



## Book of Abstracts: [WG] Environment, Science and Risk Communication

### **The Amazon rainforest in the light of climate change and global warming: an international media perspective case study in environmental communication**

*Michael Hanke* — , · michaelhankebeaga@yahoo.com.br

With climate change and global warming gaining increasing evidence, the underlying causes and questions on how to prevent the predicted problems in the future have received growing relevance and attention in the public sphere of societies, be it on a local or global scale. Ecological or environmental and sustainability communication has conquered, as a reaction to the gravity of problems, a considerable space in our lifeworld and consequently in world-wide media covering. Tropical rainforests in general, and the Amazon rainforest specifically, are a part of this discourse which is performed on a local, regional, national and an international, global level. As a consequence of the fact that industrialized nations have other perspectives on environmental and sustainability issues than developing countries, intercultural differences arise; this is why the paper presented is based on a case study that examines media coverage of the subject in German and Brazilian media (Folha de São Paulo, Veja, Isto É, O Globo; Frankfurter Allgemeine Zeitung, Süddeutsche Zeitung, Spiegel, Spiegel-Online, among others) from 2008 on. Its theoretical outline is based on the concept of Umwelt developed by environmental theorist Jakob von Uexküll, extended and enriched by the notions of lifeworld and the theory of systems as used by Jürgen Habermas and Niklas Luhmann, which serves as a framework, complemented by a revised version of the agenda-setting model, to answer the question of how society reacts to and deals with perceived and communicated environmental problems.

### **Picturing Environmental Risk: National Geographic and the Alberta Oilsands**

*Chaseten Remillard* — , Canada · csremill@ucalgary.ca

The March 2009 issue of National Geographic Magazine featured a photographic essay by Peter Essick on the Alberta oilsands. The photographic essay and its context of display beautifully brought together prevalent social significations of nature, visual conventions of picturing the natural world, and concerns about environmental degradation and risk. This paper considers how these images communicate environmental risk. Although risk communication is a well-developed field and environmental risk an important focus of scholarship, there is a relative dearth of investigations into visual representations of risk. A growing body of research exists, for example, on media coverage of global warming, yet these studies tend to consider images (at best) as supplements to textual analysis. Similarly, many theorists consider perceptions of nature as culturally constructed and socially communicated, but few have specifically studied how visual images function as constructive elements of that social constituted and communicated meaning. Recently, visual representations of the environment have become the focus of some scholarship, however, these considerations of visual representations tend to focus on wide surveys of environmental imagery, or the repetition of specific icons and categorical generalities of environmental images within the media. As such, an investigation of how the specific and contextualized images of the March 2009 edition of the National Geographic Magazine (grounded in a particular geographical location and reflective

of a distinct industrial process) gain meaning within wider social framings related to environmental risk and existent discourses related to environmental issues stands to contribute to an elaboration on well-established theories about how discourse shapes risk perception within society. This paper considers the photographs contained in the March 2009 edition of the National Geographic Magazine as texts of analysis. However, as with discourse analysis, these texts will necessarily be placed in a broader socio-historical context. Therefore, three levels of analysis will structure the paper. First, an examination of the conventions and visual rhetoric of picturing landscape will be considered: theoretical consideration will provide a history of expectations, or prevalent ways-of-seeing nature. Second, broader social narratives related to resource development, global warming and nature degradation will then be considered. These will be derived from existent risk literature related to environmental issues and concern, as well as, pertinent case examples of studies related to similar issues (oil spills and global warming, for example). Finally, by way of synthesis, an analysis of the specific details of the visual-text will be linked to the delineated rhetorical reservoirs and discursive narratives, previously outlined, and will specify and example how the National Geographic Magazine article bolsters or disrupts existent social framings of environmental risk.

### **Planet Earth on the Eve of the Copenhagen Climate Conference 2009: A Study of Prestige Newspapers from Different Continents**

*Radoslaw Sajna* – UKW in Bydgoszcz, Poland, Poland · rs-epp@post.pl

The problem of the changing climate in the broader ecological context is one of the main subjects of a global debate, because it concerns the whole planet and all the people inhabiting different continents. Before the international climate conference, taking place in December 2009 in Copenhagen, Denmark, prestige newspapers from different continents and countries published editorials, reports or at least news about the climate problem and expectations of the conference. Although the official discussions resulted not satisfactory for many delegates, it seems to be relevant and interesting the question whether the texts published on the day of the opening of the Copenhagen conference (or shortly before) in different prestige newspapers from different continents and countries were similar or rather different: Did they present more global or 'glocal' views? Did they use rather ideological, emotional or reasonable argumentation? Did they treat the problem seriously or underestimating it? Did they suggest to take action by citizens or, above all, by the world leaders? And the main question is: Does exist –10 years after the beginning of the new millennium, in the era of the global communication– a very global debate about the very global problem of the planet Earth? 56 dailies from all the continents published a joint alarming editorial that underlined the urgent problem of the warming climate and the need to battle it "for the humanity's sake". The majority of these 56 dailies are leftist ones, while other dailies published another important editorials or reports. In this study, different conservative and liberal newspapers from Europe are analyzed ("The Daily Telegraph" from Great Britain, "Le Figaro" from France, "ABC" from Spain, "Frankfurter Allgemeine Zeitung" from Germany, "La Libre Belgique" from Belgium, "La Stampa" from Italy, and "Polska" from Poland), but also "The New York Times" from U.S.A., "The Globe and Mail" from Canada, "The Australian" from Australia, and different newspapers from Latin America ("Folha de Sao Paulo" from Brazil, "La Nacion" from Argentina, "El Universal" from Mexico, "La Republica" from Peru), Africa ("Le Messenger" from Cameroun) and Asia ("Hindustan Times" from India, "Tehran Times" from Iran, "China Daily" from China, "Arab News" from Saudi Arabia). Although the European and Northern American press dedicated relatively most space to the problem, in other continents (where the biosphere is meaningfully richer) the prestige newspapers published some texts concerning the climatic change too. The results show also that not only leftist newspapers treat the climate problem seriously, though there are also skeptical texts in some papers, suggesting for example a climatologists' plot. Nevertheless, an alien coming from other planet, able to read press in different human languages, could have impression that the Copenhagen conference was the very crucial moment to the Earth, and that he should rather flee this planet destroying by people.

### **Sustainability and semantics: Elucidating managerial conceptions of sustainable development through corpus linguistics**

*Alon Lischinsky*— Umeå University, Sweden · [alon@lischinsky.net](mailto:alon@lischinsky.net)

While the most distinctive voice in the developing network of public discourses concerning sustainability has been that of science, many other parties are involved in its ongoing construction. The case of companies is particularly important, since, despite their essential role in the dominant socioeconomic system, many of the typical operational goals of business organisations—such as increased consumption, cheaper infrastructure and less regulation—frequently clash with the measures needed to ensure the sustainability of environmental and social development. Empirical research suggests that this leads the business community to a conception of sustainability significantly different from that in the academic development literature (Bebbington and Thomson, 2007; Gray and Bebbington, 1996). However, and despite analyses of corporate discursive formations in the Foucauldian sense (e.g. Milne et al., 2005; Spence, 2007; Triandafyllidou and Fotiou, 1998), empirical evidence for such theories remains inconclusive. In this paper, we seek to provide a systematic account use of managerial conceptions of sustainability by means of a quantitative and qualitative corpus analysis of corporate public communication. This form of research has proved useful in the analysis of political and media discourse (Gabrielatos and Baker, 2008; Mautner, 2007; Pan, 2002), even if little headway has been made yet in applying it to organisational matters. Drawing on an ad-hoc 1'000'000-token corpus built from financial and social responsibility reports for 2008 issued by 50 large corporations, we explore the frequencies and collocations of terms describing sustainability and related concepts to provide empirical evidence of the semantic contour that they adopt in managerial discourse. The paper examines the routine phraseological context in which such discussions occur, only apparent in this kind of large-scale examination, in order to determine: • what entities are routinely related to sustainability and assigned specific thematic roles in reference to it; • what semantic environments do references to SD occur in, giving rise to semantic prosodies (Hoey, 2005; Louw, 1993) that imbue descriptions of events and entities with attitudinal content. Comparisons with the non-genre-specific British National Corpus are also used to establish which of these words show significantly unusual frequencies (keyness) in our texts, a further measure of their pragmatic relevance, as well as differences between semantic prosodies according to context (Tribble, 2000) that can provide empirical warrants for theorising managerial discourse.

### **Media, discourses and the environment: Nepal in a picture**

*Sangita Shrestha*— University of Surrey, UK, United Kingdom · [S.Shrestha@surrey.ac.uk](mailto:S.Shrestha@surrey.ac.uk)

The history of environmental reporting in Nepal started with the formation of Nepal Forum of Environment Journalists (NEFEJ) in 1986. Having more than two decades of efforts in this sector, environment as a topic in Nepal has several implications for being covered in the media and most of the coverage is seen to be linked with environmental disasters, if not conservation. Topics such as environmental degradation, biodiversity loss or impact of chemicals get little space in the media (Cox, 2006). The analysis of several scholars (Hansen 1991, Anderson 1997, Cox 2006) underpins the difficulties for environmental issues achieving wide media coverage. The empirical studies of Reis (1999), Dispensa and Brulle (2003), Chapman et al (1997) also reflect similar understanding on the role of different factors in society in influencing media coverage on the environment. Media plays a key role in sharing knowledge about the environment. Without media coverage there is little chance for any important problem to 'enter the public discourse or become part of political issues' (Dispensa and Brulle 2003:79). However, relatively there are not many studies which are concerned with the way how media coverage takes place on environmental issues (Dispensa and Brulle, 2003). Many of the media researches on environmental issues follow the similar path as that of other media researches which put effort in understanding how media coverage influences public opinion or political decision making (Hansen, 2003). However, a missing part is the link between these two fora where an environmental meaning is produced within a wider socio-cultural

context (Hansen, 2003). Environmental reporting in the media has several implications which need to be investigated in order to find out how media coverage has taken place in a particular society (Chapman et al 1997, Anderson 1997, Cox 2006). In order to understand how the environment is represented in Nepal, it is essential to focus the study on how the news values and environmental reporting in Nepalese media takes place. In this context, this report tries to investigate how media in Nepal constructs the environment and how the audience is perceived in the media. It outlines some of the findings of the preliminary study carried out during the months of August and September 2009. The main aim of the study was to find out how Nepalese media portray environmental stories. It also aimed to investigate the nature of environmental news which is newsworthy in Nepalese media, major sources of environmental news as well as the quoted actors in the news. Furthermore, it aimed to find out the portrayal of public understanding towards environmental issues in these media. For this study, a total of 82 samples of news collected from three radio stations and one newspaper for content analysis, one of the environment discussion programmes on the radio was also selected for discourse analysis.

### **Fear appeals and the global warming news: Examining the use of threats and response efficacy in Taiwan's news content**

*Shu-Chu Li*— National Chiao Tung University, Taiwan · shuchu@mail.nctu.edu.tw

According to many scientific studies, the phenomenon of global warming is presenting an enormous threat to human beings, and scientists ask the public to take actions immediately for the reduction of the emissions of heat-trapping gases in order to slow down its negative impact. The general public relies heavily on mass media for scientific information, and thus it is important for journalists to know how to motivate the public to pay attention to media coverage of the global warming and hopefully to have a positive attitude toward global warming solutions, which can lead to pro-environmental behaviors. In other words, this study suggests that an adequate integration of fear appeal into message design of news coverage will allow journalists to communicate effectively with the public regarding the issue of global warming. Therefore, the purpose of the study is to examine the use of fear appeals in media coverage of the global warming in Taiwan to understand how the issue of global warming was reported by Taiwan's news media, and whether Taiwan's journalists were effective in terms of reporting this issue to the public. This study adopted the method of content analysis as the research method to examine the use of fear appeals in the global warming news reported by Taiwan's four leading newspapers—The China Times, The United Daily, The Liberty Times, and The Apple Daily—and four major news channels—TVBS, ETTV, CTS, and FTV—from 1998 to 2009. According to the literature on fear appeals, a message with a fear appeal must contain four elements—perceived severity, perceived vulnerability, perceived response efficacy, and perceived self-efficacy—in order to get its receivers' attention and actions. This study uses the four elements as categories to analyze the message design of the global warming news in Taiwan. The data analysis shows that there were 1042 news stories regarding the issue of global warming during the 12 years, among which 85% were presented as general news. Furthermore, this study found that 93% of the news stories only contain one of the four elements of fear appeals, 76% contain perceived severity and 16% contain perceived response efficacy. The effectiveness of message design of Taiwan's news stories regarding the global warming issue was discussed in accordance with the fear appeals model.

