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**Plan and Implementation Support for  
Commercialization of NW-1**

**Summary of 6th Pilot Movement  
Diamond Harbour to Kolkata  
Sohom Shipping Pvt. Ltd.**



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## ***Table of Contents***

<i>List of Figures</i> .....	4
<i>List of Tables</i> .....	4
<b>1 Introduction</b> .....	5
<b>2 Preparation of Pilot Movement</b> .....	6
<b>3 Financial Aspects</b> .....	7
<b>4 Operational Aspects</b> .....	8
4.1 Loading Procedure .....	8
4.2 In-transit Procedure.....	10
4.3 Unloading Procedure .....	11
<b>5 Experiences and Findings</b> .....	13
<b>6 Recommendations</b> .....	14
<b>7 Conclusion</b> .....	15

## List of Figures

	<i>Page</i>
Figure 1: Loading Location .....	9
Figure 2: Movement Plan .....	10
Figure 3: Unloading Location .....	11
Figure 4: Unloading Operations .....	12

## List of Tables

	<i>Page</i>
Table 1: Freight and Transport Charges .....	7
Table 2: Pilot Movement at a Glance .....	8

## 1 Introduction

In India, the National Government intends to increase the use of IWT and to exploit the potential benefits that this mode of transport offers for the country's growing economy. During recent years, the National Government and the Inland Waterways Authority of India (IWAI) as the statutory authority in charge of the inland waterways have therefore undertaken major efforts to enhance the navigability and boost freight movements on India's national inland waterways.

Given the country's recent economic growth, India's road and rail networks are overloaded in many places and transportation of cargo and passengers suffers from heavy congestion as well as the presence of physical bottlenecks. Moreover, increasing pollution and fundamental environmental goals require a comprehensive and coordinated approach to an integrated national transportation policy. Recognizing its mode specific advantages and given the country's large network of rivers, canals and backwaters, the Indian Government therefore intends to make IWT an integral part of the country's future transport system.

In order to foster a sustainable and commercially viable future development of the IWT sector, the competent authorities have invited external expertise for a project on Plan and Implementation Support for the Commercialization of National Waterway-1 (NW-1). The project thereby aims to facilitate actual business development and to stimulate the further development of freight movements on India's longest National Waterway from Allahabad to Sagar Island.

Having been awarded the contract to conduct the assignment, a Joint Venture of HPC Hamburg Port Consulting GmbH, UNICONSULT Universal Transport Consulting GmbH and its local Partner La Mer Maritime Ltd. have put together a team of experts with comprehensive and long-standing knowledge of both, international IWT markets in general and the Indian inland waterway shipping sector in particular. In the course of the ongoing project work, the Consultants' experts engage into one to one interaction with various relevant market stakeholders as well as the competent public authorities, aiming at the conduct of Pilot Movements and the closing of actual working contracts.

Considering the practical experiences and also building upon the interim findings of the current project's ongoing field work as well as the Consultant's profound knowledge of the Indian IWT market, this summary of the sixth Pilot Movement provides implementation-oriented recommendations for creating the necessary conditions for a sustainable development of IWT transports on NW-1.

In the following, Chapter 2 gives an overview of the general background of this specific Pilot Movement of timber logs from Diamond Harbour, West Bengal to Kolkata, West Bengal and the efforts undertaken to initiate it. Chapter 3 presents the financial issues while Chapter 4 provides details on the operational aspects. Based on the findings, crucial success factors and relevant requirements for commercially viable transports and their technical feasibility are discussed in Chapter 5. Chapter 6 gives recommendations on needs for action.

## 2 Preparation of Pilot Movement

Within the course of the current project on Commercialization of NW-1 and as part of the ongoing market research, the Consultants' local team of experts has repeatedly talked with Sohom Shipping Pvt. Ltd. Based in Kolkata, West Bengal and founded in 1995, Sohom Shipping Pvt. Ltd. is a major company in maritime shipping to and from India, inter alia engaged in container line agencies, logistics, barge operations and freight forwarding as well as warehouse and supply chain management.

