Comunicación y Sociedad
Departamento de Estudios de la Comunicación Social
Universidad de Guadalajara

# Risks, communication and socioenvironmental conflicts over energy in Chile[1]

*Riesgos, comunicación y conflictos socioambientales por energía en Chile*

DOI: https://doi.org/10.32870/cys.v2019i0.6848

Arturo Vallejos-Romero[2]
https://orcid.org/0000-0002-0393-7275
Claudia Riquelme
https://orcid.org/0000-0002-0716-0651
Jaime Garrido Castillo
https://orcid.org/0000-0002-1917-6925
Alvaro Quezada-Hofflinger
https://orcid.org/0000-0002-1231-9911
Alex Boso
https://orcid.org/0000-0002-0313-8238

This article analyzes the communication strategies in the conflicts surrounding the Castilla and HidroAysén projects in Chile. Within this framework, descriptive exploratory research, with an integrated design was performed. The findings revealed simple communication formats that affect the management of the conflict, trust and the development visions, stressing risk communication as important for risk governance.
Keywords: Communication, conflicts, risk, Chile, environment.

*El artículo analiza las estrategias comunicacionales en los conflictos Castilla e HidroAysén en Chile. El escrito se enmarca en una investigación exploratoria descriptiva, de diseño integrado. Los resultados revelaron formatos comunicativos simples que inciden en el manejo de la conflictividad, la confianza y las visiones de desarrollo, resaltando a la comunicación de riesgos como importante para la gobernanza de riesgos.*
*Palabras clave: Comunicación, conflictos, riesgo, Chile, medio ambiente.*

How to cite:
Vallejos-Romero, A., Riquelme, C., Garrido Castillo, J., Quezada-Hofflinger, A. & Boso, A. (2019). Risks, communication and socioenvironmental conflicts over energy in Chile. *Comunicación y Sociedad*, e6848. DOI: https://doi.org/10.32870/cys.v2019i0.6848

1 This article is the product of FONDECYT Projects 1120554 and 1150576 financed by CONICYT, Chile.

2 Universidad de la Frontera, Chile.
E-mails: arturo.vallejos@ufrontera.cl, claudia.riquelme@ufrontera.cl, jaime.garrido.c@ufrontera.cl, alvaro.hofflinger@ufrontera.cl, alex.boso@ufrontera.cl
Submitted: 06/06/17. Accepted: 18/04/18. Published: 20/03/19.

## Introduction

The disasters that occurred in the industrial plants in Minamata (Japan), Bhopal (India), Seveso (Italy) and the Union Carbide Institute (Japan) were the basis for the emergence of studies on risk communication. Such events had a significant communication impact, where those in charge could not convey the information and messages directly and promptly on the danger of the toxic and hazardous elements to the communities and their surroundings (Cortinas, 2000; Glik, 2007; Gonzalo, 2010; Rivera, 2011; Tormo & Banegas, 2001). These and other disasters have been increasing the interest in the environment and its impacts, the result of a society that is more complex, contingent and marked by uncertainties, which raises more and better responses by decision makers, policy designers and managers.

This issue has resulted in an analysis proposal from a risk point of view, which puts pressure on and questions the rationales of government, media and public opinion with regard to risk (Gonzalo, 2010; Gonzalo & Farré, 2012; Lozano, 2012; Luhmann, 1992; Prades, 2015; Prades & Espluga, 2012; Risk and Regulation Advisory Council [RRAC], 2009), giving centrality to the idea of advancing towards schemes that enable risk governance where communication is a relevant dimension (García, 2010; Lang, Fewtreel & Bartram, 2001; Vallejos, 2012). This dimension would emerge as a contextually fluid and positioned communication facilitator (Aakko, 2004; MARSH, 2012) as well as a space for the evaluation of collective action opportunities for the population exposed to socioenvironmental problems and conflicts.

In order to observe the importance of risk communication in socioenvironmental conflicts, we conducted a study in Chile around two large energy conflicts that rendered communication a key factor for governance: the Castilla thermoelectric project in the region of Atacama and the project HidroAysén hydroelectric project in the region of Aysén. The analysis of both cases is significant for three reasons: 1) the projects caused great unrest and had a strong communication impact on public opinion and the government's agenda; 2) there is a relative paucity of studies in this vein (both in Chile and in Latin America) that generate knowledge and guide public policies and governmental decisions; and

3) the study allows the communication models that currently operate when conflicts like those mentioned arise to be identified.

In this context and in light of a relational and reflexive model, the article seeks to identify the communication strategies used in the different phases of the conflict generated by the Castilla thermoelectric (Castilla) and HidroAysén hydroelectric (HidroAysén) energy proposals and to analyze their impact on socioenvironmental conflicts in the north and south of Chile.

## Risk society and its communication formats

In the last 50 years, awareness of the risk and danger due to the advanced production of scientific and technological progress (Bechmann, 1995; Beck, 2002; Lores & Lozano, 2012) has marked the self-description of modern society (Beck, 2002; Luhmann, 1992). In this dynamic, the introduction of new technologies is highly correlated with various and intense socioenvironmental conflicts, where the environment becomes, in globalization contexts, a topic of enormous importance in public opinion.

