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Proximity Economics and Environment: Assessment and Prospects

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ABSTRACT *The use of the theoretical tools provided by proximity economics to address environmental questions, and the emergence of analyses revitalizing the role of the spatial dimension in environmental problems date back from the late 1990s. This article aims first of all to provide a review of the research conducted in this field and second of all to suggest some future research directions concerning the respective roles of geographical proximity and organised proximity in the production and management of environmental problems. The first section of this paper deals with the topic of 'geographical proximity and land-use conflicts', a topic that is currently the most researched in this field. The second section discusses the role of organised proximity in the regulation of environmental problems. The third explores the relation between the uncertainty associated with environmental issues and relations of organised proximity. In the fourth section we outline a few possible research directions, focusing more particularly on the roles of geographical proximity as a mode of regulation of environmental problems, and on the possible role of organised proximity in their production. The concluding section draws an overview of the departures and extensions that have resulted from taking into account environmental issues in the paradigm of proximity economics.*

Introduction

Small things can sometimes determine the fate of a concept or idea. That of the notion of proximity, which emerged in the early 1990s in the French-speaking community and was developed by a group of researchers in economics, and later in other social sciences, rested initially on two phenomena. It all started with a thought movement situated at the intersection of spatial economics and industrial economics[1], which enabled the specialists of both disciplines to exchange ideas and concepts, such as the importance of the spatial dimension on the one hand, and the integration of the coordination processes on the other. Secondly, the choice of the term 'proximity' and the content given to the word have proved crucial. The word 'proximity' lacked semantic precision but as a result was more open to different interpretations than were other, more frozen, notions such as distance or location for example. Indeed, the content given to this concept, which refers not only to space but also institutional and organisational dimensions, made it a concept that was likely to prove useful to certain groups of researchers who wished to take into account new, and mostly heterodox, developments in economic analysis and integrate them in their areas of research: institutionalism, evolutionalism, interactionism, the *Régulation* theory, etc.

The research studies that followed have mostly dealt with questions related to productive activities. Those studies aimed to examine firms' relations to their local environment, to discuss questions related to innovation and knowledge transfer in space or to ICTs, to explore issues related to localised systems of production, interfirm collaboration, territorial regulations and governance, institutional processes, and more generally, to examine the various modes of coordination (interaction, networks, cooperation, trust, rules, standards…) used by actors located either in proximity or far from one another. These studies defined a 'grammar' of proximity, based on the taking into account of all spatial, organisational and institutional dimensions in coordination processes, at local and global levels and at intra-firm and inter-firm levels.

A number of collective works (Rallet, Torre, 1995; Bellet *et al.*, 1998; Gilly, Torre, 2000; Dupuy, Burmeister, 2003; Pecqueur, Zimmermann, 2004; Torre, Filippi, 2005; Rallet, Torre, 2007), and some special issues of journals (Bellet *et al.*, 1993; Gilly, Torre, 1998; Mollard, Torre, 2004a; Torre, 2004; Boschma, 2005; Talbot, Kirat, 2005; Torre, Zuindeau, 2006) later, and following a few controversies that have testified to the vitality of this approach and its extension to different disciplines such as sociology or geography, we can summarise the contributions of research on proximity with the simplified definition of the two main categories of proximity (Torre, Rallet, 2005), that is geographical proximity and organised proximity, respectively (see definitions in box)[2].

We believe that confronting the relevance of the analytical categories of proximity (and particularly of the conceptual geographical/organised proximity pair) to objects other than productive relations can be a fruitful exercise. The environment is but one among these possible objects. By environment, we mean here a field that is relatively broad, but yet which is narrower than the idea of 'milieu' or of 'context'. According to Siebert's definition (1987, p. 8-12), we consider as part of this field:

– the public consumption goods, such as air, landscape amenities and nature's function ;

– the supply of resources such as water or energy ;

– the questions of waste and pollution ;

– and the space occupied by individuals that they may have to share with other individuals or activities.

Environmental issues and the individuals – or groups of individuals – concerned with these issues present two main characteristics that happen to correspond to the analytical categories of proximity:

1) First of all, the spatial dimension is often crucial, whether one deals with pollution and the areas affected by it, conflicts concerning infrastructures, land use and neighbourhood constraints, or with the definition of the areas of action of public policies. Pollution, manuring, nuisance, biogeochemical flows, etc., all have an immediate impact on the neighbouring areas, and their effects are felt at more or less long distances. The decision to build a waste processing facility, an airport or a highway mobilises not only the promoters of the projects but also the people living and/or working in the areas concerned, and the local authorities.

2) Second of all, these problems are often made public and/or taken on by organisations or communities of actors such as associations of environmental protection, consultation and negotiation groups aiming to define policies or how they are applied, more or less formal local organisations seeking to find negotiated solutions, or, last but not least, the local or decentralized authorities, which play a significant role in terms of decision making and consultation.

It is revealing to note that the principle of 'proximity' appears in many texts of regulations and charts dealing with environmental questions, particularly those related to the principles of evaluation of environmental impacts and of delimitation of the areas in which actions need to be undertaken (see for example the French law on waste disposal of 1992, the Bale convention of 1989 or various circulars on waste collection and management, Nicourt, Giraud, 2006).

Logically, the term is also often used in the rhetoric of local or national decision-makers. Proximity (geographical proximity in this instance) is more than just a convenient term, it is also a governing instrument that enables those decision-makers to address issues concerning choices of location and to relate economic interests to the modes of promotion of public awareness and participation. Thus, proximity is now an argument used freely by all parties involved in local debates concerning environmental issues, regarding questions related to, for example, the creation of facilities or infrastructures, security perimeters determined by decision-makers, and the extent of the area affected by pollution or various emissions.

The grammar of the economics of proximity

The development of proximity economics has, since the early 1990s, given rise to a variety of definitions of the different types of proximity. Those definitions always centre around two dimensions: schematically speaking, the spatial and the non-spatial dimensions. Today the debate revolves around two approaches that consider the role of institutions differently. The first approach distinguishes three types of proximity, called geographical, organisational, and institutional proximities respectively. The second approach, which we have retained in this article, is based on the distinction between two categories of proximity that we have called geographical and organised proximities respectively (Torre, Rallet, 2005).

• *Geographical proximity* expresses the physical distance between two entities (individuals, organisations, towns, etc.) weighed by the temporal and financial costs incurred to go from one entity to the other. It has two main characteristics. It is binary: Naturally there are infinite gradations (more or less far from, more or less close to) but the purpose of examining geographical proximity is to determine whether one entity is 'far from' or 'close to' another. And it is relative, doubly relative: firstly, the kilometric distance is weighted by the time and/or the cost of transport. Secondly, proximity is not only an objective data. It proceeds from a judgement made by individuals or groups of individuals on the nature of the geographical distance that separates them. The judgement consists in processing the parameters that influence the distance, to convert them into the statement according to which one is close to or far from. These parameters include objective data (Km, time, and price) but also the perception individuals have of them. And this perception varies according to the age, social background, gender, profession of individuals, etc. (For example, the possibility of meeting someone once a day can be perceived differently according to the individuals). However, although it is social (determined by the means of transport) and subjective (referring to a statement) by nature, geographical proximity may be, at a time *t*, considered as a physical space data representing a constraint imposed, at that particular time, on the actors to develop their actions.

