



Journal of Alpine Research | Revue de géographie alpine

103-3 | 2015

Les territoires de montagne, fournisseurs mondiaux de ressources

Water in the Chartreuse, a mirror reflecting a renewal of relationships between mountains areas and their surrounding towns

Bérangère Serroi, François Besancenot, Philippe Brégard, Gérard Hanus and Fabien Hobléa



Electronic version

URL: <https://journals.openedition.org/rga/3173>

DOI: 10.4000/rga.3173

ISSN: 1760-7426

This article is a translation of:

L'eau de Chartreuse, miroir réfléchissant du renouvellement des dialectiques territoriales entre villes et montagne - URL : <https://journals.openedition.org/rga/3137> [fr]

Publisher:

Association pour la diffusion de la recherche alpine, UGA Éditions/Université Grenoble Alpes

Electronic reference

Bérangère Serroi, François Besancenot, Philippe Brégard, Gérard Hanus and Fabien Hobléa, "Water in the Chartreuse, a mirror reflecting a renewal of relationships between mountains areas and their surrounding towns", *Journal of Alpine Research | Revue de géographie alpine* [Online], 103-3 | 2015, Online since 23 March 2016, connection on 08 December 2022. URL: <http://journals.openedition.org/rga/3173> ; DOI: <https://doi.org/10.4000/rga.3173>

This text was automatically generated on 8 December 2022.



Creative Commons - Attribution-NonCommercial-NoDerivatives 4.0 International - CC BY-NC-ND 4.0
<https://creativecommons.org/licenses/by-nc-nd/4.0/>

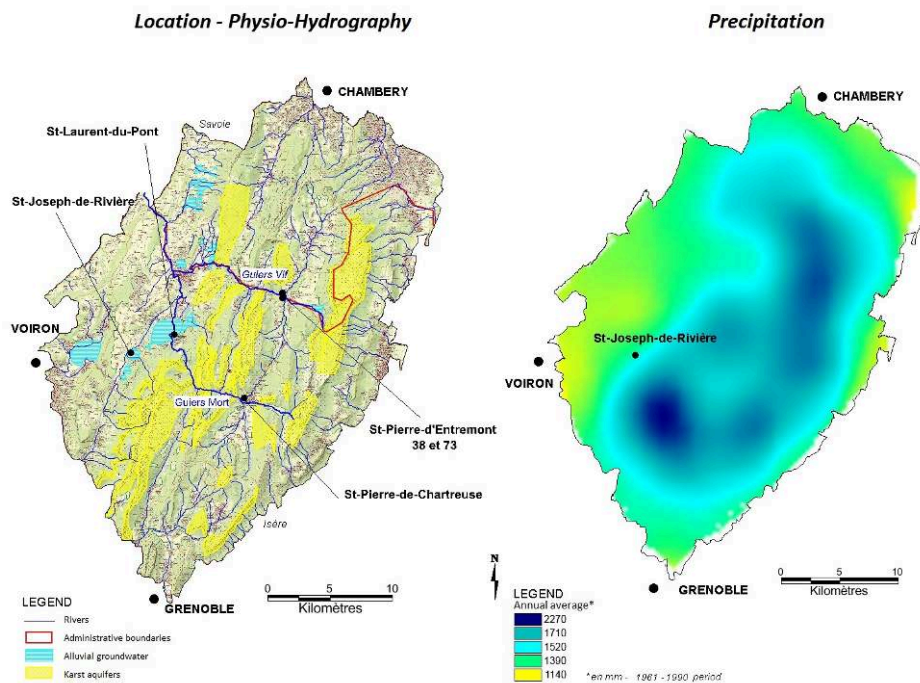
Water in the Chartreuse, a mirror reflecting a renewal of relationships between mountains areas and their surrounding towns

Bérangère Serroi, François Besancenot, Philippe Brégard, Gérard Hanus and Fabien Hobléa

AUTHOR'S NOTE

The authors thank Philippe Bourdeau and André Crous for their help in finalizing this article.

- 1 Like the forest, water is abundant in Chartreuse. Water is an iconic resource of the massif, one of the wettest of France's mountainous regions. The Chartreuse is drained by the two Guiers Rivers ('Mort' and 'Vif') and was made a regional nature park (RNP) in Isère/Savoie in 1995.

Figure 1. Location and physio-hydrography of the Chartreuse RNP**SOURCE: SIT PNRC**