Following several discussions on possible options for the use of IWT on various O-D pairs within Sohom Shipping Pvt. Ltd.'s shipping operations the company expressed its interest in the conduct of trial transports of timber logs. Following a prompt requirement for the lighterage of a sea vessel, a short-term implementable transport case involving direct discharging of timber logs from a mother vessel at Diamond Harbour, West Bengal for onward transport by IWT barge to Kolkata Port Trust Kidderpore, West Bengal has been developed by the Consultants.

Based on the commodity and transport case specific requirements, the Consultants' team of experts managed to identify an appropriate vessel available at short-notice. Following further discussions, Sohom Shipping Pvt. Ltd. agreed to the IWT trial case provided the transport will be supported by IWAI, respectively by the Consultants team of experts. Based on internal consultations with the company's logistics costs unit, Sohom Shipping Pvt. Ltd. accepted to pay a freight rate of INR 230.00 per metric ton for the barge transport, excluding costs for loading and unloading.

### 3 Financial Aspects

After the clarification of all operational details and following a series of bilateral and internal negotiations under the lead of the Consultants' local team of experts, Sohom Shipping Pvt. Ltd. as the cargo owner and V2 Shipping as the IWT barge operator agreed upon the short-term realization of a trial IWT shipment of 2,000 metric tons of import timber logs from Diamond Harbour, West Bengal to Kolkata Port Trust Kidderpore, West Bengal.

As to the financial aspects of the Pilot Movement, both parties agreed upon a freight rate of INR 230.00 for barge transport on the approximately 35 kilometers long southern stretch of the Hooghly River, excluding costs for loading and unloading. Given the transport volume of 2,000 tons of timber logs, total IWT related transport costs for the shipment thus amounted to INR 460,000.00 and were paid directly by Sohom Shipping Pvt. Ltd. to V2 Shipping as the barge operating company.

As loading operations at Diamond Harbour, West Bengal involved direct lighterage from the mother vessel MV Taokas Wisdom onto the IWT barge, no first mile cost occurred. Costs for onward transport from Kolkata Port Trust Kidderpore, West Bengal to the shipments final destinations were borne by the cargo owner and were thus not part of the Pilot Movement arrangement. As to the arrangement, Sohom Shipping Pvt. Ltd. also agreed to incur for costs for loading, unloading, stevedoring, and storage.

As to land based transport alternatives, costs for unloading of the mother vessel and for in-port handling at Diamond Harbour, West Bengal would have occurred in addition to road transport charges. Thus, it can be assumed that an operationally reliable IWT option at current rates offers Sohom Shipping Pvt. Ltd. an economically efficient and financially attractive alternative to land based transport modes. The following table shows the major cost items investigated during preparation of this Pilot Movement.

*Table 1: Freight and Transport Charges*

Position (Cost Item)	Charges (excl. Service Tax)
First mile transport to Diamond Harbour, West Bengal	Not applicable
Loading at Diamond Harbour, West Bengal	NA
Vessel transport freight charges	INR 230 per ton
Discharging at Kolkata Port Trust Kidderpore, West Bengal	NA
Last mile transport from Kolkata Port Trust Kidderpore, West Bengal	NA

*Source: The Consultants 2017*

## 4 Operational Aspects

The sixth Pilot Movement covered the transport of 2,000 metric tons of timber logs from Diamond Harbour, West Bengal to Kolkata Port Trust Kidderpore, West Bengal. It differs from the five previous trial movements in several regards: for one, it is the first transport of timber logs conducted within the scope of the current project. Moreover, it is the first movement that involves a direct lighterage operation from a mother vessel.

In order to safeguard a smooth and efficient operation as well as to mitigate delays, the execution of the movement was closely monitored by the Consultants' team of experts throughout the course of the transport. With a total duration of approximately six days including time for loading and unloading of cargo and a straightforward transport time of merely five to six hours the overall transport duration was within the range of what was anticipated in advance. However, some notable delays occurred during discharging at Kolkata Port Trust Kidderpore. Table 2 below presents a summary of information on the movement.