However, the issue raised and how to approach it differ in terms of risk perception, the social expectations that certain phenomena or events could trigger and a contextualized development relevant to risk governance. Risk is not usually defined as an objective expression, but rather as a social phenomenon that subjects perceive and construct in a differentiated way, mediated by the context and relations that occur there (Bechmann & Sther, 2001; Climent, 2006; Douglas, 1996; Drevensek, 2004; Lozano, 2012; Thayer, 2011; Vallejos-Romero, Cárdenas-Gómez & Sáez-Ardura, 2015; Vallejos-Romero, Riquelme & Garrido, 2017).

In this regard, risk communication has been consolidated by highlighting that risk perceptions are complex and nonobjective phenomena. Thus, theoretical models of the simple top-down conveyance of information have evolved into an interactive, iterative and participatory form of decision-making between the managers and the managed, although in practice, in the Latin American context, interventions based on simple models are observed (Moreno & Peres, 2011).

For Espluga, Prades & Gonzalo (2010), the two forms of communication mentioned will depend on the objectives of the person communicating and the levels of action they require, observing some communication models that tend to guarantee the effectiveness of their message. The first of these is the one implemented by the German Federal Institute for Risk Assessment, called the multiple-stage risk communication process (Hertel & Henseler, 2007), the purpose of which is to emphasize the benefit of participating in decision-making and an iterative exchange of risk communication among the actors involved. A second model is the social amplification of risk (Kasperson et al., 1992), where the relation between the variables is given by social, psychological, institutional and cultural processes that change and determine the public's behavior in amplifying or reducing these processes. A third model, risk communication stakeholders (Wright, 2006), suggests that actors are in contact dynamically and consciously, where institutionality can guarantee the dialog between the parties, going beyond mere transmission and promoting an integrative communication that includes the point of view of the others involved to foster understandings, integration and participation.

According to Espluga et al. (2010), these models are representative of the main trends described, where communication is embedded in risk management and is going to depend on the groups and issues related to the development processes. This process of communication should involve all the stakeholders related to the evaluation and assessment of the risks. Most of the studies in this area of research point to the need for public institutions and companies to gain a better understanding of how the general public makes sense of, problematizes and assesses risk (Espluga et al., 2010; Oltra, Sala et al., 2012; Oltra, Upham et al., 2012; Vallejos, 2012; Upham, Oltra & Boso, 2015).

Following the lines of previous studies, the present study uses the distinction between traditional or simple communication (normative and unidirectional) and relational or complex reflexive communication (engaging and bidirectional) (Vallejos, 2012). This study endeavors to identify mechanisms that can advance to the second model (reflexive), which assumes a perspective where the perception and construction of risks and dangers does not depend solely on expert knowledge

that normatively informs or transmits to a particular population. The reflexive model goes beyond the conveyance of information by focusing on comprehension (understanding). Therefore, the center of attention is not the person communicating, but instead on a contextually positioned receiver who adopts distinctive social practices, which is why such communication changes the logic, focusing on the one being intervened upon and their context of meaning.

## Risk communication and intervention models

In light of the issue being discussed, the inform/communicate distinction is essential, because to inform refers to the act of issuing data through some medium that flows only in one direction (from sender to receiver), supposing the existence of a receiver and where understanding of the information is presumed (Cortinas, 2000; Vallejos, 2012). By contrast, to communicate refers to the information exchange process between actors. In this context, permanent feedback is a key element for risk governance and effective decision-making (Lang et al., 2001; Vallejos-Romero et al., 2017).

Therefore, by risk communication we understand the interaction and exchange of information between individuals (Garza, 2014), groups or institutions about risks, dangers and threats that they perceive and construct, being "a general and interactive … process … among all the parties involved" (Farré & Fernández, 2007, p. 25), in which a co-construction of the risks is observed and where communication acquires meaning for those who communicate and those who receive the communication.

Risk communication is thus conceived as the construction of meaning, a narrative reconstruction that first the subjects produce and then the mass media afterwards, by perceiving, interpreting and sharing the main issues that occur in the surroundings and directly affect the stability of their social domain (García Jiménez, 2015; Lozano, 2012). Seen like this, communication is a procedure of interaction and reciprocity of information, where trust generates learning and the ability of civil society, the State and companies to act in the face of danger (Cantú, 2009; Zinn, 2006). That definition enables the shift from

a simple model, where a sender unilaterally and normatively defines the risk and communicates it, to a complex one, where the definition is co-constructed between the one communicating and the one receiving this communication (considered from the other). In this way, a contextualized communication is achieved that generates meaning of the risks and dangers that must be governed.

Therefore, risk communication involves a reflexive process of arguments and opinions among people, communities and organizations (public or private organizations and institutions), being established as a continuous and dependent process that incorporates dialog among the actors, stimulating greater democratization, legitimation and public acceptance of the resulting decisions between the three general systems of information flows: 1) business and the State; 2) the State and civil society; and 3) business and civil society (Aguirre, 2007; Cantú, 2009; Farré & Fernández, 2007; Miramontes, 2011; Rivera, 2011). This articulation model that is shaped in a format of relations between the three types of actors (Figure 2) responds to a model based on listening to and understanding the information from each of the parties (resonance).