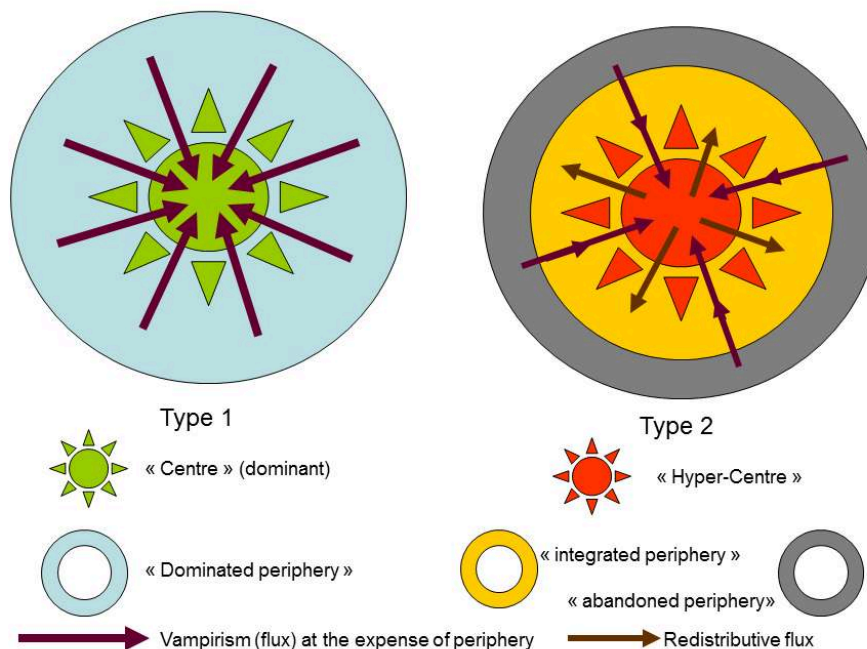
- 2 Despite this natural abundance, access to water resources in Chartreuse, as elsewhere, is currently under threat. At a time when the first effects of climate change are being felt, “time lags, gaps between average resource volumes and withdrawals, spot shortages” (Fabre, 2012, p.28) and the “spatial and temporal patterns of some forms of water use result in pressures (...) and sometimes challenge the principle of compatibility of different water uses” (Charnay, 2010, p.18).
- 3 The 2009 MEEDDM report on the assessment of the cost of and adaptation to the impacts of climate change in France shows that “whereas a stable demand, a deficit of 2 billion m³ a year for the satisfaction of the current needs of the industry, agriculture (irrigation) and drinkable water supply would be observed on the 2050 horizon (that is 14 % of the current taking of these sectors but less than 2 % of the total of the annual average flows on the national territory) (...) All the sectors would be affected by this evolution, which would be translated by a multiplication of use conflicts, a degradation of the water quality and a disturbance of aquatic ecosystems or ecosystems dependent on the water resource.” This report applies to the Northern Pre-Alps as well, which have also been affected by climate change, in particular the Vercors and Chartreuse Mountains, where an analysis of the available climatic series (over the 1959–2009 period) “highlights several significant changes. The most obvious are the break of later stationarity in 1988, with a modification of the thermal frequencies (difference between minimal and maximal temperatures) and at the same time winter and summer warming” (Bigot and Rome, 2010). Such a reheating implies less availability of the water resource in the winter and summer periods at the same time as an increase in demand, in particular because of tourist activities (more is needed for snowmaking in the winter) and agricultural activities (in the summer), which engenders tangible hydric stress. Consequently, mountain areas are examined with regard to their main

function as reserves of biodiversity or economic places of production (*ibidem*). Recent studies concerning the available hydrological series demonstrate the modification of the regime and the substantial and general drop in the pre-alpine rivers' modules (Tissier, 2012; Savoyard Monitoring centre of the climate change, 2012). The alpine water balances follow the same downward trend (Savoyard Monitoring centre of climate change, 2015). These difficulties are made worse by the karst nature of the aquifers within the limestone mountains of Chartreuse, which feed the two Guiers. These surface water courses are themselves involved in recharging the alluvial aquifers of the borderlands in the western part of the Chartreuse park. Moreover, karst formations are characterised by short infiltration times, small storage capacities and a vulnerability to pollution, which results in a medium that has only limited capacity for purification.

- 4 The complexity involved in understanding the patterns of these groundwater flows presents challenges to water management in communities that lack a detailed knowledge of the resources' origins. As a result of this lack of knowledge, they have difficulty protecting them. Besides, communities have to accord themselves with watershed-based management, a notion explored in France for all water uses, in their global nature and recognised as "a system based on solidarity, including all the basin stakeholders on both small and large scales" (PFE, 2015), thanks to the 1964 water law. Indeed, the "watershed notion tends to accredit the possibility of defining in an unambiguous way the geographical limits of a water resource unity" (Mermet and Treyer, 2001). This reasoning is true only for the surface flows and not for groundwater flow because these two geographical limits do not entirely overlap. So, what is the most relevant water management ladder? This issue is even more probative in the case of inter-basin transfers of water, when a mountain massif becomes a distributor for the neighbouring towns. In this way, these characteristics undermine the role of the Chartreuse Mountains as a "natural water tower" and a source of supply that they represent to the urban communities nearby.
- 5 This article clearly lays out the water-related issues in the Chartreuse RNP, helped considerably by the design of a participatory system, which is presented in the first section. Using the example of water draw-off in the Chartreuse RNP to supply an urban area with limited local resources, it goes on to discuss how the issue of water is reframing the relationship between sparsely populated mountain areas and the urban centres in their borderlands – something that is muddying the traditional perception of the roles and statuses of the park's centre and periphery (Reynaud, 1981, 1992).

Figure 2. Diagram of the roles and statuses of the centre-periphery area according to Reynaud

The two major types of Centre / Periphery combinations according to Reynaud, 1981



Made by Fabien Hobléa

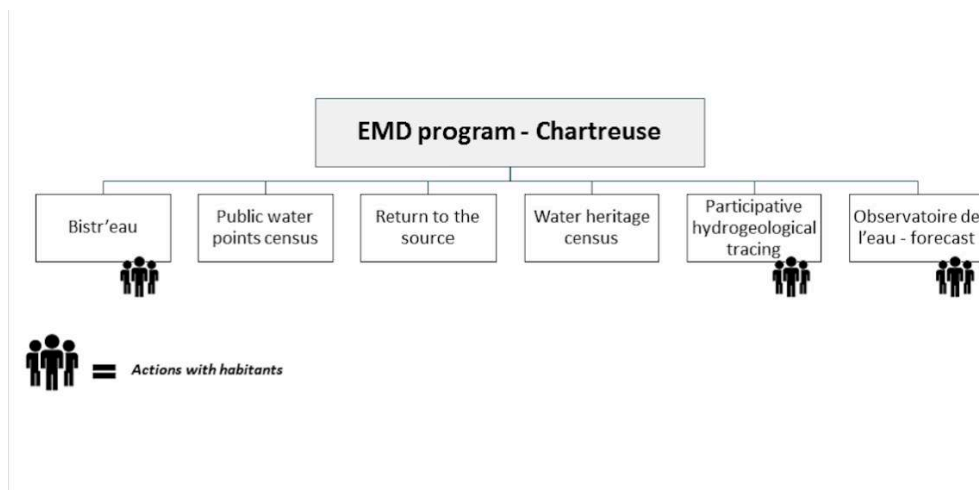
A participatory expedient that draws out the Chartreuse's water-related issues

