A Planet for Life 2012 focuses on agriculture and its relation to development, food and the environment. At the end of the 2000s, a consensus has emerged and points to the urgent need for massive investment in the agricultural sector, which is (once again) viewed as one of the prime engines for development and food security, as well as for poverty reduction, but what exactly does this consensus cover? While the idea of investing in agriculture is gaining ground and although several countries or regions appear to be offering opportunities for investment in agricultural land, debates are ongoing as to which agricultural models to choose and how agricultural policies should be implemented.

A Planet for Life called on many highly specialized authors from different countries and perspectives, and invites the reader to discover the sector in all its complexity, upstream and downstream of agricultural production.

At the crossroads of the challenges posed by development, food security and the environment, the transformation of the agricultural sector is at the heart of the global stakes of sustainable development. To help steer these changes towards greater sustainability, this book makes us aware of how crucial it is to also change our representations of agriculture, change the visions that guide projects for change and the policies regulating this sector.

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While to some extent water scarcity is defined through scientific observation, it is also largely a social and political construction (Trottier, 2008). This conclusion is supported by the joint analysis of management and water science in the Garonne basin in France, the history of which shows that water scarcity is not based on inevitable biophysical determinisms.

As long ago as 1752, Toulouse merchants complained about the difficulties their boats encountered during the Garonne’s low-flow periods. Over a century later, in 1879, the Academy of Sciences of Toulouse registered concern about a lack of water in the Garonne. Then, in 1996, according to most water management stakeholders, “the Garonne is deficient, or even very deficient”. While on 27th September 2009, Le Monde published an article on the impacts of global warming which, with regards to water, stated that: “(...) The most affected areas would be the areas already affected today by structural deficit, such as the south-west [of France]” (Fernandez, 2009). On this evidence it would appear that the Garonne has lacked water for over two and a half centuries, and it seems that this trend is not likely to change soon!

The Garonne basin is today characterized by large hydraulic infrastructures. Since the early nineteenth century, decentralized state agents in particular have sought control of the river and of the use of its waters, primarily for navigation but more recently for irrigation and power generation. The legitimacy of such projects was based on the need for development in an area long regarded as economically backward (Fernandez, 2009). In the mid-nineteenth century, the problem of the Garonne’s low water level was reformulated to support the construction of navigation canals, which were soon to become obsolete once the railway had been completed. Irrigation became the next argument used to justify public expenditure, with claims that it would enable the development of land that was “uncultivated and burned by the sun”. However, it wasn’t until the 1970s that irrigation became a significant practice within the Garonne basin, earlier projects being mostly targeted at grassland and limited to the Pyrenean valleys and areas upstream of St. Martory, where the collection and transport of water using gravity was straightforward and required little investment.

Since the 1950s, agricultural and hydroelectricity policies were reinforced nationally, with the creation of the Electricité de France (EDF) and of regional development companies, including the Compagnie d’Aménagement des Coteaux de Gascogne (CACG). The 1960s saw the beginning of the deployment of significant resources at local, national and European levels, enabling an agricultural socio-technical
Since the early nineteenth century, the governance modes for the water in the Garonne basin have involved both management systems (for water infrastructure, indicators, contractual arrangements, management agencies...) and dialogue that seek to legitimize these systems, the ultimate goal being to control the water.

The French Water Agencies were created in 1964 to levy charges related to water pollution across entire river basins and to fund the restoration of water quality, but only had incentivizing powers. Agency funding was therefore directed towards environmental remediation or to increasing river flows, rather than to reducing emissions or water demand. The agencies also favoured commensuration processes (Levin & Espeland, 2002), involving the establishment of equivalents between quantitative and qualitative issues. Thus, the Adour-Garonne Water Agency (AEAG) addressed pollution in the Garonne by identifying a need to dilute discharges arising from the fertilizer production industry which, similarly to agricultural sectors and the electrical industry, seemed powerful enough to assert non-negotiable positions regarding their activities. Using water abstraction rates or pollutant emissions as given, the AEAG defined a minimum flow for rivers based on the maximum allowable concentration of pollutants that would not generate fish mortality.

