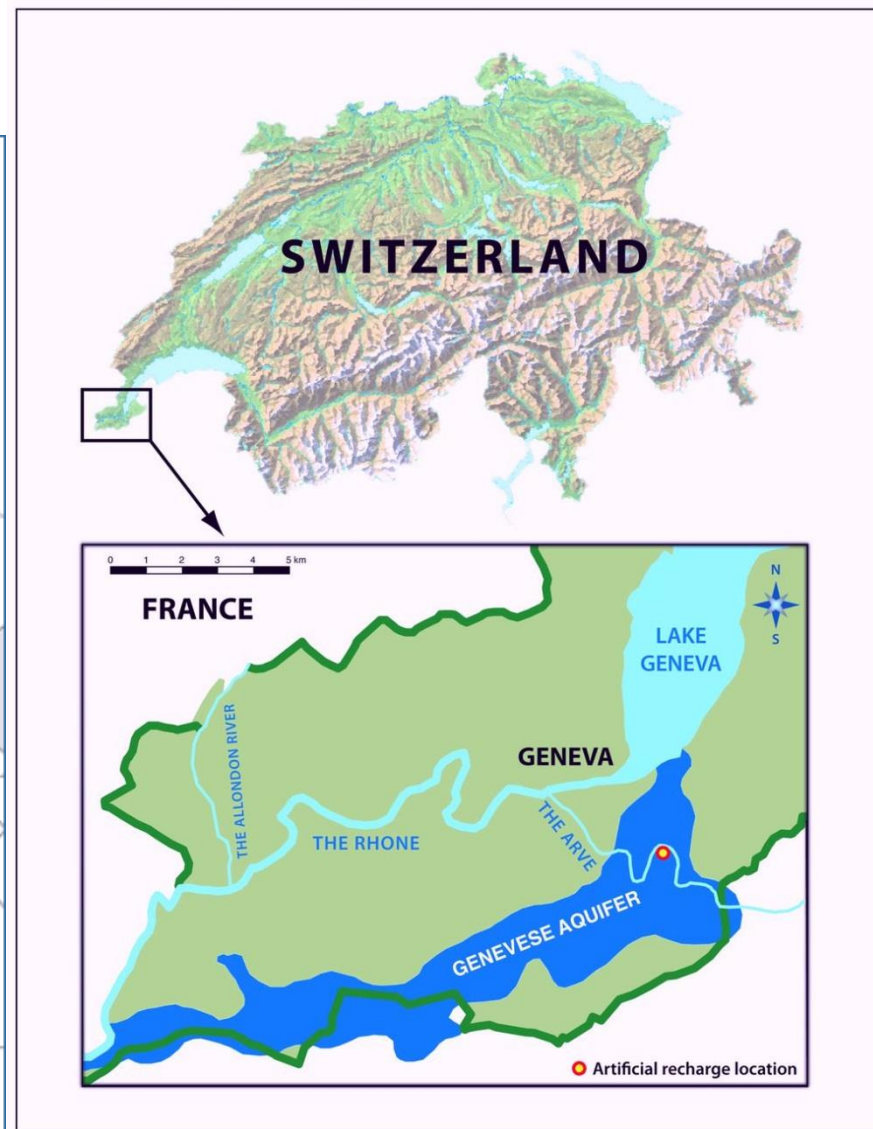


Genevese transboundary aquifer management as a model for the establishment of a water community in the Geneva region (Switzerland and France).