• *Organised proximity* is not geographic but relational in essence. By organised proximity we mean the ability of an organisation[3] to make its members interact. The organisation facilitates interactions within it, and anyway, makes them *a priori* easier than with units situated outside the organisation. Two main reasons explain this. Firstly, belonging to an organisation translates into the existence of interactions between its members. This is what we call the 'logic of belonging' of organised proximity: two members of one organisation are close to each other because they interact, and because their interactions are facilitated by (explicit or implicit) the rules and routines of behaviour that they follow. Secondly, the members of an organisation are said to share a same system of representations, set of beliefs[4], and the same knowledge. This social relation is mainly tacit in nature. This is what we call the 'logic of similarity' of organised proximity. Two individuals are considered close to each other because they are 'alike', i.e. they share a same system of representations, which facilitates their ability to interact.

The idea of approaching environmental questions using the analytical categories of proximity dates back from the late 1990s-early 2000s, with a number of preliminary

contributions (Kirat, 1999 and 2005; Lahaye, 1999 and 2002; Papy, Torre, 1999 and 2002; Letombe, Zuindeau, 2001; Torre, Caron, 2002), in which the spatial dimension was taken into account in order to revitalize the analysis of environmental problems.

This article aims to provide an assessment of the research conducted in this field up to now and to attempt a forecast for the future. Table 1 provides a classification of the existing works and enables us to highlight current deficiencies, and in so doing it suggests possible future research directions. The table crosses both types of proximity and two levels of approach to environmental problems: their production and their regulation[5]. We note that the contributions dealing with the role of geographical proximity in the production of environmental problems, and with the role of organised proximity in the regulation of those problems, are the most abundant. The role of organised proximity in the production of environmental problems has been the object of a few studies that would deserve to be taken further; that of geographical proximity in the regulation of problems constitutes a direction deserving of further exploration, and for which the contributions of other theoretical schools could be utilized[6].

Table 1: The different types of proximity and environmental issues: assessment and possible directions

	Production of environmental problems	**Regulation of environmental problems**
Geographical proximity	**Relatively abundant research**	**A new research direction to explore on the basis of the contributions of other theoretical movements.**
Organised proximity	**Very few studies. Need to be enlarged further**	**Relatively abundant research**

The above classification helps us organize our paper. The first section deals with the topic of ‘geographical proximity and land-use conflicts’ – currently the most researched. The second section discusses the role of organised proximity in the regulation of environmental problems. The third, which deals with the role of organised proximity in the regulation of environmental problems, explores the relation between the uncertainty associated with environmental issues and relations of organised proximity and, more particularly, emphasizes the difficulty of generating organised proximity in contexts characterized by uncertainty. In the fourth section

we outline a few possible research directions, focusing more particularly on the roles of geographical proximity in the management of environmental problems, and of organised proximity on their production. The concluding section draws an overview of the departures and extensions that have resulted from taking into account environmental issues in the paradigm of proximity economics.

Geographical proximity and land-use conflicts

Most of the research conducted at the intersection of environmental analyses and proximity economics deals with the question of land-use and neighbourhood conflicts. In the early 2000s, a group of French researchers started working on the question of conflicts, linking them explicitly to the spatial dimension of the relations between individuals or groups of individuals. These studies are multidisciplinary in nature. They rest on empirical foundations and on what their authors call an empirical-deductive approach. They have been based on the contributions of proximity economics, i.e. on the analytical categories of proximity, and particularly on the specific characteristics of geographical and organised proximity relations (Caron, Torre, 2006).

The conflicts analysed in these studies do not exclusively pertain to the effects of pollution or with the creation of particular infrastructures. They are related to different environmental dimensions, to questions of sustainable development (Mollard, Torre, 2004b) and to concerns about the quality of people's living environments (see the definition of the environment in the introduction). The authors of these studies seek to identify and highlight the variables that play a role in the production of conflicts and analyse in detail the notion of geographical proximity and its conflict generating characteristics. Let us note that this approach does not put conflict in a moralizing or negative light; indeed the authors consider conflict as a mode of coordination, or even as a necessary stage in the process of governance.

Undesirable and desirable geographical proximity

As Torre and Caron have shown (2005), land-use and neighbourhood conflicts and tensions can be closely related to geographical proximity; indeed geographical proximity plays a central role in the production of conflicts because it is imposed on the actors, cannot be eliminated, and often is the direct cause of conflictual relations. The approach is based on a

fundamental distinction between undesirable or unwelcome geographical proximity and desirable geographical proximity.

Geographical proximity is undesirable when, for example, residents of a particular area have to endure the negative effects of effluent discharges, of olfactory, visual or noise pollution emitted by their neighbours, or the creation of an activity that causes nuisance. Likewise, it is an issue when different land-users disagree as to what the land they occupy should be used for, some wanting the land to be used for recreational purposes and others wanting to use it for production purposes. Geographical proximity can also be unwelcome when there are disagreements about what category/ies of users should or should not have access to a given area. This undesirable proximity can result, if relocation is not an option, in a constraint of proximity due to three types of interference:

– *Superposition:* This is when two or several land-users use or wish to use a piece of land for different purposes. For example, some of the occupants might wish to use the land for recreational activities whereas others might wish to use it for nature conservation or even development. These are generally situations when using a piece of land for different purposes proves difficult or even impossible.

– *Contiguity:* In this case, individuals or groups of individuals located side by side disagree as to where the boundary between their respective properties lies; the different parties may be in a dispute over property boundaries, easement issues or over usage of a shared strip of land separating the two properties. Contiguity refers to any situation in which individuals or legal persons have a dispute over the boundaries of their respective territories of action.

– *Neighbourhood*: This refers to situations in which the undesirable effects of certain activities are diffused by air, water or under the effect of gravity over to actors located in proximity. An example is the emblematic case of pollution externalities, effluent discharges, toxic emissions, or even noise pollution, which negatively affect actors located more or less close to these sources of pollution.

The other opposite situation discussed in literature is that desirable or sought out geographical proximity. In this case, land-users seek proximity to other social or economic actors, or even to natural or artificial resources or to areas that present (human and spatial) characteristics associated with a low population density. It can be of two types depending on whether one needs permanent or temporary proximity:

– The need for permanent geographical proximity leads the actors concerned to locate or relocate in an area they believe is more likely to provide what they need, or to facilitate the realisation of their projects. It is the case of people who choose to settle in a town so as to benefit from the presence of other people, infrastructures, or even a certain cultural environment. Another example is that of firms that seek to locate their silos or processing plant close to areas of agricultural production in order to limit transport-related expenses and losses.

