
Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991)



CASE STUDY FACT SHEET #4

Chancy-Pougny Hydropower Station, on the border between France and Switzerland

The Chancy-Pougny hydropower station is part of the hydroelectric system of three dams along Geneva's main river, the Rhône. The station is owned and operated by the *Société des forces motrices de Chancy-Pougny* (SFMCP), a company jointly owned by the *Services Industriels de Genève* (SIG, of Switzerland, majority share-holder) and by the *Compagnie Nationale du Rhône* (CNR, France).

The Chancy-Pougny dam and power plant are located partly in Switzerland and partly in France, 20 kilometres downstream of Geneva. Both countries licensed SFMCP to operate the installation and both licences expired on 9 April 1998. SFMCP took the opportunity of the licence renewal to modernize its equipment and to adapt it to recent changes in its operating conditions. (The recent licence renewal of the Verbois installation upstream of Chancy-Pougny had allowed an increase in its discharge, thus increasing the water supply to Chancy-Pougny and its potential power output.)

The Chancy-Pougny dam and power plant were built between 1920 and 1924. The power plant and two of the five generators are located in Switzerland, while the other three generators are on the French side of the river. Seventy-two percent of the electricity output is allocated to Switzerland, and 28% to France.

Before the Chancy-Pougny licence renewal and renovation, the five hydraulic generators had a total power of 37 megawatt electrical (MWe) and were able to produce 210 gigawatt-hours per year. Although the authorised production discharge was 550 cubic metres per second (m^3/s), this discharge could not be used in full because the hydraulic equipment was only able to exploit $490 \text{ m}^3/\text{s}$.

Under the new licence, the five radial-flow turbines were replaced by axial-flow 'Kaplan' turbines. Each new turbine allows power production from up to $125 \text{ m}^3/\text{s}$ of water flow and can be adjusted to increase efficiency with lower discharges. The total power increased to 49 MWe. In 1999, the principle of 'double current modulation' was accepted in Geneva to make the power supply less vulnerable to failure, requiring further equipment changes. In addition, measures were taken to stop the erosion of the Rhône streambed downstream from Chancy-Pougny, which was eroding (by incision) at a rate of about 25 millimetres per year. The new installation also includes a pool-and-drop fish-way, as no fish pass had been built before.

Another concern for SFMCP was the duration of the concession licence. At the time of its renewal, France and Switzerland had rather different policies for hydroelectric concessions. France used to give licences for approximately 40 years. From the Switzerland's point of view, a significantly longer concession period (80 years) was possible, which is obviously more advantageous for the company (investments returns, etc.). In the end, France and Switzerland agreed a 60-year licence for SFMCP.

A preliminary study is the first step of the Swiss EIA procedure. It was completed in January of 1994. The preliminary study report contained the terms of reference of the EIA. The terms of

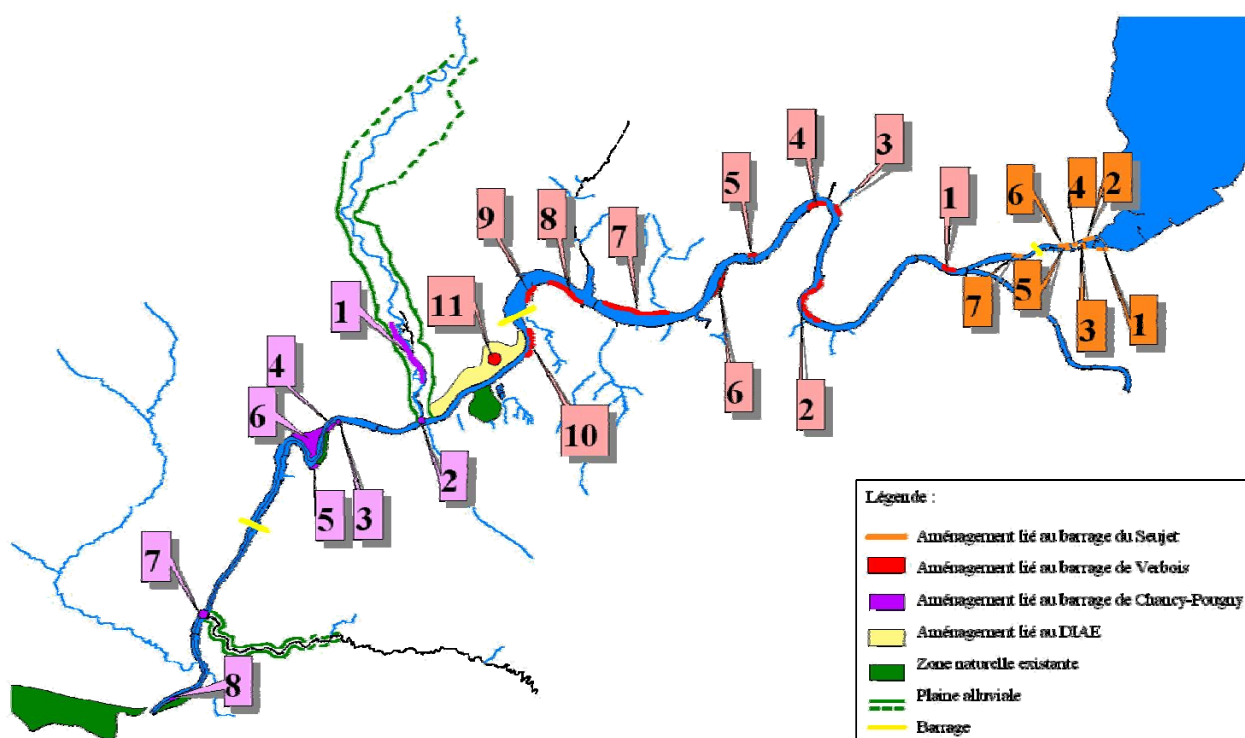
reference were presented to the Swiss federal and cantonal authorities and to the French competent authorities. Their observations were taken into account in the final version of the terms of reference (end of April 1994).

The EIA was conducted from 1994 to 1996. Two versions of the report were prepared: the main Swiss report and an adaptation to meet the requirements of French legislation. Both reports contained the same impact assessment and the same compensatory measures. Subsequently, some modifications were made to the renovation project and compensatory measures leading to a revision of the EIA reports. The final versions were completed in September 1998.

The main impacts on the Rhône ecomorphology related to the building of the dams in the first half of the twentieth century, which lead to a loss in the biodiversity of the Rhône alluvial hydrosystem that could not be compensated for.

The only environmental impacts directly linked with Chancy-Pougny renovation project in the late 1990s were: (i) transient impacts related to the works; (ii) impacts linked to the construction of the fish pass; and (iii) positive impacts linked to the presence of a fish pass and to the stabilization of the Rhône riverbed downstream from Chancy-Pougny. The impact assessment of the renovation and licence renewal was thus neutral.

However, the ecological situation of the Rhône River in the Geneva region is not satisfactory, and this is partly a result of the hydroelectric power production. SFMCP asked ECOTEC to design compensatory measures (protection and restoration) in order to minimize the overall impact of the hydropower installations. The figure below shows the overall compensation concept for the three Geneva hydropower plants. The compensatory measures specifically linked with Chancy-Pougny are shown in purple (numbered 1-8 on the left of the figure).



For more information, see <http://www.unece.org/env/eia/studytour2006.htm>.

Source: *Background materials for a study tour of projects in the Geneva area with transboundary impacts*, 6 April 2006, UNECE, Swiss Federal Office for the Environment and French Ministry of Ecology. 2006

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