Once the problem has been established, what we understand by communication, the formats (simple and reflexive), the base model for risk communication as well as the key elements that intervene in it beginning with the analysis of the risk perceptions and constructions by the actors involved, it is possible to implement the (re-)construction and understanding of its design in the conflicts indicated surrounding the energy matrix in Chile.

## Methodological aspects

The study was of an exploratory-descriptive nature because it included an emerging area of work in Chile and Latin America. Information was collected through semi-structured interviews and discussion groups with relevant actors associated with the conflict and from civil and business organizations as well as public entities (Table 1).

The first case study was the Castilla thermoelectric conflict, which was generated between 2008 and 2010 in the region of Atacama, province of Copiapó as a result of the project supported by MPX

FIGURE 1
MATRIX OF ACTORS

| | Castilla | | HidroAysén |
|---|---|---|---|
| PC1 | Calder Discussion Group | PH1 | Cochrane Discussion Group |
| PC2 | Copiapó Discussion Group | PH2 | Coyhaique Discussion Group |
| PC3 | Interview representative Ministry of the Environment Region of Atacama (SEREMI) | PH3 | Interview Mayor of Coyhaique |
| PC4 | Interview Deputy District Nº 5 | PH4 | Interview representative Ministry of Energy, Region of Aysén (SEREMI) |
| PC5 | Interview representative Diocese of Copiapó | PH5 | Interview representative Diocese of Aysén |

Energía de Chile Ltda., which endeavored to install a diesel oil-fired thermoelectric power plant and a coal-fired thermoelectric power plant. The second case study was the Hidroaysén Hydroelectric conflict, which occurred between 2008 and 2014; the proposal was based on the construction of a complex of five hydroelectric power plants. In both projects, the decisions that were made for their implementation were strongly challenged due to the supposed socioenvironmental and health risks they would pose to the communities.

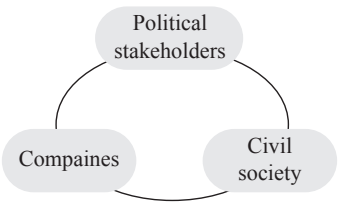
The analysis was directly related to the risk communication processes, which made it possible to recognize and analyze the semiological and semantic elements with which they were perceived and constructed socially, i.e., the link between the context and the individual (Zinn, 2010) and their confrontation with a relational-reflexive model of risk communication. Specifically, the technique of "quantitative thematic analysis" (Bardin, 1996) used generated important connections between the data and the theory on which the design of the conceptual codes that facilitated the search for patterns of meaning as conceptual coding categories was based.

The data obtained from the study participants were analyzed through an analytical sequence in two phases: 1) Phase A: the analytical

integration of the subjects' discourses in relation to the communicative functions that occurred between the actors, both at Castilla and HidroAysén; and 2) Phase B: an analysis of the communication models that were ultimately presented in both cases.

The first stage of the methodological process was the design of a relational matrix (Table 1) that the model (diagram) of basic communication took (Figure 1). The matrix aimed to identify the communication process produced between the actors associated with the Castilla and HidroAysén projects, it being necessary to identify and include the description of the type of communicative function between the actors (Table 2) in order to account for the (ideal) relational-reflexive communication model.

FIGURE 1
BASIC COMMUNICATION DIAGRAM




Source: the authors.

The information contained in the Ideal Reflexive Matrix is related to three actors/communicative functions: 1) the *regulatory* function that enables the generation of feedback in the communication process, in which each actor can clearly recognize the message, because the content is generally regulated; 2) the *informative* function, which involves a relation with the interrelation that the process of transmission and reception of the information produces, enabling an appropriation of the content of the message between the parties; and finally, 3) the *informative-participatory* function that makes it possible to form a clear idea mutually from what the actors want to communicate to each other via permanent and systematic feedback. The visualization of the (ideal) relational-reflexive model resulting from the relations involved in the matrix appears in Figure 2.

TABLE 2
RELATIONAL-REFLEXIVE MATRIX

| Actors | (a) Political Actors | (b) Company | (c) Civil Society |
|---|---|---|---|
| (a) Political Actors | | Function type | Function type |
| (b) Company | Function type | | Function type |
| (c) Civil Society | Function type | Function type | |

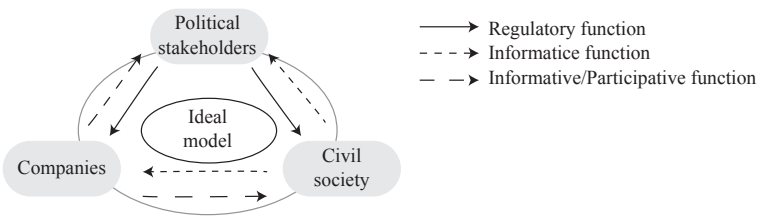
Source: the authors.