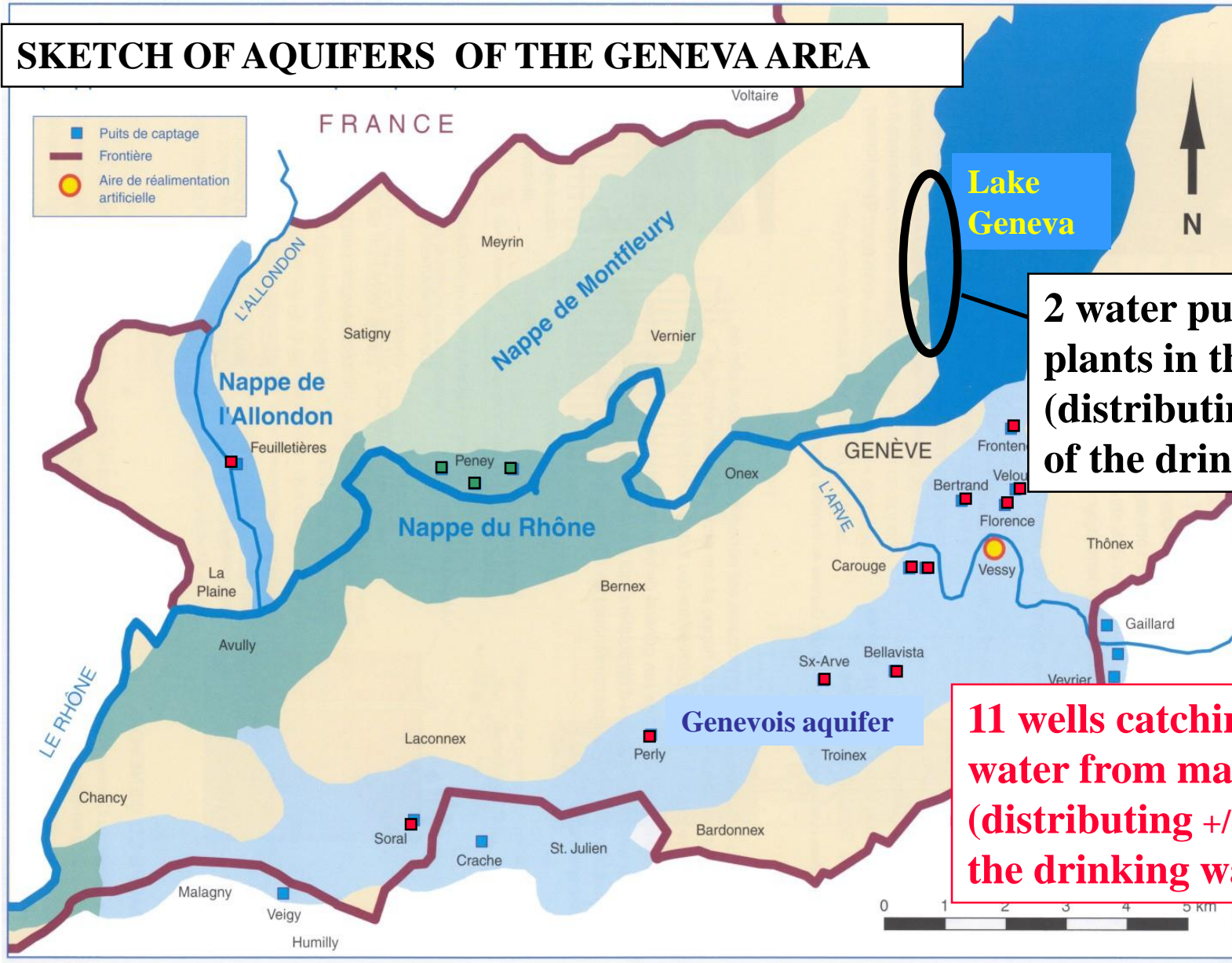
Highlights on the technical aspects to be implemented