– The need for temporary geographical proximity does not call for a relocation of activities as it can be satisfied through mobility or through trips and visits of varying duration. It is the case, for example, of seasonal migrants, owners of holiday homes, and tourists, hikers, etc., who wish to spend varying periods of time close to the countryside, in the context of their recreational activities. The demand for landscapes, natural or protected environments, and transport or recreational infrastructures is central here.

Beside the distinction between both types of geographical proximity, it is important to take into account an asymmetrical relation associated with the physical component of proximity. It is the phenomenon that authors call the 'micro localisation' of actors (Beaurain, Longuépée, 2006) or inequality in space (Caron, Torre, 2005), a consequence of the combination of the physical characteristics of space (an actor can be located at the top or at the bottom of a hill, upstream or downstream of a river) and of the spatial position of the social and economic actors (more or less close to a source of pollution)[7]. Depending on the precise location of the latter, on the topographic characteristics of the piece of land on which they are located, or on the man-made infrastructures present in the area, the actors find themselves in more or less advantageous situations in terms of space and coordination. This results in relational asymmetries between the local actors, asymmetries that play a determinant role in the modes of expression as well as in the resolution of conflicts. A situation of inequality in space conditions the relations between land-users, as well as their solutions to the difficulties caused by a forced collocation. For example, an actor who is in a favourable location (easy access to water resources for example) can carry a lot of weight in a negotiation, or might 'just' be requested to undertake technical actions in order to repair or prevent a damage. The actor who is in an unfavourable position (with no direct access to water resources) might be more prone to engage in conflict to defend his interests, if he feels the latter are not adequately looked after. Finally, this spatial inequality has an impact on the very definition of property rights and therefore on the modes of conflict resolution: attempts

at negotiation, mediation, consultation, and judgements take into account this fundamental phenomenon of spatial (and sometimes hierarchical) inequality.

The characteristics of land-use conflicts

It is on the basis of these three elements (undesirable proximity, sought out proximity, and inequality in space) that land-use and neighbourhood conflicts can be defined. The latter arise between actors who are forced to coexist in the same space and have different or even conflicting projects about what the latter should be used for. The ambivalence between desirable geographical proximity (which responds to a need for geographical proximity) and unwelcome geographical proximity (which imposes constraints of proximity) generates tensions and conflicts[8]. One solution to forced proximity is mobility – i.e. moving to a different area in the case of a private resident or an economic activity. But, for financial or cultural reasons, this solution is not always feasible. When mobility is undesirable or not an option, tensions sharpen and lead to conflicts following the credible engagement (legal action, violence, mediatisation, access prohibition) of the actors who feel threatened or disadvantaged.

Going hand in hand with these theoretical developments is the research currently conducted at an empirical level, which has revealed some major characteristics of the land-use and neighbourhood conflicts that arise in rural and peri-urban areas in France (Torre *et al.*, 2006). Out of the nine main types of land uses that are traditionally considered (farming, industrial activities, services, energy production, construction of infrastructures, waste management and wastewater treatment, nature protection and conservation, recreational services and residential activities), three are the main causes of conflict. They are the residential, environmental (nature protection and management) and industrial uses of land (the industrial use often conflicting with the other two types of uses). A second important result of this research is that it is the anticipation or preventive conflicts that are the most common (Torre *et al.*, 2006). Indeed, public enquiry procedures or public utility declarations are, in most areas surveyed, systematically at the origin of the tensions or engagements – civil legal disputes, demonstrations, recourse to the media – that mark the start of a conflict. The third finding of these studies is that most of the conflicts surveyed are related to innovations, be they technical (development, infrastructure, industrial activities), social (the setting up of working groups or commissions), political (protection of biodiversity) or organisational (new methods of land management, land consolidation). The conflicts that accompany change seem

to be a way of modifying the rules and regulations, both in the field of action and in the field of negotiation (modifications in the local governance systems). Furthermore, they act as catalysts of social relationships by enabling communities or groups of people to organize around a common goal.

Organised proximity and regulation of environmental problems

Whereas geographical proximity is considered – in the studies on land-use and neighbourhood conflicts, and more generally on environmental problems – as being conflict generating in nature, organised proximity on the other hand is attributed a role that corresponds more to the findings of traditional studies of proximity economics. Indeed, it mostly has a regulatory (remedial or preventive) function in environment-related conflicts, particularly when both dimensions associated with it – i.e. the logic of belonging and the logic of similarity (see box 1) – can be mobilised. And when a conflict does arise, it is because organised proximity struggles to develop or its mobilisation is difficult (Torre, Caron, 2005).

The regulatory dimension of organised proximity

The regulatory role of organised proximity – be it in solving environmental conflicts or in preventing them by alleviating tensions emerging between land-users – is often highlighted in the literature (see for example Bertrand, Moquay, 2004, or Gueorguieva-Faye, 2006). Useful in the management or resolution of conflicts between local actors, the mobilisation of the logics of belonging and of similarity related to organised proximity can help alleviate the negative effects of geographical proximity in terms of conflictuality. It rests on a crucial social component of organised proximity, i.e. that of the actors' coordination capacities, their level of interaction and the role of institutions. Thus, mobilising organised proximity helps to find more or less temporary compromises, at the local level, between the actors experiencing tensions and conflicts. It is a similar mechanism that comes into play when tensions need to be managed so as to prevent them from deteriorating into conflicts.

The collective form taken by the concern for environmental questions is favourable to the mobilisation of organised proximity. The latter plays a role in the different stages of negotiation (in all its forms) as well as during the legal process – although in this latter case, organised proximity is only mobilised for the most formalized part of the relation. It is

mobilised to prevent or find solutions to conflicts (Kirat, Melot, 2006). During the 'uneventful' phases of the process, that is during times of tension but outside moments of high conflictuality, the virtues of organised proximity are mobilised to facilitate the process of coordination. However it will also play a quiet role during phases of acute conflict, and will help maintain the social link without which negotiations could not take place and attempts to reach an agreement would fail. Negotiation then rests on the rules imposed, at the local level, by the regional, national or supra-national authorities, but it also aims to produce rules for local use, negotiated and produced collectively by the local actors in order to manage conflict situations. Both the logics of belonging and of similarity of organised proximity are necessary here (Bélis-Bergouignan, Cazals, 2006).

