PRACTICE IN COMMUNICATING THE RESULTS OF EUROPEAN RESEARCH TO THE PUBLIC**

*Michel Claessens<sup>1</sup>*

<sup>1</sup>*Head, Information and Communication, Directorate-General for Research, European Commission, 200 rue de la Loi, B-1049 Brussels, Belgium. Tel: +32-2-295-9971, Fax: +32-2-295-8220, E-mail: [michel.claessens@cec.eu.int](mailto:michel.claessens@cec.eu.int)*

#### **Abstract**

The presentation will outline the initiatives taken by the European Commission to improve communication, outreach and dissemination of results from EU-funded research projects, and to facilitate the work of project contractors in this respect. Guidelines and best practices to help project participants in communicating and disseminating their research results will be presented and discussed. The European Commission draws in particular the attention of participants in FP6-funded projects on the fact that they can no longer ignore the 'public communication' dimension of their activity and that they are also in an excellent position to improve the image of science and technology among a broad public.

**Key words:** information and communication, media, research projects, best practices, scientific awareness

#### **Text**

The European Commission is launching some 2,000 new research projects every year. An annual budget of more than EUR 4 billion is being allocated by the European Union for funding research projects.

In the Sixth Framework Programme 2002-2006 (FP6), the European Commission supports very large projects (50-100 partners). Against this background, dissemination of results is a contractual obligation of participation in research initiatives supported under the European Union's FP6. The specific aims of this provision are to promote knowledge sharing, greater public awareness, transparency and education. Consortia are required to provide tangible proof that collaborative research not only exists, but also pays dividends in terms of academic excellence, industrial competitiveness, employment opportunities, environmental improvements and enhanced quality of life for all.

At the same time, the communication of successes and the announcement of exploitable developments are of direct value to the participants themselves. Suitably framed messages can help by:

- Drawing the attention of national governments, regional authorities and other public and private funding sources to the needs and eventual benefits of the research;
- Attracting the interest of potential partners and/or correspondents;
- Encouraging talented students and scientists to join the partner institutes and enterprises;
- Enhancing the reputation of participants, at local, national and international level;
- Where appropriate, aiding the search for financial backers, licensees or industrial implementers to exploit the results; and
- Generating market demand for the developed products or services.

However there are some specific difficulties to communicate in the European dimension (Fig. 1). As the European Research Area becomes a reality, Europe is sorely lacking a mechanism enabling it to draw full benefit from its 'home grown' research activities. At present, there is no structured mechanism for informing the media in one Member States of scientific activities going on in another and giving the highest possible profile to European research. A survey made by ESO (European Southern Observatory) showed that 67% of the articles published in Germany on space and astronomy concerned US research. US research still dominates the European media.

The European Commission's Directorate-General for Research is heavily involved in communicating the results of EU-funded research to the media and the general public. Support and help are provided to assist project coordinators and team leaders to generate an effective flow of information and publicity about the objectives and results of their work, the contributions made to European knowledge and scientific excellence, the value of collaboration on a Europe-wide scale, and the benefits to EU citizens in general.

The European Commission's communication strategy particularly addresses communications via the 'mass media' (TV, radio and the written press), the workings of which may be less familiar to scientific/academic partners. It also covers websites<sup>1</sup> and other internally generated support such as print publications, CDs and video.

The European Commission draws in particular the attention of participants in FP6-funded projects on the fact that they can no longer ignore the 'public communication' dimension of their activity and that they are also in an excellent position to improve the image of science and technology among a broad public.

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<sup>1</sup> [http://europa.eu.int/comm/research/index\\_en.cfm](http://europa.eu.int/comm/research/index_en.cfm)