*Table 2: Pilot Movement at a Glance*

Route	Diamond Harbour – Kolkata
Shipper	V2 Shipping
Vessel Operator	Sohom Shipping Pvt. Ltd.
Vessel Name	MV Aarti
Commodity	Timber logs
Cargo quantity	2,000 metric tonnes
Distance on NW-1	35 km
Loading at Diamond Harbour, West Bengal	11 10 2017 – 12 10 2017
Date of Departure at Diamond Harbour, West Bengal	13 10 2017
Date of Arrival at Kolkata, West Bengal	13 10 2017
Unloading at Kolkata, West Bengal	14 10 2017 – 16 10 2017

*Source: The Consultants 2017*

As loading took place in the form of a direct lighterage operation from a mother vessel onto the IWT barge MV Aarti, no first mile transport was needed. Throughout the transport MV Aarti was staffed with a total crew of nine. Additional manpower (inter alia 10-15 staff members from the mother vessel) was engaged during lighterage, loading and unloading. Last mile distribution by truck from Kolkata Port Trust Kidderpore to the transport's final destinations was arranged by and conducted at the cost of Sohom Shipping Pvt. Ltd.

### 4.1 Loading Procedure

As described before, loading operations at Diamond Harbour, West Bengal involved the direct lighterage of timber logs off the mother vessel MV Taokas Wisdom and onto the inland barge MV Aarti while both vessels anchored in the Hooghly river estuary. Lighterage thereby started on 11<sup>th</sup> October 2017 and was finished by the following day without encountering severe problems. Throughout the lighterage operations the mother vessel's on-board mounted cranes were used. Figure 1 below shows the location of the loading site at Diamond Harbour, West Bengal.

Figure 1: Loading Location



Source: The Consultants 2017, based on Google Earth

As the cargo was loaded directly off the mother vessel and onto the inland waterway barge using on-board mounted cranes, no operational restrictions due to tide-dependent variations of the water level on the Hooghly River were encountered. Moreover, lighterage operations could be performed independent of fixed local port infrastructure equipment. Figure 2 below provides some illustrations of the lighterage operations at Diamond Harbour, West Bengal.