### **Discursive intersections: a study of media-policy elites struggles over GM food risks in Britain**

*Anita Howarth*— Kingston University, United Kingdom · A.Howarth@kingston.ac.uk

When GM food was launched on the British market in 1996, newspapers were broadly welcoming but within four years they were actively campaigning for a change in policy. Government resisted but such was the opposition that a stalemate emerged. This paper uses this case study to explore why existing approaches to the media-policy relationship are inadequate to explain how this stalemate came about. It then offers an alternative

framework based on the political-media complex, definitional struggles over risk and the discursive intersections. A central contention in the use and synthesis of these approaches and concepts is that it cannot be assumed one will be dominant and the other dominated. Nor can it be assumed that the media and elites will engage with each other over risk debates or that when they do so it will be conflictual or consensual. These have to be empirically examined. Having empirically established engagement and conflict, then it becomes necessary to ask what form it takes when dealing with new risks. In this domain, contestation has the potential to take the form of struggles over the definition of these risks. These struggles take place at the site of discursive intersections - a site of contradictions and negotiations as different sets of knowledge, cultures, agendas interact at the level of discourse. The paper concludes by suggesting the primary usefulness of this approach is that it avoids theoretically predetermining how media or policy elites interact with each other in different policy domains

**Inclusive Risk Communication: linking climate change, air pollution and health in a Risk Governance model.**

*Anna Garcia* — , Spain · agahom@gmail.com

*Pablo Santcovsky* — , · pablo.santcovsky@gmail.com

*José Terrón* — , · joseluis.terron@uab.cat

*Ramon Moles* — , · ramon.moles@uab.cat

This paper examines critically the communication policy of environmental risks under the paradigm of the sustainability carried out by the Catalan administration in the Spanish state regarding the control and follow-up of the quality of the air in period 2007-2009. So, the main objectives of this research is to analyze the process of risk communication and risk governance (RG) of the plan of improvement of the quality of the air developed in 2007 by the Catalan government. Hence, qualitative interviews have been conducted with experts and technicians of air quality management. Moreover we have done a benchmarking analysis of different international cases in order to conceptualize the main trends in this issue. In this sense, Inclusive Risk Communication is one of the last trends in the management of risks towards theoretical level. The participation of stakeholders is extremely important in this governance process, and often the conditions of social participation go directly related with the type of risk that is considered, which at the same time requires an ecosystem of expertise in the risk communication level. The comparison of the Catalan case with the USA model, the UK and the French case, in spite of the differences of magnitude, induces to think that the management of the quality of the air in Catalonia assumes some principles of an Inclusive RG from a functionalist perspective. In the Catalan case, the quality of the air management is not conceptualized in RG terms, even though the interviews carried out detected a will of improvement on one of the main features of RG: risk communication. Hence, we present a model of Inclusive RG for the quality of the air in Catalonia, combining aspects of Strategic Communication and RG, developing an Inclusive Communication Strategy model. The main results of this research focus on the one hand on the need to link air pollution, health communication and climate change in order to increase social perception of air pollution risk. In the other hand we stress out and define a model about the need for developing public participation processes in order to achieve a more democratic consensus within our risk societies.

**The case of black-necked swans death in Valdivia, Chile: the importance of managing communications on environmental conflicts**

*Daniela Contreras Lanfranco* — , Chile · dcontreras@uss.cl

Currently, the society in which we are involved has meant that the communication is an increasingly important management tool within companies, organizations and institutions of various kinds. The competitiveness that comes with the so-called information society has made communication within organizations take on new challenges, methods and strategies. Thus, many business sectors, economic, social, political and cultural factors have realized that an effective information management and hence of communication, can make achieving your

goals more quickly and easily. However, the amount of information available to us today through the development of new communication technologies and information often makes this task difficult. One of the situations where information management is key is in conflict or crisis. The types of crisis are diverse in structure and complexity, but apart from this, can be lethal when it comes to destroying the reputation and corporate image of an organization for media outreach will usually occur. This damage is particularly strong in the case of environmental disasters, where the citizenry is actively involved in the case, ceasing to be a crisis sharply between the organization and the public directly affected and becoming a citizen conflict. This paper analyzes the case of mass mortality of black-necked swans in the Natural Sanctuary of the Cruces River "Carlos Anwandter" occurred near the city of Valdivia, a distance of 800 km south of Santiago, Chile, and maintained in alert the entire country for several months between 2004 and 2005, thanks to extensive media coverage. Public opinion was relentless in blaming the Valdivia Pulp Mill belonging to Grupo Arauco, one of the strongest business conglomerates in the country—in the death of these birds and severely damaging their corporate image, further aggravated due to continuous mistakes made by the company in managing their communications. This case of crisis was listed as one of the most important of the last decade in Chile. In this paper, we will show how a private-investment if not Chile's largest copper producer in that time—helping to destroy its image and corporate reputation due to poor management of their corporate communications, summarizes the most important milestones in this story communicational terms and analyzed, one case of major communication crisis in recent years in Chile.

### **RULES OF ENGAGEMENT: FOSTERING PUBLIC ENGAGEMENT ON CLIMATE CHANGE IN THE PHILIPPINES THROUGH ONLINE MEDIA**

*Jaime Manuel Flores* — Ateneo de Manila University, Philippines · jqflores@ateneo.edu

In this day and age, media—specifically online media—has the power to shape and form people's perceptions, behaviours and attitudes. Moreover, media has been seen as a powerful tool to promote social participation and mobilization, and the connection between media exposure and public engagement is evident. Now, more than ever, public engagement in climate change issues is necessary. The Philippines, in particular, is considered as one of the countries that is highly vulnerable to the impacts of climate change. By looking at two Philippine websites and online forums, the paper discovers the various ways in which climate change discourse is framed and presented to the Filipino new media consumer. Guided by Matthew Nisbet's (2009) concept of framing typologies, the paper will use content analysis as a primary tool for evaluating data. The paper describes the quality and quantity of information currently circulating in the chosen websites, and draws implications on public perception of climate change and its impacts through the online forum discussions. The paper also presents recommendations for the effective advocacy of climate change messages. Likewise, guidelines for the proper and effective dissemination of climate change information are offered.

### **Swine flu and risk coverage of Korean newspapers**

*Sunmi Chun* — EntersKorea Co., Ltd., Korea, Republic Of · seonmi.jeon@gmail.com

Making informed decisions about risky situations requires quality information. This study elaborates on the research of previous studies (Dudo, Dahlstrom and Brossard, 2007; Culbertson, 2007). In order to obtain a better understanding of how a global epidemic is presented to the public in fear and anxiety, this study examines quality of risk-related information about swine flu represented by newspapers. Using a six-dimension conceptualization that included agenda diversity, sensationalism, thematic and episodic framing, measures of risk magnitude, self-efficacy, and risk comparisons, this study will analyze two major Korean newspapers. This study is a work in progress. This study makes an initial attempt to assess the swine flu coverage in major

newspapers in South Korea and the findings yield insights about whether previous studies are isolated cases or are more representative.

### **Talking Sustainability in India: Public and Private views on the Environment and Sustainable Development**

*Prithi Nambiar* – Macquarie University, Sydney, Australia · pnmsds@yahoo.com

The aim of this study is to explore citizen views of the significance of sustainability in a developmental context where policy and regulatory lapses are often endemic, making the environment a direct casualty of economic growth. Reflecting this reality, India although boasting an annual growth rate of GDP of close to 8% in 2008, ended up being placed 120th out of 149 countries in the Environmental Performance Index of 2008 (Yale and Columbia Study). With a booming population of 1.1 billion poised to overtake China's 1.3 billion on a land area that is only a third its size, India faces the increasingly critical challenge of making development sustainable. While the diversity of the short and long term considerations suggest that there is no universally right and wrong of sustainable development, it is acknowledged that "the implementation of sustainable development will require a pluralistic and consultative social framework that, among other things facilitates the exchange of information between dominant and hitherto disregarded groups in order to identify less material and pollution intensive paths for human progress" (Munasinghe, 1993, p4) It is therefore critically important to examine the public and private views on sustainability in order to gauge its meaning in a given society. As is well known, English in India has long been the language of the elite, the administration and of the Pan-Indian Press. English language newspapers always had an influential readership and the English speaking community has always led opinion in India. (Hohenthal 2003). The study draws on sense making theory and elements of strategic framing analysis to examine the significance of sustainability to influential sections of the Indian English speaking community. The study involves the qualitative analysis of interviews of experts from different sections of the English speaking community in India to determine private and public views about sustainability. The results indicate a general acceptance across the different sectors of the community of the significance of sustainability particularly in the developmental context of India. However, there was a strong sense that sustainability was rooted in Indian tradition and culture and was therefore not new to Indian sensibility. Some differentiated between the international or public stance taken by the government on sustainability and how that was at variance with the domestic or private view that was expressed internally through regulatory and judicial mechanisms. The study provides insights into the attitudes to, and the understanding of sustainability among different sections of the community and consequently into the deeper nuances of the concept as felt and understood by representatives of the influential policy elite of India. These insights are relevant to policy makers and communication experts engaged in developing a consultative approach to the promotion of sustainability in India and elsewhere in the developing world.

### **Communicating on Climate Negotiations. A Content Analysis of French Traditional and Participative Online News Media during the Copenhagen Summit**

*Mathieu Simonson* – PhD Student, Belgium · mathieu.simonson@fundp.ac.be

*Omar Rosas* – Post-doctoral researcher, Colombia · omar.rosas@fundp.ac.be

Today, traditional news media are not the only communication systems capable of shaping the public perception of climate change. As a result of the latest technical improvements in Content Management Systems (CMS), new online participatory platforms have emerged and started exerting growing influence on how audiences perceive and appraise climate-related events such as international negotiations on climate change. In France, the emergence of these new platforms, in 2006, has given citizens and journalists new opportunities to engage in a collective understanding of these issues. The present paper is based on a content analysis of articles published in two online newspapers (Le Monde, Le Figaro) and two participatory platforms (Rue89, AgoraVox) during the

Copenhagen Conference, between December 7th-18th 2009. Its aim is to identify and examine different modes of online communication on climate negotiations. For this purpose, it focuses on the following variables: (1) the importance of strategic decision making; (2) the significance of social justice and ethics; (3) the influence of political leaders on the outcomes of the conference; (4) the influence of UN organizational norms and (5) the importance of knowledge and uncertainty about climate change. Traditional media have focused on the first four variables, whereas the latter one has principally been developed by participatory media. In order to understand this difference, it should be noted that, in the past, it was traditional media that gave a great importance to the fifth variable. They intended to balance competing views in order to represent uncertainty, which led them to give a disproportionate significance to marginal skeptic views ("balance as bias"). Now, the situation is inverted. Traditional media tend to focus on the "politics" of climate change and give the public a consensual representation of the global warming, thereby neglecting its complexity and ignoring marginal views. At the very same time, emerging participatory platforms tend to reintegrate heterodox viewpoints in the matter, presumably in defence of the freedom of speech. Yet, these platforms are facing similar problems to those that traditional news media had to cope with earlier: either (1) they choose to neglect the complexity of the matter, which impoverishes the information and creates an impression of certainty among the audience; or (2) they choose to integrate uncertainty into their papers, which takes a huge amount of time and effort without being sure about a predictable result, or still (3) they choose to put competing viewpoints in the balance, which produces the impression of an "open debate" among the readers, even if the points that are represented are not central controversies. We will finally discuss the consequences of these choices on the confidence of the public opinion in both journalists and climate scientists.

### **Communicating and policing risks. The case of the H1N1-pandemic in Sweden**

*Goran Palm* – , Sweden · [goran.palm@lnu.se](mailto:goran.palm@lnu.se)

When the news of a "new" pandemic - the Swine Flu/H1N1 – reached Sweden, government agencies like the National Board of Health and Welfare and political agents like the Ministry of Health and social Affairs immediately engaged in massive information – or alarm – campaigns directed at Swedish citizens. Existential risks, both on an individual and on a societal level, were emphasised, risks that were orchestrated and amplified through the news media, especially television and tabloid news. A very distinct discourse were formed, a complex of arguments, that can be considered as a politics of fear - aimed at policing individual behaviour. In this paper, this discourse is analysed and interviews are made with politicians, civil servants, reporters and editors who produced and constructed this alarming narrative of existential risks. The discourse is then compared to citizen perceptions and reactions captured by a survey of 2 000 residents in southern Sweden, and through two focus group studies composed of young people and immigrants. From the survey and focus group results, questions concerning the appropriation of the risk discourse, the general view of societal risks, risk behaviour and interactions with authorities and media are discussed and analyzed. The study points to a complex relationship between discourse, discursive practices and citizen reactions and comprehension where the "effects" from the discourse on the H1N1-pandemic has more to do with ideological than behavioural aspects.

### **Earth Systems Media and the Visualization of Crisis**

*Chris Russill* – Carleton University, Canada · [chris.russill@gmail.com](mailto:chris.russill@gmail.com)

In this paper, I place discussions of citizenship and environmental crisis in the context of the televisual production of earth systems knowledge. Earth systems science and NASA satellite instrumentation, in particular, have become a frequent point of reference for warnings of environmental crisis, yet the way media shape the production and dissemination of knowledge has been considered very narrowly. I develop Lisa Parks' notion of the televisual to include remote sensing, as she does, as well as other earth observing and computer simulation



technologies, in order to illuminate the myriad intersections of television and scientific uses of media. In doing so, I emphasize the problems generated by commitments to “diachronic omniscience,” or to the idea of an objective record of global space through time (Parks, 2006, p. 91). The goal is to expand the range of media that require improved citizen participation and to illuminate the difficulties that commitments to diachronic omniscience create for precautionary approaches to environmental crisis. The case of stratospheric ozone depletion is used to develop the framework and to explore its implications. The ozone hole is an iconic environmental image. The image is a visual rendering of data derived from instrumentation placed on a NASA satellite, which records the variable levels of stratospheric ozone concentration. However, it is not a photograph. As Parks (2006) explains, satellite data is simply registered and archived in supercomputers, and the image doesn’t exist “until it is sorted, rendered, and put into circulation... Satellite image data only becomes a document of the “real” and an index of the “historical” if there is a reason to suspect it has relevance to current affairs” (p. 91). It is clear that cultural assumptions permeate the visual conventions drawn upon in simulating atmospheric change. This is also true of the production, organization and interpretation of scientific data. Initially, NASA incorporated poor assumptions regarding the nature of earth systems change into their observation network. Satellite data was pre-filtered through computer programs coded to flag and exclude low-level ozone measurements from analysis, since these readings were considered impossible and presumed erroneous (Pearce, 2008, pp. 46-47; Lambright, 2005, pp. 12-14). More plausible “fill values” were used to ‘correct’ the readings. Only when British scientists published ground-based Antarctic findings showing an abrupt depletion of ozone did NASA re-examine their assumptions, properly incorporate the relevant data, and confirm the damage. The archived evidence of depletion then quickly became a globally visible hole and a widely acknowledged crisis. I bring the history and media production practices of this event to bear on contemporary questions of environmental crisis, and argue that greater sensitivity to the contingency and uncertainty of dangerous environmental change should inform visualizations of environmental crisis. References Lambright, H. (2005). *NASA and the environment: The case of ozone depletion*. Washington, DC: NASA. Parks, L. (2005). *Cultures In Orbit: Satellites and the Televisual*. Durham, NC: Duke University Press. Pearce, F. (2008). *Ozone hole? What ozone hole?* *New Scientist*, 20 September, 46- 47.

