Water treatment plant 'Mochita' Concepcion - Chile

RP: 36°50'47"S 73°3'11"W

Image: Quickbird MS/Pan sharpened
Date: 03/01/2008

1 Introduction

This briefing note covers the water treatment plant 'La Mochita' in Concepcion, Chile and provides image analysis of the facilities of the water treatment plant. The water treatment plant is very likely to be damaged due to the recent earthquake. The information is based on a Quickbird multispectral image, dated 03 January 2008 (before the earthquake), which has been combined with open source collateral information. No post-event imagery was available at the time of writing (03/03/2010). The information is based on news and information collected via open source information.

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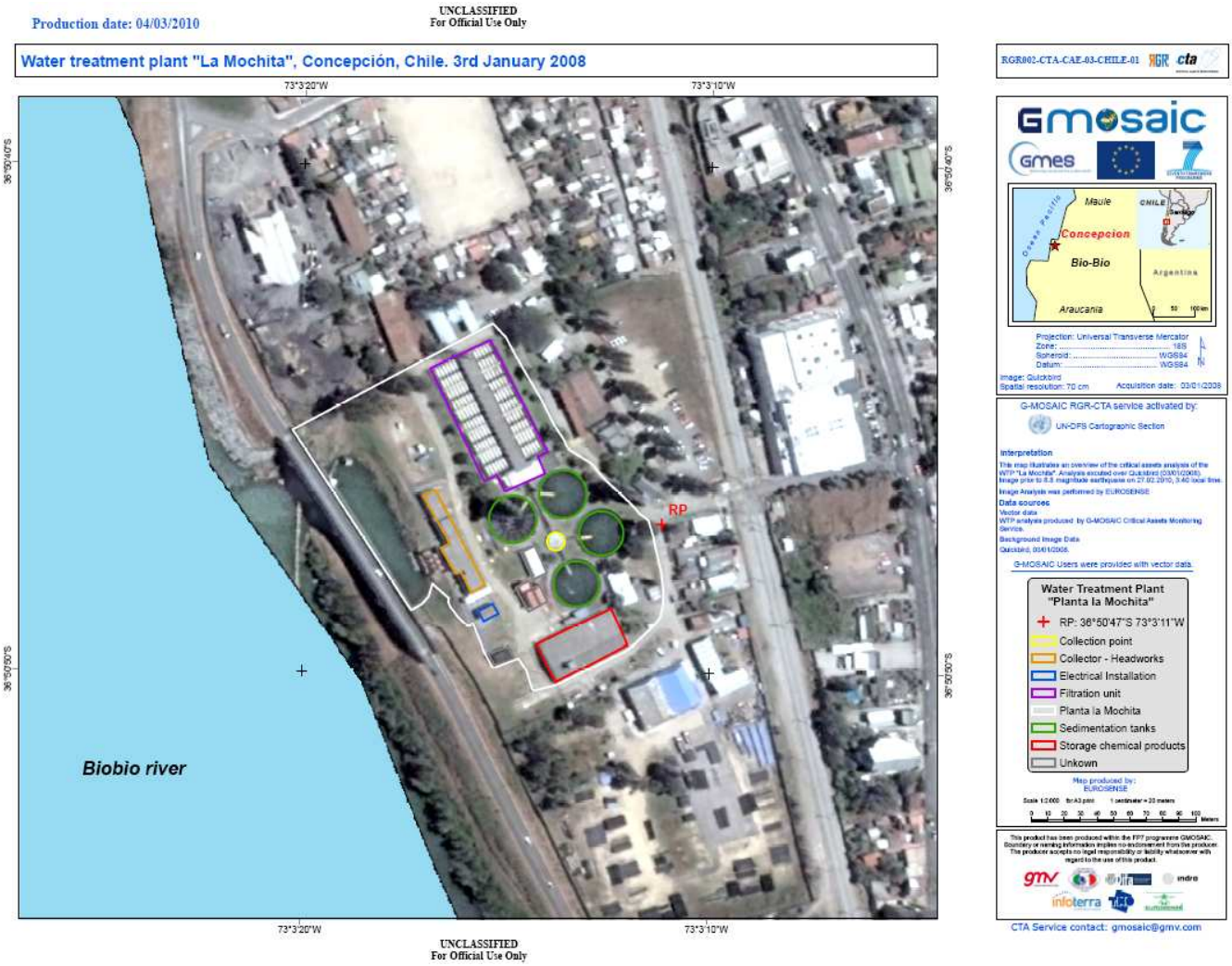
Important to notice is that all activities (mapping and reporting) are executed in the best possible way (in the timeframe and with the available data), but could not be verified. In this context the authors cannot be held responsible for any errors.