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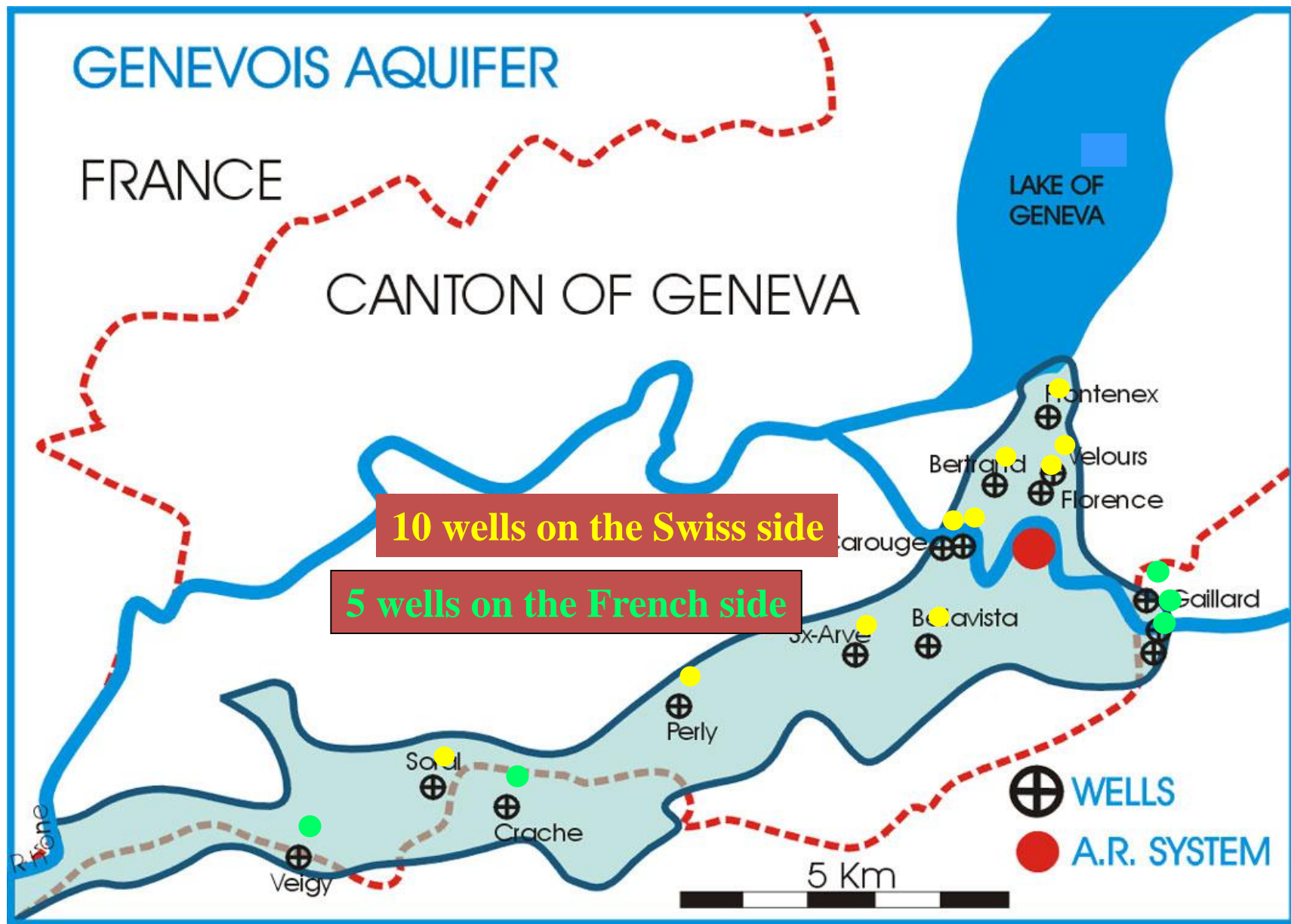