TABLE 3
IDEAL RELATIONAL-REFLEXIVE MATRIX

| Actors | (a) Political Actors | (b) Company | (c) Civil Society |
|---|---|---|---|
| (a) Political Actors | | Regulatory function | Regulatory function |
| (b) Company | Informative function | | Informative function |
| (c) Civil Society | Informative/ participatory function | Informative/ participatory function | |

Source: the authors.

FIGURE 2
(IDEAL) RELATIONAL-REFLEXIVE MODEL

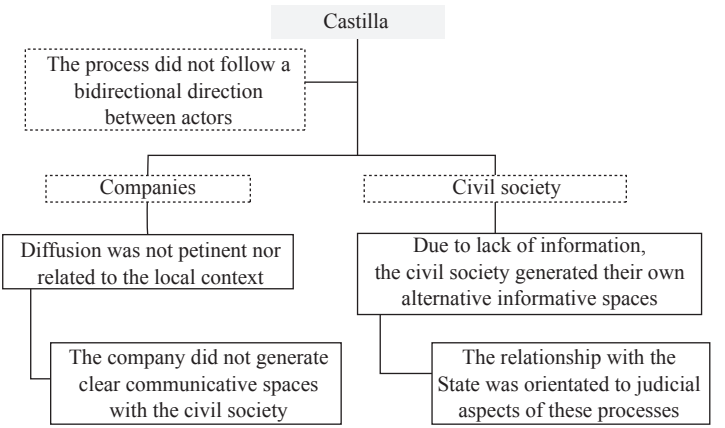



Source: the authors.

## Communication strategies in Castilla and Hidroaysen

### *Castilla Project*

Figure 3
Descriptions that define the Castilla model



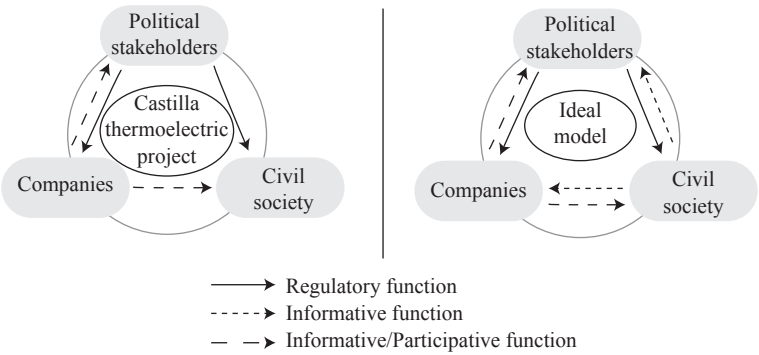

Source: the authors.

Information about the Castilla project made it possible to distinguish the risk communication model based on the type of relation the actors established and the communication functions they developed. Figure 4 presents the model for Castilla (left) and the (ideal) relational-reflexive model (right).

The relational communication model (Figure 2) indicated that most significant flow of information was between political actors and civil society, the functions of which were of a regulatory and informative-participatory nature. This form of communication was explained by the relation established between the two actors, because the purpose was to stop the project, a goal that was achieved after a lawsuit was filed. The main function of the company was informative, a situation that the population perceived as scarce, segmented, specific and targeted,

there being neither an effective nor continuous communication flow; neither the company/political actors nor company/civil society were incorporated.

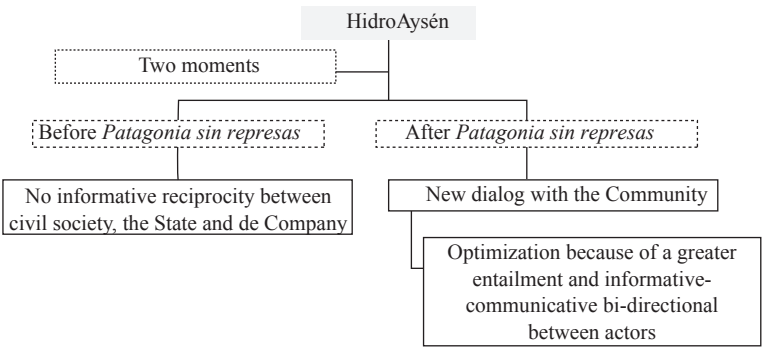
FIGURE 4
CASTILLA MODEL AND RELATIONAL-REFLEXIVE CASTILLA




Source: the authors.

## *HidroAysén Project*

FIGURE 5
DESCRIPTIONS THAT DEFINE THE HIDROAYSÉN MODEL




Source: the authors.

TABLE 5
HIDROAYSÉN PROJECT ANALYTICAL MATRIX

| HidroAysén | (a) Political Actors | (b) Company | (c) Civil Society |
|---|---|---|---|
| (a) Political Actors | | (a/b) Regulatory-participatory function | (a/c) Regulatory-participatory function |
| | | Formal communication was established, where the political actors not only acted as a regulatory framework that regulated the actions of the company and asked for communication to be established with civil society, but also that they be directly linked with it to define what position to adopt and how pertinent the project was for the region and surrounding communes (PH3/PH4/PH5). | The type of communication established was formal and informal. The political actors regulated the processes associated with the conflict and intervened together with the general public (PH1/PH2/PH4). |