2 Background information

Water supply and sanitation in Chile is characterized by high levels of access and good service quality. Compared to most other countries, Chile's water and sanitation sector distinguishes itself by the fact that all urban water companies are privately owned or operated.

The water treatment plant is run by the Empresa de Servicios Sanitarios del Bio-Bío ESSBIO, controlled by the British firm Thames Water. The Mochita plant is servicing Concepcion and 50% of Talcahuano.

3 Description of facilities



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The plant is capturing water directly from the Biobío river. It enters the water treatment plant via the **Collector – Headworks** infrastructure, where a first filtration is done. The largest contaminants are removed here. After the first filtering, the water is pumped to the sedimentation tanks.
In the **sedimentation tanks**, the retention of suspended solids takes place. La Mochita has 4 sedimentation tanks, with a diameter of 30m each, a volume of 3350 m³ c/u and a maximum capacity of 750 l/s.
A 3rd filtering stage is done in the **filtration unit**. The retention of suspended solids is finalized here. The filtration unit has 9 operational units and 11 units that are out of service since 1998.
The filtered water is transported to water ponds located in 'Cherre Chepe' and 'Cerro Caracol'. Cerro Chepe is supplying Concepcion, Cerro Caracol is supplying part of Talcahuano. 4 groups of pomping units with a capacity of 285 l/s c/u are used to supply Cerro Chepe. 3 groups of pumping units with a capacity of 290 l/s c/u are used to supply Cerro Caracol.
The **chemical storage** unit allows the injection of chemical products to assist the retention of suspended solids. The products used are aluminum-sulfate, lime and chlorine.
An **electrical installation** is used to supply the Mochita plant with power. There are 4 transformers of 1600 KVA each on the site. (source: http://www.essbio.cl)

4 **Damage Assessment** (only based on available news items)

No post-event imagery was available at the time of writing (03/03/2010). The information on damage assessment is based on news and information collected via available news information:

The massive earthquake that hit Chile on Saturday has affected water supply from regions V-IX. In region V, four districts still have only partial water supply, while in the metropolitan region, 4500 have no access to water, according to local press.
Essbio announced that potable water plants are functioning at lower-than-normal capacity in region VIII. The utility recommended people to take water from tanks or water trucks. Inhabitants can also go directly to the firm's plants, where the utility is giving away water.
Potable water services are still highly disrupted between regions V and IX, which were hit hardest by the quake and ensuing tsunami. In regions VII and VIII, water utility Essbío reported extensive damage to networks. Concepción, the closest city to the earthquake's epicenter, had just 20% potable water coverage on Tuesday, paper El Mercurio reported.In Talca, 60% of residents have access to potable water, according to Essbio. (source: http://web1.bnamericas.com/content/water-supply-remains-affected-quake//02/03/2010).

After an earthquake, city water is vulnerable to contaminants through ruptured pipes and adulterated filtering systems. http://www.mygreathome.com/safety/earthquake_preparedness/water.htm

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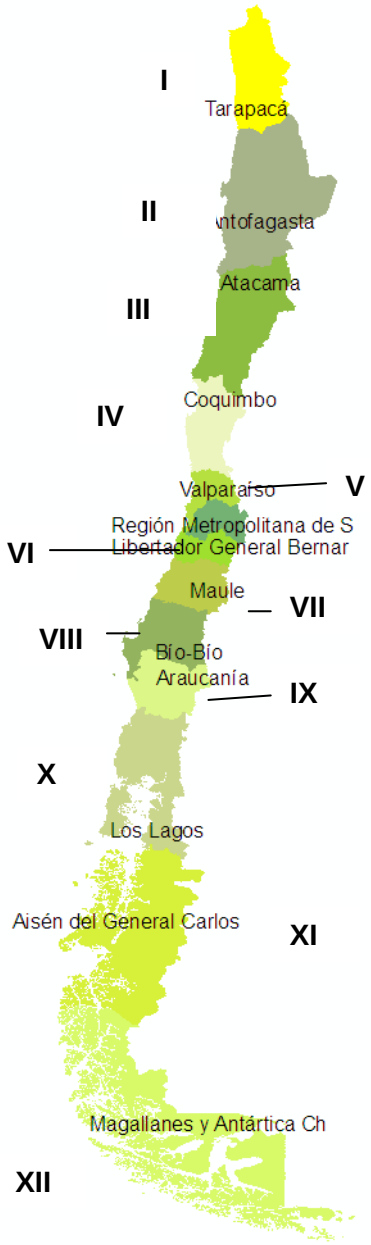

Overview of districts in Chile

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