SKETCH OF AQUIFERS OF THE GENEVA AREA

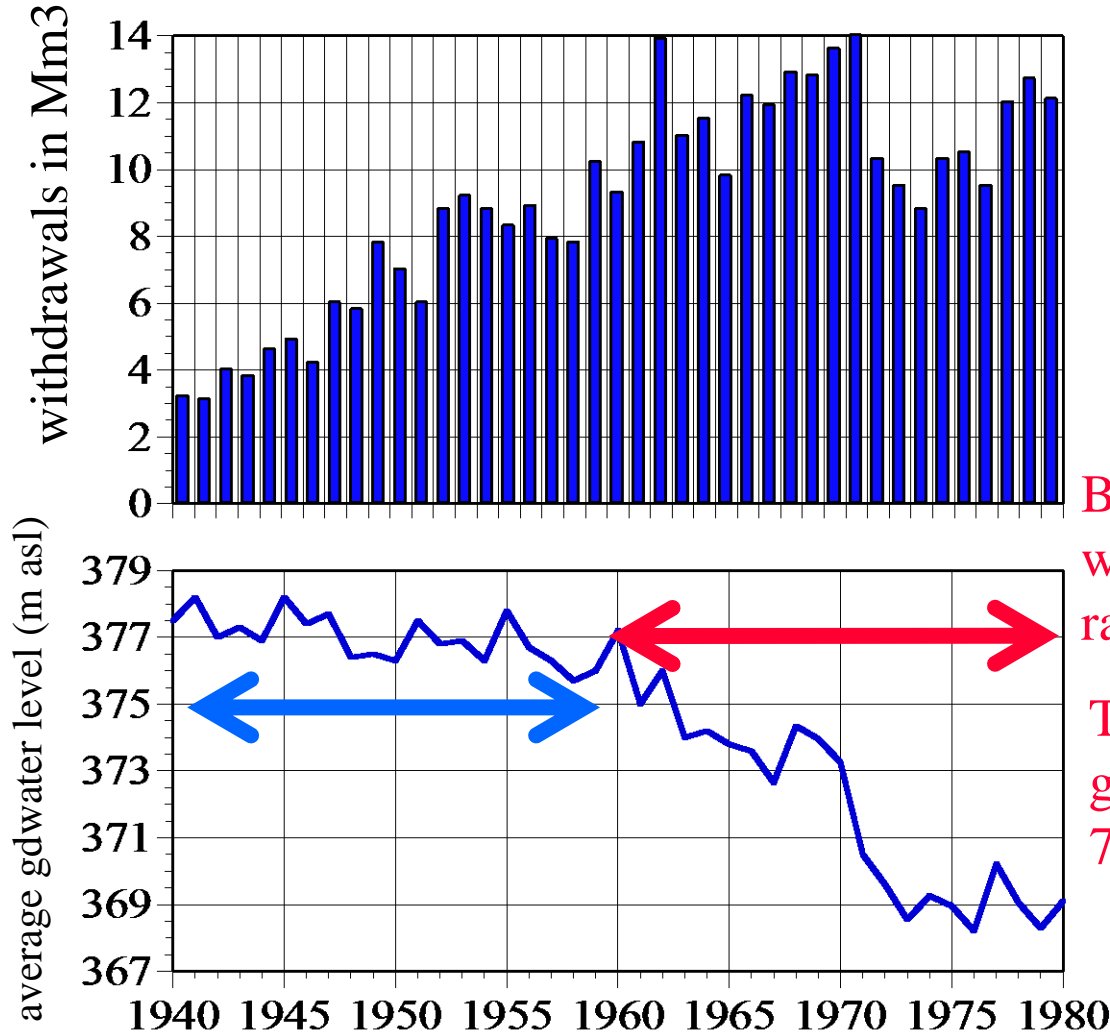


2 water pumping plants in the lake (distributing +/- 80% of the drinking water)

11 wells catching ground-water from main aquifers (distributing +/- 20% of the drinking water)



Historical background of the Genevese groundwater level before A.R.



Between 1940 and 1960 the groundwater level was slowly decreasing without serious effects

Between 1960 and 1980 the aquifer was overdrafted with withdrawal rates up to 14 Mm³/year.

This overpumping lowered the groundwater level by more than 7 m in 20 years

Solution ?