- 6 Aware of a number of emerging water-related issues, the Chartreuse RNP has made the preservation and management of water resources a major focus of its second charter (Hobléa, 2006). The charter's strategic aim 2.3 is to manage natural resources in mountain areas and to meet current needs as closely as possible while preserving regional natural capital – something that has led the park to consider the mountains' water as its own natural resource and to assume a role in monitoring and managing it.¹ As a result, the park has worked closely with various competent stakeholders and specialist water managers to improve its knowledge of water-related issues and to “implement a global vision of the area, based on water as a natural capital resource for the mountains, while respecting measures that have been put in place to date.”² In 2012, this led to a study to consider the establishment of a participatory water observatory that works according to the principles of integrated water resource management (IWRM), i.e. “encompassing the needs relating to the protection and use of the resource, as well as the main political, legal, administrative, economic, environmental, social and cultural facets” (Brüschweiler, 2003, p.5). The observatory aims to be innovative in its participatory approach and involve Chartreuse's residents and users to create a real awareness of the issues and foster an attitude of civic involvement.
- 7 The project is the result of a programme launched in 2008, entitled “*l'eau entre mémoire et devenir*” (EMD – Water: Past Memories and Future Directions), which brought

together the associations known as “*Amis des Parcs*” (“Friends of the Parks”) across the regional nature parks in southeastern France. Its objectives are to:

- Educate its target audiences about water’s natural, cultural and socio-economic aspects, in order to properly value its future role;
 - Promote action at all levels, to preserve water resources and the role they play in maintaining quality of life and biodiversity;
 - Create methods of dialogue and awareness-raising that develop individual and collective responsibility.³
- 8 The programme has been implemented in each park and uses a number of different formats. In the Chartreuse, effective project management has been ensured by putting in place a structure that brings together “Les Amis du Parc de Chartreuse” (the Friends of the Chartreuse Nature Park), which is particularly active in the area, the Laboratoire Edytem (the Edytem Laboratory – a Mixed Research Unit [UMR] of the Université Savoie Mont Blanc) and the PNR de Chartreuse (Chartreuse RNP). This implementation has made it possible to experiment with taking joint water-related actions in the area, involving numerous stakeholders and local managers (fishing associations [APPMA], Syndicat Interdépartemental d’Aménagement du Guiers et de ses Affluents [the interdepartmental association for the improvement of the Guiers and its tributaries – SIAGA], caving clubs, schools, etc.).
- 9 The EMD programme can be classified as belonging to “collaborative action research”. It is an example of action research (Barbier, 1996; Liu, 1997) because (i) it entails implementing concrete and localisable measures in the geographical areas of focus that are directly connected with the objectives and action plans of the relevant charters and contracts, and it is designed to produce tangible results that can be demonstrated to local residents and stakeholders; and (ii) because these actions are implemented in an innovative fashion that depends on a research process that includes a considerable degree of reflection and experimental aspects (encouraging the development of knowledge about the measures taken). This action research can also be classed as collaborative because (i) it entails joint work between an academic research organisation, charter and contract land managers, and a civil society association; and (ii) the research programme and thesis topics are jointly developed and financed by the stakeholders involved, as formalised in a cooperation agreement on structural and financial arrangements and commitments (Serroi *et al.*, 2013). Defined in this way, collaborative action research (CAR) is similar to participatory action research (PAR) (Chevalier and Buckles, 2013). However, we choose to draw a distinction between the two practices because CAR, in our view, combines expert structures from complementary disciplines, as in the example discussed here, which comprises a scientific body (an academic laboratory), land and environmental management (the regional nature park, SIAGA, etc.) and social and area associations (Friends of the Parks). The structures of these organisations are clearly identifiable (institutions, local authorities, NGOs), and they all contribute to the financing of the action research project. Conversely, PAR goes beyond this institutional framework, opening itself up to individual participation (albeit in a structured way) and seeking public involvement, without any financial commitment from the latter. Of course, a CAR project may include aspects of PAR, which is the case in the EMD programme, where several actions are focused on residents and the general public.

Figure 3. Key actions in the Chartreuse EMD (“Water: Past Memories and Future Directions”) Programme 2008–2014.