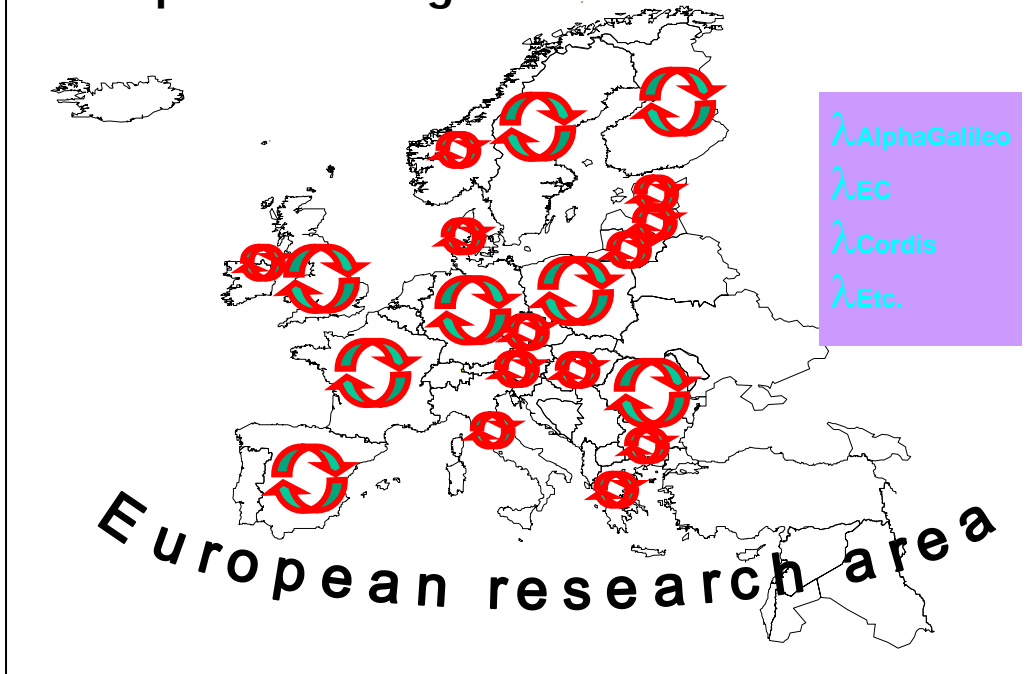
Exposing non-specialists to the results of research work helps to improve their understanding of scientific and technological developments and stimulate public debate on important issues, which not only meets a very real social need but also contributes to the success of RTD policy. The 2001 and 2003 Eurobarometer Surveys (two opinion polls "Europeans, science and technology" that were conducted at the Commission's request in the fifteen Member States between 10 May and 15 June 2001, and in the ten new Member States plus Romania, Bulgaria and Turkey in November 2002) of European attitudes to science showed that Europe's citizens have a very positive perception of science and technology.

However, research has shown that our acceptance or rejection of technological and scientific innovation is determined largely by our preconceived ideas. This means that we must therefore dispense with the widely held belief that high-quality scientific information can influence people's judgement. Many researchers continue to claim, for example, that opposition to genetically modified organisms is due to the fact that most of the population fail to understand the underlying scientific notions.

The presentation will outline the initiatives taken by the European Commission to improve communication, outreach and dissemination of results from EU-funded research projects, and to facilitate the work of project contractors in this respect. Guidelines and best practices to help project participants in communicating and disseminating their research results will be presented and discussed. The presentation will also include examples of successful approaches that have been used to date.

## **Figure 1**

## Communicating European research: A European challenge



**Parallel Session 19: Scientists and science institutions as PCST agents: responsibilities**

**ENVIRONMENTALISTS VS SCIENTISTS: TWO CASE STUDIES  
IN SCIENCE COMMUNICATION**

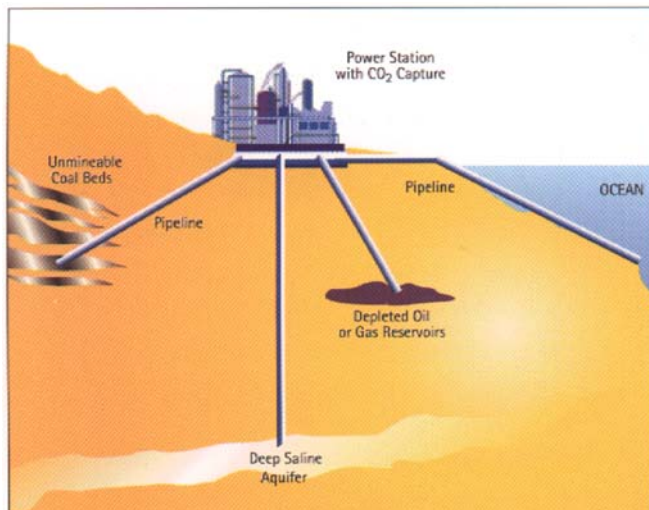
*Tiziana Lanza*

*Istituto Nazionale di Geofisica e Vulcanologia. Via di Vigna Murata, No 605, 00143 Rome, Italy. Tel: +39-06-51860218, Fax: +39-06-5041303, E-mail: [Lanza@ingv.it](mailto:Lanza@ingv.it)*

**Abstract**

How much environmentalists influence people when science is involved? To this aim I will consider institutional communication and press clips available online, related to two case studies in my country. The first case, Geological Carbon Sequestration (GCS), is a high-tech solution internationally studied to solve global warming, almost unknown to Italian public. The second case concerns the possible health effects of exposure to Electro-Magnetic Fields (EMF) that in Italy has been the cause of deep controversies among environmentalists, scientists and politicians. Both these cases show an important influence of environmentalists on people and institutions and a great difficulty for scientists to address their message to society.