### **Science, media and citizenship: new requirements and new ways?**

*Iris Herrmann-Giovanelli* – , Switzerland · iris.herrmann@zhaw.ch

**Context / Theoretical Framework:** To counteract the increasing skepticism towards science, a considerable amount of money has been spent in Switzerland and abroad over the last 10 to 20 years on the public understanding of science programs (PUS). But if we take stock of the situation, progress seems to be insufficient. Especially the role of the scientists is criticized. Scientists are expected to transfer their knowledge to society (through media) in order to legitimate their research and the public funding they receive. Therefore, scientists should communicate more with the media and the broader public; they should play an active role in the dialogue with the public; they should have more competences in the interaction with journalists etc. But why are scientists unwilling to engage in a dialogue with the media and the public? What are the practical requirements (time, money, skills, partners etc.) which would increase the (external) communication activities of the scientists? And if journalists play an important role in disseminating research, how can a successful interaction between them and scientists be achieved? **Research Design / First results:** To answer these research questions, a series of qualitative interviews with scientists from two research programs funded by the Swiss National Science Foundation was conducted in a first phase. The interviews included general questions on the understanding of the communication process and the knowledge transfer as well as questions on their images of the public and questions on their communication activities. The interviews revealed that although communication between science and society is seen as an important task, researchers do not often engage in communication outside the science system. The reasons stated were lack of time or incentives. In a second phase, a theoretical concept of a transfer process was developed. This concept incorporated theoretical and empirical evidence from academic studies in sociology of knowledge, sociology of science, utilization research, discourse analysis, and other related fields of knowledge. In this concept, unsuccessful communication processes and knowledge transfer are seen as

a problem of the interaction which the “two-communities theory” ascribes to the “different and often conflicting values, different reward systems, and different languages” (Caplan 1979: 459) of scientists, media and public. Therefore, the establishment of networks, trust and a common understanding between scientists and journalists is seen as a crucial factor. Thus, the communication process is understood as an intensive interactive and reflexive process between equal participants aimed at developing a mutual understanding and common story lines for public communication. To test this theoretical concept and to observe the assumed practical implications, a workshop was organized to bring together scientists and journalists. In this way, the project aimed at intensifying the dialogue between researchers and journalists and supporting the communication process between science and society. Until the conference, we will have organized four workshops. Thus, we will present the evaluation of the workshops and some details of the interviews with the scientists. Selected Literature: Bauer, Martin W./ Allum, Nicholas C./Miller, Steve (2007): What can we learn from 25 years of PUS survey research? Liberating and expanding the agenda. In: *Public Understanding of Science* 16, no. 1, pp. 79–95. Caplan, Nathan (1979): The Two-Communities Theory and Knowledge Utilization. In: *American Behavioral Scientist* 22, no. 3, pp. 459-470. Dahinden, Urs (2004): Steht die Wissenschaft unter Medialisierungsdruck? Eine Positionsbestimmung zwischen Glashaus und Marktplatz. In: Imhof, Kurt / Blum, Roger / Bonfadelli, Heinz / Jarren, Otfried (Hg): *Mediengesellschaft. Strukturen, Merkmale, Entwicklungsdynamiken*. Wiesbaden, S. 159-175. Fitzli, Dora / Gisler, Priska (2002): Forscherinnen und Forscher im Dialog mit der Öffentlichkeit? Eine transdisziplinäre Untersuchung zu Motivationen und Anreizen. In: Bonfadelli, Heinz / Dahinden, Urs (Hg.): *Gentechnologie in der öffentlichen Kontroverse. Eine sozialwissenschaftliche Analyse*. Zürich, S. 127-151. Voss, Miriam (2009): Ist Public Understanding of science möglich? In: *Bulletin der SAGW*, H. 1, S. 30–31. Weingart, Peter (2006): *Die Wissenschaft der Öffentlichkeit. Essays zum Verhältnis von Wissenschaft, Medien und Öffentlichkeit*. Weilerswist. Zürcher, Markus (2009): Wissenschaftskommunikation mit neuen Formaten und bewährten Inhalten. In: *Bulletin der SAGW*, H. 1, S. 4–5.

### **Media and Science: to a media-sociological perspective**

*Pieter Maesele* – Ghent University, Belgium · [Pieter.Maesele@Gmail.com](mailto:Pieter.Maesele@Gmail.com)

In this paper, I report on the results of an inventory and structuring of theoretical and empirical studies on the field of “Media and Science”, which has led me to put forward a media-sociological perspective to the relation between media and science in opposition to the traditional “science communication” or “science popularization” model. This traditional model is found to be a science- and media-centred approach which defines the relation between media and science primarily as a problem of communication. Its research questions focus on how well the transmission process between science and society functions, either in terms of “adequate” media coverage or in terms of “adequate” public understanding, of which both are measured against the science establishment’s intentions. This model has been fiercely criticized from different angles: not only has it been found to be based on outdated communication models, but it also fails in a late modern social context, with structural developments such as reflexive scientization and the commercialization of science, for not allowing the acknowledgment of the limits or interests of expertise, nor the free discussion of uncertainties or alternatives. Nonetheless, it has shown a remarkable tenacity in official circles and public debate because of its ideological usefulness. Furthermore, this literature review has led me to formulate an alternative media-sociological perspective to the relation between media and science, which transcends the science- and media-centrism of the traditional model and which values the complexity of a late modern context. This perspective considers the relation between media and science as a social and political matter in the sense that it constitutes a primary site of struggle over the legitimacy of science in late modern societies by functioning as a site of contestation over different representations. The research questions in this approach focus on understanding how science is represented in the media and by whom, and how this relates to issues of access to the media and social debate. In addition, an important question becomes whether and to what extent the mediatization of society also stimulates a mediatization of science in terms of (i) changes in presentation mode, such as the professionalization of public relations, and (ii) changes to the inner workings of the scientific profession itself. In fact, science has been found to have successfully adapted to the

mediatisation of society, as the literature points to a relatively effective control of its public image. This, however, has important consequences. First, this latter conclusion has troublesome implications in a late modern context and calls not only for a rethinking of the paradigm of science communication, of which the ultimate aim has always been the overall public acceptance of science and technology, but also for a reformulation of the role of science journalism. Secondly, a media-sociological approach to media and science, and by extension media and technology or media and the environment, opens up perspectives for a very elaborate research agenda on the levels of production, representation and reception.

### **Framing Emerging Technologies. Risk Perception of Nanotechnology in the German Press**

*André Donk* – University of Munster, Germany · adonk@uni-muenster.de

*Julia Metag* – University of Munster, Germany · julia.metag@uni-muenster.de

*Matthias Kohring* – University of Munster, Germany · m.kohring@uni-muenster.de

*Frank Marcinkowski* – University of Munster, Germany · frank.marcinkowski@uni-muenster.de

The aim of this study is to identify and systematize the plurality of perspectives on nanotechnology in the German print media – with particular attention to risk communication. Public understanding of science (PUS) and mediated risk perception are important social and psychological phenomena that may influence decision-making processes at various levels of democratic systems. These phenomena exert serious effects on the implementation and governmental support for an emerging technology such as nanotechnology. Thus, it is crucial for the study of public perceptions of new technologies to increase our understanding of how the media cover the risks and benefits of this technology and their various applications. Current studies indicate that public perception of nanotechnology is still at a fragmentary and embryonic stage (Burri 2009; Castellini et al. 2007; Cobb/Maccoubrie 2004; Scheufele/Lewenstein 2005). Consequently public opinion of nanotechnology is currently neutral or slightly positive (Cobb/Maccoubrie 2004; Scheufele/Lewenstein 2005; Bainbridge 2002; Gaskell et al. 2004). However, as nanoparticles are invisible to the naked eye, people's opinions are highly sensitive to new information. Given that, in such cases, the mass media are the main source of such information (Castellini et al. 2007; Lee/Scheufele/Lewenstein 2005), it is important to determine how it is framed by the media (Matthes 2007). Content analyses of mass media coverage of nanotechnology reveal a rising interest in nanotechnology in recent years, and an emphasis on its technological benefits (Gorss/Lewenstein 2005; Stephens 2005; Anderson et al. 2005; Grobe/Eberhard/Hutterli 2005; Gaskell et al. 2004). Our study refers both to agenda setting theory (McCombs/Ghanem 2001) and to different concepts of media framing (de Vreese 2005) and risk communication. Accordingly, we assume that the media not only set the agenda for nanotechnology as an important issue but also influence the public evaluation of nanotechnology. The following research questions are posed: - RQ 1: How does the German press frame nanotechnology in the period from 2000 to 2008? - RQ 2: Does this framing change with new information about nanotechnology and technical developments over time? - RQ 3: Is there a specific risk frame? - RQ 4: What kind of nanotechnology frame is used particularly for medical applications? The methodological basis of the present study is a systematic, standardized content analysis of 1.800 articles in 9 leading German daily and weekly newspapers as well as news magazines in the period from 01/2000 to 12/2008. The issue-specific framing approach (de Vreese 2005) was applied for this analysis. For frame-identification, the 4-components model of Matthes and Kohring (2004) was used, which treats frames as re-occurring patterns of the frame elements: problem definition, factual evaluation, causal attribution of responsibility and treatment recommendation (Kohring/Matthes 2002; Matthes/Kohring 2004). Our findings suggest that four types of frames are widely used in the covering of nanotechnology, namely research & development, economic benefits, medical benefits, prospects & risks. The tone of the investigated media can be described as optimistic. Literature Anderson, Alison et al. (2005): The Framing of Nanotechnologies in the British Newspaper Press. In: Science Communication 27(2): 200–220. Burri, Regula Valérie (2009): Coping with Uncertainty: Assessing Nanotechnologies in a Citizen Panel in Switzerland. In: Public Understanding of Science 18(5): 498–511. Bainbridge, William Sims (2002): Public Attitudes toward Nanotechnology. In: Journal of Nanoparticle Research 4(6): 561–570. Castellini, O. et al.

(2007): Nanotechnology and the Public: Effectively Communicating Nanoscale Science and Engineering Concepts. In: *Journal of Nanoparticle Research* 9(2): 183–189. Cobb, Michael D./ Macoubrie, Jane (2004): Public Perceptions about Nanotechnology: Risks, Benefits and Trust. In: *Journal of Nanoparticle Research* 6(4): 395–405. De Vreese, Claes H. (2005): News framing. Theory and Typology. In: *Information Design Journal & Document Design* 13(1): 51–62. Gaskell George et al. (2004) : Public Attitudes to Nanotechnology in Europe and the United States. In: *Nature Materials* 3(8): 496. Gorrs, Jason B./ Lewenstein, Bruce V. (2005): The Saliency of Small: Nanotechnology Coverage in the American Press. Paper to be presented at 2005 Conference of the International Communication Association. Grobe, Antje/ Eberhard, Casper/ Hutterli, Martin (2005): Nanotechnologie im Spiegel der Medien: Medienanalyse zur Berichterstattung über Chancen und Risiken der Nanotechnologie. St. Gallen. Kohring, Matthias/ Matthes, Jörg (2002): The Face(t)s of Biotech in the Nineties: How the German Press Framed Modern Biotechnology. In: *Public Understanding of Science* 11 (2): 143–154. Lee, Chul Joo/ Scheufele, Dietram A./ Lewenstein, Bruce V. (2005): Public Attitudes toward Emerging Technologies: Examining the Interactive Effects of Cognitions and Affect on Public Attitudes toward Nanotechnology. In: *Science Communication* 27(2):240–267. Matthes, Jörg/Kohring, Matthias (2004): Die empirische Erfassung von Medien-Frames. In: *Medien & Kommunikationswissenschaft* 52(1): 56–75. Matthes, Jörg (2007): Faming-Effekte. Zum Einfluss der Politikberichterstattung auf die Einstellung von Rezipienten. München: Verlag Reinhard Fischer. McCombs, Maxwell E./ Ghanem, Salma I. (2001): The Convergence of Agenda Setting and Framing. In: Reese, Stephen D./ Gandy, Oscar H./ Grant, August E. (Eds): *Framing Public Life: Perspectives on Media and our Understanding of the Social World*. Mahwah, NJ: Lawrence Erlbaum Associates: 67–81. Scheufele, Dietram A./ Lewenstein, Bruce V. (2005): The Public and Nanotechnology: How Citizens Make Sense of Emerging Technologies. In: *Journal of Nanoparticle Research* 7(6): 659–667. Semetko, Holli A. / Valkenburg, Patti M. (2000): Framing European Politics: A Content Analysis of Press and Television News. In: *Journal of Communication* 50(2): 93–109. Stephens, Lowndes F. (2005): News Narratives about Nano S&T in Major U.S. and Non-U.S. Newspapers. In: *Science Communication* 27(2): 175–199.