Figure 2: Loading operations

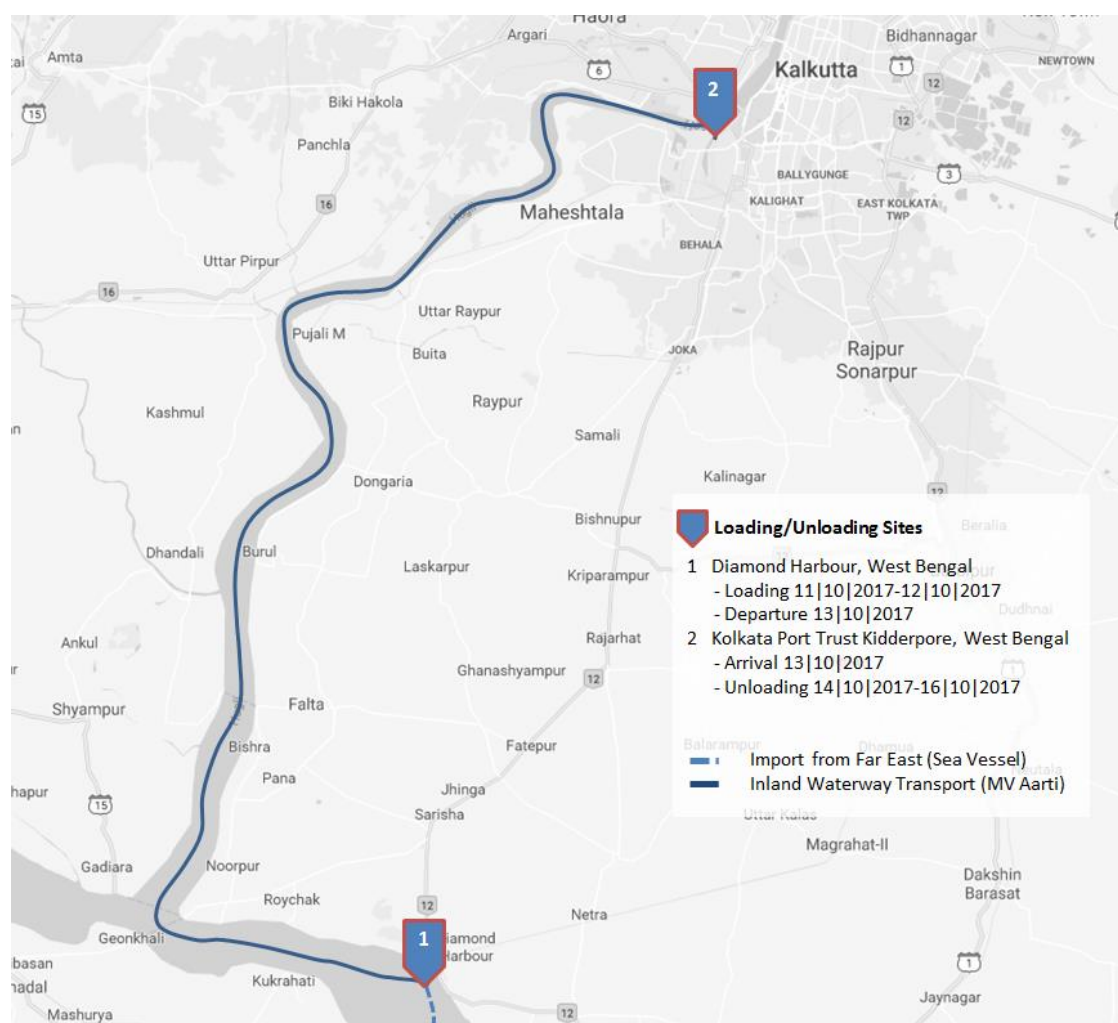


Source: The Consultant 2017

## 4.2 In-transit Procedure

After having been loaded with 2,000 metric tons of import timber logs originating from Vietnam, inland waterway barge MV Aarti departed Diamond Harbour, West Bengal on 13<sup>th</sup> October 2017. Due to the fairly short overall transport distance as well as the relatively good navigational conditions on the southern section of the NW-1, the Pilot Movement reached its destination at Kolkata Port Trust Kidderpore, West Bengal within the same day. The overall sheer duration of barge movement on the approximately 35 kilometers long stretch of the Hooghly River thereby amounted to approximately five to six hours. Figure 3 below provides a map of the IWT movement plan covered by this Pilot Movement.

Figure 3: Movement Plan



Source: The Consultant 2017, based on Google Maps

Throughout the vessel's journey on NW-1 no severe disturbances were encountered. Adequate river draft of more than 3.0 meters throughout the voyage prevented en-route groundings and allowed for the successful transport of a total volume of approximately 2,000 metric tons of timber logs within the course of a single movement at an average sailing speed of seven knots. As to the few complications encountered en-route, the lack of navigational aid lights made it necessary to confine vessel movement to daytime operation.

### 4.3 Unloading Procedure

Unloading of the timber logs took place at Kolkata Port Trust Kidderpore, West Bengal. Following MV Aarti's arrival on the previous day, discharging of the timber logs started on 14<sup>th</sup> October 2017 and was finished by 16<sup>th</sup> October 2017. Being located in a port basin that is separated from the Hooghly River by a lock, unloading operations at Kolkata Port Trust Kidderpore could thereby generally be performed independent of tide implications and corresponding variations in water levels.

Yet, and despite these generally favourable infrastructural conditions on the waterside, discharging operations at Kolkata Port Trust Kidderpore were notably delayed due to non-functional landside superstructure and equipment. In particular two out of four cranes were not operational at the time of the Pilot Movement, thus causing significant operational problems and delays during the discharging of the timber logs. Figure 4 below shows the unloading location at Kolkata Port Trust Kidderpore, West Bengal.

Figure 4: Unloading Location



Source: The Consultants 2017, based on Google Earth

Given the otherwise unproblematic and fairly smooth operations throughout the course of this sixth Pilot Movement, the above-mentioned delay must be critically mentioned and shows further need for improvement not only with regard to the en-route navigational conditions on NW-1, but also with regard to the general infrastructural conditions and the provision of adequate equipment and superstructures at the Waterway's main port locations.

