Mobile ports – an innovative solution for transporting grain

Summary

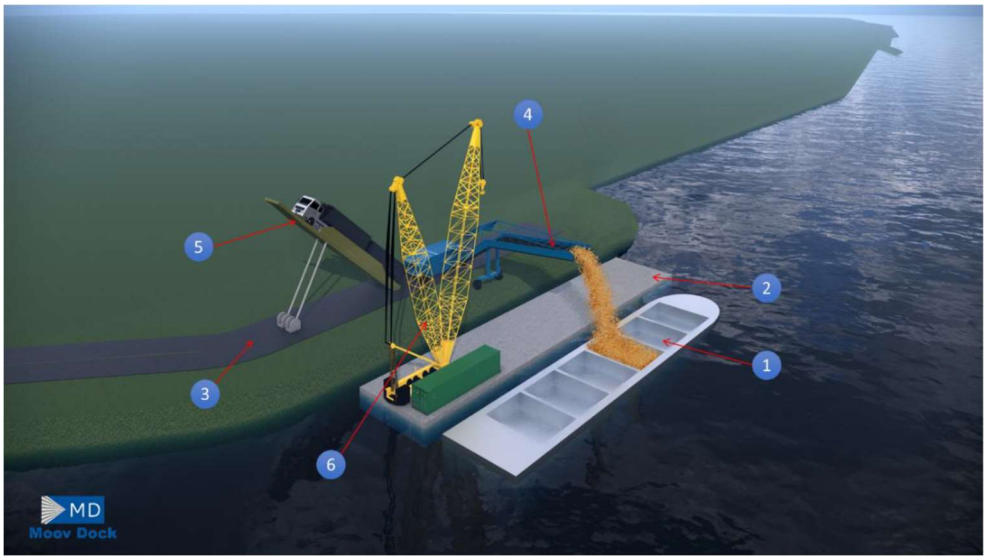
Brazil stands out as one of the world's largest exporters of agricultural products, such as sugar, coffee, soybean, cotton, sugar cane, etc. that are essential for the international market. Several investments and studies that aim to improve the internal processes of the plantation sites are continually implemented. Nowadays, Brazil is the country with the highest soybean productivity per hectare in the world. When compared to the United States, Brazil produces 11% more per hectare. However, despite all the technological advances achieved in the agricultural sector, Brazil is still unable to reach competitive final prices when compared to other producers. This is due to a strong deficiency in the inland distribution network. The high dependence of road transportantion within its logistical network is the main cause of this price difference, in addition to originating the highest pollution rate per ton transported. This creates a scenario where all investment in technology to increase productivity within the farms is lost in offsetting the costs associated with poor national infrastructure, due to the current poor conditions of Brazilian highways, and the little use of other ways of transport, such as waterways and railways. More than 50% of the Brazilian grain production occurs in the countryside. Despite having an excellent network of waterways, they are under used, as environmental restrictions and drought periods in the rivers generates great difficulties for implementing ports efficiently.

The aim of this thesis is to present a solution to increase the volume transported by river, through the creation of mobile ports that can be built without major environmental interventions and that can be used in various parts of the central region of the country, always seeking the better areas of navigability and with very low construction, operation and maintenance costs. Mobile ports allow for a significant reduction in road transportation, which is proven to be more expensive. Thus, the final cost of transportation will be reduced, making Brazilian agricultural production much more competitive in the international market.

Moreover, with the use of mobile ports, it will be possible to implement / consolidate new exportation routes through ocean ports located to the north of the Brazilian coast, which will allow the reduction of distances for shipments to countries in the northern hemisphere in general, both through the Atlantic Ocean and, as well, as an option to access the eastern markets via Panama Canal. At the conclusion of this thesis, the technical details of the proposed solution will be demonstrated, as well as the calculations of its economic benefit.

Keywords

Mobile port, waterway, agriculture, transportation.



MOOVDOCK in operating configuration (view from river to land).

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