With regard to the logic of belonging, it is the relationships formed between the members of networks that proves essential. Belonging to the same network or the same organisation enables the actors to initiate discussions about the rules that must be produced within the negotiation mechanism implemented and the technical modalities of the solutions to be found. We see here the strong voluntarist dimension of organised proximity, in its logic of belonging. As a restorer of social relations, organised proximity can, according to the authors, be mobilised to solve conflicts that actors can face in the absence of interactions. It is its activation that helps restore the social link, through the implementation of common actions that generate interactions. Let us take the example of SAGE – pertaining to water resources. It is an organisation that promotes the creation of relations of organised proximity, it offers a space that facilitates discussion between actors and the expression of their interests, as well as the identification of their strategies (Beaurain, Longuépée, 2006).

With regard to the logic of similarity, it is the reference to common values that proves essential. Essentially, it refers to the possibility for the local actors to share experiences and projections so that they can cooperate in common projects. Though these situations have similarities with situations of the logic of belonging, the difference lies in the fact that, when mobilised, the logic of similarity conditions the degree to which the actors accept the common rules of negotiation that are at the origin of the process and are indispensable to its launching. Furthermore, it facilitates the production of collective rules accepted by all parties involved in the negotiation, and the production of beliefs and anticipations shared by all actors, a temporary and revisable compromise that enables the actors to trace a common path. The results of the studies concerning the dynamics of concerted management of rural areas highlight the decisive role of common representations or values in the elaboration of the agreements examined (Beuret, 2003).

As Bélis-Bergouignan and Cazals (2006) have shown, the mobilisation of organised proximity to facilitate the management or alleviation of environmental conflicts can take the form of voluntary agreements. Testifying to this are the voluntary environmental initiatives, 'mechanisms in which firms voluntarily commit to improve their environmental performances' (Mormont, 1996) and which take the form of agreements, environmental charts, codes of good behaviour and contracts of progress. In this case, it is indeed the logics of belonging that come into play through the development of relations between actors and the reinforcement of a common framework of rules. It is often more difficult to create a knowledge base that is common to all actors and thus develop relationships that are grounded in a logic of similarity; but generally speaking, voluntary environmental initiatives serve as instruments of conflict alleviation, in that they create a contractual environment, help to determine the contents of the commitments made in terms of environmental performance, and help to identify the parties involved in these initiatives and the objective characteristics of the conflict. They provide a good illustration of the necessity to make the most of the potentials offered by organised proximity.

The problems related to the absence or lack of organised proximity

The above theoretical presentation, which has the merit of highlighting the regulatory dimensions of organised proximity, is completed by an analysis of the deficits related to a lack of organised proximity or to the difficulties in mobilising it, which results in an absence or serious lack of cooperation between actors, of relations of solidarity or shared representations between actors that are confronted with new or complex situations. In cases of forced geographical proximity, i.e. superposition, contiguity or forced neighbourhood, tensions arise between the actors and may even deteriorate into conflictual relations. Indeed, tensions and conflicts arise when different individuals who are forced into a situation of geographical proximity do not share the same logics of similarity or belonging; in other words tensions arise when there are no social relations between the different parties, relations that would enable them to find the resources or solutions to alleviate the tensions generated by geographical proximity.

Let us consider the less abstract case – discussed by Granjou and Garin (2006) – of the volumetric water management in the Charente's basin. The local actors, co-existing in the same area and experiencing similar constraints related to the impact of irrigation on the water resources, are all concerned with the problem. However, they struggle to find a solution that is

accepted by all, because they have different perceptions of the problem and cannot reach an agreement about a common project, particularly with regards the question of maize irrigation. Thus, these individuals experience geographical proximity as a constraint because they are forced to co-exit even though they have conflicting preferences and do not have the means of expression that would enable them to transcend the tensions that exist between them. If, for various reasons, the parties involved cannot relocate nor choose their neighbours, the tensions between them sharpen. Because of the absence or lack of interactions between the individuals, conflicts emerge, generally following an intensification of the tensions or as a result of new events, episodes of pollution, constructions of infrastructures, etc.

In this type of situation, i.e. in the absence of organised proximity relations, the interactions between the actors cannot be cooperative and the conflict process is initiated. A good example of this type of situation is the problem of rainwater management in urban areas (Carré *et al.*, 2006). Although the constraint of geographical proximity is strong and the residents are all affected by the disadvantages associated with it, the question of storm water management seldom brings about, in France, processes of debate or of common construction. There is little solidarity between upstream and downstream residents, and not all residents feel concerned about the problem. Yet the collective and proximity management of water could be a factor of social solidarity or could be used as an argument by the local authorities. But in this case, it is a source of conflict, the lack of organised proximity proving detrimental to the development of common actions or projects.

Organised proximity often needs to be developed, either through the creation of networks of actors, or the construction of a common language or of concerted development projects. In the case of volume-based water management, as Granjou and Garin (2006) have shown, networks of actors might emerge, and the latter might eventually be able to adopt common rules and instruments thanks to the development of interactions between them (logic of belonging) but it is much more difficult for individuals to share the same vision for a long-term project (logic of similarity, or what some authors call ‘cognitive proximity’ – See Marcelpoil, Boudières, 2006). In this regard, let us note that authors as a whole call for the collective management of environmental questions and for the creation of local organisations that could address these questions and find solutions based on agreements and rules accepted by the productive classes and by other local people concerned, but the reality is still far from that goal… Aviles Benitez and Roque (2005) highlight three examples of agriculture-based management of natural resources and identify the differences between the situations in which there is hardly any organised proximity between the actors, and the situations in which the

voluntary management of the environment rests, with some success, on the mobilisation of the potentials offered by organised proximity.

The conflict pattern can become even more complex when there is opposition between actors of one same sector of production, for example between the producers and users of a product that is subject to environmental standards. The case of organic and integrated farming systems (Bélis-Bergouignan, Cazals, 2006) illustrates the double difficulty that arises in this type of situation. Firstly, because of the dissymmetry between the different positions and expectations, it is difficult to establish common protocols and perceptions between actors involved in a buyer-seller relation or that are positioned at different phases of the same production chain. Furthermore, although the development of organised proximity relations simplifies and clarifies the data of an environmental problem, it does not ensure the existence of a commercial connection between those who generate the nuisance and those who experience it. Indeed the latter may not be the direct consumers of certain products and therefore not benefit from the intention of those among the producers of these products who are involved in environmental initiatives. Thus, organised proximity proves separate from geographical proximity and consequently the environmental initiative misses its target.

These examples point to the fact that it is not always possible, in the case of conflict, to mobilise the virtues of organised proximity: it is not always easy to activate the latter and its activation might prove unjustified. An additional question might be – assuming the emergence of conflicts is but one phase of the governance processes and an often necessary stage of coordination – in what situation should organised proximity be mobilised? In other words, in what situations should conflict be prevented or solved and in what situations would it be more useful to let it develop? One possible answer, which deserves to be developed further in future, could lie in the distinction between the different types of environmental conflicts, or in their relations to the process of sustainable development. For example, we can propose the hypothesis that processes that imply important changes in terms of sustainable development cannot be immediately accepted and therefore imply stages of conflict that correspond to social and political rearrangement, whereas the conflicts that have a more limited social and spatial scope mostly reveal neighbourhood quarrels that need to be solved immediately.