### **A critical view on company's accounting environmental reporting**

*Filomena Brás* – University of Minho, Portugal · [filomena@eeg.uminho.pt](mailto:filomena@eeg.uminho.pt)

Portugal has a mandatory accounting standard on environmental issues. This accounting standard defines the criteria for the recognition, measurement and disclosure of environmental costs, environmental liabilities and risks and the environment related assets, resulting from transactions and events that affect or may affect the financial position and earnings of the entity. This accounting standard also aims to guide companies to disclose information on environment in order to stakeholders understand the entity's attitude and behaviour in relation to environmental issues. This accounting standard is mandatory in what concerns the financial statements of the entity but also in relation to its annual management report, the principal mean of entity's communication to its stakeholders. Portugal is innovator in a sense that turned a European Union recommendation into an accounting standard mandatory to the Portuguese companies. The issue of environmental reporting has a straight relation to the corporate social and environment responsibility (CSR). The literature supporting these environment responsibility and accountability is mainly concerned on what and why companies disclose on the subject, supported mainly on the Legitimacy Theory and Stakeholders Theory. However, with the launch and adoption of the ISO 14000 series of environmental management standards, which support the implementation of the environmental management systems (EMS) and the Eco-management and audit scheme (EMAS), a new reality arises. Under ISO 14001, I advocate that companies implementing an EMS aim to provide information on the environment issues with two purposes: 1) a way of showing their citizenship as well their role as educator on environment subject and 2) a market-oriented strategy. Under this approach, to implement EMS companies need to train and educate its workforce, which can play an important impact on environmental society education as whole (for example, implementing EMS by universities). The process of communicating its behaviour through the information disclosure on environment also reinforces those aims. On the other side, companies are market-oriented in a sense that companies expect that their behaviour lead to earnings improvement through increasing

of their “green products” sales. That is, consumers would prefer products from companies that are environment responsible and accountable. Therefore, companies have incentives to disclose more environmental information. Also, financial institutions are making increasing use of social and environmental checklists to evaluate the risks of loans to, and investments in companies. Similarly, being recognised as a socially responsible enterprise can support the rating of a company and therefore entails concrete financial advantages. Therefore, disclosure of environmental information can lead to economics effects on brands and image. This paper aims to discuss critically the accounting literature on environmental reporting, applying the Signalling and Critical theory on the reasons why companies disclose environmental information, through empirical evidence found in the EMS and EMAS studies.

### **Framing and cross-cultural adaptation in elephant conservation issues: A case study in Thailand**

*Trisha, T. C. Lin* – Nanyang Technological University, Singapore · trishalin@ntu.edu.sg

*Junjie Lin* – Nanyang Technological University, Singapore · linj0030@ntu.edu.sg

Thailand’s government imposed the 1989 logging ban after floods caused landslides and mudflows in southern Thailand due to environmental exploitation (Ringis, 1998). Outlawing logging put 70% of domesticated Thai elephants out of job. Their caretakers (known as mahouts) subjected the elephants to unconventional work, such as street begging or performing, where they are often chained and abused (Tipprasert, 2006). This national symbol, once a religious icon worshipped by Thais, is increasingly endangered, with the population falling at about 3 % annually. After years of fighting against local traditions, Lek Sanguan who pioneered the western concept of “ecotourism” in 1990s finally gained the trust of her fellow Thais, after positive western media coverage. Her founded sanctuary, the Elephant Nature Park (ENP) in Chiang Mai, is the only place to take in the abused elephants. The local community who used to take hostile or dubious attitude becomes part of the elephant ecotourism and adopts the new culture of co-existing with elephants harmoniously. The ENP attracts myriad volunteers and tourists worldwide and transfers experiences to other elephant camps. Its success provides a valuable case to examine the framing alignment and cross-cultural adaption. “Framing” that describes a construction of reality (Goffman, 1974) is a rhetorical process found within a narrative account of issues or events (Kuypers, 2009). Snow et al. (1986) emphasized the cultural impact on the relationships among frames in social movement studies. This study investigates ENP’s framing strategy of elephant conservation issues by analyzing its organizational stories, cultures, and online messages. In September and December 2009, this study conducted two field trips in the ENP and other Thai elephant camps. The researchers interviewed the organizational leaders, volunteers, and mahouts, as well as observed the interaction between human and elephants. Later, they analyzed the content and presentation of ENP’s official website. How social actors frame issues is culturally sensitive. This study also examines how the cultural considerations (local vs. foreign; East vs. Western) have shaped the foundation’s framing of its conservation messages to publics. The findings reveal that the ENP’s leaders, volunteers, and mahouts share a common belief—to raise elephants naturally with love—which consistently appear in their framing. ENP’s framing fits the enduring metanarratives, “harmony with nature (Eder, 1996).” This study also identifies the frame process in the ENP story: defining problems (endangered and abused Asian Elephants), diagnosing causes (abuse, work, street begging), making moral judgments (train them with love), and suggesting remedies (natural park, ecotourism). The interviews, media reports, and the website repeated one story: the legendary heroin (Lek) who insisted her visionary mission and challenged the local norm built the elephant heaven eventually. Besides, its story-laden website content uses a feminine approach to showcase Lek, personalized elephants, and ENP’s achievements. Also, it provides action-making features for Netizen to show support, such as donation, elephant adoption and volunteer work. Moreover, the stress-adaption-growth dynamics of cross-cultural experiences (Kim, 1988) are shown in the transformative process how Lek’s innovative elephant conservation concept was rejected, accepted, and gradually welcomed by the Thais.

### How climate scientists assess climate change and how they communicate it - A double-barreled conflict

Senja Post – University of Mainz, Department of Communication, Germany · senja.post@uni-mainz.de

Uncertainty and controversy are inherent to science and prerequisite for scientific progress. They are institutionally organized in a research community by processes such as the peer-review. The internal scientific process, however, is disturbed when the findings of a science become relevant to the public. In these cases, scientific criteria compete with ideological convictions. The issue of climate change has become highly relevant to societies. Consequently, scientists have engaged in a controversy in two dimensions: 1) on scientific grounds where scientific work is assessed; 2) on ideological grounds where an appropriate way of communicating to the public is debated. This raises two questions: How ready are climate scientists to engage in public communication and what are their strategies to communicate climate change? A representative survey of German climate scientists was conducted. Scientists were selected via two listings of all academic and non-academic climate research institutes provided by the German Meteorological Society (DMG) and by the Past Global Changes (PAGES). From these institutes, 239 natural climate scientists were identified. They were polled in an online-survey in summer 2006 (N=133; return-quote = 56 %). Results: German climate scientists are more or less split on questions such as the anthropogenic factor of climate change, its dangers, the quality of data and methods. On the basis of their judgments, scientists were divided into a) the certain scientists who are more or less confident about the aforementioned points (N = 49); b) the skeptical scientists who have more or less doubts about them (N = 48) and c) a group of scientists who stand in between the certain and skeptical scientists (N = 36). Differing degrees of public engagement: An indicator of the focus of scientists' engagement was calculated by subtracting the number of contacts to journalists from the number of their refereed publications. The more certain climate scientists are about the data and methods of climate science, the more their focus of communication lies on the media ( $r = .370$ ,  $p < .05$ ), while the more skeptical, the more inactive scientists are both in the media and in refereed journals. Competing models of communication: The certain scientists believe public communication should be regularized and integrated into the scientific process. E. g. they associate the duty to communicate findings to the public with the goal to consult politics through integrative research ( $r = .487$ ;  $p < .001$ ). This association is not found among the skeptical scientists. They, in turn, support a rather libertarian model of communication: E. g. the more engaged they are in research, the more they consider it legitimate to make assumptions in public that have not been tested scientifically ( $r = .323$ ;  $p < .05$ ). The findings help explain why public experts on climate change sometimes appear extremely polarized in public. The presented data were collected just before the latest IPCC report was finished. The IPCC and its selection of findings have been criticized recently. Evaluating communication of climate change, it will be worthwhile looking at scientists' attitudes and activities by the time the latest IPCC report was released.

### Comprehension of fragile and conflicting scientific evidence on the basis of media and recipients' frames

Georg Ruhrmann – Friedrich-Schiller-University Jena, Germany, Germany · Georg.Ruhrmann@uni-jena.de

Michaela Maier – University of Koblenz-Landau, Germany · maier@ikms-uni-landau.de

Jutta Milde – Friedrich-Schiller-University Jena, Germany · Jutta.Milde@uni-jena.de

Joachim Marschall – University of Koblenz-Landau, Germany · marschall@uni-landau.de

Mass media are an important source for scientific and medical information for citizens (laity). By their presentation of current research results and medical innovations they influence citizens' "Scientific Literacy" and therefore have a key role in establishing the public comprehension of sciences. The "Scientific Literacy" concept describes the comprehension of science on the basis of three dimensions: (1.) The comprehension of contents, i.e. a basic knowledge of scientific terms and constructs; (2.) the comprehension of methods, particularly the methods and procedures of scientific analysis plus (3.) the comprehension of the social dimensions of science and technology (Miller, 1983, 2004). Part of the second dimension is the understanding that scientific evidence is always fragile and can be controversial. This understanding is fundamental for citizens to be able to evaluate the quality of scientific and medical information and come to "informed decision-making". As a result of the

raising popularization of scientific knowledge in the mass media (e.g. through the increasing number of science TV-productions), scientists themselves wonder if and to which extent the specific aspect of science is reasonably presented in the media on the one side and how well it is understood on the side of the recipients. In the context of our research project, we examine how scientific evidence is presented in German TV scientific magazines and how this journalistic evidence presentation influences the audience' comprehension of science. Using the example of molecular medicine, which, more than any other issue, led to a discussion about the conflicting evidence of knowledge and at the same time to a scientific as well as the media controversy about risk, about the reception and effects of which very little is known about yet. The object of this article is to show on the one hand the media presentation of fragile and conflicting evidence in different frames and on the other hand the related reception of the public (recipients' frames) (Scheufele / Scheufele 2010). Referring to the media coverage it will be asked if and how processes of research are framed, if the scientific studies presented can be considered as independent and if the results as objective and representative. Also interesting is if uncertainties and shortcomings of the study/research are explicitly mentioned by the media, e.g. concerning the amount of data, the mode of experiments and tests, its interpretation or transferability e.g. on other people and cultures. The article is based on a content i. e. framing analysis of clips aired in science-TV magazines in German TV channels within two survey periods 2003/2004 and 2008/2009 concerning the topic of molecular medicine. On the side of citizens it will be analyzed how the reception of different evidence-sensitive respectively evidence-insensitive media framing effects the comprehension of science. A psychometric scale is presented for the comprehension of evidence which was developed for this study and which captures particularly the comprehension of the fragility and the controversial of scientific findings. References Miller, J. D. (1983). Scientific literacy: A conceptual and empirical review. *Daedalus*, 112, 29–48. Miller, J. D. (2004). Public understanding of, and attitudes toward, scientific research: What we know and what we need to know. *Public Understanding of Science*, 13, 273–294. Scheufele, B. T. & Scheufele, D. A. (2010): Of Spreading Activation, Applicability, and Schemas. *Conceptual Distinctions and Their Operational Implications for Measuring Frames and Framing Effects*. In: D'Ángelo, P. & Kuypers, J. A. (Eds.): *Doing News Framing Analysis. Empirical and Theoretical Perspectives* (pp. 110 – 134). New York: Routledge

### **Green Biotechnology in Switzerland. How Civil Society Defied the Industrial and Political Establishment**

*Werner Meier* – University of Zurich, Switzerland · wameier@ipmz.uzh.ch

*Martina Leonarz* – University of Zurich, Switzerland · leonarz@bluewin.ch

*Heinz Bonfadelli* – University of Zurich, Switzerland · h.bonfadelli@ipmz.uzh.ch

The following paper is based on a larger-scaled empirical project on green biotechnology in Switzerland. The applicants analyzed the topic spanning the past 30 months in the context of the public sphere, political actors and the media. The presentation is a synopsis of the project, of which results have been unfortunately only published in German. The project “Green Biotechnology in the Public Sphere” concerns a five-year moratorium prohibiting the commercial use of GM plants in Switzerland. The ban was accepted in 2005 by the Swiss voters and will most likely be extended until 2013. The applicants will present the synthesis taken from the most pertinent results generated with different methodological approaches such as 1) a stakeholder analysis, 2) interviews with journalists, 3) content analyses of the dominant core media sector (daily regional newspapers from the German and French speaking part of Switzerland, public broadcast TV) as well as special interest publications for farmers, 4) representative surveys and in-depth interviews with Swiss residents. Some of the findings, considered by the applicants to stand out, include: 1) “Symptom of Fatigue”: The main stakeholders within the discourse of green biotechnology are saturated. Their interest in the topic has diminished, primary because the debate has turned into a political issue. This is especially true for representatives from science and industry. 2) “Ceasefire”: Neither proponents (science, industry, political establishment) nor opponents (NGO's, farmers) have succeed in convincing the opposite side with their arguments. The situation is blocked. The moratorium has added to this situation. 3) “Low interest”: Journalists reporting on the subject see their role primarily as giving neutral information to their public. Their interest in green biotechnology is at low ebb. 4) The

political agenda dictates media coverage quantitatively as well as qualitatively. If the topic is on the political agenda, journalists will cover it and frame it in a political way. 5) "Opportunists": Mainstream media adopt the official position of the government and the bourgeois parties. At the same time, they are opportunists acting in the "shadow of power". This can be shown clearly by comparing the media coverage before and after the vote on the moratorium: They appear at first slightly against the moratorium (mirroring the establishment), then they cross the divide and support the populist will afterwards. 6) Newspapers catering to farmers show more negative coverage on the issue before the vote. Afterwards – and after the battle has been won – they take back some of their critics. 7) The civil society clearly expressed their critical position toward green biotechnology by democratically voting for a ban. Not surprisingly they also take a clear position against GM food and field trials. The less than 50 per cent of those who are in favour of green biotechnology (which is a minority) support the prolongation of the moratorium for another three year. Overall, the applicants wish to emphasize that societal deliberation has worked and the media have helped – perhaps inadvertently – to "sink the ship" called green biotechnology against the will of the establishment.