In the given case, the delay encountered during unloading of the cargo at Kolkata Port Trust Kidderpore may thereby be described as particularly noteworthy when put in relation to the otherwise fairly short sheer overall transport duration of merely five to six hours. Figure 5 below provides some photographic illustrations of the unloading site and the discharging operations at Kolkata Port Trust Kidderpore, West Bengal.

*Figure 5: Unloading Operations*



*Source: The Consultants 2017*

## 5 Experiences and Findings

During conduct of sixth Pilot Movement several issues have been documented by the Consultants' team of experts. These include:

- First Pilot Movements involving the transport of timber logs.
- Very short time needed for planning and implementation of the transport case.
- Direct payment of vessel operator (V2 Shipping) by cargo owner (Sohom Shipping Pvt. Ltd.); general overall economic viability for both parties result in no requirement for public gap funding.
- Successful and fast direct offshore lighterage of cargo off mother vessel MV Taokas Wisdom and onto IWT barge MV Aarti using the mother vessel's on-board mounted cranes.
- No en-route grounding experienced on the Hooghly River section of NW-1 in between Diamond Harbour, West Bengal and Kolkata, West Bengal.
- Generally good navigational conditions on the southern section of NW-1 and appropriate river draft of more than 3.0 meters allowing for the transport of approximately 2,000 metric tons in the course of a single shipment.
- Fast upstream IWT transport only taking approximately five to six hours from Diamond Harbour, West Bengal to Kolkata Port Trust Kidderpore, West Bengal at an average barge speed of seven knots.
- Lack of navigational aid lights limiting barge operations to day time only were among the few en-route restrictions encountered during the Pilot Movement.
- Lack of unloading equipment and partly non-functional cranes at Kolkata Port Trust Kidderpore, West Bengal caused a notable delay in discharging operations.

## 6 Recommendations

In order to mitigate the negative impacts of the specifically mentioned obstacles, circumstances and conditions, the following measures are recommended:

- Enable continuous operation of barges at all day and night times along all sections of NW-1.
  - Suggestion: Provide sufficient and suitable navigation aid facilities and navigational aid lights.
- Improve infrastructure, equipment, and superstructure facilities at the main port locations along NW-1.
  - Suggestion: Ensure existing port equipment (e.g. cranes) are fully functional and adequate backup concepts / equipment is available.

## 7 Conclusion

As described above, the sixth Pilot Movement conducted within the scope of the current project on Commercialization of NW-1 provides some new and generally encouraging insight in the potential operational benefits and commercial viability of IWT transports on NW-1. In this regard, the preparation of the movement proved that under certain circumstances (particularly depending upon availability of vessel) IWT solutions can already be effectively implemented at short notice.

As to the operational lessons learned, the movement of 2,000 tons of timber logs from Diamond Harbour, West Bengal to Kolkata, West Bengal demonstrated that navigational conditions on the most southern stretch of NW-1 already allow for the safe and fairly unhindered transport of large transport lots during single barge movements. This helps to ensure commercial viability of the transport for both, the commissioning shipper and the commissioned barge operator.

Moreover, loading at Diamond Harbour, West Bengal involved a direct lighterage operation of cargo from a mother vessel onto the inland vessel MV Aarti using the mother vessel's on-board mounted cranes. This operation proved to be both operational viable and economically efficient and may thus possibly be a practically feasible option also for further transports involving the transshipment of cargo from a sea vessel onto an inland barge or vice versa.

As to the shortfalls revealed during this sixth Pilot Movement conducted within the scope of the ongoing project it must be noted that the level of equipment provision at the Waterway's main transshipment terminals needs urgent improvement. In this regard, at the time of the Pilot Movement, only two out of four cranes at Kolkata Port Trust Kidderpore, West Bengal were operational and could thus be used for discharging of the cargo, thereby causing a notable delay to unloading operations.

As stated above, overall navigational conditions on NW-1's most southern section used during this Pilot Movement of timber logs from Diamond Harbour, West Bengal to Kolkata, West Bengal were generally good, thus allowing for a safe and operationally smooth IWT operation. However due to the lack of navigational aid lights transport hours were largely limited to day time. In order to further accelerate the movement of freight on NW-1 it thus appears highly recommendable to improve corresponding navigational aid infrastructures in order to allow for day and night time operations.