

Case Study on Irrigation Canals

Irrigation systems have been used as far as 5000 years ago by the human being mainly to increase the productivity of crops. In many places of the world rain water is not available at regular basis and irrigation is necessary in order to sustain the proper growth of the crops.

Additionally, irrigation is also used to protect plants against frost, suppress weed growth in grain fields, prevent soil consolidation, suppress of dust, dispose of sewage and mining.

Irrigation systems depend on the availability of stored water. In places with no sufficient supply, water has to be transported. Therefore, canals are constructed as the “highways” of the irrigation water.

In Brazil one of the biggest canals under construction is the Rio Sao Francisco Transposition Project in northeast Brazil. The project estimates the construction of more than 700 km of concrete canal through four northeast states. The objective is to transport water to the arid regions of northeast Brazil, where the intermittence of rain poses a challenge of water supply to the local population.

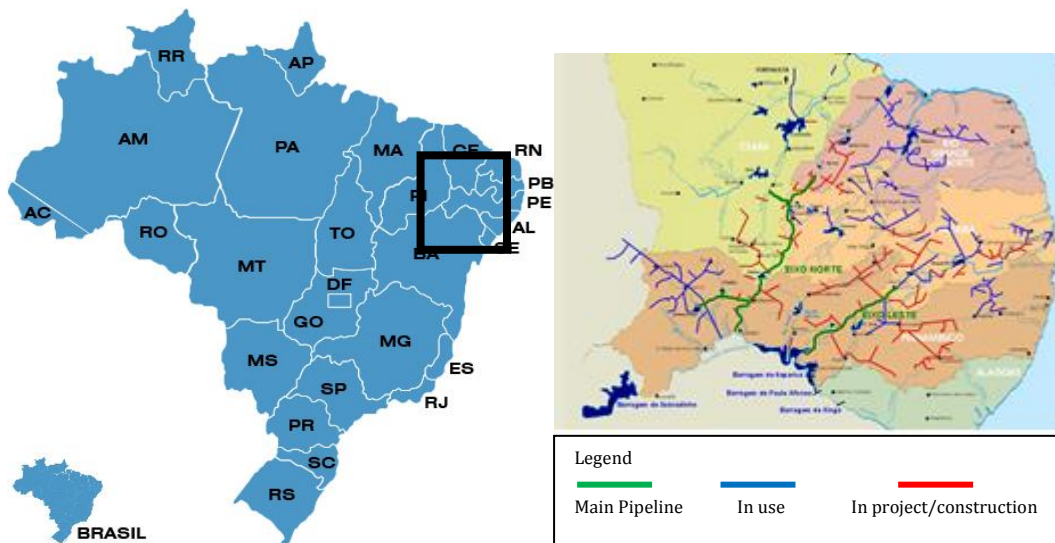


Figure 1: Location of the project



Figure 2: Picture from the construction site



Figure 2: Installation of Cipageo

Construction was kicked off in 2007 and is estimated to finish in 2016. Cipatex took part of this project. SA Paulista, one of the largest construction companies in Brazil, used 120.000 m² of our material Cipageo TEXTIL, which is a 1,0mm PVC film bonded with a Polyester Geotextile made by Duci, also a company member of the Cipatex Group.

Cipatex supplied the material in panels of 19,5m x 20,0m. On the lining SA Paulista applied a 5cm layer of concrete.

Why the use of PVC in this case?

1. PVC is a flexible material. Therefore the formation of waves was minimal. Wave is a parable and the 5cm of layer in from the up part of the wave. The material disposed underneath of the 5cm is waste. Saves were enormous considering the total size of the canal. In filed experience suggests up to 30% savings on the volume of concrete.
2. PVC is easier to handle. Productivity on installation is superior to that of polyolefin, saving manpower and therefore reducing total cost of the project.
3. PVC is a stable material and affects nothing on the cracking of the cured concrete.