**Key words:** Environmentalists, scientists, public



**Fig1** Different options for GCS

## Text

### Introduction

In August 2002 I have published an article in a popular science magazine concerning GCS, a technique studied by my colleagues of Fluids Geochemistry Laboratory [1]. The international scientific community is studying the possibility of storing in some geological sites (see Fig.1) the CO<sub>2</sub> coming from sources contributing to global warming. Satisfied by my article, my colleagues invited me to attend an outstanding conference in Kyoto, where, in the controversial case of ocean storage, scientists themselves were presenting case studies in public and institutional perception. Environmental organisations were considered the main cause of experiments' refusal [2][3]. When invited to a workshop on risk perception in the framework of an Italian project devoted to the safeguard of men and environment from the EMF[4], I found again scientists facing the difficulty of addressing their message to people. From my part, I had to conclude that an honest confrontation with the environmental organisations is a good a starting point, and now I am glad to realize that Legambiente is promoting the debate[5]. In the present paper, I will analyse some records obtained browsing the web with the aim of better investigating the relation between the two and their influence on people. The research is limited to online records and to my country.

### Methodology

To obtain items I have visited the online press archive of the Italian Chamber of Deputies and of the Civil Protection; the Italian web sites of Greenpeace, WWF and Legambiente; those of ENEA, INGV and Enitecnologie, and the site of "Elettra 2000", a consortium of scientists working on EMF health effects. For further records I have sometimes used google. In the second case, I have considered highly significative the year 2001 since the Italian parliament was discussing the Law on Elettrosmog, while a legal controversy between Radio Vaticana and the citizens of Cesano (Rome) was creating a big political turmoil.

### Main results

With a totality of 23 significative scores in the time-interval going from the year 2000 to April 2004, it is clear that GCS is not so much popularized, even if from one of the few clips scored we learn that experts are ready to choose sites where conducting experiments. It is noteworthy that only in Greenpeace web site, we read that they will contrast the introduction of the "Clean carbon" and consequently this technique. Most of the scores come from online magazines. I have summarized the different positions (see Table 1 below).

Favourable	Not Favourable
Press clips scored in my research are mainly positive about it.	Online records are also negative <ul style="list-style-type: none"><li>• It will not solve the problem</li></ul>

<ul style="list-style-type: none"> <li>• The technique, considered safe from many studies, will allow reducing CO<sub>2</sub> emission in time with Kyoto parameters.</li> <li>• It is encouraged by Kyoto Protocol</li> </ul>	<p>cause the gas will be released again in the atmosphere even if in geological times</p> <ul style="list-style-type: none"> <li>• It is quite expensive. Capturing and storing the gas will require further energy supply</li> </ul> <p>Environmentalists affirm that:</p> <ul style="list-style-type: none"> <li>• The use of this technique will encourage our dependence on carbon fossil fuels</li> <li>• It is a solution industry promote to keep on polluting</li> </ul>
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**Table 1** reports the different opinions on GCS obtained in the present research. Note that environmentalists' opinions come mainly from other countries.

Concerning elettrosmog, it is really controversial the message addressed to people. A confrontation between the Legambiente Faq[6] and those of "Elettra 2000" experts[7] is illustrative of the two different approaches (see Table 2 below).

Legambiente	Elettra 2000
<p><i>What risks are associated to people's exposure to EMF?</i></p> <p>...</p> <p>Some studies have shown a high incidence of cancer and leukaemia compared to the normal referring average in population living near radio and television systems and exposed to electric fields major than 60V/m...</p> <p><i>What steps can I take to reduce my exposure to EMF?</i></p>	<p><i>Are there evidences of long-term effects due to Radio Frequencies Radiations (RFR) exposure?</i></p> <p>According WHO, in the present scientific literature there is no evidence that RFR exposure reduces human life expectation, or causes cancer...</p> <p><i>Cellular phone with integrated antenna are more dangerous than the</i></p>

...	<i>traditional ones?</i>
Avoid cellular phone with integrated antennas.	No. Shape and dimensions of cellular phones are not fortuitous...in cellular phones with integrated antennas the best performance can be obtained that way.

**Table 2** shows some deeply contrasting answers to similar Faq.

An analysis of the press clips scored in the time interval going from 1999 to 2003, shows that newspapers have emphasized the political debate and the legal controversies between citizen committees and antennas and radio basis owners. In March 2001 a letter signed by outstanding scientists has clearly introduced their point of view in the communication addressed by the press to the public. The letter content is well reported by an American journalist [9]. I have summarized the main arguments in the following Table 3:

Scientists	Environmentalists
<ul style="list-style-type: none"> <li>• The WHO does not even list EMF among the 385 agents clearly causing cancer</li> <li>• The 40 per cent of cancers is due to unknown causes</li> <li>• There is also an elettrosmog business based on environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>• Italy has a sad supremacy: 60.000 radio and TV antennas compared to the 10.000 in the Usa</li> <li>• We should avoid what happened with studies on lung cancer caused by asbestos exposure: Law arrived 40 years later with many victims</li> </ul>

**Table 3**

### Conclusion

Why in Italy there is not a public concern on GCS? The answer is that since environmentalists are not taking so much care about it, nobody worries and the press can be positive. On the other hand, Elettrosmog controversy shows that environmentalists have driven the political debate even if scientists have taken a public position. The limits for the level exposure in my country are the most severe. Compare, for instance, for RFR (Radio, TV, Cellular phones) the 6V/m for Italy and the 60V/m for France, Germany and Great Britain. If it is generally accepted the influence of the media on people's risk perception, the relation between the media and the environmental organisations towards the public requires more attention in the future to promote a debate where scientists could also be efficaciously involved.