Organised proximity and the uncertainty associated with environmental problems

In parallel with the analyses of the regulatory dimensions of organised proximity, recent studies have sought to determine the relation between the uncertainty associated with environmental problems and the intensity of organised proximity (Letombe, Zuindeau, 2001, 2006; Zuindeau, 2005, 2006). These studies are a continuation of the works on the characteristics of uncertainty of some environmental problems – particularly but not exclusively of global pollutions – and their consequences in terms of scientific evaluation (Funtowicz, Ravetz, 1991, 1993) or of public decision-making (Godard, 1993; Faucheux, Froger, 1995; Theys, 1997; Callon *et al.*, 2001; Froger, Oberti, 2002). They emphasize the importance of the institutional dimension in the management of environmental issues.

The difficulties of development of organised proximity

If we bear in mind the fundamental distinction between risk and uncertainty (Knight, 1921; Keynes, 1921), it would appear that a large number of environmental problems are, more and more, characterized by uncertainty, or, in other words, marred by potential risks whose consequences cannot be calculated in advance. Thus, three levels of uncertainty can be distinguished (Zuindeau, 2005, p. 134): i) the origin of the problem can be uncertain when it is impossible to precisely determine who or what is responsible for a given environmental problem, ii) the cause and effect relations that are inherent to environmental problems are also subject to uncertainty, which results in difficulties explaining and describing the phenomena, and in frequent scientific controversies; iii) finally, downstream of the source, uncertainty takes the form of a lack of knowledge of the effects of the damage, particularly on the part of the victims themselves.

There is no shortage of examples of situations characterized by one or all three levels of uncertainty, particularly when it comes to global pollutions (Faucheux, Noël, 1990). At local level, an well-known example is that of the so-called ‘historical’ pollution of the ground and underground water (Letombe, Zuindeau, 2006). Caused by old industrial activities some of which date back to the 1800s, these types of pollution are frequently ignored. Unlike in cases of common environmental nuisances, individuals are not immediately aware of these types of pollution. And their existence and effects are only recognized once specific studies have been conducted. Uncertainty also exists as to how they are diffused in the environment

and what their direct or indirect effects on nature and humans are. It is often difficult to determine responsibility for this type of pollution: the firms that caused the damage may no longer exist and different types of activities may have been undertaken since then on the same site, etc.

The proximity-based approach has made it possible to reveal that the uncertainty associated with certain environmental problems partly explains the impotence of organised proximity. In particular, the mobilisation of the logic of similarity, which is supposed to result from the sharing of common knowledge and information, is often compromised in this type of situation because the knowledge in question is not stable and is, in fact, often controversial (Godard, 1993). In the worst cases, there might be a lack of knowledge concerning not only the scientific causes of a given problem but also concerning the very existence of the problem. Because of their lack of knowledge or of their inability to agree, the actors miss the logics of similarity or belonging provided by organised proximity, logics without which collective action is not possible. Furthermore, the conflicts between the actors might worsen, when, in a situation of uncertainty as to who is responsible for a given problem, some actors dismiss the suspicions raised against them, using as an argument the general uncertainty concerning the causes of the problem.

Thus, we note that though relations between individuals or organisations develop easily in a 'stable world' (Godard 1993), they struggle to emerge and develop when there is a high degree of uncertainty. Let us say, using Theys' terminology (1997), that low uncertainty increases governability and, symmetrically, that high uncertainty decreases governability. This leads to a paradox and a serious problem: while many of the problems that are associated with a high level of uncertainty are problems with serious implications and for which solutions are urgently needed (Funtowicz, Ravetz, 2001, p.138) – climate changes or the dramatic reduction of biodiversity – these problems are not placed high enough on governments' agendas and, more specifically, effective solutions to manage them are not adopted as promptly as they should. Testifying to this is the never-ending debate around the adoption of a significant global policy that would curb climate change.

New forms of mobilisation

Whatever the nature of the difficulties of implementation and of the procrastinations, collective action, in situations of environmental uncertainty, differs from traditional environmental policies, and leads to new forms of mobilisation of organised proximity. A

number of studies – normative studies as well as studies accounting for existing cases – examine this evolution of environmental policies from various perspectives: a procedural approach (rather than a substantial approach) in the sense given by Simon (Faucheux, Froger, 1995), a preference for multi-criteria evaluations (over monetary evaluations) (Froger, Oberti, 2002) or more or less complex environmental conventions breaking from Pigou or Coase' simple internalisation approaches (Godard, 1993).

Using the example of the environmental externalities in the coalfield of the Nord-Pas de Calais region, France, Letombe and Zuindeau (2001, 2006) have analysed new forms of environmental governance that rest on the different categories of proximity. Several programmes of action, which are considered innovative and which, in any case, represent a break from traditional policies in this field, have been identified. Most of these programmes are aimed at addressing environmental problems characterized by a level of uncertainty that can be considered high: historical pollution of the ground and underground water, deterioration of the subsoil structure as a result of mining activities, with various environmental risks (ground subsidence, landslides, flooding). To name but a few of these programmes: a 'Polluted Sites and Soils' *Pôle de competences* (or 'Pool of expertise'), a Coalfield Land Planning and Development Agency, a Regional Consultative Group in charge of organizing the post-mining rehabilitation of the area, a Project of Environmental Reconquest for the contaminated site of Metaleurop…

Though those programmes take different legal forms (associations, para-governmental organisations, work groups, 'simple' policies) and have different missions, a number of constants have been found and interpreted in terms of organised proximity (reinforcement of common references in a logic of similarity and increase in the number of cooperation opportunities):

- Many more parties are involved in those programmes than in the traditional tripartite mechanisms (polluters, victims, regulators): State administrations, regional authorities, associations, and firms participate, in various degrees, in these more or less formalized programmes;
- They give more importance to the knowledge acquisition process: many of the programme's activities are supported by research (it is the case of the 'Polluted Sites and Soils' pool of expertise) or make use of contributions from other research programmes (Zuindeau, 2002);

– The actions undertaken tend to favour a global and territorial approach over a strictly sector-based approach limited to the environment: many of the decision makers claim to adhere to the concept of sustainable development.

These different characteristics of local programmes are by nature likely to reinforce organised proximity between the actors involved in environmental issues and to facilitate the implementation of common actions and projects. Cognitive proximity improves; shared perceptions of the consequences of economic development are reached more easily; common goals emerge. At the same time, the development of closer relations between the actors, the learning process and trust, fostered by the new habits of collective work, are also conducive to efficient common actions. Indeed, environmental externalities associated with high uncertainty, which were often left unaddressed until the mid 1990s, have since then been tackled and efforts made to find solutions. In short, using proximity analysis in the study of environmental problems associated with a high level of uncertainty has helped to reveal that the characteristics of those problems are, initially, an obstacle to the development of organised proximity due to the difficulty of the actors to agree about those characteristics; indeed those difficulties hinder the emergence of groups of actors that adhere to the same knowledge base and share common perceptions. Subsequently, spurred by various factors (an overall rise in environmental concerns, political voluntarism) such proximity emerges and develops, but this time through a relatively original form of mobilisation of the logics of belonging and similarity that lead to new modes of collective action.