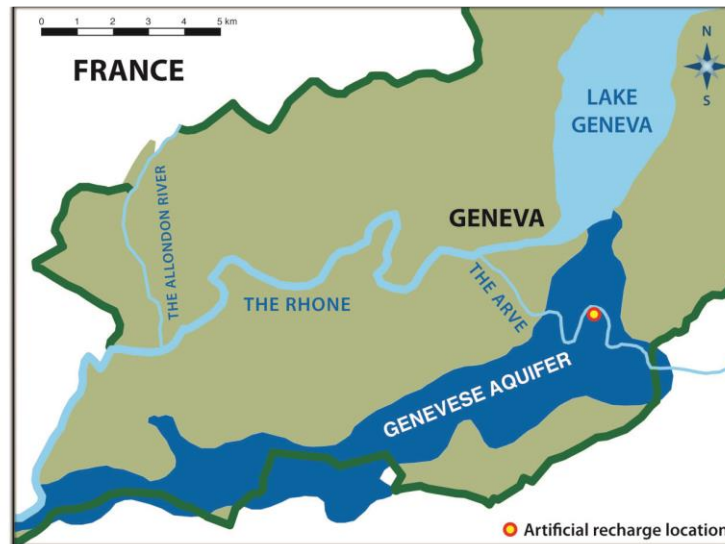
Artificial recharge of the aquifer to enhance the natural recharge of the groundwater

Natural recharge: by bank river recharge (during flood periods in Spring season)

Artificial recharge: by catching artificially water from the Arve river and infiltration in the groundwater



Genevese aquifer is used as a seasonal tank for the drinking water supply management





Geneva transboundary aquifer movie

N°abstract 1798



25-29th
September 2016
Montpellier, France
CORUM CONFERENCE CENTER

43rd
IAH
congress





Technical solution:

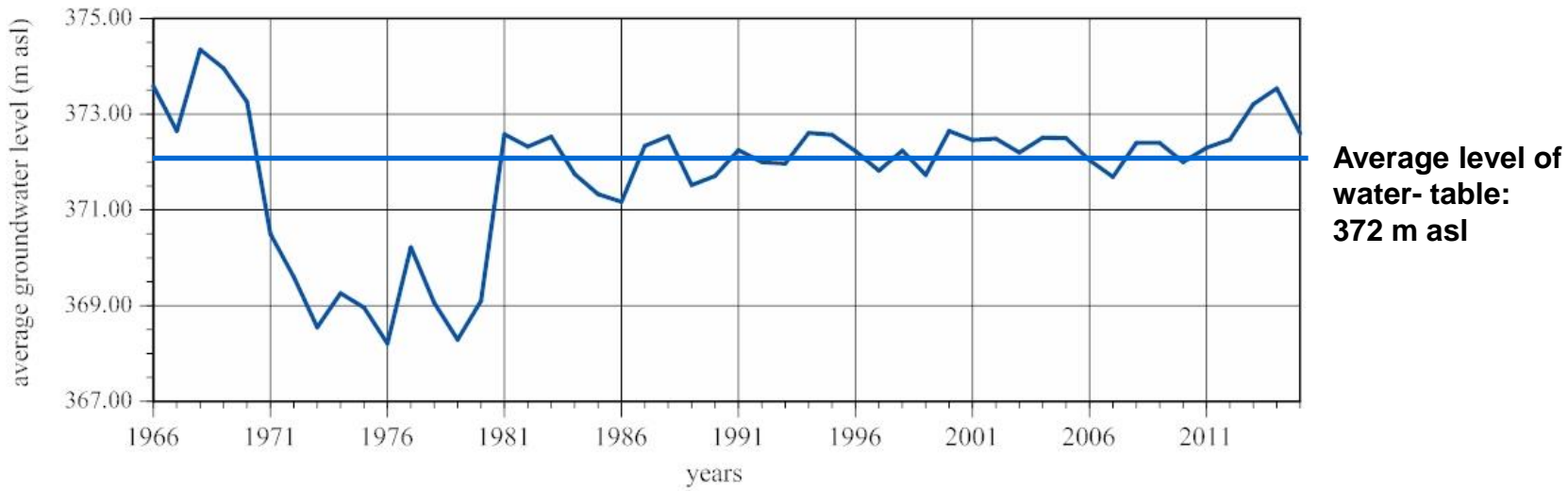
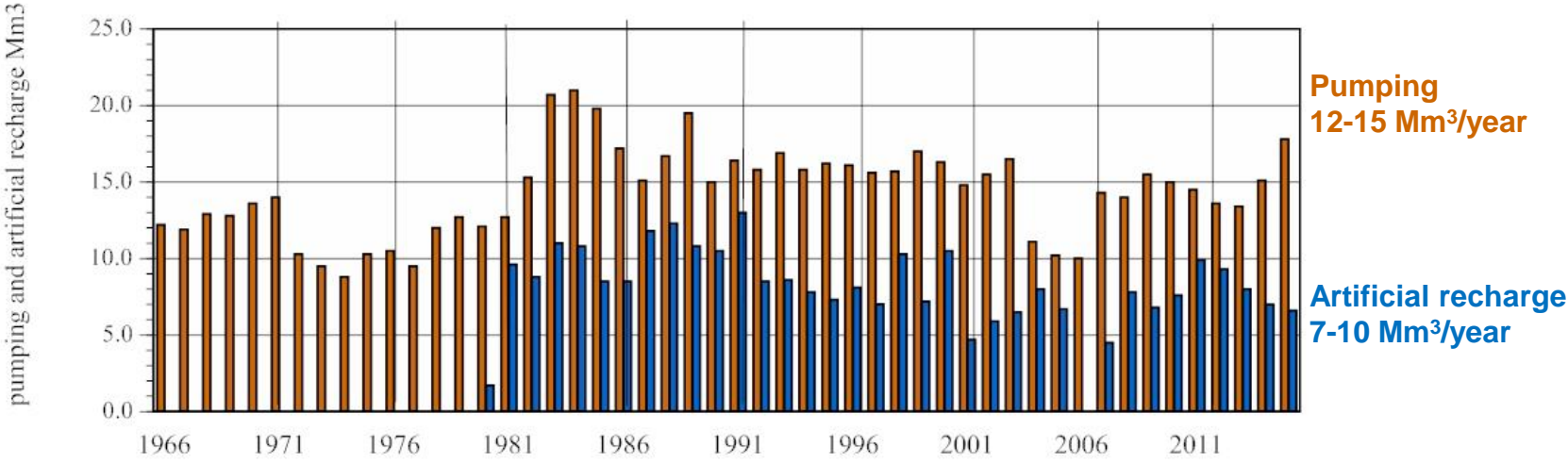
Implementation of an artificial recharge plant in the Genevese groundwater



Administrative and political solutions:

Several meetings and discussions (CH-F) in order to laying the bases of a Franco-Swiss agreement for the aquifer management

Impact of MAR after 35 years (1980-2015)



1978: Arrangement between the canton of Geneva & the prefecture of Haute-Savoie

- The need to establish a system for joint use of Genevese groundwater so as to protect that natural resource and preserve its water quality
- Follows a pragmatic approach based on a rational management of the common resource
- The Arrangement covers the following matters:
 - The Commission
 - The annual aquifer management programme
 - The groundwater recharge installation
 - Water rights
 - Water pricing
 - Miscellaneous provisions
- The arrangement entered into force on June 1978 and was agreed for 30 years

2007-2008: extension of the 1978 arrangement

- Franco-Swiss working group of the committee created in order to produce a basic document outlining the management of Genevese aquifer for the next 30 years, with legal support
- Technical specificities agreed on by the parties placed within a global context recognised at administrative and political levels
- Setting up the cross border legal bases for the new agreement

Agreement relating to the use, recharge and monitoring of Franco-Swiss Genevese aquifer signed on 18 December 2007 and entered into force on January 1, 2008 for 30 years

Key success factors

- The Arrangement ignores territorial sovereignty and territorial integrity concepts.
- To adopt a strategy for common use of the transboundary resource.
- To tackle a problem relating to international water resources at local level, rather than at the level of sovereign states (Canton of Geneva & Department of Haute-Savoie).
- The technical aspects (hydrogeological studies, management of pumping stations, local hydraulic assessments) well known and dealt with by local actors who would then relay the information to decision-makers at the local level.
- The Committee: as main stakeholder, being at the center of all discussions and meetings, this commission has been crucial to this success.

