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# CREATING THE WATER NETWORK GIS FOR THE CITY OF PHNOM PENH

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*With its 1,500,000 inhabitants, 1,800 km of water mains, 270,000 service connections and an annual water supply capacity of 145 million m³, Phnom Penh, the economic and political center of Cambodia, possesses an extremely efficient water supply system. Whilst the average non-revenue water level is more than 25% in France, for instance, it doesn't exceed 6% in Phnom Penh. The city has become a leading example in Asia in this respect.*
*Within the framework of the "Greater Phnom Penh Water Supply System project", which aims to structure water service within the metropolitan area, PPWSA acquired the service of G2C informatique (subsidiary of Altereo) to set up a GIS for the management and capitalization of the information relating to drinking water production and distribution infrastructures. This compact project commenced in May 2015 and lasted 5 months.*

## INNOVATIONS

▶ Altereo proposed its latest generation of GIS for this project. KIS Water is a 'full web' solution offering the whole feature panel traditionally proposed by desktop GIS software. KIS stands for Knowledge Information System.

▶ KIS Water provided the PPWSA managers and operators with:

- a complete 'water supply' toolbox, ranging from navigation and topology features (paths, valve closure simulation, catchment areas, etc.) to the management of workflows (complaints, interventions, bursts, etc.),
- furthermore, KIS Water is expected to be a turnkey solution delivered to PPWSA.

▶ In addition to this, KIS Admin is an additional module for customisation. GIS specialists and system administrators will have a simple and ergonomic tool to:

- model and integrate data,
- manage users and rights, and
- set up applications, forms and even workflows.

▶ It will allow PPWSA to directly manage the evolution of the system according to new requirements, including data exchange with third-party applications in different formats.

## STAKEHOLDERS

▶ **Phnom Penh Water Supply Authority (PPWSA)**
N°45, Street 106, Sangkat Srah Chork, Khan Daun Penh, Phnom Penh, Cambodia.

Municipal water authority - functioning under the supervision of the Ministry of Industry and committed to the sustainable development of its potable water supply services.

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## IMPLEMENTATION

▶ KIS Water is a 'full web' solution offering the whole feature panel traditionally proposed by desktop GIS software and stands for Knowledge Information System.

▶ There was no previous information on service connections and customer mapping. Altereo provided the aerial map and supervised the customer mapping process.

▶ One of the first challenges that awaited the team and PPWSA was the positioning of each of the 270,000 customers. This was necessary to be able to access the location of each and every customer within the system, and to consult the substantial billing database from the GIS interface.

▶ To achieve this, an experienced engineer with a double competency in both water networks and GIS/utility workflows was deployed to work full-time in Phnom Penh. The engineer was assisted by four PPWSA staff appointed on the very first day.

▶ 110 PPWSA agents were trained in groups of 10 so as to undertake this task during the following months. Customers were positioned with the help of GPS devices and maps during of the meter reading campaigns (held every two months) of the year 2015.

### KEY DATA

- Dates: May - October 2015
- Project Duration: 5 months
- Population: 1,500,000

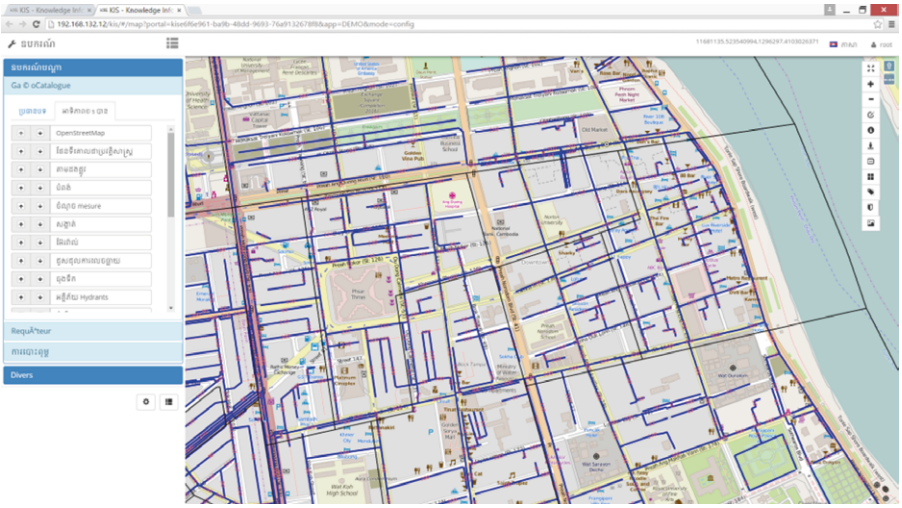
### FIGURES

- 2,450 km of drinking water supply network
- 285,000 connections
- 15,000 connections added each year
- 140 km additional networks/year

## RESULTS

/// The project merged the supply and installation of KIS Water for managing information on drinking water supply networks with:

- the definition of a GIS data model as well as the migration of descriptive data from existing networks,
- the reorganization/creation of the process by which different services within the enterprise can be conducted using GIS,
- the creation and supply of a mobile application, templates, GPS material and assistance towards the cartographic position of 285,000 clients and works within the network,
- the training of users, administrators and contributors.



## FINANCIAL DIMENSIONS OF THE PROJECT

- Total project budget: 442,000 €

/// The project was financed by PPWSA (Phnom Penh Water Supply Authority).

/// Altereo carried out its tasks within a highly efficient system already in place. In 2015, the annual revenue of PPWSA was 27.5 M€. The objectives of the project included continued capacity building within the Agency in order to better manage the challenges brought about by rapid urbanization through the positioning of each new customer.