## References

- 1) Lanza, T. (2002). Un sequestro per salvare il pianeta. *Newton*, (8) 121-126.
- 2) Haugan P.M. (2003). On the production and use of scientific knowledge about ocean sequestration. In J.Gale-Y.Kaya (ed) *The 6<sup>th</sup> International Conference on Greenhouse Gas Control Technologies*, (pp. 719-724), Kyoto.
- 3) De Figueiredo, M.A., Reiner, D.M., and Herzog, H.J. (2003). Ocean carbon Sequestration: a case study in public and institutional perceptions. In J.Gale-Y.Kaya (ed) *The 6<sup>th</sup> International Conference on Greenhouse Gas Control Technologies*, (pp. 799-804), Kyoto.
- 4) University of Rome “La Sapienza” (2003, March). *Giornata di Studio “Comunicazione e percezione della scienza e del rischio”* retrieved from [http://www.emprotect.enea.it/html/Eventi/Conclusi/Convegno\\_14\\_03\\_2003/](http://www.emprotect.enea.it/html/Eventi/Conclusi/Convegno_14_03_2003/)
- 5) Cini, M (2003). Relazione introduttiva. University of Rome (2003, April). *L’Ambientalismo e la scienza: nemici o alleati?* Retrieved from <http://www.legambiente.com/documenti/2003/0422RelazioneCiniAcqua/cini.php>
- 6) Legambiente (2002) *Elettrodomande sull’inquinamento elettromagnetico* retrieved from [http://www.legambiente.com/documenti/2002/0117\\_elettrodomande2002/elettrodomande.php](http://www.legambiente.com/documenti/2002/0117_elettrodomande2002/elettrodomande.php)
- 7) *Raccolta di domande risposte a cura del Comitato Scientifico di Elettra 2000* retrieved from <http://www.elettra2000.it/faq/faq2.htm>
- 8) Trofimov, Y. (April 10, 2001) Italian scientists attack politicians for support “electrosmog” Law. *Wall Street Journal* retrieved from [http://www.cidis.it/articoli/cem/italian\\_scientists\\_attack\\_politi.htm](http://www.cidis.it/articoli/cem/italian_scientists_attack_politi.htm)

## **Parallel Session 19: Scientists and science institutions as PCST agents: Experiences**

### **OPENING THE BLACK BOX: A CROSS-NATIONAL SURVEY OF VISITORS AT EUROPEAN RESEARCH CENTRES**

*Monica De Pasquale-Jacobsson<sup>1</sup>, Monika Kallfass<sup>2</sup>, Federico Neresini<sup>3</sup>,  
Francesca Forno<sup>3</sup>, Hans Peter Peters<sup>2</sup>*

<sup>1</sup> CERN, Geneva, 1211 Geneva 21, Switzerland, [monica.de.pasquale@cern.ch](mailto:monica.de.pasquale@cern.ch)

<sup>2</sup> Research Centre Juelich, 52425 Juelich, Germany, [m.kallfass@fz-juelich.de](mailto:m.kallfass@fz-juelich.de)

<sup>3</sup> Observa-POSTER, Stradella del Garofolino, 20 - 36100 Vicenza - Italy, <http://www.observanet.it/>

#### **Abstract**

In a comparative study of the visitor programmes at European research centres for physics in Germany, Greece, France/Switzerland and Italy, the contents and effects of this communication activity between the centres as producers of scientific knowledge and the public were analysed. A combination of qualitative and quantitative methods was used and more than 3 600 visitors were surveyed several times. The results promote the understanding of this traditional kind of PCST activity in various respects (e.g. visit effects) and make suggestions for improving communication with the public through visitor programmes. The research was funded by the European Union.

**Key words:** public communication, visitor programmes, research centres

#### **Text**

##### **Introduction**

Many European research centres offer regular visitor programmes and Open Days for the general public as part of their public relations work, and each year thousands of visitors, e.g. school classes, students, and groups of lay persons, take the opportunity of looking behind the scenes at these institutions for the production of scientific knowledge. But what exactly happens during these visits and whether visitors and centres benefit from them still resembles a “black box”.

