



PIANC

The World Association for
Waterborne Transport Infrastructure

Recommendations for the design and operation of solid bulk floating marine or estuarine transshipment terminals

1- Historical background and context

Nowadays, people are more and more sensitive to the annoyance created by port operations towards their environment and this has yielded to a new interest for ore bulk floating transshipment terminals whether they are operated at sea or within estuaries.

The actual examples are relatively scarce, but some ship owners think now in terms of such solutions or press port authorities to develop them, which justifies that PIANC gets involved into such a topic and proposes from its experience or from its members experience a guide gathering recommendations in the field of design and operation of solid bulk terminals , possibly enriched through experience collected in the field of liquid bulk floating terminals when relevant.

2-Aim and expected product from the working group

The ship transshipment lightening is operated for many years at a modest scale for ore bulk freight but has remained a rather unused technique since now , even , if for liquid bulks, where the process of ship transshipment is easier to carry on ,it is therefore much more widely used.

For a solid bulk floating facility , it is operated while fastening the mother ship on a floating berth consisting of two buoys , while the ship is positioned facing the dominant wind and the lightening being undertaken through a crane placed upon a floating pontoon , so that the mother ship is placed along one face of the pontoon while the other is positioned at the opposite face, the other ship being charged through grabs operating from the floating crane.

The expected result from the WG will be a collection (sort of census) of all existing situations through the invoice of a questionnaire addressed through different paths, in order to examine if some or part of the liquid bulk floating transshipments practices can or cannot be applied to ore bulk floating facilities and derive from this knowledge a certain number of recommendations to be presented in a guide concerning the design and operation of such a floating facility , taking especially into account the physical conditions of the facility , the impact of operations on environment , the choice of the right pontoon and the right crane operating under security conditions and formulating recommendations to lighten ore bulk ships .

To give more accuracy to the expected results of the WG , one should expect to treat all the following topics , bearing in mind that considerations should not only be technical ones , but should stress operational measures as well as environmental considerations :

- risk analysis about the different kinds of solid bulk freight to be operated , the type of ship, the design and the operation of the facility
- the hydro-meteorological conditions for the three floating structures (mother ship, daughter ship and pontoon), more or less coupled in their moves
- operation monitoring and security , especially by measuring the transshipped quantities and controlling the quality of the commodities both at the same time
- environment applicable rules and consecutive operation measures

The WG should also gather an overall state of the art of lacking knowledge in order to propose further research steps on this topic.

3- PIANC previous experience

PIANC experience in this topic doesn't seem to be very large , but exchanges with ICHCA on the topic could improve the preliminary bibliographic work.

4 Proposed method

The right method could consist in listing all known cases from the experience of the WG members , to establish a typology of the different solid bulks to be operated this way (from their technical feasibility) , about the economies of such a process (scale effects , hub or door to door delivery, etc..) , by preparing a questionnaire including needed data to be circulated through the following paths : through national sections, through representative associations or ship owners, pilots or terminal operators.

A specific work should be undertaken about a comparison of environmental aspects(EIA).

After this data analysis , the group should be able to describe the most interesting experiences as case studies sheet facts and try to produce recommendations applicable to concerned ports .

5 Working group required experience or knowledge

The required experience or knowledge required from the WG members concerns port authorities, ship owners, pilots , ship captains, freight solid bulk operators, consultancy agencies, logistics of freight fore-warders operating within the bulk freight business or authorities in charge of environmental questions. ICHCA should naturally propose a representative. A knowledge concerning offshore petroleum techniques would be mostly appreciated.

6 Relevance for countries in transition

Even if environmental rules or regulations aren't the same in all countries, the different cases can stem either from developed countries or from countries in transition. It is therefore very useful to gather both experiences and to send them within countries in transition, which will be able to consider those techniques from now on as feasible as well.