SOURCE: ASSOCIATION DES AMIS DU PARC DE CHARTREUSE

- 10 Among these actions, the “Bistr’eau” events (evenings of discussion and exchange based around the “collective memory of water”, in the sense of natural heritage) offer residents, elected representatives and local stakeholders a voice. They have two objectives: to draw out a collective local memory and identify points of tension in order to discuss existing and future problems, but in particular, to try to defuse them by encouraging participants to propose collective solutions. These evening events take place in two stages and are held in cafes and bistros, which provide a welcoming venue for discussion. The first stage involves an open discussion centred on historical and current water use, the trends observed in managing it, future developments and the sharing of water between its various uses. The second stage takes the form of an exercise during which participants write down existing problems, and their associated solutions, on Post-it notes. These are grouped by theme, the contents of the Post-its are read out, and those at the meeting have an opportunity to respond. In addition to simply familiarising them with the issues, this exercise serves to raise awareness of the local realities by sharing different and divergent views that typically arise from misunderstandings and often cause tensions. The analysis of the distribution of the speaking time bears witness to the important will of the participants to receive information but also and especially to share it. Indeed, recordings of the four Bistr’eau events organised in 2013 show that the participants used 53% of the total speaking time, against 42% for the speakers (the remaining 5% represents silences or, on the contrary, simultaneous discussions). Furthermore, 63% of the total number of participants speaking are motivated by the intention to share information they have and so to enhance the pool of knowledge.
- 11 A number of important concerns from the side of the communities and residents have been highlighted as a result of the Bistr’eau evening events. Participants often show themselves to be torn between matters of conscience, such as the belief that water is a common good, and questions of ownership, including those of an economic nature, about what they consider to be “their” resource, which they believe they have a right to access, and a responsibility to respect, thus ensuring its sustainability and preservation for the future in good quantity and quality. The case of the water draw-off

from the Guiers to serve the Pays Voironnais (Voiron and its surrounding area) has highlighted this problem.

Chartreuse, a water supplier to the communities of its borderlands

More mirage than oasis?

- 12 Like many mountain areas, and as a pre-alpine range with ample rainfall (on average, 200 cm is recorded at the Carthusian monastery every year), the Chartreuse Mountains are considered a natural water tower. Compared with the hydrogeological reality, however, this image is misleading. The karst nature of the mountains more closely resembles a “leaky sieve”⁴ in that they do not retain the water themselves; instead, it flows to their western border and the depression of Saint-Laurent-du-Pont, which comprises a raft of glacio-lacustrine and alluvial sediments (the “plain” that is the confluence of the two Guiers). Strictly speaking, this depression only borders the Chartreuse, but it nevertheless forms part of the territory of the Chartreuse Nature Park, separated from the rest of the molassic borderlands by the small limestone area of Ratz.
- 13 This wider definition of the Chartreuse may be seen as the hoped-for desert oasis by some urban areas of the molassic borderlands, who know that the state of their water supply is limited, or even critical. This “Carthusian resource” is being eyed by some of the towns bordering the park, who are anxious to secure a supply and challenged by the double constraints of increasing manmade and climate pressures on their limited local resources, and who are already affected by climate change, manifested in an observed 30% decline in the abundance of local water sources over the past two decades (Observatoire Savoyard du Changement Climatique, 2012). The principle of basin-based management involves a shift in decision making, moving it away from the “exclusive realm of hydrology and hydraulics, to involve all disciplines that are active in development issues” (Affeltranger and Lasserre, 2003, p.3) and also regional development, which finds itself challenged by the need for resource transfers articulated by the urban areas of the Western Chartreuse borderlands (the molassic foreland).

Water transfer and draw-off: the case of the Guiers water table

- 14 This issue is brought into stark relief by the case of the Guiers alluvial aquifer on the Saint-Laurent-du-Pont plain and the drilling operation to exploit it at Saint-Joseph-de-Rivière, in the western part of the RNP (groundwater : Alluvions du Guiers – Herretang⁵). As the only alluvial aquifer of any significant volume in the Chartreuse (the unconfined groundwater aquifer can reach 70m in thickness), it is one of 17 aquifers that are considered to be a priority and in the public interest to preserve, and at the departmental level it is listed in terms of the challenge it poses to meet current and future needs for water supply and sanitation. The resource is subject to annual outputs exceeding 1,000,000 m³ for drinking water supply (1,573,881 m³ in 2013, according to data from the CAPV [Community of the Pays Voironnais Agglomeration]⁶) and supplies mainly the Pays Voironnais, a gateway town of the RNP, and the area to

the southwest, outside the Guiers basin (fig. 4). Although the annual volumes drawn off appear considerable, a comparison between the current pumping rate (240 m³/h) and the exploitable potential of the aquifer (7,200 m³/h) puts things in perspective and shows that the resource is underutilised (data from *la fiche de caractérisation des masses d'eau* [water fact sheets], Eaufrance).

- 15 The commune of Saint-Joseph-de-Rivière is only connected to this pumped output when there is a requirement to reinforce its supply. It is normally supplied from other catchments, one of which, taken from Sambuis, is also used as a source to supply the Pays Voironnais (fig. 4). Water resources for the Pays Voironnais are spread across the area and account for some 37 catchments and 13 pumping stations, including the Saint-Joseph-de-Rivière borehole, which is a more strategic source because it is the main resource for the agglomeration (representing about 20% of total production).

Figure 4. Inter-basin drinking water transfers between the Guiers water table and the Pays Voironnais



SOURCE: PAYS VOIRONNAIS, PARC DE CHARTREUSE

- 16 Against this backdrop, the agglomeration, focused on putting in place solid development options, opted to abandon surface water catchments with low-flow and poor-quality water in favour of a better-quality water table that could provide security for its 21 communes. The framework for water transfer is set out in an agreement signed in 2010 between Saint-Joseph-de-Rivière and the Pays Voironnais.
- 17 According to the Pays Voironnais (interview with the Pays Voironnais's director of water environment and policy, conducted 21 October 2014), the relationship with the municipality of Saint-Joseph-de-Rivière can be considered a demonstrable example of the role of water as an economic resource and a development tool for rural communities. On the one hand, the commune of Saint-Joseph-de-Rivière wants to limit

the urbanisation of the area in order to retain its rural character, which places a *de facto* limit on its financial resources and therefore its development. On the other hand, the Pays Voironnais wants to boost its development through economic attractiveness but needs to secure its water supply. The supply of water in significant quantities by the town of Saint-Joseph-de-Rivière to the Pays Voironnais, in return for fair financial compensation and the non-urbanisation of the catchment feeding area, allows both communities to meet their respective objectives.

