

### Protecting Environmental Services in Vittel, France: A Business Opportunity for the Private Sector

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#### Introduction

Mountain ecosystems are the water towers of the world and sustainable management is critical to the provision, not only of clean water, but also of food security and energy to downstream communities. Although this is widely acknowledged, communities and countries located in mountain ecosystems are rarely compensated for their land stewardship. Even more exceptional is the initiation and financing of payments for environmental services (PES) by the private sector. Nestlé Waters, the owner of Vittel and the world leader in the mineral water bottling business, is one notable exception.

#### The problem

Vittel mineral water comes from two large aquifers located at the foot of the Vosges mountain range in Northeastern France. Land in the watershed is used for dairy production, and the introduction of intensive cattle ranching in the latter part of the last century demanded input-intensive corn cultivation for animal feed. The high levels of nitrate fertiliser applied, overstocking and poor management of animal waste led to an increasing risk of nitrate contamination beyond levels acceptable under the Vittel label. French legislation on mineral spring water is also extremely strict: water quality must be stabilised naturally with no water treatment. If standards are not met, the business must close down.

Nestlé Waters was therefore faced with five alternatives:

1. Doing nothing.
2. Relocating to a new catchment where risks were lower.
3. Purchasing all lands in the spring catchment.
4. Requiring farmers to change their practices through legal action.

5. Providing incentives to farmers to voluntarily change their practices.

Doing nothing was too costly, and the risk of having to close the business too high for a brand that sells one billion bottles every year. Meanwhile relocating to a new catchment would have meant losing the Vittel label and the premium price that goes with it. Owing to legislative restrictions on buying agricultural lands for non-agricultural purposes on top of the risks of social unrest, it was not feasible to purchase all the lands in the catchment. The legitimacy of using legal action was questionable since it was impossible to link nitrate levels to the activities of individual farmers, and nitrate levels were still low enough that legal action would not appear justified. The only viable option, therefore, was to implement a PES scheme. The principle challenge in this strategy was how to make the interests of farmers coincide with those of Vittel.

#### Designing PES

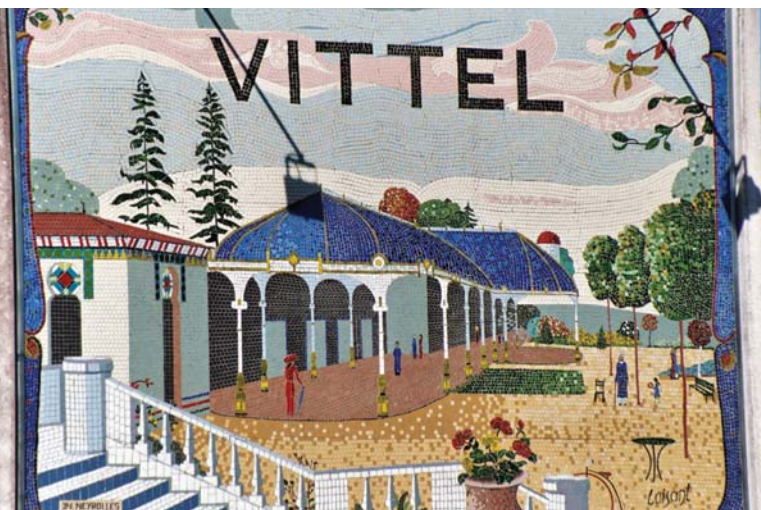
Before launching the scheme, a four year research programme was undertaken by a Vittel subsidiary company in partnership with the French National Agronomic Institute (INRA) to assess possible incentive mechanisms and linkages between agricultural practice and water quality. A number of requirements were identified to maintain reduced rates of nitrate contamination and a zero pesticides level:

- Giving up maize cultivation for animal feed (land under maize production shows nitrate rates of up to 200mg/l in the root zone).
- Adopting extensive cattle ranching including pasture management (hay and alfalfa rotation so that farms produce all animal feeds themselves).
- Reducing carrying capacity to a maximum of one cattle head per hectare.
- Composting animal waste with optimal application in the fields.
- Giving up agrochemicals (chemical fertiliser replaced with composted manure, no pesticides).
- Balancing animal rations to reach optimal milk productivity and farm profitability.
- Modernising farm buildings for optimal waste management and storing.

At first there was substantial resistance from the farming community. Indeed, it took Vittel ten years to transform conflict into a successful partnership. However, Vittel took a proactive approach, investing US \$24.5 million over a seven year period to support the transition from intensive to extensive farming practices. A pivotal event also occurred in 1992 when Nestlé Waters created Agrivair, an intermediary responsible for negotiating and implementing the programme. Agrivair was strategically located just outside the town of Vittel, close to farmers and farmers' associations, while the Director was well known to farmers and stakeholders in the area.

#### Reaching consensus

A major point of contention was how to value the services provided by farmers, and whether to base payments on the opportunity costs of farmers or those of the company. On the one hand, farmers were in a strong bargaining position with the combined ability to radically affect water quality, and on the other, Vittel's strong brand connections to the 'Grande



Spa Board at Town Entrance. Photo: Danièle Perrot-Maître.

