



Broad analysis of French priority catchment areas: A step toward adaption of the Water Framework Directive?



Fabienne Barataud*, Amandine Durpoix, Catherine Mignolet

UR 055 INRA SAD ASTER, 662 av. L. Buffet, 88500 Mirecourt, France

ARTICLE INFO

Article history:

Received 18 March 2013
Received in revised form 6 August 2013
Accepted 12 September 2013

Keywords:

Catchment area
Water management
Data analysis
Typology
Governance

ABSTRACT

Within a context of known and alarming deterioration of water bodies and under pressure from the European Water Framework Directive, in 2009 the French government designated slightly more than 500 priority catchments. In so doing, it declared its objective of concentrating its efforts on these areas, trying out a methodology for action, and proving to the European Union that it was taking action. The present study has documented the on-going situations and actions on these Grenelle catchment areas and identified the broad types of actions and situations as part of a critical analysis of the approach retained by the government. After constructing an analytical framework of these areas, we assembled together a large collection of data to be analyzed with multivariate statistical analysis.

These data were either gathered from surveys based on a questionnaire encompassing biophysical, agricultural, social, and economic aspects or based on spatialized statistical data sources. This work demonstrates key factors characterizing the catchment areas: the hydrological entry point for the definition of a field of action involves great variability of territorial size and therefore of the players involved (municipalities, farmers, cooperatives, users). Little attention is given to this aspect in the relatively rigid single legal procedure presently in force. On these catchment areas, we emphasize two main lines of structuring parameters: on the one hand, the relative diversity of land use and forms of agriculture, and on the other, the relative strength of the administrative structure. These results could be useful for those managing these issues in the different government agencies, those implementing the approaches, or local authorities responsible for resource management, as they provide a better understanding of how to adapt these experiments to other areas concerned by water resource issues.

© 2013 Elsevier Ltd. All rights reserved.

Introduction

In spite of measures taken over more than 20 years to reduce water pollution resulting from urban and agricultural activities, contamination of ground and surface water related to agricultural activities remains a matter of concern in many European regions (European Commission, 2002, 2010; Even et al., 2007; Lerner and Harris, 2009; Mihaiescu et al., 2010; William, 2011). Many regulatory and incentive actions (Sohier and Degre, 2010) have been conducted to reduce diffuse pollution from agriculture, including manure management plans, agro-environmental measures, and advice to farmers, but, in France in particular, it clearly appears that the results obtained so far are not satisfactory in view of the objectives set by public authorities (European Commission, 2002, 2010; IFEN, 2004; Cour des Comptes, 2010). Moreover, the timescales involved in groundwater responses mean that, in many areas, the

impact of such pollution control measures will not be observable for several decades (Silgram et al., 2005).

The first water regulations in France date back to the Napoleonic Code (1804) and two laws in 1898: they organized ownership and usage of the water resource and aimed to meet public health objectives. Attention to the environment itself (within the objective of sustainable preservation of its uses) and the notion of ecosystems appeared in the 1992 law, which introduced the notion of point-source pollution; to guard against this pollution, it required that a variety of protection perimeters (immediate surroundings, nearby, and distant) be defined for any drinking water abstraction within a regulatory procedure. The 2000 European Directive, the Water Framework Directive (WFD), proposed three new articles within this context: preservation of water bodies as a whole (taking into account non-point pollution and no longer only point-source pollution), an imposed schedule, and objectives defining quantified results aiming for the ecological restoration of the environment. This text is complex (because it includes several types of regulatory tools), ambitious, and is a cornerstone of the European Union's environmental policy (Bouleau and Richard, 2009). However, its application is delicate for a number of countries (Dworak et al.,

* Corresponding author. Tel.: +33 3 29 38 55 10; fax: +33 3 29 38 55 19.
E-mail address: fabienne.barataud@mirecourt.inra.fr (F. Barataud).

2005; Lital et al., 2008; Mihaiescu et al., 2010; Liefferink et al., 2011) in which achieving consistency within the law has followed other pathways or which do not know how to achieve this result. France partially conformed to this directive only 6 years later through its Law on Water and Aquatic Environments (*Loi sur l'Eau et les Milieux Aquatiques* [LEMA], 2006) where for the first time in French law the notion of non-point pollution appeared. However, it was not until the Grenelle de l'environnement¹ in 2009 and the designation of so-called Grenelle priority catchments that the notion of deadlines and results was written into law (but this law is restricted to these particular priority catchments, which excludes from the scope of this law the ecological restoration of all of the water bodies throughout the country).

As in many other domains, the structuring of water management in France has tended toward assembling Lego pieces (Fig. 1): at the national scale, the government passes laws. It is represented at lower scales (watershed, region, department) by its prefects and its multiple decentralized agencies whose responsibility it is to apply the laws: for water, the Regional Environment, Development and Housing Departments (Directions Régionales de l'Eau de l'Aménagement et du Logement, DREAL) at regional level and the Departmental Directorates for Land Management (Directions Départementales des Territoires, DDT) at department level enforce procedures via their different services. Since April 2010, health surveillance has come under the auspices of a regional authority, the Regional Health Agency (Agence Régionale de Santé, ARS). The 1964 law on water also created the Water Agencies based on the delimitation of the six large hydrographic watersheds under their responsibility. With the objective of preserving water resources, these agencies have the principal mission of redistributing aid from the fees collected from all industries and individuals impacting water resources. The French National Agency for Water and Aquatic Environments (Office National de l'Eau et des Milieux Aquatiques, ONEMA), created by the 2006 law, responsible for studies and research within a general perspective, assesses the policies carried out and provides technical support to both central and decentralized government services. Decentralization since the beginning of the 1980s has finally given certain local services (Regional and Departmental Councils) complementary missions (assistance in project management, water purification, etc.).