- 18 However, as part of its PLU (local plan), the municipality of Saint-Joseph-de-Rivière identifies “managing pressures on water use” as a major issue in terms of the populations served and the catchment potential, which accentuates the strategic dimension of the latter. This underscores the need for a comprehensive consideration of the subject and implicitly reflects the potential for conflict in the situation.

A potential conflict to be defused by participatory IWRM

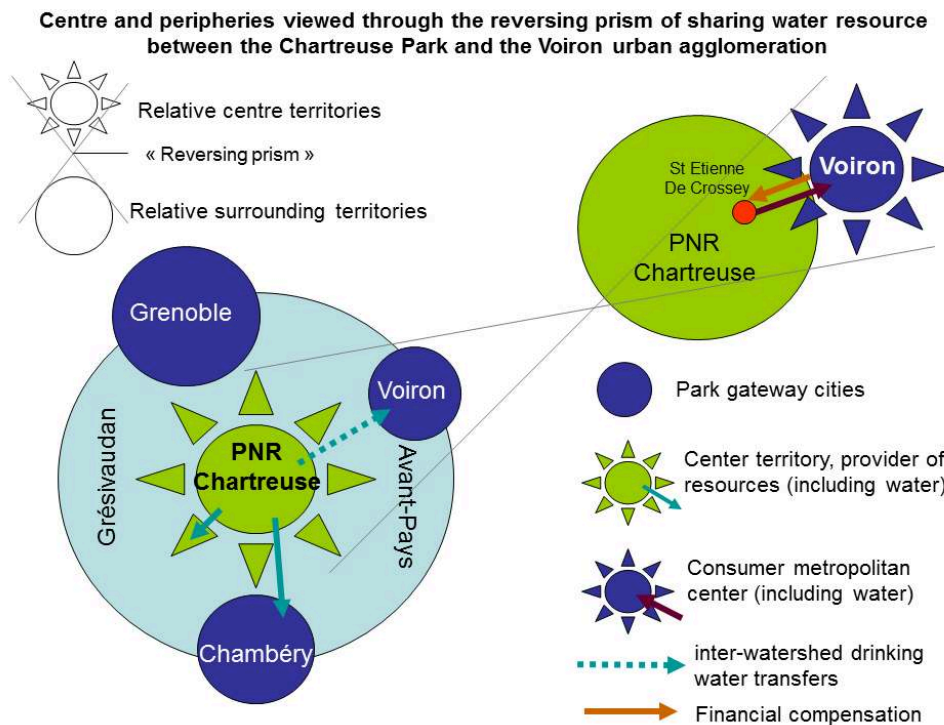
- 19 We therefore have a case that involves the withdrawal and transfer of water from one basin to another, and from one local authority to another. The current challenge here is not one of quantity but of the preservation of rights to natural resources, economic value (the value of the resource) and policy. It is likely to result in conflict, played out at the local level, which can be considered to be in a latent or incubatory phase at present (Laslaz, 2005). “Bistr’eau” events in the Chartreuse have revealed that water withdrawals from one watershed to another generate a “sense of theft” among the park’s residents. The withdrawal from the water table at Saint-Joseph-de-Rivière is causing dismay right in the heartlands of the mountain region, with those concerned fearing that “water is being pumped from the aquifer by the town of Voiron with little in the way of control”^{*7}. This feeling of anxiety and inequity is reinforced by the fact that the population of Saint-Joseph shares one of its source catchments with the Pays Voironnais but does not benefit directly from the volumes pumped from the water table, which are entirely devoted to the Pays Voironnais as part of normal operation. From the point of view of the Chartreuse inhabitants, the resource is not shared but unilaterally diverted at their expense – something that also reinforces a sense of loss of control or dispossession, where water is becoming “a privatised resource, de-coupled from its natural geography” (Aspe, 2012, p.153).
- 20 Faced with this situation, which is a result of the participatory approach taken by the Chartreuse-Guiers Water Observatory, the latter was also designed as a management tool and means of defusing tensions through its encouragement of the ownership of IWRM principles by all stakeholders. This also happened as a result of the observatory making available the relevant data and key figures required to quantify and locate available resources, both in terms of consumption zones and areas where resources are under pressure. Armed with this analysis, the stakeholder-observer is made aware that if water is regarded as a common good, the Guiers water table, which is sufficiently abundant at present (“but for how long?”^{*}, stakeholders will ask) can be subject to a shared consensus between surplus and deficit regions, provided the issues – real or perceived – about control and the hierarchy of relations between the supplier and supplied parties can be resolved, which in turn raises the question of centre-periphery relationships, something exacerbated by ongoing local and regional reforms.

Water, the inverting prism of centre/periphery relations between the Chartreuse RNP and the metropolitan areas of its borderlands