The Commission : advisory committee

- To oversee the management of the recharge of Genevese aquifer (dealing with problems relating to the use, maintenance and monitoring of the system)
- To assess the status of the resource in terms of pumping and A.R.
- Responsible for reviewing the annual artificial recharge programme and the budget prepared in line with the recharge programme, the operating costs and the results of water quality control tests
- Joint commission composed of representatives from State of Geneva and French communities and authorities and representative for water company
- Committee members can be accompanied by experts
- Meetings held once to twice a year, alternatively in France and in Switzerland

Positive impact of the agreement for the establishment of a water community

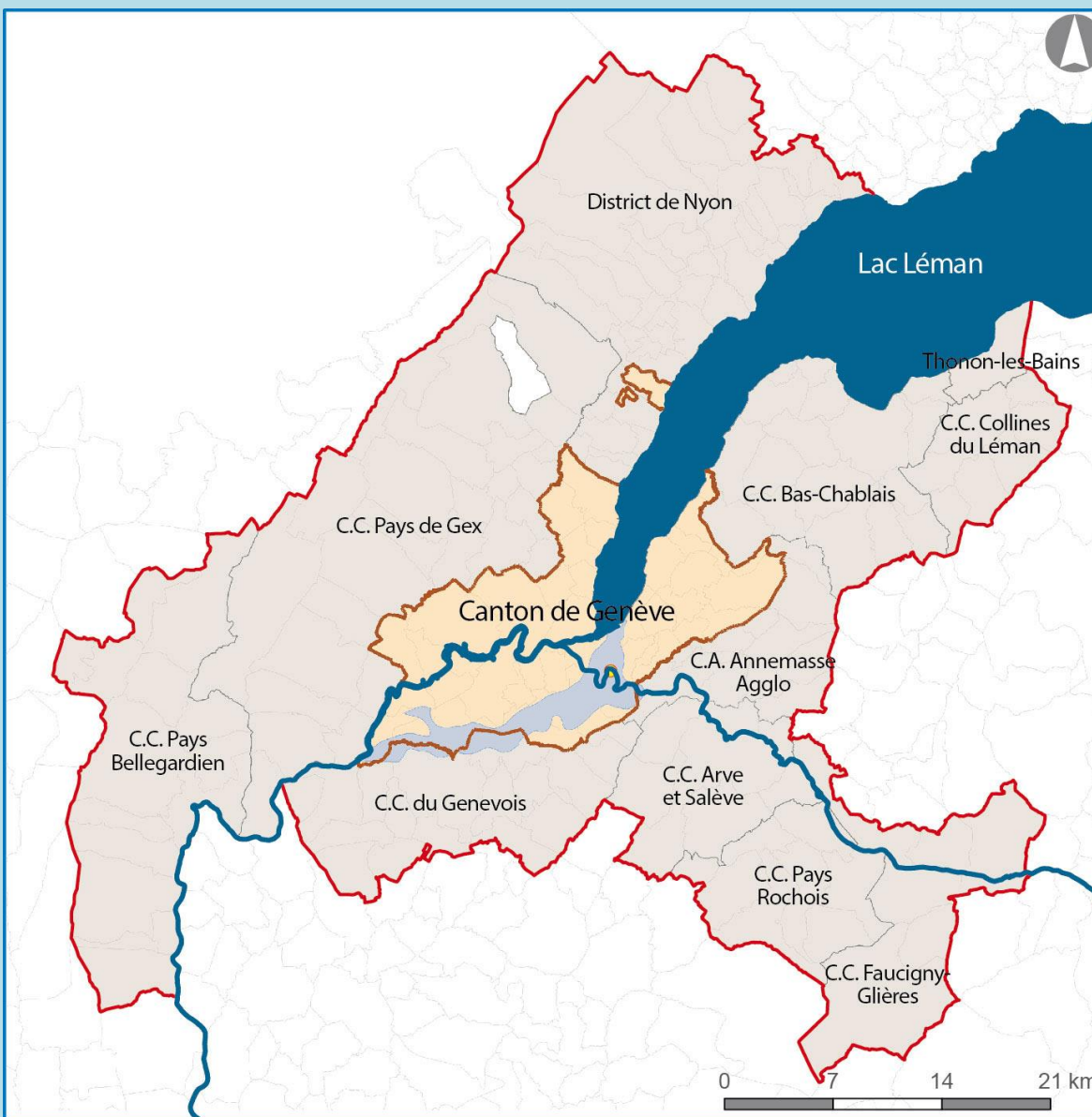
- Genevese transboundary aquifer management as a model for the establishment of a water community in the Geneva region
- Due to the radical change in demographics over the past seven years and the economic attractiveness of the Geneva region, there is an ever greater trend towards establishing a cross border approach => A committee on a "*transboundary water community*" was formed in 2007
- Its duties are based on a transboundary agreement protocol which calls upon signatories to work on various areas, as:
 - Sharing of the water resources and ensuring their sustainability;
 - The protection and replenishment of waterways by promoting environmental and organism diversity;
 - Water systems management;
 - Sanitation;
 - Crisis management (arising from accidents or climate change)