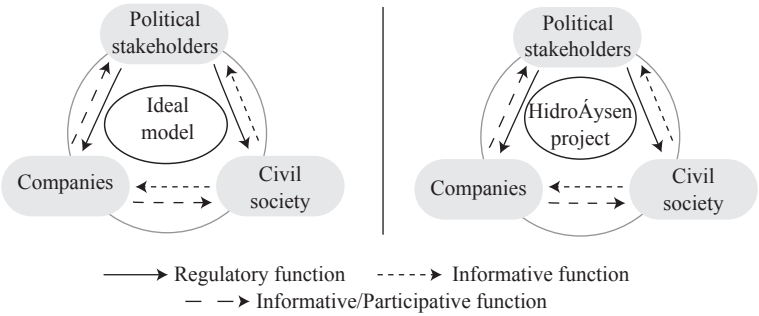
| | | | |
|---|---|---|---|
| (b) Company | (b/a)<br>Informative function<br>The type of communication established was formal. The company was linked to several political actors through the implementation of specialist committees, seminars and others. These strategies contributed to direct communication and the dissemination of information needed or demanded by the political actors, who also defined their positions for or against the project (PH1/PH2/PH3). | | (b/c)<br>Informative function<br>Formal and informal communication was established. The company engaged with the community to be transparent about the project, allowing civil society to approach directly to get informed and leaders to do so through specialist committees or coordinated meetings. However, to achieve this, the company had to make changes in its communication strategy and redefine the connection to the community to disseminate the project (PH1/PH2/PH3). |
| (c) Civil Society | (c/a)<br>Informative-participatory function<br>Formal and informal communication were established with the political actors, where | (c/b)<br>Informative-participatory function<br>Communication was both formal and informal because civil society approached the company to | |

| HidroAysén | (a) Political Actors | (b) Company | (c) Civil Society |
|---|---|---|---|
| | civil society were in contact with them to get more information and be able to influence the decisions and project installation, as well as to be able to reach a greater number of people with information about the risks and consequences, and thus be endorsed by people recognized and identified by the rest of the population (PH1/PH2/PH5) | obtain information that was not given to them by the mass media, where these did not convey all the information needed to take a position. Likewise, the leaders of the organizations in opposition approached to present their demands and to stop the project; demands that were being widely disseminated and that contributed to the public protest and the emergence of Patagonia Without Dams (PH1/PH2/PH3). | |

Source: the authors.

The communication design for the HidroAysén project (Figure 3) was more fluid, since the political actors, civil society and the company were in contact and established links to obtain information. Although the functions of each were differentiated, the informative and participatory function was a point that established an informative-participatory triad that connected them.

FIGURE 6
HIDROAYSÉN RELATIONAL-REFLEXIVE MODEL




Source: the authors.

The main characteristic of the communication process was the link it fostered between the actors, because it incorporated the informative function of the company better. However, it was not free of information management and flow issues through the information channels used.

## DISCUSSION

The relational analysis of the information generated with the reflexive theoretical model makes it possible to distinguish and differentiate the existence of communication models, i.e., a set of practices, actions and interactions that socially structure the attitudes and positions of the actors involved in both environmental conflicts. Starting from the distinction between simple and relational-reflexive communication indicated by the literature (Espluga et al., 2011; Vallejos, 2012; Vallejos-Romero et

al., 2017), the communication models used to manage the conflicts in the case studies of Castilla and HidroAysén have been characterized.

The main results of the study reveal two main aspects. In the first conflict (Castilla) there was no binding communication model between the actors, so that the process communication was not effective throughout (Figure 4); nor in the second case (HidroAysén) was a relational communication model applied at the beginning of the process. Nevertheless, once the preliminary stages of gestation of the conflict were over, the communication model was modified through new strategies implemented by the company (Figure 6). Now, this change did not arise spontaneously but rather came as a result of social opposition, specifically the Patagonia Without Dams movement.

In line with what has been suggested by previous studies (Espluga et al., 2010; Oltra, Upham et al., 2012; Upham et al., 2015), the results of the study point to the importance that such social expressions acquire in the implementation of new forms of communication for the management of socioenvironmental conflicts, particularly those generated by energy infrastructure installation projects. A comparison of the two cases shows how when opposition and information arise against the company, the communication strategies must be improved, not only to achieve the success of the project, but also to foster greater social cohesion. The mobilization of some community actors interfered with the risk communication processes, forcing the company to reframe its way of doing things. Thus, those in the opposition were supported by bonds formed by common experience and shared values, bonds that from the social practices of individuals encouraged collective action, which mobilized them and made them able to systematically question the patterns formed by the distribution of resources. In this sense, opposition is a relevant and decisive element in the participation of the general public, emphasizing the socioenvironmental variable as a subject of interest for public opinion.

The statement that Castilla had no iterative and inclusive communication model is based on the information that had to be communicated by the company not being disseminated thoroughly and comprehensively to the entire community, so that the relational communication model between the actors was not present.