Centre/periphery relations reconsidered

- 21 We have pointed out the tendency of Bistr’eau participants to be torn between their desire to see water as a common good and their sense of ownership of it as “their” local resource. This paradoxical attitude, which involves a “heuristic contradiction” (Morin, 2009, p.22), is not without similarities to the NIMBY (“not in my backyard”) phenomenon, where residents voice opposition to new developments of all kinds (industrial projects, landfills, etc.). The French news media, in particular, has reflected this phenomenon in recent months in the form of its coverage of Sivens, Center Parcs.⁸ It also leads to tensions, some expressed openly and others not, indicative of the evolving relationship between a RNP in a mountain area and its surrounding borderlands (in the proper and relative spatial senses of the term). Here we face a reinterpretation of the “centre/periphery” debate, this time in a geographic context, as formalised by Reynaud (1981, 1992) and others, considering the centre as having dynamic properties in relation to a dormant periphery in a dominant/dominated power relationship, and a state of mutual dependence (Grataloup, 2004). The centre, a more satisfying place to live, stands in contrast with the various peripheries relying solely on their own strength, operating in isolation, constituted as associates, neglected, or dominated, or simply not on the radar (Bethemont, 1982). The evolution of this debate seen through the prism of the sharing of water resources can be considered the inverted image as reflected in a mirror, where the protagonists’ two different points of view cross over and reverse: first, the “mountain heartlands” of the park, a rural area literally looking down from on high towards its urban periphery focused on its “gateway cities”; and, second, the intercommunal urban areas of valleys and borderlands, given a shot in the arm by the local and regional reforms that are underway, which, after legislation passed in January 2014 called for the modernisation of local and regional public action and the recognition of cities, have been provided with a new centrality and drive that have resulted in them somewhat trivialising those in the surrounding mountain areas as “highland country cousins” whose job it is to endorse the status of the institutionalised peripheries.
- 22 Against this backdrop, each player can claim the centre while painting the other as having peripheral status.

Figure 5. Centre-periphery relations through the prism of shared water resources: the dominated 'dominant supplier'?



Made by Fabien Hobléa

- 23 The ambiguity of this situation explains the creation of tensions and internal problems:
- On the one hand, the park re-affirms its role as the resources' natural owner and thus justifies the promotion of a water policy treating it as a common good, as set out in the priorities of the second charter. This "dominant" posturing, which characterises the notion of centrality, then leads it to consider its role as a potential supplier for the peripheral areas, while on the micro-local level, around Saint-Joseph-de-Rivière, there is a dominant sense of dispossession and diversion that places this area in the position of a "dominated supplier" (a characteristic of a periphery in the way described by Reynaud);
 - On the other hand, the Pays Voironnais recognises its position as a dependent buyer (the characteristic of a dominated periphery) while it invokes the virtuous principle of cross-locational solidarity (Polere and Panassier, 2013), and throws into the mix its demographic and economic strength, which pulls it towards centrality, as much as its status as a gateway town to the park pulls it in the opposite direction towards the periphery.
- 24 This fluctuation between approaching the resource as a common public good and the tendency to take strategic control of the water source subsequently continues in the power play between the public and private management of this resource.

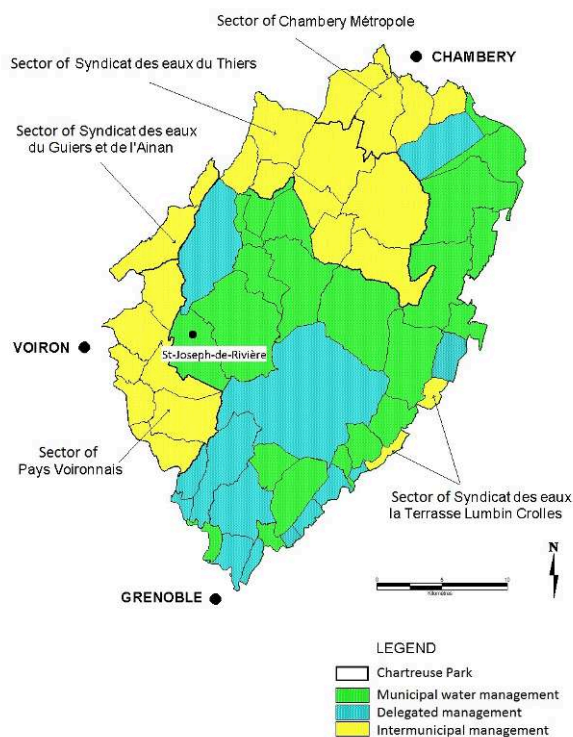
Water: a catalyst in the power play between the public and private management of "natural" resources

- 25 The case of the Chartreuse and its borderlands is indicative of recent developments in the debate around whether water resources should be publicly or privately managed: It bears remembering that if "the 1990s were the decade of water privatisation, history

has since judged this a failed approach” (Hall, 2010, p.19). Although the “process of water privatization is a long way from resurrecting a period that has had its day” (Hoedeman and Kishimoto, 2010, p.16), many communes in France have considered a return to direct workforce management, and some have chosen to bring the management of water back in-house, mainly to control costs and ensure decision making is transparent to local people, with public access to information being the subject of legislation.⁹

- 26 As a precursor to what happened in Paris, which “liberated” its water on 1 January 2010, Grenoble has often been held up as an example. The alpine metropolis, which is also a gateway city to the Chartreuse park, “remunicipalised” its water supply in 2000 after complaints about illegal privatisation in 1989 and associated corruption. This remunicipalisation was not easy to achieve. After a 10-year struggle, the outcome is widely perceived as “a victory for Grenoble”¹⁰ and without a doubt an example and/or a warning for the surrounding communities.
- 27 The concept of “remunicipalisation” does not actually amount to much. It is largely a symbol of the political and local drivers behind it. Its aim is merely to restore direct management, because water services were never really “demunicipalised”. Water remains a public service that has simply been delegated to private companies.
- 28 On another level, the communes of Chartreuse are also debating what strategy they should adopt. The smallest are organising themselves as intercommunal associations and/or are not extending concession contracts (in the form of leasing arrangements).