### **Thematization: a proposal for environmental journalism practice**

*Reges Schwaab* – Universidade Federal do Rio Grande do Sul, Brazil · reges.ts@gmail.com

The relationship between places, global changes and risks (Adam, Allan & Carter, 1999; Beck, 2009) makes up a complex scenery for environmental journalism acting. Treating environmental themes journalistically is a challenging task, reinforced by the expectation of the possibilities of promoting citizenship and knowledge by means of information (Girardi, 2000; Trigueiro, 2003). As content generation tools get more potent, via information technologies, environmental journalism acting paradigms need to go through some changes. As a proposal, this text suggests that to face the multi-sided realities (Giddens, 1999; Schmidt, 2003) and to be able to act in a systemic way (Campos, 2008) environmental journalism, already seen as a specialization (Bueno, 2007; Quesada Pérez, 1998; Vilas Boas, 2004), must be thought in the present context on a new acting platform: thematization. This article discusses this proposal, interlacing theoretical perspectives, interviews and some cases analysis, fundamentally of online works. It builds, from these perspectives, an interpretation to the idea of thematization as concept and practice. In synthesis, it is an operation that works by the same logics that compose the sustainability paradigm (Capra, 1982, Leis, 1999) and communication in the new public sphere (Lemos, 2009). At the same time, in the reflection upon environmental journalism as a space to where different voices flow, it considers that information must not be placed only in the traditional emission poles. The construction of an environmental rationality (Leff, 2006) passes by the network acting potentiality and thematization may be a propeller of this construction. Bibliography: ADAM, B.; ALLAN, S.; CARTER, C. (1999). *Environmental Risks and the Media*. Londres: Taylor & Francis. BECK, U. (2009). *La sociedad del riesgo global*. Madrid: Siglo XXI. BUENO, W. C. (2007). *Comunicação, jornalismo e meio ambiente: teoria e pesquisa*. São Paulo, Marajoara Editorial, 2007. CAMPOS, P. C. (2008). *Uma abordagem sistêmica para as Teorias do Jornalismo*. BOCC. Biblioteca On-line de Ciências da Comunicação, v.10, p.01-23. CAPRA, F. (1982). *O Ponto de Mutação*. São Paulo: Cultrix. GIDDENS, A. (1991). *As conseqüências da modernidade*. São Paulo: Editora UNESP. GIRARDI, I. M. T. *Periodismo ambiental, ética e cidadania*. In: Bacchetta, Victor L. (eds.) (2000). *Cidadania Planetária*. Montevideo: IFEJ/FES. LEFF, E. (2006). *Epistemologia Ambiental*. São Paulo: Cortez. LEIS, H. R. (1999). *A modernidade insustentável: as críticas do ambientalismo à sociedade contemporânea*. Petrópolis, RJ: Vozes; Santa Catarina: UFSC. LEMOS, A. *Nova esfera Conversacional*. In: Dimas A. Künsch, D.A, da Silveira, S.A., et al (eds.) (2009). *Esfera pública, redes e jornalismo*, Rio de Janeiro, Ed. E-Papers.



### How media portray typhoon: The representation and simulation of TV news

SHUN-CHIH KE – HSUAN CHUANG UNIVERSITY, Taiwan · scketw@gmail.com

Taiwan is located at the western edge of the Pacific Ocean where typhoon reached island frequently. According to official data, each year has 7.3 typhoon attacked Taiwan and it has become the major natural disaster and hazard. Therefore, the last decade has been a dramatic increase in the attention paid by researchers to environmental issues represented by media, since we all need information from media when disasters happened. But the information or image of typhoon which conveyed by media has been transformed and translated by journalist, media technology and the complex organization culture. Especially, there are nine 24 hours TV news stations in Taiwan to compete market share and commercial profit. How the TV news stations portray typhoon? What are media roles in transmitting typhoon information? Hence, this paper analyzes 3670 TV news from 4 major Taiwan's TV news stations (ETTV, CTITV, SETTV & TVBS) during the year of 2008 when typhoon attacked. In addition, interviewing TV news reporters and managers are necessary to clarify how media portray typhoon. The findings reveal that TV news tends to use "fear appeals" and "politic appeals" to represent typhoon image; the main information sources are reporters themselves. Moreover, TV news stations prefer to use simulation technology to demonstrate the threat and damage of typhoon; interviewing victims and criticizing government officers are the main content and always attract public attention to bring high rating and advertising. Although TV news stations provided variety information of typhoon, the nature of treating typhoon as money making capital didn't change.

### German Media Coverage around the UN Climate Change Conference

Dorothee Arlt – Ilmenau University of Technology, Germany · dorothee.arlt@tu-ilmenau.de

Jens Wolling – , Germany · jens.wolling@tu-ilmenau.de

The results of the last IPCC report show clearly that climate change is one of today's most demanding challenges for the future of the whole planet. Especially the variety of climate change consequences, e.g. melting polar ice caps and the increasing number of hurricanes as well as possible actions fighting against these consequences are given significant political attention all over in world. Especially the need of a significant reduction of energy consumption, the emission of CO<sub>2</sub>-greenhouse gases and the extension of renewable energies for a sustainable energy supply as well as the use of atomic energy are discussed controversially in this context. As these topics are of high importance not only for the political system but also for the economy and the societies at whole, climate change became an essential issue for public and media agendas worldwide. The latest example for the worldwide attention to the topic of climate change was the international United Nations Climate Change Conference (COP15) held in Copenhagen in December 2009. The official goal of the conference and the participating diplomats from 192 states was to pass a binding global climate agreement that should detach the Kyoto-Protocol that runs off in 2012. It was one of the conference's major aims to achieve that industrialized countries like the US and the states of the EU as well as the big newly industrializing countries such as China, India or Brazil commit themselves to an international agreement to fight against climate change. Important events like international conferences are covered intensely by the media in the run-up to the incident, during the negotiations and subsequent to it. In that context media coverage did not only focus on the conference itself and on the protests during the event, but also on the general political efforts of different countries and their political leaders to fight against climate change. Especially whether the outcome of the conference was a failure or a success for climate protection was discussed controversially. But not only these political issues were covered. The media took the opportunity to report also on the causes, indicators and consequences of climate change. Looking from the perspective of different media effect theories it seems most likely that the media coverage will cause effects on citizens' perception of UN conference, climate change and climate protection policy. Especially the question how the media frame the climate problem, the conference and the outcome can have an impact on the problem definition, the accepted solutions and the willingness to contribute personally to the fight against climate change by changing individual habits. Looking more closely on the possible influencing potentials this

paper will examine German media coverage round the UN climate change conference within the date range from 16 November to 23 December 2009 in German newspapers and television news. Thereby the content analysis will focus on the following themes: climate change, the UN conference, international conflicts in the context of climate change protection, energy and climate policies.

**Climate change from the audience's perspective. Theorizing empirical findings on media usage and media effects between routine and information seeking.**

*Monika Taddicken* – University of Hamburg, Germany · monika.taddicken@uni-hamburg.de

*Irene Neverla* – University of Hamburg, Germany · irene.neverla@uni-hamburg.de

The climate change is a topic of fragile and conflicting evidence regarding both scientific explanations and local and global consequences. For the public, understanding this phenomenon is a very complex issue. Today, it is hardly possible to sense the consequences of the global warming directly. Therefore, the climate change must be seen as a mediated construct. But so far there is only little knowledge about the audiences' processes of perception and interpretation of mediated information regarding this topic. With this study, we will present a model of media usage and media effects that is derived from different theories of media and psychological research. Firstly, the model is based on the dynamic-transactional approach (Früh & Schönbach 1982; Schönbach & Früh 1984). The authors state that the audience must be seen as both passive and active users. In particular the audience might be passive in its daily routine of media consuming, but associated with this routine there are active internal processes of perception, evaluation and interpretation. Specific individual aspects form the highly individual basis for these ongoing processes. Hence, individual variables like personality, values, and ambiguity of tolerance are considered in our work. In addition, aspects of the social framework influence the whole process of media usage and interpretation. Therefore, assumptions on the attitudes of relevant social groups and the public are taken into account as well. Media usage is considered explicitly in the model. We use the concept of media repertoires (Hasebrink & Popp 2006) to capture both the daily routine of consuming mass media and motivated information seeking media usage. The attitude model of Rosenberg & Hovland (1960) which is often used in the research of ecological attitudes and knowledge (see for example Maloney & Ward 1973; Kley & Fietkau 1979; Winter 1981; Schahn & Holzer 1990) is taken into account for predicting the degree of individual climate-friendly behavior. For this, our model distinguishes cognitive and affective components of climate-change-related knowledge and the willingness of action. For an empirical validation of the model, two surveys are conducted: first, an online survey with an internet user representative sample (n=1.000), second a telephone based survey with a population representative sample (n=1.000). With this, we are able to refine both our instrument and our model and to validate it with two different samples. Mostly, validated scales will be used. For the measurement of climate-change-related knowledge, we further interviewed experts from the field of natural sciences. The surveys take place in February and March 2010. The results will show which media are used for information-seeking regarding the climate change. Further, they will shed light to the question how and to what extent media consumption influences people's climate-change-related attitudes and their daily climate-friendly behavior. The importance of individual prerequisites for the individual's need for information regarding the climate change will be enlightened as well as the influence of the social context.

**Commodifying Crisis: Rhetorics of Risk and Regulation**

*Scott Denton* – University of Arizona, United States · denton@email.arizona.edu

American-style capitalism, guided by Milton Friedman's theory that financial markets tend toward equilibrium and should thus be free of regulatory or institutional constraints, has dominated global economics since the Reagan presidency and has produced—even by former Federal Reserve Chairman Alan Greenspan's judgment—the current financial crisis. Despite the undisputed environmental externalities of industrial activity, market

deregulation has been the rule in the developed countries and has been exported to developing nations as a condition of International Monetary Fund and World Bank loans. In service of such market fundamentalism, American governance has assiduously sought the privatization of assets and shifted the concomitant financial risk toward individuals. Periodic financial crises are inherent to this system and have typically been “solved” by further deregulation and credit expansion or by direct bail outs from the state—events that create new opportunities for private asset expansion. In the book, *The Shock Doctrine: The Rise of Disaster Capitalism*, Journalist Naomi Klein describes this set of phenomena as the emergence of a global, corporate-based “disaster capitalism complex” that is funded by public money, and to which many of the core functions of government have been shifted. This complex has expanded its market reach to military activities, international peacekeeping, municipal policing, and natural disaster response. With global warming likely to increase their frequency, natural disasters become major new markets. Thus, in a positive feedback loop, deregulation heightens risk and leads to additional crises—both environmental and economic—that become opportunities to expand the causal policies and economic activities. This paper examines how these three critical elements—deregulation/regulation, risk, and crisis—are rhetorically framed in proceedings of key global summits held in 2009, specifically the G20 and G7/G8 meetings and especially the climate change summit in Denmark. Theoretically and methodologically I draw from Goffman’s frame analysis as well as George Lakoff’s application of it, Aristotelian rhetoric, and Ulrich Beck and Anthony Giddens’s perspectives on risk and cosmopolitanism. I show examples in which long-held perspectives are being reframed, for example, the Obama administration’s characterization of the threat of global warming as an opportunity for innovation in the energy sector as compared to the past efforts by the previous administration to emphasize how reducing carbon emissions would harm the economy. Alternatively, I point to examples of frames maintaining that environmental externalities, however regrettable, are an unavoidable consequence of desirable free market activity. If there is any possibility that humanity will effectively cope with the twenty-first century’s global environmental challenges, the relations between governance and the environmental consequences of economic activity must be fundamentally comprehended and balanced in the creation of policy. The existence of the feedback loop described above shows that despite increasing public awareness that the planet is in peril, the free market ideology that exacerbates and produces entities that actually profit from the peril is not a central topic of public debate. Current circumstances may inspire progressive change if we can broadly and collectively reframe our world views to accommodate the uncertainties imposed by global risks, responsibly regulate their causes, and learn from crisis.

### **Prime time news and public awareness on energy efficiency: the Portuguese case**

*Ana Horta* – ICS-UL, Portugal · ana.horta@ics.ul.pt

*Lúisa Schmidt* – ICS-UL, Portugal · schmidt@ics.ul.pt

In a country with high levels of energy inefficiency like Portugal, the current economic crisis accentuates the need to rapidly change the patterns of energy use. There is also a growing awareness of the relation between energy use and climate change. But these issues are very complex and many times require some levels of technical knowledge. Other issues, such as rising oil prices, seem more appealing and dramatic. Given the importance of prime time television news to the formation of public opinion, and the need for citizens to be aware of the challenges that the country currently faces, this paper analyzes the news coverage of energy by the main news program of Portuguese public television (RTP1) over the last three years (2006-2009). The paper concludes that, despite the RTP1 prime time news report the oil crisis less frequently and with less emphasis than private television news, most of energy coverage is focused on oil prices. Energy issues’ framing is mainly reduced to the impact of raising oil prices on consumers and its potential damage to the economy. Therefore, the complexity and magnitude of this thematic tend to be represented in a narrow way. Most recently, there are some signs of change such as the approach of the connection between energy and climate change and the need for increasing energy efficiency.