Source' (Great Spring) area compelled the company to pursue a mutually beneficial solution. However, given that Vittel is a major employer in the region, many farmers came to recognise that protection of the 'Grande Source' would in fact be of mutual benefit.

Before joining the scheme, targeted farmers were all heavily in debt (and in many cases no longer owned their land) as a result of purchasing equipment for intensive farming promoted by the European Union Common Agricultural Policy (CAP). Land debt is very prevalent in this part of France, where it is estimated that about 87% of the land is purchased through bank loans. Under the final agreement, ownership of the land was taken away from creditors and farmers were provided with long-term use rights.

Vittel entered into long-term contracts with 26 out of 37 farmers in the watershed who were committed to continuing farming in the area. These contracts provided farmers with subsidies and land use rights for up to 30 years on larger plot sizes (average 150 ha) in return for adhering to specified management practices. The farms not included in the scheme were marginal, mainly owned by families close to retirement with unlikely succession.

## The incentive package

1. Long term security through 18 or 30 year contracts.
2. Abolition of debt linked to land acquisition, and land acquired by Vittel left in usufruct for up to 30 years.
3. Subsidy of, on average, about 200 euros/ha/year over five years.<sup>1</sup>
4. Up to 150,000 euros per farm to cover the cost of all new farm equipment and building modernisation.
5. Free labour to apply compost in farmers' fields. This is to address the labour bottleneck and ensure optimal amounts are applied on each plot. These amounts are calculated for each plot for each farm every year, and individual farm plans are also developed on an annual basis.
6. Free technical assistance including individual farm plans and introduction to new social and professional networks. This is particularly important as giving up the intensive agricultural system alienated farmers from traditional farming networks and support organisations.

## Impact

The programme was ultimately successful. By 2004, 1700 ha of maize had been eliminated, and 92% of the sub-basin was protected. The programme speeded up the retirement of the marginal farmers who sold their land to Agrivair. The number of farms in the sub-basin declined from 37 to 26, while the additional land requirements of extensive production meant that average farm size increased to 150 ha. A clear indicator of success has been the request from young farmers who have taken over family farms to enter into 30 year contracts.

Payments are based on compliance rather than service provision, since it is impossible to link changes in water quality to practices on individual farms. Optimal rates of manure application are established for each farm plot every year and manure applied by directly by Agrivair labourers. However, there is extensive monitoring of nitrate levels in the water as well as farming practices. Farmers' compliance



Vittel landscape. Photo: Danièle Perrot-Maitre.

with the new extensive farming system is not an issue, since once they have implemented the switch there is no incentive at all to revert to former practices.

Ideally, a "perfect PES" would be able to establish a precise link between farmers' practices and nitrate and pesticide rates in the aquifer - although, given the complexity of hydrogeological relationships, it is doubtful if any programme could ever be expected to do this.

## Conclusions and recommendations

The Vittel experience demonstrates that there is a strong business case for private sector participation in water-related PES. It is most likely to be replicable in places where water cannot be treated, land cannot be purchased and set aside for conservation, where the risk to business is high, the link between ecosystem health and farming practices is well understood and where expected benefits are sufficiently high to justify the investment. Although this set of conditions is more likely to be found in industrialised countries (Nestlé Waters has used a similar approach with the sources in Perrier and Contrexeville in France), it could be applicable in a developing country context provided there is good enforceable contract law.

Over time in Vittel (and similarly in the Catskills Watershed in New York City), PES needed to be complemented with other approaches and periodically evaluated to address urban-based non-point source pollution. Before establishing a PES scheme, it is also critical to examine whether there are alternatives and more cost-effective and politically acceptable solutions, such as removing perverse incentives. In Vittel and in Europe, agricultural intensification (and the ecosystem degradation that came with it) was heavily promoted and subsidised by the CAP as agricultural and environmental policies were decoupled. Fortunately this is changing.

In contrast with annual payments made under the CAP, the payments made by Vittel reflect a commitment to the long-term viability of farming. The scheme was made possible by a special set of conditions that may or may not be found elsewhere. However, what is replicable, even outside of Europe, is the process through which the scheme was developed, which gave special attention to context rather than seeking out ideal conditions, and which transformed a situation of conflict into a successful partnership.

<sup>1</sup> INRA estimated that during the first five years, farmer subsidies were equivalent of up to 75 percent of farm disposable income (INRA 1997). This is to ensure a guaranteed income during the transition period and reimburse the debt contracted before entering the programme for the acquisition of farm equipment. The exact amount is negotiated for each farm.

The ability to maintain farmers' income levels at all times and finance all technological changes was important, but the primary reasons for the programme's success were not financial. Changing farming practices is as much a social and political change as a technical one. Efforts were made from the very beginning to understand farmer's livelihood strategies, perspectives and constraints, which allowed the company to create dialogue and partnership based on trust and mutual interest. The creation of an intermediary institution, the development of a long-term participatory process to identify alternative practices and a mutually acceptable set of incentives, the ability to link incentives to land tenure and debt cycle issues and to build new support networks were all fundamental conditions for the programme's success.

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<sup>1</sup> The UNESCO Man and Biosphere Reserve Programme (MAB) was established in 1977. The World Network contains places that support livelihoods and contribute to economic and social development, whilst also conserving and maintaining the natural resource base.