In order to study these visits and their effects on the visitors we conducted a cross-cultural survey of visitors at four major European research centres: CERN (Switzerland/France), Demokritos (Greece), DESY (Germany) and LNGS (Italy).<sup>1</sup> The research design of this EU-funded project “Inside the Big Black Box – Analysing visits to physics laboratories” (IN3B) included in-depth interviews, ethnographic observations, and a survey. A total of 3 600

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<sup>1</sup> Besides the authors of this paper the following partners collaborated in the IN3B project: Roberta Antolini, LNGS, Lida Arnellou, University of Patras, Massimiano Bucchi, Observa-POSTER; Paola Catapano, CERN, Kostas Dimopoulos, University of Peloponnese, Stella Efthimiopoulou, Demokritos, Giuseppe Pellegrini, Observa-POSTER, Heiner Westermann, DESY. Project reports: <http://user.web.cern.ch/info/IN3B/Reports.html>

visitors were interviewed before and immediately after the visit; a sub-sample was re-interviewed by telephone several months later along with a matching sample of non-visitors.

#### The visitors and their expectations

School classes and groups of pupils aged 15 to 19 were the predominant visitor type at all research centres, representing between 52% and 92% of the samples. The other visitors were university students, professionally interested and non-expert visitor groups.

Most visitors regarded their knowledge about the research centre as low before the visit, but their interest in scientific research as rather high (58% to 81% indicated a rather strong or very strong interest). Between 30% and 55% of the visiting pupils were interested in a science career. The visitors' initial image of the research centre and the research done there was rather positive. Prior to the visit, approx. 60% preferred public funding of research with practical benefits to basic research with no practical implications.

The visitors' main motive for the visit was a general interest in scientific research, and they primarily expected to see what kind of research was done at the centre.

#### The visitors' level of satisfaction

The results from the quantitative analysis revealed that the overall satisfaction was high in the four research centres. In particular visitors appreciated the possibility to ask questions to the guides and the quality of the guides' answers. Sometimes, visitors had encountered acoustical problems during the visit.

Almost all visitors (95% - 98%,) confirmed that they had seen what kind of research was done, and 86% - 93% had received an overview of the centre.

From the sample of visitors who had volunteered to be re-interviewed by phone several months later, most confirmed that they were satisfied with the visit. However, these re-interviewed visitors already had been more satisfied than others when interviewed directly after the visit.

In contrast to the quantitative analysis, the in-depth interviews revealed other remarks: for example, difficulties in understanding the guides' explanations and a lack of involvement.

The most liked items of the visit were indeed the experimental sites, because of their large size and contact with real science.

#### Effects of the visit

The visitor programmes of the research centres studied share several aims: to inform visitors of ongoing research activities, stimulate interest and curiosity toward science, channel scientific contents, encourage a positive attitude to research.

Based on the comparison of answers given before and after the visit we could assess the main effects of the visit concerning these aims. The visit appeared quite effective in the short run and less so in the medium term; a kind of "snowball effect" was observed, as the large majority of visitors talked with

others about the visit afterwards; the visit had quite a positive effect of increasing the visitors' knowledge about the research centre and the research activity done; after the visit, the number of pupils who wanted to become a scientist increased, even if this positive effect was lower in the case of physics; visitors' knowledge of some fundamentals of physics increased, although to an extent which varied from case to case and was not always so evident.

Surprisingly, despite a high level of satisfaction, the visitors' image of the research centre and its research was hardly changed by the visit.

### Conclusion

With respect to the general goal of improving communication between science and society, the research centres play a strategic role based on their distinctiveness as institutions for scientific knowledge production and dissemination.

In this regard, visits to these authentic places for the production of science can be an invaluable experience for visitors, as confirmed by their high level of satisfaction.

Therefore the possibility of this encounter with research in progress and the occasion to have a look behind the scenes should not only be maintained, but also further used. Our research project has also provided a lot of insights for improving the visits and for reflecting on their relevance as PCST tools.

**Parallel Session 19 Scientists and science institutions as PCST agents: experiences.**

**SANT PAU PROJECT: URBAN KNOWLEDGE PARK ON HEALTH SCIENCES**

*Johanna Cáceres<sup>1</sup>, Mariona Grau<sup>2</sup>, Josep M. Fernández<sup>3</sup>, Miquel Modrego<sup>4</sup>, Josefa Puig<sup>5</sup>, Josep Antoni Grau<sup>6</sup>*

*1 Head of Projects and Press Office at the Communication Department, Hospital de la Santa Creu i Sant Pau (HSP). Sant Antoni M. Claret, 167. 08025 Barcelona (Spain). Tel. +34 93 291 99 07, Fax +34 93 291 90 62, E-mail: jcaceres@santpau.es*

*2 Director of the Communication Department at HSP. E-mail: mgrau@santpau.es*

*3 Head of Publishing at the Communication Department, HSP. E-mail: jfernandezr@santpau.es*

