



## Panama Canal expansion project – description third set of locks project

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### Summary

The construction of the third set of lock sets is part of the expansion program of the Panama Canal. Aim of the program is to allow longer and higher loaded vessels to transit the existing canal.

The main components of the expansion program are:

- Project of the third set of locks, the most important part of the program and topic of the present paper. Two lock complexes of three levels with water saving basins are built at each ocean side – one at Atlantic and the other one at Pacific side.
- Excavation of access canals
- Widening and deepening of access canals and elevation of Gatun Lake water level

**Keywords:** Expansion program, Panama Canal, GUPC, lock complexes, Gatun Lake, vessels

### 1. Introduction

The history of the Panama Canal goes back almost to the earliest explorers of America. The narrow land bridge between North and South America offered a unique opportunity to create a water passage between the Atlantic and Pacific Oceans. The earliest European colonists of Central America recognized this potential, and schemes for such a canal were floated several times in the subsequent years.

During the industrial revolution in the 19<sup>th</sup> century, the construction of a railway line between Panama City and new settlements at Colon was planned. Financed by the United States, construction was finished at the end of the century. During the same period, first drawings for a possible construction of a canal were elaborated. France, which had previously finished successfully the construction of the Suez Canal, created a society in order to construct a Panama Canal. This society and the later following construction was lead by Ferdinand Lesseps, but after more than 15 years of studies and construction, the French abandoned the project; during that period more than 20000 victims of Malaria and yellow fever were recorded.

In 1899 the authority on construction and exploitation was sold to the United States. At the beginning of the 20<sup>th</sup> century Panama achieved independency from Colombia and with the help of the United States and the improvement of the sanitary conditions, the construction of the Panama Canal continued in 1907 and was finally finished in 1914. In the meantime, and in order to connect the canal with three lock steps at its ends with each other, it was also necessary to create an artificial lake, the Lake Gatun. It was created blocking Chagres river which provided the required water volume for both lock complexes.

From the 1930s the government of the United States planned the possibility to expand the capacity of the canal with another set of parallel locks, given that it is limited by the size of the existing lock complexes (being the most important condition). Nevertheless, due to the Second World War, the works were abandoned. With the delivery of the canal of the North Americans to the state of