Greater Geneva Area

Transboundary Water community

An agreement protocol for cross border cooperation in water management was signed on December 3, 2012.

This Water Community is included in the Franco-Valdo-Genevese regional project which will seek to create a common strategic environmental vision across the territory and which will include patrimonial, social and economic aspects.



Working axes ("terms of reference") of the transboundary water community

1 - Soil sealing and management of rainwaters

Establish a system of cross-border governance of rainwaters allowing to define common objectives by watershed then to watch their implementation (specific cross-border draft agreement in rainwaters)

2 - Minimal space of watercourses (space of smooth running)

Determine and set up a minimal space on the totality of watercourses of the French Valdo Genevese region. Watch its consideration in the planning documents.

3 - Flood risks

Increase the level of protection of people and goods against floods by strengthening cross-border cooperation in matter of 1) forecast, 2) prevention action and 3) crisis management

4 - Micropollutants

Tend towards French-Swiss harmonization and progressive integration of micropolluting problem at the FVG region.

5 - Contracts of river

Maintain operational and cross-border dynamics for a well-balanced management of streams and aquatic environment.

Working axes ("terms of reference") of the transboundary water community (continuation)

6 – Water & Energy

Watch the conservation of water resources and aquatic environment in connection with energy transition objectives

7 – Water resources

Implement a global management of water resources

8 – Low-water flows

Determine and maintain a minimal low-water flow in watercourses

9 - Leisure activities

Accompany the development of water-related leisure activities with respect for natural balances.

10 - International solidarity

Promote actions of international solidarity for water and favour cross-border initiatives

Findings

- In more than 35 years of exploitation, the Artificial Recharge system of Geneva brought over 300 Mm³ of treated water into the "Genevese aquifer"
- The Geneva agreement is a rare example of a transboundary aquifer management agreement between a Swiss canton and European Union communities.
- This case study demonstrates the ability of the Committee to have a very efficient transboundary governance on the water management, which is based on the MAR experience established since more than 35 years.
- The technical and legal support from the Swiss Hydrogeological Society through its guidelines has been useful. The IAH (International Association of Hydrogeologists) is keen to assist the Commissions and the Member States in their water resources work. Its recharge commission is an excellent support for the recharge projects around the world.
- Concerning the transboundary issues, the UN ILC's Draft Articles provide a very good framework for inter country discussion about transboundary aquifers. This should be recommended to all people involved in such matters.

Thank you !!!



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