*4 Manager of the Heritage Division at HSP. E-mail: mmodrego@santpau.es*

*5 Manager of the Hospital Division of Hospital de la Santa Creu i Sant Pau. E-mail: jpuig@santpau.es*

*6 Managing Director of Hospital de la Santa Creu i Sant Pau.*

**Abstract**

The Hospital de la Santa Creu i Sant Pau (HSP) was created in 1401, in Barcelona. It is currently situated in several different Art Nouveau pavilions which have been declared a World Heritage site by UNESCO and are of patent cultural and tourist interest. The hospital is building a new site that will concentrate healthcare activity. The pavilions and surrounding gardens will host teaching and research activities, together with new cultural and social uses. HSP believes that, in the 21<sup>st</sup> century, a hospital must be regarded as a knowledge centre, which involves engaging in popularisation activities aimed at stimulating the scientific and medical culture of the population. This is why the hospital area will become a knowledge park on health sciences.

**Key Words.** Health & Medicine, Public Understanding of Science, Knowledge

**Text**

**Context.** The Hospital Santa Creu i Sant Pau (HSP), in Barcelona, is one of the most important university and research hospitals in Spain (3000 employees

and a catchment-area of 400,000 people). It is over six centuries old and its current site was declared World Heritage by UNESCO.

HSP is in a period of change as healthcare activity moves to a new building. This move will leave 18 Art Nouveau pavilions empty, that will be occupied by research and teaching activities (existing and new) and other activities which have not been carried out by the hospital so far: activities related to science popularisation and education and aimed at schools, tourists and the local population at large.

**Methodology.** HSP considers the change to be an opportunity, a chance to define what a 21<sup>st</sup> century hospital should be and it proposes a new way of understanding and managing a hospital. The Sant Pau Project (SPP) makes strategic use of the three pillars upholding HSP (healthcare, teaching and research) and adds a new one: putting its cultural heritage within reach of the people by means of the following:

1. promoting science-healthcare culture
2. integrating artistic and medical heritage in a popularisation project

The HSP Communication Department is responsible for defining and implementing the SPP and thus has been provided with resources and integrated within the management team as a strategic department.

This task is carried out with the involvement of social partners, both citizens and institutions: neighbourhood and patient associations, the city council, professional associations, etc. The final aim is to get all the vital forces involved in the project so they feel it to be their own.

**Results.** So far, the Communication Department at HSP has designed and initiated different popularisation programmes (schools, associations, general public and journalists), all of them integrated within the project of a Life and Health Museum that the hospital plans to open in the medium term.

Furthermore, an agreement has been signed with a local institution that is, in fact, in charge of co-ordinating the European Art Nouveau Route, an initiative aimed at reclaiming this heritage. In the case of HSP, the architectural relevance of the complex is not only for artistic reasons but also for functional: there are no other living examples of pavilion-structured hospitals, a design that answered to the criteria of medical science at the beginning of the 20<sup>th</sup> century.

The Domènech i Montaner Foundation has also been created to promote the study and diffusion of this extraordinary architect's life and work. We have also started work on a sponsorship and patronage programme, and we are opening lines of business to generate some income from guided tours, school activities, renting spaces for films and advertising spots, etc.

**Conclusions.** HSP is the first large-scale hospital centre in Spain that has been designed within the knowledge society and it concludes that it should be

transformed into an urban health-sciences park. The SPP is a cultural project aimed at promoting culture among citizens, where culture is understood as a set of concepts and ideas that help us to understand the world we live in and participate in it.

### **References**

Grau i Reinés, Josep A. (2003). L'Hospital de Sant Pau: un projecte de futur. Barcelona: Fundació Catalunya Oberta

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**UABDivulg@: A NEW CHANNEL TO BRING RESEARCH TO SOCIETY**

*Octavi López Coronado*

*Àrea de Comunicació i de Promoció. Universitat Autònoma de Barcelona, 08193 Cerdanyola del Vallès. Ph: +34-93-581-33-01, E-mail: [octavi.lopez@uab.es](mailto:octavi.lopez@uab.es)*

**Abstract**

Universitat Autònoma de Barcelona generates a large quantity of research results and knowledge on experimental and social sciences. More than 1000 research papers and nearly 300 PhD Thesis per year are produced at the UAB. Few of them, just some of the most relevant results, are published widely by means of press releases and reaches the general public. In order to fill the gap between press releases and research papers and increase the rate of research activities that reach society, UAB has added to its science communication programme a new communication channel: the web site UABDivulg@ ([www.uab.es/uabdivulga](http://www.uab.es/uabdivulga)). The site brings scientists the opportunity to publish at their own rhythm their research results and projects, in a comprehensible level to the general public.