From this perspective, the communication of the risks in the HidroAysén conflict aimed at a new strategy that endeavored to communicate the risks beyond the simple conveyance of information, seeking new ways to be in contact with the various actors and focusing the efforts on creating a culture of understanding and integration from the points of view and general concerns of the community. Thus, the company's change in communication strategy involved new scenarios in the analysis, design, implementation and monitoring of risk communication management to improve the communication process overall (Espluga et al., 2010). However, the perception that the general public had formed, from the initial intervention of the company, ended up being an explanatory factor of the outcome due to the high degrees of distrust that largely persisted among the inhabitants of Aysén.

Assuming that risk communication is relevant in the explanation of the interaction of the actors and governance of socioenvironmental conflicts, then it can be defined from models that emphasize the transmission of a more significant amount of information to the community as well as models that consider information an iterative exchange between the actors involved. Both models became intertwined for the case studies, since it makes reference to Espluga et al. (2010), where the various actors played a relevant role in the exchange of information and opinion, emphasizing how the information was conveyed to the community. When the information was altered or intercepted, the exchange of information and opinions between the actors was restricted and limited, causing social instability and confrontation, a situation that was observed and emphasized in both cases.

In this same vein, the exchange of information was impaired by the lack of channels and their low credibility, related directly to the companies associated with both projects. In this lies the importance of clear and transparent risk communication, otherwise factors interfere in the communicative effectiveness and guide the perceptions, assessment or beliefs of the actors involved, as well as the meaning or resonance in each particular case (Espluga et al., 2010; Oltra, Upham et al., 2012; Vallejos, 2012, Vallejos-Romero et al., 2017).

The observation made, the communicative-informative work that civil society itself does with respect to the implications (risks) of the

projects, which highlights the change in its social perception (Lozano, 2012) and forces the subjects to maintain a constant balance between the dangers they perceive and confront them in the most reasonable way, although these do not necessarily cause direct damage to the population. It becomes evident, both in Castilla and HidroAysén, that when promoting relations of information exchange with other key actors in the area, risks beyond the environmental issue are revealed, i.e., those social effects that in ambitious energy projects cause destruction and threats for the future (Bechmann & Sther, 2001; Beck, 2002).

It may be stated then that the concrete design of risk communication for energy projects, as Zinn (2010) points out, depends on the social context (along with the identity structures) and the parameters of action in which they are inserted, where the context, expressed in all those structural conditions and those on which the actors have no direct influence, is vital, because it incorporates factors decisive to the production of risk communication. These factors are embedded in highly conflictive sociocultural and sociopolitical contexts; in actions and/or measures meant to pressure exerted by the companies for the installation of the projects; in the mass media responsible for disseminating partial information or from the general public with its need to communicate the biases of such models and the effects of these huge megaprojects.

Thus, the findings of this study are consistent with some previous studies that note that the correct provision of information can be a necessary factor although not sufficient to achieve effective management of the conflicts caused by the installation of energy infrastructures (Upham et al., 2015; Oltra, Sala et al., 2012). The communication strategy must be reflexive-relational from the first stages of project management, which can cause socioenvironmental conflicts (Oltra, Upham et al., 2012); otherwise, the erosion of confidence between the non-expert public and the representatives of the companies and administration can render social acceptance of the projects impossible (Cantú, 2009; Lang et al., 2001; Oltra, Upham et al., 2012; Vallejos-Romero et al., 2017; Zinn, 2010).

Therefore, this study shows the importance of communication models in the governance of socioenvironmental conflicts and

the success and effectiveness of risk communication. Relational-reflexive communication is key to promoting social exchanges that reduce situations of tension and conflict through a participatory-informative strategy.

## Conclusions

Socioenvironmental conflicts are linked to the emergence of new paradigms and forms of social configuration, as well as to their influence and impact on daily life, where subjects construct risks in differing ways in the specific social contexts where they live.

The evidence set out guides relational-reflexive risk communication as an iterative and inclusive process between the parties involved in terms of its design, analysis and implementation, which would bring about interventions relevant to in socioenvironmental conflicts like those analyzed. The nonexistence of a communication model in Castilla and HidroAysén that would have made effective participation possible, made it so the conflict exacerbated the mistrust, and it will be judged where one won and the other lost, which is evidence that companies have not endorsed the new trends in communication (Arribas, 2013).

Risk communication around socioenvironmental conflicts are central axes for building trust, because communication is a procedure of interaction and reciprocity: trust brings about learning and the ability of civil society, the State and the companies to act in the face of danger (Cantú, 2009; Zinn, 2006).

It is important to note that in a risk society socioenvironmental conflicts are strengthened by the incorporation of civil society as a central actor. Not only about the citizens harmed by the risks, but also because those who act as agents disseminating information have an increasing presence in socio-environmental dynamics. This was demonstrated in HidroAysén, where the application of a more inclusive model of risk communication brought about stronger connections between the actors involved. When people were provided with more information, their risk perception in daily contexts was broadened, which in turn encouraged new, more effective, reliable and credible processes in the exchange of information.

Finally, both in Chile and in the Latin American context, the absence of risk communication models that contribute to improving relations and the iterative and sustained exchange of information over time for the transformation of socioenvironmental conflicts should be emphasized. In these case studies, the actors, especially the general public, were not protesting the generation of energy in itself, but rather against unsustainable projects that did not consider people's well-being and quality of life.