In the late 1980s, however, while river flows were largely modified by the electrical and agricultural sectors, the increase in frequency and intensity of droughts was reflected in a significant rise in the...
tensions between the different water users. At this time, environmental spokespersons were also beginning to gain power at the national scale.

In the early 1990s, AEAG managed to enlist EDF along with the representatives of irrigated agriculture to incorporate them into its system of rules by enforcing minimum flows or “low-water target flows” (known as DOE, Débit Objectif d’Étiage), which contributed implicitly towards allocating more water to these stakeholders, by justifying the construction of new dams by the need to maintain the dilution capacity of water courses. This was particularly true for the Charlas dam project. Since 1996, the DOE has been defined as “the rate above which the normal coexistence of all usages and the proper functioning of the aquatic environment are guaranteed and that thus must be respected each year during the low-flow period with predefined tolerances” (Adour-Garonne basin Committee, 1996).

Initially promoted by the CACG in the early 1980s as of benefit for agricultural land irrigation on the Garonne’s left bank, the Charlas dam project acquired a double purpose in the 1990s since it was alleged that the infrastructure would also help limit the severe low flows that occurred upstream of Toulouse in summer. The wider interest of the project then became the subject of an intense controversy that the Ministry of Environment decided to solve with a study aiming to determine whether compensating the Garonne’s “structural” deficit was necessary. This study, which was conducted over a four-year period, made an active contribution to changing the very definition of low-water target flows. Originally calculated in terms of objectives for pollution dilution, low-water target flows were from then on regarded solely as a hydrological concept, based on an estimate of “reconstituted natural flows”.

From a hydrological perspective, it proved difficult to distinguish the impacts on water flow from different users in summer, given the quantity of dams and water abstractions that are spread widely across the region and function at varying intervals. Thus, estimations of average low-water natural flow throughout the summer were based on series of statistical calculations that eliminated the distinction between periods influenced by irrigation (until late August), and those that were not (September-October). By disregarding time periods and the accountable water users, the study convinced state officials, EDF and CACG that it was in their interest to meet the DOE from late June to late October. Thus, in the 1990s the historical link between flow and dilution was broken: DOEs would become the new targets per se, and their calculation would no longer be discussed.

Today, the issue of whether to build the Charlas dam has still not been decided. Meanwhile, the use of DOE has become hegemonic in the Garonne basin. It is only by searching the archives that we can examine the assumptions that were used to justify the need to maintain such flows. In 2001, when the major AZF fertilizer plant exploded in Toulouse and was not subsequently rebuilt, the DOE in Portet-sur-Garonne, which had been set to dilute AZF’s contribution of nitrogen into the river in the event of accidental pollution, was not however redefined. Indeed, by this time, water managers were already using DOEs as a given for their management plans (Fernandez, 2009).

DOE is not the only possible management indicator, it is simply the one that arose from negotiations between AEAG and powerful stakeholders in the Garonne basin, which formed the basis for further negotiations to share the economic rents derived from territorial policies related to water. While initially aimed mainly at limiting water abstraction, DOE was then used to justify the building of new dams, before being black boxed, i.e. becoming an end in itself.

Like any observation and any representation of nature, the shortage of water in the Garonne necessarily takes place in a specific political, economic and social context that influences which elements are considered as important or not, and what is deemed necessary to measure and how this should be done (Forsyth, 2003). Indicators such as DOEs are “agreements” between heterogeneous stakeholders, which are used as tools in negotiations that go beyond the scope of these indicators. The social construction of the Garonne’s water shortage is thus based on very specific causal relations between hydraulic construction, agricultural and broader economic developments, between water management and science and technology developments.
REFERENCES


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