**Key Words:** institutional science communication, internet

**Text**

Context

Universitat Autònoma de Barcelona (UAB), as a research institution, generates a large quantity of research results and knowledge on experimental and social sciences. As many others do, this institution brings some of these results to the general public by means of sending press releases to the media and publishing articles in the house organ and in the institutional web site ([www.uab.es](http://www.uab.es)) [O.López-Coronado & A. Reig i Malla, 2001]. This activities are being done with relative success. But just some of the most relevant discoveries (from the social impact point of view) can be released to the general public in this way. This implies that just a very few percentage of the research produced at the University has a established way to reach the general public. Therefore, there is a gap between press releases and scientific papers in the established science communication channels.

Objective

Science communication programme at the UAB now includes a new communication channel that fills this gap between press releases and scientific papers: the web site UABDivulg@. The aim of this web site is to bring scientists systematically the opportunity to publish at their own rhythm their research results and projects, despite of its social impact or relevance, in a comprehensible level to

the general public. The web site has been designed as an information source for science journalists, scientists, institutions, enterprises, and also as a tool for educational purposes.

## Methods

In order to accomplish the main objective of bringing the opportunity to every researcher to be published in a comprehensive level, despite of its social impact or relevance, we have tried to optimize every step in the process:

1. Getting as much information as possible. It is taken into account almost all the scientific production from the University: research articles in scientific journals, PhD thesis, approved research projects, books and chapters, etc.
2. Asking everyone to write a comprehensible article. There is no filtering in the process. Every researcher gets a general invitation to participate in this project, and everyone of them is asked again whenever he publishes a research article, gets a new project, etc. Researchers are also asked for complementary images or links.
3. Writing a very comprehensible introduction. Staff from the Public Information Office, with science communication skills, writes a brief and very comprehensible introduction to every article and prepares a pre-publication in the www.
4. Review process. Trying to make UABDivulg@ as rigorous as possible, researchers receive a pre-publication access to the article, in order to review it and give their approval to its publication.

## Results

The primary source of information is guaranteed, due to the high numbers in research papers and PhD thesis at UAB, but the rate of participation of the researchers in communication activities can still be increased. From May to November 2003, we have had access to about 550 research results, PhD thesis and new projects. In every case, the principal investigator has been asked for an article to be published at UABDivulg@. In this period UABDivulg@ has received about 110 articles for publication. This means that, in its 6 first months, UABDivulg@ has achieved an average rate of participation of 20%, i.e. about 15 contributions per month. This guarantees the future feasibility of the project. Promotion of the site and evaluation of how it is reaching the public are the main future projects.

Beyond the interest of this initiative as a way to communicate scientific research to society, we find UABDivulg@ a powerful tool for further objective studies about scientific community participation in science communication activities. Also, due to the easy tools that electronic media brings to evaluate their audience, it will be very interesting to study public preferences and behaviours on institutional science communication.

## Conclusion

We have developed a new web site, UABDivulg@, as an information source for the general public. The site brings scientists the opportunity to publish at their own rhythm their research results and projects, in a comprehensible level, in order to increase the rate of research activities that reach society. In this site, all the contributions are written directly by the researchers. It has been achieved a rate of participation of about 15 new contributions per month, which guarantees the future feasibility of this initiative.

### **References**

O.López-Coronado & A. Reig i Malla, *Comunicación Científica desde el Gabinete de Prensa de la Universitat Autònoma de Barcelona*, II Congreso de Comunicación Social de la Ciencia, Valencia, 28-30 de noviembre de 2001.

**Parallel Session 19 Scientists and science institutions as PCST agents: experiences.**

**ARGENTINA'S SELLING OF A NUCLEAR REACTOR TO AUSTRALIA. SCIENTIFIC INFORMATION AND PERCEPTION OF RISK**

*Leonardo Vaccarezza<sup>1</sup>, Carmelo Polino<sup>2</sup> and María Eugenia Fazio<sup>3</sup>*

<sup>1</sup> *Grupo REDES, Mansilla 2698, 2° piso, C1425BPD, Buenos Aires, Argentina. Tel./Fax: 54-11-963-8811/7878, E-mail: [vaccarez@mail.retina.ar](mailto:vaccarez@mail.retina.ar)*

<sup>2</sup> *Centro de Estudios sobre Ciencia, Desarrollo y Educación Superior (REDES), Mansilla 2698, 2° piso, C1425BPD, Buenos Aires, Argentina. Tel./Fax: 54-11-963-8811/7878, E-mail: [cpolino@ricyt.edu.ar](mailto:cpolino@ricyt.edu.ar)*

<sup>3</sup> *Centro de Estudios sobre Ciencia, Desarrollo y Educación Superior (REDES), Mansilla 2698, 2° piso, C1425BPD, Buenos Aires, Argentina. Tel./Fax: 54-11-963-8811/7878, E-mail: [mefazio@ricyt.edu.ar](mailto:mefazio@ricyt.edu.ar)*

**Abstract**

This paper focuses on analyzing a public controversy started in 2001, when INVAP –an Argentinean firm belonging to a provincial state- obtained an international tender to build a nuclear reactor in Australia. This case allows both a review about social perception of technological risks and limits, and conditions of the citizen participation in science & technology sphere. Furthermore, to promote this kind of public appropriation is useful to consider other approaches toward the idea of the scientific culture in society.