Figure 6. Map of the water management structures across the RNP and its gateway cities, showing the trend towards remunicipalisation (SIT du Parc de Chartreuse)



Source : SIT du Parc de Chartreuse

- 29 This move towards municipalisation is often the outcome of “the initiative of local people who want control over the price and quality of water” (Valin, 2007, p.76) and demonstrates a political and collective will opposed to the “loss of control of the water management by the local community”^{*} by advocating a reasonable management approach that can be adapted to local needs. It also reflects real engagement from elected officials and residents within the framework of multi-stakeholder governance.
- 30 This movement can also be interpreted as a withdrawal, a form of resistance and a wresting of control from operators hailing from the major urban centres nearby, while it reflects the debate around the centre/periphery power balance between the mountain and metropolitan areas.

Conclusion

- 31 If drinking water, the only resource discussed in this article, proves to be a good indicator of the differences in perspective between mountain areas and urban centres of the borderlands, other uses of water, such as hydropower generation, may also begin to feature in this debate.
- 32 In the end, the manifestation of the centre-periphery debate as a “game of mirrors” that can be viewed through the prism of water resources can be seen as a new fault line emerging between mountain and metropolitan areas. In other words, in its geographical application, the centre/periphery debate calls into question the balance of power between the dominant players and the dominated across the heartland of the park (mountain areas) and its gateway cities (metropolitan areas), each of which considers itself the “dominant player” *vis à vis* its own dominated peripheries (i.e. the gateway towns in the case of the heartlands, and *vice versa*).
- 33 By contributing to the empowerment of local people and fostering the local development of information-based social and economic attitudes, the Chartreuse-Guiers Water Observatory is creating two fundamental water-policy pillars that go beyond conventional management frameworks. In so doing, it aims to produce a positive synergy between different levels and areas: communes, communities of communes (which have, since January 2014, been responsible for water) and the RNP (whose legitimacy in terms of water has been undermined by territorial reform). This may in turn encourage reconciliation and reduce regional differences that drive the centre/periphery phenomena.
- 34 Giving local officials the keys to gain a comprehensive understanding of the issues affecting the resource and its uses beyond their “immediate areas” or “elected constituencies” and involving residents in water resource management issues – including them in the process of generating knowledge, observing and making decisions with the goal of reflecting on and jointly constructing area and inter-area policies – may be ways to overcome divisions and power struggles that are the result of the “centre/periphery” frame and also to invent new forms of co-existence based on cooperation and mutual help. The locals have shown considerable commitment by attending the Bistr’eau events, which have resulted in “*real democratic functioning of the communes, which also keeps the issues in the public consciousness*”^{*} – something that leads to the creation of a positive synergy between the participation of local people and their elected representatives.

BIBLIOGRAPHY

- Affeltranger B., Lasserre F. 2003.– « La gestion par bassin versant : du principe écologique à la contrainte politique – le cas du Mékong », in *Vertigo - la revue électronique en sciences de l'environnement*, Volume 4 Numéro 3, visited August 19, 2013, <http://vertigo.revues.org/3715>
- Aspe C (COORD.), 2012.– *De l'eau agricole à l'eau environnementale : résistance et adaptation aux nouveaux enjeux de partage de l'eau dans les pays du Bassin méditerranéen*, Editions Quae.
- Barbier A., 1996.– *La recherche-action*. Economica, Paris.
- Bethemont J., 1982.– « Alain Reynaud, Société, espace et justice », *Revue de géographie de Lyon*. Volume 57, n° 4, p. 425, visited April 22, 2015..
- Bigot S., Rome S. 2010.– « Contraintes climatiques dans les Préalpes françaises : évolution récente et conséquences potentielles futures » in *EchoGéo* – Visited March 06, 2016, <http://echogeo.revues.org/12160> ; DOI : 10.4000/echogeo.12160
- Brüschweiler S., 2003.– *Gestion Intégrée des Ressources en Eau (GIRE). La voie du développement durable*. *InfoResources Focus* n° 1/03.
- Charnay B., 2010. – « Pour une gestion intégrée des ressources en eau sur un territoire de montagne. Le cas du bassin versant du Giffre (Haute Savoie). » Thèse Géographie. Université de Savoie 504 p. + annexes.
- Chevalier J., Buckles D., 2013. *Participatory Action Research. Theory and Methods for Engaged Inquiry*. Ed. Taylor and Francis.
- Da Costa P., Youssef Z., August C., Pierre G., Victoria R., Antonino C., Augustin L., 2012.– « Les services écosystémiques des rivières sauvages : application au bassin- versant de la Valserine. » Version publique et synthétique de novembre 2012.
- Fabre J., 2012.– *Plan d'adaptation au changement climatique Bassins Rhône-Méditerranée et Corse. Impacts du changement climatique dans le domaine de l'eau sur les bassins Rhône-Méditerranée et Corse*. Agence de l'eau Rhône-Méditerranée et Corse.
- Grataloup C., 2004 – « Centre/Périphérie. » *Hypergéométrie ; Théorie*. 2 p.
- Hall D., 2010.– Introduction in Hoedeman Olivier et Kishimoto Satoko (coord.) *L'eau un bien public. Alternatives démocratiques à la privatisation de l'eau dans le monde entier*. Éditions Charles Léopold Mayer, pp. 19-28.
- Hoedeman O., Kishimoto S., 2010.– Préface à l'édition Française. In Hoedeman Olivier et Kishimoto Satoko (coord.) *L'eau un bien public. Alternatives démocratiques à la privatisation de l'eau dans le monde entier*. Éditions Charles Léopold Mayer, pp. 9-18.
- Hobléa F., 2006.– « L'eau en Chartreuse : enjeux et perspectives. » In Gumuchian H. (ed.) *Entre aujourd'hui et demain, la Chartreuse, un territoire-école*. Ed. D'ici & d'ailleurs.
- Laslaz L., 2005.– « Les zones centrales des Parcs nationaux alpins français (Vanoise, Écrins, Mercantour), des conflits au consensus social ? Contribution critique à l'analyse des processus territoriaux d'admission des espaces protégés et des rapports entre sociétés et politiques d'aménagement en milieux montagnards. » Thèse Géographie, Université de Savoie. 644 p.
- Liu M., 1997.– *Fondements et pratiques de la recherche-action*. L'Harmattan, Paris.