In the face of projects that cause tension and contradictions, an engaging, inclusive and transparent risk communication model produces conditions for a better understanding between the parties, but in particular it forces us to rethink the problematic situations that cause apprehension. If no such communication designs exist, the conflicts and disputes are deepened and winners and losers are created, damaging coexistence and shaking the confidence to confront the complexity that society generates through socioenvironmental conflict.

***Bibliographic references***

Aakko, E. (2004). Risk communication, risk perception, and public health. *Wisconsin Medical Society (WMJ)*, *103*(1), 25-27.

Aguirre, D. (2007). Comunicación de riesgo en situación de desastres naturales: Terremotos y Tsunamis. *Revista Tercer Milenio*, *14*, 6-13.

Arribas, F. (2013). La Comunicación, nuevas tendencias. *Revista Historia y Comunicación Social*, *18*, 627-642.

Bardin, L. (1996). *El Análisis de Contenido*. Madrid: Ediciones Akal.

Bechmann, G. (1995). Riesgo y desarrollo técnico-científico sobre la importancia social de la investigación y valoración del riesgo. *Cuadernos de Sección, Ciencias Sociales y Económicas*, *2*, 59-98. DOI: https://doi.org/10.1007/978-3-642-56585-4_20

Bechmann, G. & Sther, N. (2001). The Uncertainties of Risk Communication in Knowledge Societies. In M. Mathies, H. Malchow, & J. Kriz (Eds.), *Integrative Systems Approaches to Natural and Social Dynamics* (pp. 289-303). Germany: Springer Berlin Heidelberg.

Beck, U. (2002). *La sociedad del riesgo. Hacia una nueva modernidad*. Barcelona: Editorial Paidós.

Cantú, P. (2009). Comunicación de riesgos en la salud y el ambiente. *Revista Ciencia UANL*, *12*(3), 256-261.

Climent, V. (2006). Sociedad del riesgo: producción y sostenibilidad. *Papers*, *82*, 121-140.

Cortinas, C. (2000). *Manual de Comunicación de riesgos para el manejo de sustancias peligrosas, con énfasis en residuos peligrosos*. Mexico: Instituto Nacional de Ecología.

Douglas, M. (1996). *La aceptabilidad del riesgo según las ciencias sociales*. Spain: Paidós Ibérica.

Drevensek, M. (2004). Effective risk communication: the driving force of responsible environmental behaviour. Paper for the *ECPR Joint Session Uppsala*. University of Ljubljana-Slovenia.

Espluga, J., Prades, A. & Gonzalo, J. (2010). Communicating at the edge: risk communication processes and structural conflicts in highly industrialized petrochemical areas. *Catalan Journal of Communication & Cultural Studies*, *2*(2), 231-251. DOI: https://doi.org/10.1386/cjcs.2.2.231_1

Farré, J. & Fernández, J. (Eds.). (2007). *Comunicación y riesgo petroquímico en Tarragona. De las definiciones a las prácticas institucionales*. Tarragona: Publicaciones URV. DOI: https://doi.org/10.17345/9788484240952

García, A. (April 22nd, 2010). ¿Denunciar o comunicar el riesgo? Retrieved on Apri 7th, 2015 from http://elpais.com/diario/2010/04/24/opinion/1272060005_850215.html

García Jiménez, L. (2015). La teoría de la comunicación como matriz práctica para la resolución de conflictos. *Comunicación y Sociedad*, *23*, pp. 45-65. DOI: https://doi.org/10.32870/cys.v0i23.63

Garza, M. (2014). Antecedentes sociológicos del estudio de la comunicación interpersonal. *Revista Historia y Comunicación Social*, *19*, 315-326.

Glik, D. (2007). Risk communication for public health emergencies. *Annual Review of Public Health*, *28*, 33-54. DOI: https://doi.org/10.1146/annurev.publhealth.28.021406.144123

Gonzalo, J. (2010). *La estructuración de la comunicación de riesgo en entornos complejos: comunicación, comunidades y mediaciones.*

*Riesgo nuclear, riesgo químico y cambio climático en la Unión Europea* (Doctoral dissertation). Rovina i Virgili University, Spain.

Gonzalo, J. & Farré, J. (2012). *Teoría de la comunicación del riesgo*. Spain: Ed. UOC.

Hertel, R. & Henseler, G. (2007). *ERiK: Development of a multi-stage risk communication process*, *BfR Wissenschaft*. Germany: Bundesinstitut für Risikobewertung.

Kasperson, R., Ortwin, R., Slovic, P., Brown, H., Emel, J., Goble, R., Kasperson, J. & Ratick, S. (1992). The Social Amplification of Risk: A Conceptual Fremework. *Risk Analysis*, *8*(2), 177-187. DOI: https://doi.org/10.1111/j.1539-6924.1988.tb01168.x

Lang, S., Fewtreel, L. & Bartram, J. (2001). *Risk Communication.* London: IWA Publishing.

Lores, M. & Lozano, N. (2012). Percepciones y usos de los Social Media en la comunicación de riesgos y beneficios alimentarios: los consumidores europeos como caso de estudio. *III Congreso AE IC: Comunicación y Riesgo*. Spain. Tarragona.