**Key words:** citizen participation, public perception of risks, public information.

**Text**

**Context**

Different surveys around the world support that most of the society trusts on the ability of science both to solve problems and improve the quality of life. Sometimes, however, the confidence diminishes when controversial ideas about risks that arise from technological development appear in public opinion. In some cases, these situations mobilize citizen participation.

The intersection between science & technology, risks, and citizen participation in a social controversial context was described in a joint investigation of RICYT/CYTED and OEI. As a part of that research, six Argentinean cases of

“citizen participation” were characterized in order to analyze techno science and social processes. One of the main goals of the project was to include citizen participation in public policies agenda of science & technology in Latin American countries. There are at least two arguments to point out in that direction: one of them, the public culture of participation in S&T is poorly installed. A regional pilot survey also carried out by RICYT and OEI in cities of Argentina, Brazil, Spain and Uruguay showed that less than 10% of the persons interviewed had been actively involved in some activities of citizen participation.<sup>1</sup> The second one, to understand this type of social processes is important because of public institutions admits the relevance of citizen participation but there are not public institutionalized structures to support it. In addition, to continue systematic investigations about citizen participation could facilitate the clarification of this incipient social research concept.

## Results

Argentina has a strong tradition in nuclear research. Generally, nuclear research and civil Argentine society have had a pacific coexistence. Nevertheless, at the middle of 2001, when the Argentinean enterprise INVAP won an international tender to build a low power nuclear reactor in Australia, a controversy was installed in public opinion. As a backing for the contract an agreement was signed between the states that included a clause which unleashed the controversy: in case that Australia requested it, Argentina should recycle the combustible used by the reactor.

Five social actors were directly involved. Their positions were the following:

- ⇒ Environmental organizations (*Greenpeace* and *Amigos de la Tierra* in particular), stated that this contract would turn the country into a “nuclear waste disposal”. From the beginning, these actors installed an effective media campaign: the general tonic was apocalyptic images about nuclear dangerous consequences for environment and health.
- ⇒ Most of the scientific community rejected the condemnations and emphasized technological and commercial success. Furthermore, scientists accused environmental organizations: they said that, eventually, there would no be “nuclear waste” but used up fuel from the reactor. However, they reacted later, even not clearly, and lost “the battle” in the media.
- ⇒ Government’s authorities supported scientific community’s arguments.
- ⇒ The media system was the principal scenario where the actors showed their points of view. However, the environmentalist influence predominated in the media.
- ⇒ The society. First, people who lives close to the place where the used up fuel from the reactor should be treated. This people relied environmentalist’s

arguments; in particular, a group called *Asamblea Barrial de Ezeiza*. Second, media readers and viewers in general.

In a few months, the controversy disappeared as a new in the journals. Yet, public exposition avoided, at least for the moment, that the National Congress endorse the bilateral agreement. Even though, INVAP goes on building up the reactor as it was planned. The controversy remains latent. The conflict will become public once again.

## Conclusions

The citizens' participation implies the existence of opportunities to accede to and appropriate of scientific contents and reliable information, as well as the involvement in the decision-making on public policies and in the social debates on these subjects. The "scientific culture", so understood, supposes a kind of conscience acquired by citizens. This case shows that effectively existed some kind of citizens' participation. But, can be said that the involved actors have fostered a democratic participation in the terms above described? Probably no. Participation was restricted to a dispute of interests that weakened the possibility of a social learning. In this sense,

- ⇒ Greenpeace attempted to mobilize population from fear, appealing to the usual phantoms about nuclear power. The style of the protest reduced the possibility of a democratic debate.
- ⇒ Scientific community holds a basically defensive attitude, with an ineffective communication policy, and could not give an answer to the subjective perception of risk experienced by the public, an issue that environmentalists knew how to appropriately exploit. That is an evidence of the lack, into the scientific system, of practitioners capable to articulate with the rest of society.
- ⇒ Government did not assume a role as articulator. This reveals the lack of permanent policies and structures capable to answer the citizen's participation.
- ⇒ Media privileged spectacular information and not the research journalism.

These results are important data for the public policies aimed to put in touch science and society. The pointed deficiencies allow to suppose that the existence of spaces for debate or the circulation of information don't guarantee by themselves an effective participation. The public was caught into a crossed - interests logic and stood outside of a fundamental discussion: the future of the management of radioactive waste in the country and, largely, of the nuclear policy.

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<sup>1</sup> This comparative methodological non-statistical survey was answered by 300 people in Buenos Aires (Argentina) and 150 in Campinas (Brazil), Salamanca y Valladolid (Spain), and Montevideo (Uruguay).