### **Environmental Activism, New Media and Heterotopias.**

*Maxine Newlands* – University of East London, United Kingdom · m.newlands@uel.ac.uk

Environmental activism in the twenty first century is moving away from rejecting to embracing the mainstream media. The next generation of eco-activist have grown up at previous protest (eg-Greenham Common), and realise by denouncing the mainstream media leads to either confrontational or carnivalesque representation. Mainstream media and political parties place environmental activism in a heterotopia of deviance (Foucault's term), by denigrating and denying both their environcentric agenda and the actual spaces of eco-activism (recent climate camps, squatted land etc). But things seem to be changing. Eco-activism is shifting it's place of protest, and engaging with the mainstream media in their own terms and in their own space. The development of new communication technologies allows for activist to contest and produce news footage to the exclusion of mainstream media. Eco-activists are attempting to develop a counter-site to the heterotopia of deviance, by a) engaging with journalists, b) 'building a movement' and c) embracing new technology as a mechanism for empowering citizenship. This is the result of a long-term process based on a denial of political engagement and belief that of an inability to influence media representation. Through Web 2.0 and new technologies in communication a new community is emerging. In the collective accounts of diverge groups there is an inaugural shift from one mode of being-operating (deviance) to another (true heterotopia). From the G8 protests (2005) to Climate Camps (2006-present) activists have begun inviting mainstream journalists onto site, marking a 'turning point' in the relations of power between activists and journalists and a passage from passive to active representation of their cause. Today's environmental activists are contesting and redefining power relations between the media and activists. The invention of a 'media tent' and 'citizen journalism workshops' at the Camp for Climate Action (2009) signals the creation of space for a new community, a new movement – a space founded on environmental citizenship disseminated through new media technologies. The findings are based on the quantitative method of semi-structure interviews with key members of the climate camp and eco-activists movements. This work examines how the UK-based environmental activism movement challenge the 'emptying out' of the eco-activists' political endeavours by mainstream press but also accommodate differences of opinion by different generations of activists who do not always agree on the movement's (best) relation to the press. Engagement with the media as a strategy to build a environmentally focused community, which borrows from previous eco-activists ideologies of by contesting a non-tangible capitalism which hopes to create a space of ecological politics organised around environmental values. This paper will show how the place occupied by eco-activism is simultaneously a "mythic and real contestation" of the space we live in, which can be challenged and changed by applying a "tactical" media approach- by flourish in the "public part of cyberspace" (Lovink, 2002:254).

### **Political subjectivity and the environmental crisis: examining the roles of mediated communication**

*Anabela Carvalho* – University of Minho, Portugal · carvalho@ics.uminho.pt

Research has shown that the media are the main source of information and the main factor shaping people's awareness and concern in relation to climate change and therefore have an important role in setting the public agenda. As a key forum for the production, reproduction and transformation of the meaning of public issues, the media influence understandings of risks, responsibilities, as well as of the functioning of democratic politics. The author will argue that the media also matter to citizens' perception of their (potential) political agency or their political subjectivity. Media representations construct particular 'subject positions' for individuals and cultivate dispositions to action or inaction. The author will discuss the importance of citizens' political engagement with climate change and point out some aspects of media(ted) discourses that may constrain the perceived possibilities of participation in the politics of climate change. While engagement with climate change has multiple dimensions and a number of barriers have been identified through empirical studies, this paper will offer a

critique of the role of the media in political engagement with the problem and suggests avenues for future research.

### **No New Coal Plants: media-savvy activists' responses to Big Coal in Australia**

*Adam Lucas* — Science & Technology Studies Program, University of Wollongong, Australia · [alucas@uow.edu.au](mailto:alucas@uow.edu.au)

Although Australia is the second highest greenhouse gas emitter, the largest coal exporter and one of the most fossil fuel intensive economies in the world, Australian state and federal governments continue to support the expansion of Australia's coal mining industry, and the construction of more coal-fired power stations. Australian climate change activists have developed a number of novel, effective and humorous media-oriented strategies for drawing the public's attention to government hypocrisy on climate change policy issues, and the ongoing influence of the coal industry on government policy. This paper explores the range of media strategies used by the relevant NGOs, and how effective they have been at raising public awareness and placing political pressure on the relevant parties.

### **Chasing the Long Tail of Climate Change**

*Somnath Batabyal* — University of Heidelberg, India · [somras@gmail.com](mailto:somras@gmail.com)

The paper/presentation "Chasing the Long Tail of Climate Change" is a small part of a wider ongoing research project and investigation into the current debates on climate change. Presented as a working paper and a theoretical intervention, it compares and contrasts the research of the two authors with their participation in the COP15 climate change conference as members of the official NGO delegation. Relying both on the participant's close proximity as well as the distance of critical reflection, the paper provides a critical analysis of the recent event / media spectacle of COP15 - an event that many commentators have labelled as a "spectacular failure". More specifically, by juxtaposing our personal experience of participation at the COP15 with our research projects in India and Ethiopia, the paper will argue that, because of the hyper-mediated nature of the contemporary rhetoric on climate change, current frameworks of analysis are no longer capable of addressing the "antagonism" of climate change. Drawing theoretically on eclectic sources from contemporary assemblage theory, object-oriented philosophy and speculative realism, the paper therefore calls for a new more experimental approach and method that would look in detail at the complex assemblages, "objects" and relationships that underlie the contemporary discourse on climate change both in the North and the South. The existing closures and myths around environmental debates, we will argue, need to be pried open in order to allow space for new ways of imagining the pressing problem. The paper relies on the ongoing research of its two authors. In specific: Matti Pohjonen is currently a Teaching Fellow in Digital Culture at the School of Oriental and African Studies (SOAS), at the University of London. He has been working for the past six months on a pilot project in Ethiopia that attempts to combine two unusual bedfellows: mobile phones and climate change. The project he has been working on developing a prototype that would allow the channeling of carbon sequestration funds between the North and the South: between the carbon offset markets in the North and the hundreds of thousands of farmers in Ethiopia planting trees on their smallholder farms. All of this would be mediated via the mobile phone from data gathering to calculating biomass patterns and carbon sequestration to accounting and payment. His work therefore aims at investigate some of the methodological and theoretical challenges that such practice-based research raises when we try to leapfrog the digital divide by the use of mobile technology in especially rural part of Africa and Asia and by combining technology, ecology and science in new ways. Somnath Batabyal is a Research Fellow at the University of Heidelberg and works on environmental activism. His research particularly examines transnational networks and the role of media in changing the scope and understanding of environmental politics. His work in this presentation will seek to highlight through case studies the complex

assemblages of actors, both in the Global North and the South, who control the discourse of environmental politics and in effect, limit the possibilities of producing real “antagonisms”.

### **Media and risk communication: an empirical study on lead contaminated areas in South America**

*Gabriela Di Giulio* – University of Campinas - Brazil, Brazil · gabrieladigiulio@yahoo.com.br

*Bernardino Figueiredo* – Professor - University of Campinas, Brazil · berna@ige.unicamp.br

*Lúcia Ferreira* – Researcher - University of Campinas, Brazil · luciacf@unicamp.br

*Philip Macnaghten* – Professor - University of Durham, United Kingdom · p.m.macnaghten@durham.ac.uk

*Nelly Mañay* – Professor - University of the Republic - Montevideo, Uruguay · nellymanay@gmail.com

*José Ângelo Anjos* – Professor - University of Salvador, Brazil · jangelo@unifacs.br

The study seeks to engage with contemporary debates on risk communication and on the role of the media on shaping public risk perceptions and attitudes. Drawing on empirical research in three communities exposed to lead contamination in Brazil and Uruguay, we analyze how the risk issue entered the public sphere through the media, how media reports shaped the subsequent political debate and response, and how this impacted on everyday life experience. Our research interrogates two data sources: the analysis of journalistic news, and the analysis of interviews conducted with stakeholders, each of whom played a distinctive role in the unfolding events. In our study we argue that risk perceptions and attitudes are influenced by a range of social and contextual factors that include: concerns about health and environmental protection, economic issues, social values and trust. According to the social constructivist approach adopted in this research, the structure of risk talk is seen as cultural, social and political, and as discursively constructed in everyday life talk. We further argue that the media has a formative role in shaping how people learn, understand, perceive and act in risk situations. According to how ‘the facts’ are covered and selected, the media can amplify or attenuate public risk perceptions, encouraging the public to imagine particular scenarios, and/or contributing to the stigma of people and places. This process is called the ‘social amplification of risk’, and is an approach that focuses on the dynamics through which risk perceptions are communicated through the media and other routes. The findings from our study suggest that in both Brazilian cases the problem of lead contamination entered the public sphere through the media. The analyses of interviews showed the media reports brought some positive impacts to the community (the information and mobilization of local people), as well as influenced the risk perceptions, which include the recognition of the risk, scare, problems with stigma, and attempts to deny the problem. In both cases, the dissemination shaped the subsequent political debate and response. The Brazilian Health Minister, for example, did a risk assessment to evaluate the problem. However, few actions have been done, and those communities continue to live in a high risk situation. In Uruguay the problem also reached the public and political spheres when the media disseminated the subject. The media reports gave visibility to a local association, which was created to pressure the government. The statements pointed the media reports and public pressure influenced actions that were adopted by Uruguayan government such as production of gas without lead; creation of a health clinic centre; reaccommodation of more than 450 families that lived in irregular contaminated areas. Although these actions, local people has the perception that contamination is still a problem, and requires further actions. We point to the implications of these case studies for wider debates of the media in risk situations, in particular in situations where the residents are living in collective stress because of the physical conditions in their neighbourhood, and possible impacts on their health.

### **Japanese mid-term greenhouse gas emission reduction target: How people see governmental decision?**

*Midori Usui* – National Institute for Environmental Studies, Japan · aoyagi@nies.go.jp

In this paper, we examined people’s responses for the mid-term target of greenhouse gas emission reduction. The Japanese governmental announced 15% mid -term greenhouse gas emission reduction target against 2005

level in June 10 by then Prime Minister Taro Aso. But, in August, the government has changed from Liberal Democratic Party to Democratic Party, and Prime Minister Hatoyama announced 25% target against 1990 emission level in late September. To examine public responses for this, we used two series of public opinion surveys to examine public response of the governmental decision, and reviewed mass media coverage concerning this. The survey we examined first is the monthly survey which we asked two questions of “the most important issue in the World” and “the most important issue in Japan”. The second series of survey is the public opinion surveys on mid-term target conducted on April, June and July in 2009, following the governmental press releases about the discussion results of the target. To review the media coverage of this issue and global warming/climate change issues, we used database of Japanese newspapers, and database of television programs. The result of first survey showed that during the first six months period of 2009, when mid-term target had been discussed, people’s concern for the environment was relatively low, because unemployment rate was historically high in Japan, and people’s concern for the Japanese economy was highest among whole social issues. Despite this economically not good situation, our results showed Japanese public’s high risk perception for climate change consequences, according to the surveys on mid-term target. People supported “sufficient reduction target against climate change consequences”, because, “developed countries have a responsibility for historical greenhouse gas emission” and “developed countries/regions do not have enough money, enough human power for tackling this issue at this moment”, but “countries who are achieving rapid economic growth should share the mid-term target with industrial countries.” People’s high concern for the bad economic situation was almost until July. Concern for the environmental issues was the highest priority again for the first time in eleven months in June 2009, and again in September 2009. This is clearly showed in tune with mass quantity of media coverage both in newspapers and television news program about the climate change including mid-term target. Content analysis of this coverage is now going on, but “welcome” articles for higher target are often seen in newspaper articles and television news programs. In conclusion, 1) despite the economic recession, people supported higher mid-term target, 2) this seemed to be a response of mass media coverage of climate change issues including the discussion of the target.

### **The transnational in local environmental protest**

*Libby Lester* – University of Tasmania, Australia · [Libby.Lester@utas.edu.au](mailto:Libby.Lester@utas.edu.au)

Why spend millions of dollars of taxpayers' dollars portraying our little island as a haven of tranquility when YouTube and TV news programs around the world are filled with horrific images of sledgehammers viciously attacking greenies' cars in the deep forests? (The Mercury, 1 November 2008) Many environmental protests are identifiable by the physically rooted character of their objectives – stopping logging in a forest, holding back unsustainable development on a coastline, protecting a natural waterway – which masks their significance as transnational media endeavours. Often highly localised and regional protests are increasingly projected nationally and globally to users and audiences via networked digital media in the service of specific campaign and policy goals. The pressure applied by activists to locally and regionally based politicians and businesses by this ‘outside attention’ is maximised by information, opinions and strategies distributed through major networks of news production and distribution, and more loosely organised networks of environmentalist websites, social networking profiles and mobile media. This paper analyses mediated environmental protests that, while physically located within and identified to a region, are visible evidence of a determination to contest the instrumental logic of capital and party politics globally in the service of environmental sustainability and/or conservation. It is based upon the analysis of three major internet-based protest campaigns undertaken in Tasmania over a ten-year period, which involved monitoring and content analysis of activist websites and web-based archives, and interviews with journalists and environmental activists. Data are contextualised within a longitudinal study of mediated environmental conflict in this island state of Australia. What these protests reveal is the ongoing resonance of the local and regional in an age of transnational media and politics, as well as the fact that the internet and web have opened up new possibilities for mediated politics and demonstration. The paper finds that protest groups are experiencing successful moments that draw attention to the destruction and degradation of

the natural environment, but the limits of their impact in terms of medium and long-term change must also be acknowledged and properly understood. These limitations are explained in terms of how media and communication power function, as media networks continue to constitute the arena in which power struggles between competing political, social and media actors are conducted.