Research prospects

A first assessment of the research conducted in proximity economics into environmental issues shows us that the advances realized concern specific areas (the role played by geographical proximity in the production of environmental problems, and particularly of conflicts, as well as the regulatory function of organised proximity in the management of such problems). However certain dimensions, which are nonetheless important for the emergence of new ideas and the implementation of governance actions, are still largely unexplored. Thus, Table 1 indicates that two research topics – namely the role of geographical proximity in the regulation of environmental problems and that of organised proximity in the production of environmental problems – have generated relatively few studies in the field of proximity economics. In the perspective of a ‘proximist’ approach to the environment, these relatively

neglected areas represent interesting research paths for the future, paths that could be explored by making use of the contributions of existing studies with different theoretical foundations.

Geographical proximity as a means of regulation of environmental problems

The consequences of geographical proximity are not all negative. Granted, geographical proximity can be at the origin of land-use conflicts and can cause negative externalities and congestion effects, but it can also, on the contrary, be used as a means of preventing tension or of solving conflicts, by enabling the different actors to distance themselves physically from the environmental problem or to concentrate within one specific area. Indeed, the relocation of human activities closer to or away from certain geographical areas can be analysed on the basis of geographical proximity's properties. i) In most cases, the aim can be to avoid the disadvantages of being too close to environmental problems by moving away from it. ii) In other cases however, individuals or groups of individuals may seek proximity to certain protected or sought for areas. iii) Nevertheless, taking into consideration the questions of geographical proximity also implies addressing the question of the appropriate spatial scope for addressing an environmental problem. There is a shift here from the geographical proximity between the various parties involved and affected by environmental problems to the geographical proximity between the environmental problem itself and the institution (State, Region, local authorities…) in charge of managing it.

The number of contributions of proximity economics in this field and dedicated to this triple problematic is still limited (elements can be found in the works of Lahaye, Aviles, Benitez (2001), of Mollard, Torre (2004b), Torre, Caron (2002, 2005), Zuindeau (2005, 2006). However, we believe that important advances could be made in this area of research, particularly by pursuing further the reflections started in other circles. Indeed, the proximity approach can make use of the abundant existing literature – standard or not – and should be able to develop it further on the basis of its own original categories.

i) With regard to geographical distantiation as a mode of regulation, researchers have at their disposal an already well-established theoretical base that addresses the questions of localization (residential or industrial), migration, or more specifically questions related to the 'vote with one's feet' (Tiebout, 1956) which is echoed in some degree by the concept of 'exit' proposed by Albert Hirschman (1970). If a negotiated solution that is acceptable to all parties involved cannot be reached (Coase' thesis of bilateral bargaining), if a party refuses the option

of conforming to the decision made without protesting even though it might go against its preferences (the 'loyalty' option discussed by Hirschman), or if one does not opt for the 'voice' option that involves openly opposing a decision in order to defend one's interests, then the only remaining option is the 'exit' solution, which consists of relocating and moving away from the environmental problem, that is of course, when such a solution is financially, and otherwise, possible.

From an empirical point of view, the studies conducted in the field of hedonic prices (Rosen, 1974 – for the theoretical foundations; Follain, Jimenez, 1985; Bartik, Smith, 1987; Palmquist, 1991; Hidano, 2002 – for more or less recent syntheses) could be useful for the exploration of this avenue. Applied to environmental questions, and more precisely to that of environmental externalities, these studies estimate households' willingness to pay to avoid a source of negative externalities, or on the contrary, to move closer to a source of positive externalities; they do so by analysing the differences in property (or land) values according to geographical areas. The importance of geographical proximity and of its impact (positive or negative) in terms of prices is definitely relevant here.

Since the publication of Ridker's research on air pollution (1967), case studies have abounded. Some of them discuss the sources of negative environmental externalities such as urban air pollution, noise, the proximity of polluting industries, waste dumps, polluted sites and the risk of flooding. Other studies reflect on the attractiveness of natural amenities such as natural landscapes, rivers, lakes, etc.[9] Some of these studies also discuss elements of evolution, and in particular changes, in the impact of sources of externalities: closure of polluting firms, rehabilitation of polluted sites, specific technological accidents, etc. This type of modelling could be helpful in the evaluation of the benefits and disadvantages of geographical proximity. Indeed, it can facilitate the measurement of the costs of undesirable geographical proximity or of the advantages of moving away from a source of negative externality, by introducing a property (or land) prices / distance ratio.

ii) With regard to geographical proximity to certain protected or sought out areas, it would be interesting to study the various approaches to the analysis of the regulation of land use and more particularly of the areas dedicated to certain uses (productive, residential, natural, recreational, industrial, agricultural, etc.) and subject to contextualised regulations (Kirat, 1999 and 2005). However, as testified by the analyses of the environmental justice movement (Bullard, 1990), these regulations, that favour geographical proximity between economic or social actors involved in the same types of activities (in the wide sense of the term) are not without significant limitations. Indeed, the segmentation of space can lead to the

unequal spatial distribution of the different social classes, the more disadvantaged classes concentrating in areas close to sources of negative externalities. Some empirical studies (e.g. Been, 1993; Kriesel *et al.*, 1996; Banzaph, Walsh, 2006), reveal the existence of correlations between the level of income, the level of education or the ethnic origin of people and geographical proximity to sources of negative externalities. Even though the results are sensitive to the methods used, the spatial differentiation between social classes is often supported; more specifically, the correlation between polluted or risk areas and the presence of socially disadvantaged populations or social or ethnic minorities is often testified to (e.g. United Church of Christ, 1987; Mohai, Bunyan, 1992)

Here again, and in symmetry with the case of geographical distance, an analysis in terms of hedonic prices must help estimate the price one has to pay in order to be in geographical proximity (sought after proximity) to certain places or certain groups of people. The results, in terms of social and spatial segregation are, indeed, in keeping with those indicated by analyses in terms of hedonic prices, which show that populations with the highest incomes locate far from the areas that are the most exposed to negative externalities (Bartik, Smith, 1987; Hidano, 2002). Not only do the more privileged classes avoid sources of negative environmental externalities and desert those areas, but they also seek proximity to areas that offer positive amenities (landscapes, rivers, lakes, etc.). This is an effect that has been highlighted by proximity analyses, in terms of social and spatial segregation (Torre, Caron, 2005), and that would deserve to be examined further, in particular by concentrating on the property and land dimension.

iii) The issue of the proximity between the problem and the institution that manages it has also given rise to abundant literature (e.g. Peltzman, Tideman (1972), Baumol, Oates (1975) – especially Chapter. 17 –, Tietenberg (1980), Cumberland (1981), Kolstad (1986, 1987)). The latter discusses the appropriateness or inappropriateness of the solution that consists in letting local actors deal with the environmental problems that affect them directly, rather than addressing problems in a more global manner, bearing in mind the fact that other factors call, on the contrary, for a certain distancing (costs of organisation, economies of scale, need for impartiality, etc.).