The water distributed in France comes from 34,000 water withdrawal structures; 96% corresponds to groundwater and 41% of the 96% risks not achieving good status in 2015 (Cour des Comptes, 2010). Between 1998 and 2008, a total of 4811 structures were abandoned, 41% of them for insufficient quality². France is one of the countries of the EU where more than 30% of the monitoring stations show an upward trend for the nitrate parameter, and where the percentage of stations recording concentrations higher than 50 mg/l has continued to increase (European Commission, 2010). According to a June 2010 report from the Department of the Commissioner-General for Sustainable Development (le Commissariat Général au Développement Durable) on the environment in France,³ stabilization of the nitrate rates in rivers over the last

¹ The Grenelle Environment Initiative (Grenelle de l'Environnement) is a collection of political meetings organized in France in September and October 2007, aiming to make long-term decisions on the environment and sustainable development.

² According to a February 2012 report from the State Secretariat for Health, Direction Générale de la Santé, "Abandons de captages utilisés pour la production d'eau destinée à la consommation humaine," <http://www.sante.gouv.fr/IMG/pdf/bil0212.pdf>.

³ CGDD/SOeS, L'environnement en France, coll. Références, June 2010, 150p. http://www.statistiques.developpement-durable.gouv.fr/fileadmin/documents/Produits_editoriaux/Publications/References/2010/RxC3%A9f.%20L%27environnement%20en%20France.pdf.

10 years has had no effect on groundwaters whose degradation is "slow but continuous." From 1997 to 2007, the percentage of groundwater quality measurement points with nitrate contents less than 10 mg/l decreased from 56% to 48%, whereas the percentage of points with nitrate contents greater than 50 mg/l has reached 6%.

Faced with the order given by Europe to prove the effectiveness of its action, and within the context of the Grenelle Environmental Initiative, the French Ministry of the Environment at the time requested that the Interservice Missions for Water and the Environment (Missions Inter-Services de l'Eau et de l'Environnement, MISEN)⁴ establish this list of Grenelle priority catchments mentioned above. The choice of the catchments designated was intended to be based on three criteria: proven pollution (by nitrates and/or phytosanitary products), the strategic character of the resource (i.e., a large watershed with a population served by or dependent on this resource, with no substitution possible), and the need to reclaim certain catchments that had been abandoned. In addition, the order stipulated a number of catchments to be designated for each department so as to (i) reach a list of approximately 500 catchments and (ii) provide egalitarian treatment of regional situations that were often highly diversified to avoid labeling regions with problems. The result is a highly heterogeneous collection of catchment areas from the perspective of the types of water bodies at stake (groundwaters or surface waters, varying degrees of nitrate and/or phytosanitary product pollution) as well as the surface areas concerned, and even the place and type of agriculture in the area, the past history of these areas as related to water issues, etc.

For these highly diversified catchment areas, a unique sequential methodology for conducting action was recommended. It requires, in order: (i) designation of a project leader and the constitution of a pilot committee that can bring together as many as 20 stakeholders representing the various decentralized government agencies concerned, the local authorities (municipalities, intermunicipal bodies, Regional and/or Departmental Council), the water distributor (association or local authority, a private company when public control is delegated), agriculture (Chamber of Agriculture, professional representatives, cooperatives and trade representatives), representatives from civil society (associations), research institutions, research consultancies; (ii) delimitation of the catchment area; (iii) drawing up a multi-pressure land diagnosis⁵; and (iv) drawing up a plan of action. Other than the guidelines and formalization of the approach, these Grenelle priority catchments (compared to some 30,000 other catchments in France) present the particularity of having to demonstrate that the pre-established results have been obtained by the deadline stipulated (2012 for writing the plan of action and 2015 for the first results on the quality of the resource).

The WFD (Article 14) states that public participation is one of the five main instruments to reach the environmental objectives. The authors recognize that (i) farmers and water suppliers are not the only ones who have legitimate rights to a voice in this chapter (Schültken, 2003); (ii) consequently there are advantages in involving stakeholders in the design process of tools and innovations (Le Gal et al., 2010; Reed, 2008; Tippett et al., 2005); and (iii) exchanges of points of view over a wide range of fields with many different actors benefit the analysis of a problem (Quevaullier et al., 2005), its modeling (Voinov and Bousquet, 2010), and the

⁴ These MISENs group all of the government's public services and institutions responsible for water and environmental policy.

⁵ This diagnosis aims to identify, quantify and spatialize the various activities that could contribute to diffuse pollution; it is not restricted to agricultural practices but also includes activities of individuals or municipalities.

Download English Version:

<https://daneshyari.com/en/article/6549006>

Download Persian Version:

<https://daneshyari.com/article/6549006>

[Daneshyari.com](https://daneshyari.com)