### **From Ideograph to Conceptual Equivalence: Media's Representation of Three-Gorges Project in China and America (1992-2009)**

*Tao Liu* – Northwest Normal University, China · liutao7749@gmail.com

*Linsen Su* – China Institute of Industrial Relations, China · sulinsen@gmail.com

In his rhetorical theory of social movements, McGee defines "Ideograph" as an ordinary-language term found in political discourse. It is a high-order abstraction representing collective commitment to a particular, but equivocal, normative goal. It warrants the use of power to excuse behavior and belief which might guide behavior into channels easily recognizable by a community as acceptable and laudable. This paper, grounded on a content analysis of media's representation of Three-Gorges Project in China and America from 1992 to 2009, first explores the rhetorical and discursive mechanisms by which Chinese authority skillfully manufactures meaning by employing established or alternative ideographs to legitimize this environmental project and thus achieve consensus and national identity. Second, this paper examines how the U.S. media likewise skillfully presents and constructs a different meaning. Finally, the problem of conceptual equivalence is further examined in studies of cross-cultural/national comparison and interpretation. The Three-Gorges Project, started in 1992 and completed in 2009, is regarded as the world's largest hydroelectric river dam and undoubtedly became a representative discursive symbol and event in environmental and political discourses. While the seventeen-year environmental project brings social and economic profits at the cost of ecological destruction, the ruining of thousands of old historic cities, and external resettlements of millions of people, it has also aroused a lot of debate on environmental destruction, social security, and cultural and human right violations. The paper examines how Chinese and American newspapers differentially frame Three-Gorges Project, and further explores the political and cultural issues beneath their narrative strategies. Specifically, four prominent newspapers, two in China (People's Daily and China Daily) and two in the US (New York Times and Washington Post), have been chosen for content analysis by two types of measurement: story analysis and word count analysis. Factor analysis supports five dimensions: environmental influence, human right, public interest, economic consequences, attribution of responsibility and loss of cultures. For both types of measurement, results from statistical analysis suggest that there is a significant difference in framing the news between China and the U.S. That is, the Chinese newspaper is less likely to present concerns with environmental impacts, human rights issues, attribution of responsibility and loss of cultures than that the U.S. newspapers, and more likely to employ the frame of public interests and economic consequences. Based on these findings, this paper further examines the narrative and rhetorical strategies and power mechanisms behind the different framings. Besides contests over the meaning of familiar ideographs (e.g., human rights, public interest, harmonious society), other ideographs such as Ecological Migration, the Three-Gorges Spirit and Heroic People, are also reconstructed, produced, and interpreted to represent the controversial issue of Three-Gorges Dam External Resettlement. Specifically, the Chinese government has successfully persuaded millions of residents to leave their homesteads with minimal protest by skillfully promoting the produced ideographs and manufacturing media events (e.g., all the residents were chosen as Heroic People by strategically launching media events). Likewise, when addressing the environmental deterioration and endless flood disasters, the U.S. media collectively questioned the true value of Three-Gorges Project; the media in China, however, skillfully shifted the image of individual narratives while emphasizing the nation's honor in grand narratives, that is, underlining the nation's accomplishments or failures, more than individuals' gain or loss in most cases. Likewise, the established or even reconstructed ideographs such as human rights, public interest, harmonious society, convey mostly opposite meanings in Chinese and American media discourses. This essentially reveals conceptual equivalence problems when coming to cross-cultural comparison and interpretation. That is, people's expectations regarding these ideographs in particular cultural and political contexts can differ from that in others. For instance, the nature of the ideograph "human rights" in



the U.S. media discourse depends primarily on free speech, private property and rights of free residence, while in Chinese media discourse it depends on better material treatments such as better food, housing and transportation. The nature of the ideograph “public interest” in Chinese context serves to legitimize this environmental project and further construct national identity by strategically utilizing grand narratives, while in the U.S context the term emphasizes ecological citizenship by using individualized narratives.

### **Communicating climate change in the Belgian french press**

*Antigoni Vokou* – Université Libre de Bruxelles, Belgium · avokou@ulb.ac.be

Today climate change is undeniably a major scientific, environmental, political, economic, and social issue. Between 1997, where the negotiations of the Kyoto Protocol begin, and the United Nations Climate Change Conference in Copenhagen, in 2009, the media coverage of this subject has increased seven times in the Belgian media with 2160 articles published in the Belgian french language press only. Climate change is the most covered science issue in the Belgian media, but despite that fact almost half of the Belgian public still doesn't understand the importance of global warming and its implication in it. How the climate change issue, its risks, causes and consequences, were communicated by the Belgian french press between 1997 and 2009? How this coverage has evolved and what language and discursive processes were used? How the question regarding our consumption society habits was brought ahead by the media and what link they made with global warming and with citizen's responsibility in this process? This study brings answers to those questions with a discursive and framing analysis of the content of articles on climate change published in a Belgian french weekly magazine (*Le Vif/L'Express*), two quality newspapers (*Le Soir* and *La Libre Belgique*) and a popular one (*La Dernière Heure*). Results indicate that this subject is represented according to two axes: the Kyoto Protocol axis and the Climate Change Risks axis. News articles that focus on the first axis have no or few scientific content and are limited to a political approach of the problem, while news articles that focus on the second axis have an important scientific content and emphasize the risks and consequences of climate change (increase of extreme natural phenomena, sea level rise, lack of potable water, etc.) and the human responsibility in this process. A further study of the language used by journalists in each newspaper with lexicometric tools showed that if they are limited to a political vocabulary in the Kyoto Protocol axis, they prefer words with a strong emotional content such as catastrophe, end, extinction, cataclysm or irreversible in the second axis. Data also reveals that the covering of extreme weather events as Katrina, Rita and the rise of floods or heatwaves all over Europe lead the Belgian french press to a change after 2005, articles didn't just inform about climate change but counseled their readers on how to diminish their ecological footprint and become “green-friendly” in order to adapt and invited them to act individually to mitigate global warming by repeating verbs as make, act, need and expressions as our future, our planet, our survival. Media have definitely an impact on public's perceptions of climate change, especially since they are considered by the Belgians as their main source of information regarding science issues, and by extension on the political agendas. Indeed, the wide media coverage of this problem by the Belgian french language press raise public's concern and pointed their responsibility in global environmental change and by extension draw politician's attention towards better mitigation and adaptation policies.

### **Cultural resonances in the coverage and framing of the United Nations Climate Change Conference, Copenhagen, December 2009**

*Anders Hansen* – University of Leicester, United Kingdom · ash@leicester.ac.uk

*Miguel Vicente* – University of Valladolid, Spain · miguelvm@soc.uva.es

*Jingrong Tong* – University of Leicester, United Kingdom · jt183@leicester.ac.uk

Drawing on theories of news construction generally, and more particularly on what Schudson, Gamson and others refer to as cultural resonances in the construction and production of news, this study offers a comparative analysis of the television news coverage in three countries (China, Spain and Britain) of the United Nations

Climate Change Conference, COP15, Copenhagen 7-18 December 2009. The study employs the notion of framing as essentially about selection and salience (Entman) to explore how and to what extent national political agendas and culturally specific frames can be seen to impinge on the selection and news inflection across the three countries of the international COP15 meeting in Copenhagen. While identifying national differences that can be explained in terms of political and cultural frames, it is equally relevant to note the extent to which coverage in the three countries is relatively homogeneous and the extent to which homogeneity can be seen as evidence of the increasingly globalised nature of international news and/or as evidence of 'successful' news management at the Conference itself.

### **The pro-Reach project: analysis of communication strategies of civil society to defend a draft Directive on Sustainable Development**

*Céline Pascual Espuny* – CEROM, France · c.pascual-espuny@supco-montpellier.fr

Reach is the European response to global concern, expressed at the Summit in Rio de Janeiro and in the Stockholm and Rotterdam conventions on Persistent Organic Pollutants. UNEP has also proposed a "strategic approach to international management of chemicals. The European initiative fits completely in the posture of sustainable development. Reach is the answer to fear in 1998, when the project is launched, the effects of chemicals on human health are poorly understood, the lack of toxicological and ecotoxicological data is obvious. Reach, which terminates with complex system of forty different guidelines and regulations legislating on the chemical area, creates a whole new control system of substance and hence their marketing. Adopted on second reading by Parliament and the Council of EU ministers in December 2006, the Regulation entered into force on 1 June 2007. We propose an analysis of speeches by civil society, custom in the case of Reach by some environmental organizations (WWF, Friends of the Earth, Greenpeace, EEB: European Environmental Bureau), associations (BEUC, Bureau Européen des Unions Consumers, Eurocoop), trade unions (ETUC), women's associations (WECF: European women for a common future) but also by prominent scientists who undertake (ARTAC, EEN / EPHA Network) in the 'public space as defined by Habermas, on behalf of the general interest. This group advocates an ambitious original project, where health and environmental issues take precedence over economic issues. Reach observers, be they journalists, analysts (Ministry of Ecology and Sustainable Development, lecturers, researchers), have consistently identified a contrast between two clans, the clan and the environmental lobby of the chemistry. While in practice, these two groups by their joint activities, efforts are out of all issuers which are expressed on Reach, we do not share this Manichean vision. The speech did not oppose frontally, commonalities existed for these two major groups of stakeholders on the need for legislation and harmonize the field of industrial chemicals, as is clear from the analysis discourse that both groups are convinced of the inevitable implementation of sustainable development practices as well as its merits. If there was confrontation, it was not exactly front between the two actors, but she ran on the field interpretation of sustainable development and the question of the influence on two other major groups of stakeholders our communicative system, media, opinion leaders and access to levers of public opinion, and European institutions, rather than the legislative and executive soon. Our corpus consists of 112 speech messages, articles or press releases. The collection of speech was made by an electronic search (search by keyword Reach, Sustainability, Sustainable Development \* Reach), supplemented by requests directed to press officers to verify the accuracy of our data, and the validity of our analysis. We also have to press articles, could cross several reference software (including Pressed and Europress) on the archives of newspapers, then we checked on the same copies of newspapers to understand the model and see the illustrations of items.

**'The Ethanol Dream' scrutinised – local news reporting as investigative journalism**

*Annika Egan Sjölander* – Umeå University Sweden, Sweden · annika.egansjolander@kultmed.umu.se

The biofuel ethanol has been strongly promoted as a replacement for petrol in cars and the best climate friendly alternative for a couple of years, particularly in Sweden. The successful launch of this 'fuel of the future' has been supported by many different institutions and actors at all levels in the Swedish society. About a third of new-market cars are 'green' today and a majority of them run on ethanol. Politicians, scientists, authorities, business and industry representatives, as well as environmental organisations, have cooperated to realise the nation's 'ethanol dream', mainly built on hopes of large-scale domestic production (and subsequently world export) of so-called second-generation ethanol produced from forest products. The news media have played a crucial part in both the hype and the growing distrust of ethanol as the best substitute to fossil fuels, in a world concerned with climate change. The polarised debate with antagonistic positions between stakeholders - journalists included - has largely taken place within the press. Specialised motor journalists have been engaged for example, and frequently presented firm (personal/expert) views on the topic to their readers. The wider (primarily male) public, have also taken part and expressed clear views on the ethanol subject, like for example when commenting on traditional mass media's on-line news and debate articles published on the web. In this paper I take a closer look at a unique journalistic initiative in the Swedish ethanol discourse taken by three different local/regional newspapers regarding what they call 'The Ethanol Dream'. In the summer of 2009 Norra Västerbotten, Västerbottens-Kuriren and Örnsköldsviks Allehanda, published a co-produced series of articles with the aim to collectively scrutinise the decisions taken by their respective local politicians to financially support an international ethanol company with the head quarter in the region. The main journalistic angle was the politicians' use of public resources, or as it was framed in the press 'taxpayers' money', since the company were investing abroad and close to bankruptcy. The SEKAB Group received a total of 1,4 million Euros. Sekab produce and distribute ethanol in Sweden, mainly from imported Brazilian sugarcane, and is heavily engaged in the development of the next generation of cellulose-based ethanol processing. The case study contains of three main parts: a text-based analysis of the content of the articles, a visual analysis of the use of images and a production analysis based on interviews with the journalists, photographer, illustrator and the chief editors of the three news papers. 'The Ethanol Dream'-case is interesting to study for many reasons. It can be understood as a reaction to the former more positive tone in the press coverage and therefore important for the future legitimacy of the journalistic institution. It also shows local news as investigative journalism, which challenge earlier conceptions of the genres, even if they coexist to a large extent here. The cooperation is also unusual since local/regional newspapers very seldom do work of their own outside of the 'territory' and since there are no ownership relations between the newspaper that otherwise could promote such initiatives.