This type of question is directly related to the theory of fiscal federalism to which the names of Musgrave (1959) and Oates (1972), among others, are associated. Beyond discussing competition between territories, the main purpose of this theory is to lay the foundation for, and to define instruments for, comparing the advantages and disadvantages of addressing environmental problems at the local level. This type of question also leads to a reflection on the tendency of public authorities, particularly of the local authorities, to favour

geographical proximity in their policies and decisions, a well-known tendency that has frequently been highlighted in proximity analyses, mostly with regard to localized systems of production and 'production groups', but also recently with regard to environmental issues (e.g. Beaurain, Maillefert, 2004; Grujard, 2004).

In the field of the environment and sustainable development, an approach that can be useful for proximity analyses is suggested by the 'locality theorem' (Camagni, Gibelli, 1997; Camagni et al, 1998), according to which the more 'local" an environmental problem is, the more an intervention at local level is justified, for various reasons: the identity between the polluter and the victim increases, and therefore the willingness to pay to avoid the damage is greater; in cases where there is a low number of polluters, it is easier to apply the 'polluter pays' principle; property rights 'a` la Coase' on public or common goods are more easily implemented, etc.. Naturally one cannot be satisfied with considering strictly local problems; it is necessary to take into account environmental problems whose effects are more widespread geographically. Taking into account possible spatial, ecological and economic interactions becomes necessary. Finding the optimum level of intervention necessitates that aspects such as subsidiarity and cooperation between organisations be taken into account. In this regard, some authors in proximity economics argue that, although some environmental problems (climate change, modification of the ozone layer, etc.) have effects on a global scale, the implementation of actions at the local level that take into account the characteristics of local systems, and the state, as well as the wishes of the population, is nonetheless useful (Mollard, Torre, 2004a; Aviles Benitez, Roque, 2005).

Organised proximity and production of environmental problems

To finish off our discussion on the different research problematics presented in our table, it must be noted that organised proximity can also be a source of conflict and of environmental problems (too much proximity kills proximity!). This type of perception represents an innovation in the context of analyses that have always considered organised proximity as fostering the emergence of social relations or as facilitating the relations between individuals located far from one another (see part 2). Yet such a perception is justified, particularly when one deals with situations of congestion or overpopulation, in which additional societal problems add to the negative effects of geographical proximity.

Thus, there have emerged phenomena of social or spatial segregation in situations where groups of actors who share the same dimensions of organised proximity (belonging or

similarity) concentrate in the same areas. Actors linked by organised proximity choose to gather in the same geographical areas, but new comers prove incapable of integrating themselves in the community, the fundamental rules of which they do not share. This is a type of situation that Chamboredon and Lemaire (1970) have likened to the NIMBY syndrome, which is a situation in which certain social or ethnic groups tend to concentrate in the same upmarket areas or ethnically concentrated neighbourhoods: geographical proximity then fails because of much stronger organised proximities. As Elias and Scotson (1965) have shown, groups of actors who share the same systems of representations and values, tend to repel individuals who do not share their references, and socially (and sometimes spatially) homogeneous and isolated groups are formed, which can lead to a logic of exclusion.

The example of the conflict that emerged concerning the management of the water resources of Lake Grand-Lieu (Caron *et al.*, 2005), provides a good illustration of this type of situation. In this particular case, farmers, fishermen and hunters, who share common values, joined forces to oppose the manager of the Lake's nature reserve and the solutions proposed in terms of organisation and local governance. The strength of their shared sense of identity proved an obstacle to the emergence of a coordination process, and in turn to concerted management and fostered collective violence. In this case, relations of organised proximity clearly contributed to the development and reinforcement of the conflict, by ensnaring groups of actors in combined logics of similarity and belonging. The same phenomenon is actually observed in many conflicts that act as catalysts of organised proximity between groups of actors who join forces around a common environmental cause. Beyond the identification of other similar cases, a research path that could usefully be explored by the proximity movement would be to analyse the conditions that make it possible to transform situations of conflict-generating organised proximity into situations of organised proximity that facilitate the management of problems, or vice versa; that is to analyse how regulatory proximity can, because of its insufficiencies, lead to additional problems.

Concluding remarks: the departures and developments that have resulted from taking environmental issues into account

All in all, transposing the proximity approach to the environmental field has not only contributed to extending this theory beyond its original scope, but has also enriched it by introducing new elements and even by inducing a number of shifts that we consider quite important. Indeed, taking into account questions that were until now ignored by the analysis,

has resulted in the introduction of a certain number of new categories that have generated significant and radical changes in the initial paradigm and can, indeed, be divided into two groups: the taking into account of new dimensions, new actors of the analysis and new modes of coordination, and profound transformations in the programme of research concerning the relation to space, in particular.

Additions: new actors and new modes of coordination

Part of the analytical innovation that has taken place concerns the resulting developments in the initial analytical framework, which have not called into question the core of the proximity paradigm but which have contributed new analytical categories. Taking into account new groups of actors and new types of relationships – of opposition – which helps taking into account environmental questions, has now been placed on the agenda.

The first addition concerns the parties involved in the actions and strategies studied by proximity economics. Actors from outside the production world have now been added to the economic, productive or innovating actors such as large and small firms, support, promotion or intermediation institutions, or the regulating and industrial State. These include, in particular, households (sometimes included in the larger 'residents' category), associations (for the defence of a group's interests or for the preservation of nature), and pressure groups of various kinds (farmers, residents, hunters, ecologists, etc.), as well as local authorities in their capacities as territorial planners, and other public governance institutions.

Incidentally, the role played by the public authorities has become even more central, whether it be that of the local authorities and their influence in terms of decision making, or that of the national and supranational authorities, which adopt and implement laws and regulations that condition the actions undertaken by local actors in the field of the environment. We note the particular emphasis placed, in this context, on the role of the State as an economic actor, as a builder (of infrastructures in particular), as an administrative authority acting as a guarantor (a role sometimes contested during legal processes) or as a controller (that ensures that the actions undertaken are valid).Along these lines, Kirat and Melot (2006) highlight the position of the law – which establishes the rules and defines the limits of human actions in space – in relation to questions of geographical proximity.