- Mermet L., Treyer S. 2001.– « Quelle unité territoriale pour la gestion de l'eau ? » *Responsabilité Environnement. Annale des Mines*, pp. 67-79
- Morin E., 2009.– « Logique et contradiction. » In Guy B. (coord.) *Actes des Ateliers de la contradiction, nouvelle force de développement en science et société*. Saint-Etienne, 19-21 mars 2009. Ecole Nationale Supérieure des Mines de Saint-Etienne, Coll. Libres Opinions, Ed. Transvalor Presses des Mines, pp. 17-49.
- Observatoire Savoyard du Changement Climatique (Chaix C.), 2012.– Evolution des débits des rivières alpines de 1961 à 2008/2011, note *Impact* n°6, avril 2012, MDP 73 ed.
- Observatoire Savoyard du Changement Climatique (Chaix C.), 2015. Bilan hydrique 2014/2015. *Les notes de l'Observatoire*, bilan climatique n° 39, novembre 2015. MDP 73 ed.
- PFE, 2015.– Les solutions des acteurs français de l'eau. – Livret 2015 : le temps de la mise en œuvre. 44 p.
- Polere C., Panassier C., 2013.– Solidarité et Communautés urbaines : état des lieux et prospective. Synthèse étude « Solidarité et territoires ». 41^e Journées des Communautés urbaines de France. Marseille, novembre 2013. 8 p.
- Reynaud A., 1981.– *Société, espace et justice : inégalités régionales et justice socio-spatiale*. PUF, Paris.
- Reynaud A., 1992.– Centre et Périphérie, in: Bailly A., Ferras R., Pumain D. (dir.), *Encyclopédie de géographie*, Paris, Economica, pp. 599-615.
- Serroi B., Barbon J.L., Besancenot F., Ferraton M., Hobléa F., 2013.– « L'eau entre mémoire et devenir. Programme sur la Gestion Intégrée de la Ressource en Eau dans les PNR du Sud-Est. » *Colloque international pluridisciplinaire, plurisectoriel scientifique et formatif Les recherches actions collaboratives : une révolution silencieuse de la connaissance*, Dijon, France. pp.6, 2013.
<halsde-00962395>
- Tissier G., 2012.– « Ressource en eaux karstiques de montagne : analyse des impacts de l'anthropisation dans un contexte de changement climatique. » Thèse hydrogéologie, Université de Grenoble, 261 p.
- Valin S., 2007.– *Services publics: un défi pour l'Europe : approches nationales et enjeux communautaires*. ECLM.
- Viollot P., 2005.– *Histoire de l'énergie hydraulique : moulins, pompes, roues et turbines de l'Antiquité au XX^e siècle*. Presses de l'Ecole Nationale des Ponts et Chaussées.

NOTES

1. Orientation stratégique 2.3.1 – Seconde Charte du Parc naturel régional de Chartreuse
- 2.
3. Source: 'l'Eau entre mémoire et devenir' website: <http://www.eau.amidesparcs.fr/>
4. Views expressed by hydrogeologist Gérard Nicoud in 2009, during a public lecture related to the EMD programme.
5. See Summary sheet of the Agence de l'Eau Rhône-Méditerranée & Corse
6. CAPV: Communauté d'Agglomération du Pays Voironnais, currently known as the "Pays Voironnais".
7. * Collected verbatim by local participants, on Post-it notes, during the Bistr'eau evening events
8. Violent opposition to the construction of a dam at Sivens in the Tarn area and to the development of a "Center Parcs" leisure complex in Isère (Roybon).

9. French Statute No. 2005-1319/26 October 2005 - Implementation of European Directive 2003/4/EC of 28 January 2003 on public access to environmental information.

10. Press Conference held on 9 March 2000 by the ADES (the Democracy-Ecology-Solidarity Association) and its elected representatives.

ABSTRACTS

The Chartreuse Regional Nature Park is often considered a raw water reservoir for its borderlands. Although it is an abundant resource, current and expected impacts of climate change are already reflected in the emerging pressures on different water uses. These new challenges imposed on water resources raise questions about the relationships between urban and mountain areas, typically considered through the centre/periphery paradigm. In particular, this article deals with the question of transfers between water basins. In so doing, it analyses the new management strategies that communities have adopted and explores possible synergies against a backdrop of the power relationship between private and public management in order to move towards an approach that embraces solidarity and security of supply.

INDEX

Keywords: IWRM (integrated water resources management), regional nature park, Chartreuse, water observatory, public participation, centre/periphery, public/private management

AUTHORS

BÉRANGÈRE SERROI

Doctorante au laboratoire Edytem de l'Université de Savoie Mont-Blanc - Chargée de recherche
Observatoire de l'eau au Parc de Chartreuse. berangere.serroi@gmail.com

FRANÇOIS BESANCENOT

Responsable du Service Environnement du Parc de Chartreuse (de 2011 à 2014).

PHILIPPE BRÉGARD

Directeur du Service Environnement et Politique de l'Eau à la Communauté d'Agglomération du
Pays Voironnais.

GÉRARD HANUS

Directeur du Parc de Chartreuse (de 2007 à 2014)

FABIEN HOBLÉA

Enseignant-chercheur au laboratoire Edytem (UMR CNRS - Université Savoie Mont-Blanc),
membre du Labex Item.