**Impacts of perceptual bias, self efficacy, and information sources on climate change policy support and personal carbon reduction actions in Taiwan**

*Mei-Ling Hsu* – National Chengchi University, Taiwan · mlshiu@nccu.edu.tw

*Yie-Jing Yang* – Shih-Hsin University, Taiwan · yiyang@cc.shu.edu.tw

Climate change has been considered a crucial issue facing human species today, including Taiwan. Although the government has claimed to be active in pushing for sustainable energy and large-scale renewable development, it has been criticized for a lack of solutions for curbing emissions in the electricity sector as well as a lack of planning for renewable energy compared with other countries at the same level of development. Moreover, local media representations of climate change tend to focus on events, disasters, and impacts occurring in foreign lands, which may have decreased the public's sense of relevance of climate change in the home land. Therefore, despite academic and activist's calls for government measures to prioritize saving energy and reducing carbon dioxide emissions, how policy initiatives and public actions taken in response to climate change adaptation and mitigation have been perceived by local Taiwanese becomes an intriguing question to address. With this in mind, the present study, the first-ever nationwide survey conducted on public perceptions and actions of climate

change in Taiwan, aims to explore factors contributing to public actions (measured by 7 items) and policy support (measured by 3 items) to reduce carbon emissions. Specifically, the study intends to measure impacts of individuals' perceptual bias (perception that climate change is more likely to occur in other countries - perception that climate change is more likely to occur in Taiwan), self efficacy (perception that climate change can be resolved - perception of inconvenience to quality of daily life due to climate change adaptation/mitigation actions), communication sources to obtain climate change information (measured by 13 various sources), together with socio-demographic variables such as age, sex, and education, on the aforementioned 2 dependent variables. A multi-stage systematic sampling technique was used to perform computer-assisted telephone interviews on 1,204 Taiwanese aged 18 and above in July, 2009. Among them, 947 (78.6%) who have heard of 'climate change' were retained for further analyses. Two regression analyses were conducted using energy saving and carbon reduction behaviors, and policy support as dependent variables, respectively. The results show that women and older respondents were more likely to practice energy saving and carbon reduction, but sex and age did not exert any statistically significant effects on policy support. In contrast, while educational level had an effect on policy support, it did not have any predictive power on energy saving and carbon reduction behaviors. Both the total number of communication sources receiving climate change information and self efficacy positively predicted the two dependent variables. Respondents' perceptual bias only positively predicted policy support, but it failed to do so regarding energy saving and carbon reduction behaviors. Results of the findings suggest that efficient efforts need to be made to encourage more educated men to engage in practice of energy saving and carbon reduction. Possible actions could also be taken to reduce individuals' perceptual bias that climate change is more likely to occur in other countries than Taiwan, which may further disassociate public involvement in supporting relevant policy to adapt or mitigate climate change. .

#### **Frankenfoods and the Press: Will Nano be the Next GM?**

*Alison Anderson* – University of Plymouth, United Kingdom · [aanderson@plymouth.ac.uk](mailto:aanderson@plymouth.ac.uk)

Nanotechnology is increasingly the focus of news media interest around the globe. Despite having received relatively little attention as an issue of public debate thus far, nanotechnologies are predicted by some commentators to have the potential to radically transform the future. In the UK the Royal Society Report (2004) expressed a variety of concerns about current and potential future developments. More recently, Friends of the Earth Australia raised particular anxieties over food safety issues given that they claim in excess of 100 food, food packaging, and agricultural products containing nano-ingredients are currently on sale internationally without mandatory food labelling measures in place (FOE, 2008). Nanotech gives rise to a range of complex scientific, legal and ethical issues and yet, to date, there has been little research into how scientists, journalists, and editors communicate the pertinent scientific knowledge to diverse publics. This paper discusses findings from an ESRC study into the production and coverage of news on nanotechnology in the UK national press, devoting particular attention to the discursive struggle over competing definitions of the potential risks involved.

#### **New media use and public perception about environmental issues in Japan**

*Miki Kawabata* – Mejiro University, Japan · [kawabata@mejiro.ac.jp](mailto:kawabata@mejiro.ac.jp)

The purpose of this paper is to investigate and discuss public perspective on environmental issues in the era of new media environment in Japan. During recent decades, global environmental issues have become the important social issues for the Japanese public with mass media as the main source of knowledge. But due to the internet, in the last decade the public has had greater access to the information about environmental issues. Has the new media environment with the increasing use of interactive communication such as internet changed public perception about environmental issues in Japan? To investigate this question, we conducted a

questionnaire survey in Tokyo in 2009. With analyzing the data, the author examined and discussed about the relation between new media use and public perception about environmental issues in Japan.

### **ETHICS, MOTIVATION AND PARTICIPATION ROLES IN ENVIRONMENTAL COMMUNICATION**

*Concepcion Piñeiro* – Universidad Autónoma de Madrid, Spain · concepcion.pineiro@uam.es

*Maria Jose Diaz* – Universidad Autónoma de Madrid, Spain · mariajose.diaz@uam.es

*Mireya Palavecino* – , Chile · mireyapufro@gmail.com

*Rocío Martín* – , Spain · comunicacionambiental@gmail.com

*Javier Benayas* – Universidad Autónoma de Madrid, Spain · javier.benayas@uam.es

*Luis Enrique Alonso* – Universidad Autónoma de Madrid, Spain · luis.alonso@uam.es

**INTRODUCTION** This research project about environmental communication (EC) is developed by an interdisciplinary research group of Universidad Autónoma de Madrid. It has lasted from 2006 to 2010. We focused on EC as a tool of EE that includes public organized practices (campaigns, programmes and plans) whose objectives are to transform present psychological and social factors (beliefs, attitudes, opinions, behaviours, routines, meanings, etc.) into more pro-environmental ones, by using mass media and other media outlets (leaflets, flyers, TV spots, radio commercial breaks, etc.). (Piñeiro, 2008) **RESEARCH QUESTION AND METHODOLOGY** Our research question is: What is the role of ethics, motivation and participation in EC? We have worked from an interdisciplinary approach. Our field study is made of interviews and focus groups with people tie to public administrations, universities, companies and ONGs, working from different perspectives (that have been divided in three main different ones: social-psychosocial/advertising/environmental). The first discourse analysis has been made from the groupal texts to the individual ones. Results were sent back to participants in order to receive their feedback and as a way to achieve rigor by reducing the risk of over-interpretation. In the first phase results we found three axis to deepen in EC theory and praxis, at least in our context. Those three axis are: ethics, motivation and participation. After the first analysis, we have used a snowball sampling technique for recruiting experts to be interviewed. Besides, we have selected experts related to each axis to be interviewed. 39 experts' opinions are part of study considering both phases. **RESULTS** Results are made of discourse analysis, with contributions from their daily practice and/or reflection to build knowledge about EC. They are discussed with scientific theories from persuasion models to participatory communication approaches. Participation, motivation and ethics have in common that their role is key in EC as they are present in two main elements: designing and planning processes as well as message. Their implications for EC are crucial but diverse. We have designed several tools to have them in mind in EC initiatives. **BIBLIOGRAPHY** Bator, R. J. & Cialdini, R.B. (2000), "The Application of Persuasion Theory to the Development of Effective Proenvironmental Public Service Announcements," *Journal of Social Issues*, 56(3), 527-541. McKenzie-Mohr, D. (2000). Quick Reference: Community-Based Social Marketing. [http://www.cbsm.com/ Reports/CBSM.pdf](http://www.cbsm.com/Reports/CBSM.pdf) Obermiller, Carl, et al. (1995) The baby is sick/the baby is well: A test of environmental communication appeals. *Journal of Advertising*. Vol. XXIV, Number 2. Summer 1995. Piñeiro, C. (2008) En el jardín de la comunicación ambiental: aprendiendo del diálogo. En Riechmann (coord.) (2008) ¿En qué estamos fallando? Cambio social para ecologizar el mundo. Barcelona: Ed. Icaria. Pol, E; Vidal, T. y Romeo, M. (2001) Supuestos de cambio de actitud y conducta usado en las campañas de publicidad y los programas de promoción ambiental. *Estudios de Psicología* 22(19), 111-126. Sosa, N. (1999) El qué y el para qué de una ética ecológica. En Heras, F. y González, M. (coords.) 30 Reflexiones sobre Educación Ambiental. Madrid: Ministerio de Medio Ambiente.

**The production and communication of scientific knowledge in environmental NGOs.**

*Nina Kruglikova* – University of Oxford, United Kingdom · nina.kruglikova@gmail.com

The questions of production and communication of science have been a matter of academic concern in recent decades. However, in relation to environmental non-governmental organizations (NGOs) scientific knowledge has been given insufficient attention so far, although social movements can be rightly considered “seedbeds for new modes of practicing science and organizing knowledge more generally, and also as sites for critically challenging and reconstituting the established forms of scientific activity” (Jamison 2001). Environmental NGOs have forcefully emerged into the public domain and have become increasingly accepted as new actors in the realm of science and politics. Their treatment of scientific knowledge and rhetoric of scientificity need to be examined more carefully as their role in environmental governance is becoming stronger. In the presentation I will first look at the historical perspective of environmental NGOs in their relation to production and communication of science. Second, I will cover their attempts to have in-house research capabilities and to commission research to external researchers. Third, I will put forward a complex interaction of social and political implications in their efforts to mediate scientific knowledge. Then, I will demonstrate the applicability of the boundary-work in regard to environmental NGOs and scientific knowledge as well as examine the use of scientific arguments in their media campaigns.

**Science Image in Portugal: a comparative study with university students**

*Paula Nogueira* – Universidade do Minho, Portugal · pmrnogueira@gmail.com

*Teresa Ruão* – Universidade do Minho, Portugal · trua@ics.uminho.pt

*Isabel Neves* – Universidade do Minho, Portugal · ineves@quimica.uminho.pt

*Gabriela Botelho* – Universidade do Minho, Portugal · gbotelho@quimica.uminho.pt

In the development of activities for the dissemination of science and scientific work there are difficulties and challenges. Many communication activities fail to engage their target audiences. In Portugal, some studies have been made on that matter and the results suggest that the relationship between Portuguese people and Science can be evaluated in different perspectives: some researchers highlight proximity and awareness, while others emphasize the lack of interest. People get in touch with science in different contexts, as in their workplace or their social life. However, it is in school that the largest number of interaction activities occurs, through communication and education practices. And university is probably a key context to the promotion of science among young people. University students have a close contact with scientific activities within class projects and conferences, and according to some authors this can be a positive environment to overcome resistance and to enhance a scientific culture. The heterogeneity of the public (even in academic contexts) requires scientific expertise, but also communication skills to call the audiences attention, to produced a more effective spreading of the message and to develop a comprehensive version of the complex themes proposed by science. In 2002, a study on the publics of science in Portugal has shown that improving the training and updating scientific knowledge are two important factors in increasing the involvement with Science. And the practice of promoting Science in academia responds to this purpose, providing the public (students) a close contact to scientific knowledge in different fields, reinforcing scientific citizenship and culture as basic elements of scientific literacy. In the University of Minho (Braga, Portugal) there has been an increasing interest in the activities of communicating science, internally and externally. However the difficulties are referred by everyone involved, suggesting the lack of interest of the publics, including students, for such activities. Responding to this internal issue we have decided to conduct a study on the dissemination activities of Science carried out in and by the University of Minho, through the analysis of its publics. For this purpose, we have gathered a research team composed of two researchers of Basic Sciences (responsible for bringing to the project their vision and experience on science communicating over the years) and two researchers of Communication Sciences (responsible for designing the study and its conceptual framework). This interdisciplinary team has been crossing experiences and knowledges gathered from their contact with communication science activities and their

research in strategic communication. Within this context, we have been developing an exploratory comparative study between the image of science hold by the students of Communication Sciences and Chemistry. We have applied a survey and the results suggest an unattractive image of science among those students.

### **Blogs of scientists as competing channels for the dissemination of science news**

*Vinciane Colson* – Université Libre de Bruxelles, Belgium · vcolson@ulb.ac.be

Research already highlighted the strained relations between scientists and journalists. Scientists generally criticize journalists for being simplistic and journalists criticize the researchers for being non-communicative. However, with the advent of the “Web 2.0”, some of them became communicative: an increasing number of scientists keep their own blogs. Many of these blogs are directed to the general public and are thus competing with the science-related information given by the traditional media. Although this trend started a number of years ago in the Anglo-Saxon world, the French-speaking scientific community is only slowly catching up. Each science controversy (e.g. influenza A/H1N1) seems to boost that trend. At the same time, in a context where journalists are expected to do more with less, science journalists are no exception. In Belgium and France, most daily newspapers have a “Science” or “Environment” section, but with very few journalists to fill in this daily column. With limited time to collect and check the news, they are craving for trustworthy sources of information. Our study explores these two diverging channels of dissemination of science news and their reciprocal consideration. First, we interviewed science journalists in Belgium and France on criteria they use to evaluate the credibility of online sources, and especially of the blogs of scientists. Using the typology of communication sources for the internet, based on the work of Sundar and Nass (2001), we identified the level of perceived credibility of the different online sources. If the “real” scientists have a high level of credibility among journalists, the “virtual” ones evolve in the opposite way: results show that science journalists generally don’t consider the blogs of scientists as a valuable source of information. Most of science journalists criticize particularly the personal opinions that some scientists develop on their blogs. Second, by interviewing French and Belgian scientists who kept their own blog, we discussed the reasons why they decided to create one such blog and where applicable, the causes of their discontent with science journalism. Results confirm that some scientists use their blog to circumvent traditional media and journalists. But for science bloggers, the blogs also represent a new way to participate in the social debate about scientific issues. Our study discusses the mutual suspicion that seems to arise between science journalist and science blogger in Belgium and France. Contrary to the practice in the United States, where “many discussions that grab the attention of science bloggers have ended up in the pages of The New York Times or in the news sections of science journals” (2007), news published on blogs of scientists are rarely taken up by Belgian and French journalists. On the other hand, the science bloggers have to keep an eye on science-related news in traditional media to have the possibility to comment, react or criticize them. Bonetta, L. (2007). Scientists enter the blogosphere. *Cell*, 129, 443-445. Sundar, S.S., & Nass, C. (2001). Conceptualizing sources in online news. *Journal of Communication*, 51 (1), 52-72.