Lozano, C. (2012). La comunicación de riesgo: una realidad contraindicada. III *Congreso AE IC: Comunicación y Riesgo*. Spain, Tarragona.

Luhmann, N. (1992). *Sociología del Riesgo*. Mexico: Editorial Triana/ Universidad Iberoamericana.

Marsh. (2012). *Preparar al sector público para la gobernanza de riesgos: primeros pasos hacia un referencial ISO 31000*. Spain: Grupo Marsh/McLennan Companies.

Miramontes, M. (2011). Comunicación de la ciencia y Comunicación de riesgos. Similitudes, diferencias y un estudio de caso. *XVIII Congreso Nacional de Divulgación de la Ciencia y la Técnica, 2do. Congreso Estatal de Difusión y Divulgación de la Ciencia y de la Tecnología*. Michoacán, Mexico.

Moreno, A. & Peres, F. (2011). El estado del arte de la comunicación de riesgos en la región de América Latina. *Revista de Comunicación y Salud*, *1*(1), 52-68.

Oltra, C., Sala, R. & Boso, À. (2012). The influence of information on individuals' reactions to CCS technologies: results from experimen-

tal online survey research. *Greenhouse Gases: Science and Technology*, *2*(3), 209-215. DOI: https://doi.org/10.1002/ghg.1285

Oltra, C., Upham, P., Riesch, H., Boso, À., Brunsting, S., Dütschke, E. & Lis, A. (2012). Public responses to CO2 storage sites: lessons from five European cases. *Energy & Environment*, *23*(2-3), 227-248. DOI: https://doi.org/10.1260/0958-305X.23.2-3.227

Pont-Sorribes, C., Codina, L., Pedraza-Jiménez, R. (2009). Comunicación de riesgos y sistemas de información en la web. *El profesional de la Comunicación*, *18*(4), 389-397. DOI: https://doi.org/10.3145/epi.2009.jul.05

Prades, J. (2015). *La mediatització del conflicte ambiental el cas de les terres de l'Ebre*. (Doctoral dissertation). Rovira i Virgili University, Spain.

Prades, A. & Espluga, J. (2012). Estrategias de comunicación del riesgo y políticas de cambio climático dirigidas a cambiar comportamientos cotidianos. *III Congreso AE IC: Comunicación y Riesgo*. Tarragona, Spain.

Risk and Regulation Advisory Council-RRAC. (2009). A practical guide to public risk communication. London: Risk & Regulation Advisory Council.

Rivera, J. (2011). Hacia un nuevo modelo de comunicación del riesgo. *Revista Ciencia Tecnología Sociedad*, *4*, 45-66. DOI: https://doi.org/10.22430/21457778.137

Rodríguez, E. (2012). La comunicación de riesgo en el marco de las prácticas comunicación de los principales polígonos químicos de España. *Unitat de Comunicació URV*, *21*, 1-22.

Thayer, L. (2011). Catástrofes medioambientales. La reacción social y política. *Revista Polis*, *10*(29), 471-477. DOI: https://doi.org/10.4067/S0718-65682011000200021

Tormo, M. J. & Benegas, J. (2001). Mejorar la comunicación de riesgo en salud pública sin tiempo para demoras. *Revista Española de Salud Pública*, *75*, 7-10. DOI: https://doi.org/10.1590/S1135-57272001000100001

Upham, P., Oltra, C. & Boso, À. (2015). Towards a cross-paradigmatic framework of the social acceptance of energy systems. *Energy Re-*

*search & Social Science*, 8, 100-112. DOI: https://doi.org/10.1016/j.erss.2015.05.003

Vallejos, A. (2012). La relevancia de la confianza institucional y la comunicación en la percepción y construcción social de riesgos. *Revista Perfiles Latinoamericanos*, *39*, 151-176.

Vallejos-Romero, A., Cárdenas-Gómez, C. & Sáez-Ardura, F. (2015). Hacia una configuración diferenciada de los riesgos y peligros en América Latina. Lineamientos generales para la observación en contextos locales. *Revista Jurídica*, *12*(2), 58-71. DOI: https://doi.org/10.17151/jurid.2015.12.2.5

Vallejos-Romero, A., Riquelme, C. & Garrido, J. (2017). Comunicación y conflictos socioambientales: una aproximación a la gobernanza de riesgos. Los casos de Castilla e HidroAysén en Chile. *Perfiles Latinoamericanos*, *25*(49), 97-117. DOI: https://doi.org/10.18504/pl2549-005-2017

Wright, D. (Ed.). (2006). *Stakeholders in Risk Communication (STARC)* [PSC-Europe RD/011. Draft Final Report]. Brussels: Public Safety Communication Europe.

Zinn, J. (2006). Recent Developments in Sociology of Risk and Uncertainty. *Forum Qualitative Sozialforschung*, *7*(1), 1-9.

Zinn, J. (2010). Biography, Risk and Uncertainty: Is there Common Ground for Biographical Research and Risk Research? *Forum: Qualitative Social Research*, *11*(1), 1-15. DOI: http://dx.doi.org/10.17169/fqs-11.1.1512