The second addition, which is more theoretical, concerns the modes of coordination of actors (or, in other words, organised proximity). In the analyses of productive activities, the tradition has been to approach coordination processes from the angle of cooperation, by

examining the modes of functioning of actors, how they function together, or the processes of collective action. The analysis is then centred on cooperation and trust relations, on alliances, networks, structures and modes of governance, or on any dimensions that aid in understanding how local actors work together or develop common projects.

An approach based on environmental conflicts has introduced the idea of dissonance into this picture of harmony. Rather than trying to understand how and why actors function together and build common futures, the aim is now to discover and determine how actors come to oppose one another and the topics on which they disagree. This approach does not imply a disinterest in the modes of coordination; on the contrary. Indeed, these analyses consider that conflict is a mode of coordination and that it must be analysed as such; conflict and cooperation are but two facets of the same local governance process that comprises stages of opposition and stages of conciliation. This new perspective marks a departure from studies that centre exclusively on relations of a purely commercial nature: after initially focusing on relations of cooperation, the proximist approaches have now extended their attention to relations that are even more remote from the processes of competition that are normally taken into account by economic analyses.

Transformations in the research programme

Besides the above-mentioned shifts, we note that even more critical transformations are taking place in the research programmes of proximity economics, transformations that mostly concern the status of geographical proximity. This analytical path has generated less debate, development and investment than that of organised proximity. Yet, the introduction of a research problematic related to the environment now calls for a more in-depth theoretical definition of the spatial foundations of the analysis (Torre, Rallet, 2005).

The first difference concerns the very status of relations of geographical proximity in the proximity paradigm. In the works conducted in the field of industrial economics – which have adopted the approaches in terms of districts, milieus, localized systems of production and, more recently, clusters – these relations are generally considered conducive to the development of cooperation relations or collective actions among local actors, and particular emphasis is placed on the modes of diffusion of technological knowledge. In environmental approaches, scepticism is the norm among authors who deal with environmental problems and negative externalities. Geographical proximity is then often associated with terms such as

diffuse pollution, emissions, contaminations, congestion effects, etc. Hence the relevance of analysing the conflicts related to these different elements of context.

However, the most radical evolution, which has marked a shift (seldom made explicit) in the programme of research of proximity economics, concerns the relation to space implied in the analysis of the different types of geographical proximity. Indeed, in the initial approaches, geographical proximity is evaluated in reference to the relations between individuals, between organisations (and firms particularly) or between institutions: I am more or less close to, or far from, such-and-such a person or firm, for example. Yet, taking into account environmental dimensions has revealed a major evolution. Research studies now focus their attention on the geographical proximity to objects: I am more or less far from a river, a polluted site, an incinerator plant, etc. This shift results from a major revolution: economic actors are not just in geographical proximity to other actors, but are also in proximity to certain objects of concern that have a positive or negative influence on the way they operate and on their strategies. Consequently, they not only seek or avoid geographical proximity to other actors, but also seek or avoid geographical proximity to those objects.

Thus, there has emerged a literature dealing with geographical proximity to technical objects, a proximity whose effects combine with those of geographical proximity to people and organisations. This extension has generated an important shift and significant changes in the research programme of proximity economics, which raises a new question that was not part of the initial agenda: to what extent are economic and social actors affected by the negative effects of certain objects or places, or to what extent do they benefit from their proximity? To what extent do actors seek to move closer to or away from those objects? Another related question concerns the different types of organised proximity and how the latter reinforces or, on the contrary, alleviates the possible conflicts related to geographical proximity to certain objects and places. Thus, it is the four research avenues presented in our introduction that are concerned by this paradigmatic renewal.

The preceding concluding remarks are limited to the heuristic level, but it is clear that the environmental approach through categories of proximity could also help, at a more normative level, to define rules for resolving locally-based environmental conflicts – more broadly, problems. It is true that some illustrations outlined earlier in the text have already allowed us to sketch out such a path, still very briefly. For example, developing an informational and cognitive base is one of the responses that can be applied to the problem of uncertainty. Likewise, the promotion of a common interest should be explored, in order to transcend situations of rivalries for natural resources. Beyond these generalities, it would be interesting to look at some case studies, the analysis of which would contribute to thoughts on

drawing up rules for resolution. Such work would merit an article by itself and we view it rather as a possibility for a later date.

Notes

[1] Initially, the group comprised six people: three industrial economists and three spatial economists.

[2] Of course, whilst representing an original construction, particularly from the viewpoint of the categories mobilised, the proximities approach is close to other analytical constructions, for example that of Ash Amin and Patrick Cohendet's (2004) 'space of knowing' or of the 'associational economy' (Cooke, Morgan, 1998). In addition, the geographical proximity/organised proximity diptych recalls the 'community of locality/community of interest' distinction, present in many contributions, from different sources (e. g. Newman, 1980; Willmott, 1986; Mayo, 2000).

[3] In this article, 'organisation' is a term that designates any structured unit of relations. It might take any form of structure, for example, a firm, an administration, a social network, a community, a milieu.

[4] This obviously does not mean that all the beliefs of the members are identical but that there is a common core of beliefs through which the organisation identifies itself as one collective entity. Furthermore, the common corpus of beliefs can be based on the representation of the organisation as a place of conflicts.

[5] By this notion, we intend not only the rules imposed by public authorities but also, more generally, the act of controlling or managing the environmental problems.

[6] This mode of exposition does not exclude other possible interpretations. It is thus probable that many cases in which problems or difficult regulations are produced derive from a flawed articulation between geographical proximities and organised proximities. (This important point was communicated to us by one of the two referees. We should like to thank him for that). The presentation of the different « proximist » contributions on the environment could then have been considered by using the different forms of articulation between geographical proximities and organised proximities as the main theme. It is true that we have chosen another presentation, but as the reader can subsequently ascertain, this choice does not prevent us from considering the contradictions arising from the different forms of proximity as a possible analytical element.

[7] Longuépée (2003) and Beaurain, Longuépée (2006) go even further and propose the concept of 'environmental proximity'. According to these authors, geographical proximity can, in cases of environmental problems, take a specific form. In the case of a river for example, two actors or groups of actors can be considered as 'close' to the environmental problem while being geographically distant from it; the authors call this particular type of geographical proximity 'environmental proximity'. This need for innovation in the grammar of the economics of proximity could be explained by the necessity to take into account not only the proximity between actors, but also the proximity between actors and objects or activities and their impacts (see our conclusion). However the expression 'environmental proximity' must be used with caution as it is possible to find many situations of linearity other than that of a river (roads, cabling, etc.) which are not environmental components but have similar characteristics as a river in terms of geographical and organised proximity.

[8] One should beware of the simplistic vision that opposes people who seek geographical proximity and those who are forced to endure it. Conflicts can also arise between two groups of actors who both seek proximity

(conflicts between hunters and naturalists) or who reject it (conflicts between residents of urban areas for example).

[9] Both types of studies abound. We content ourselves with referring the reader to the syntheses mentioned above.

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