Plan and Implementation Support for Commercialization of NW-1

Summary of 2nd Pilot Movement

Patna to Bhagalpur / ULTRATECH

HPC

Uniconsult
Universal Transport Consulting GmbH

23rd May 2017

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1 Introduction

In India with its large network of rivers, canals and backwaters, the National Government intends to increase the use of IWT and to exploit the potential that this mode of transport offers for the country's growing economy. During recent years, the Indian Government and the Inland Waterways Authority of India (IWAI) as the statutory authority in charge of inland waterways have therefore undertaken major efforts to enhance the navigability and boost freight movements on India's 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 and the presence of physical bottlenecks. Moreover increasing pollution and environmental goals require a comprehensive and coordinated approach to a national transportation policy. Recognizing its mode specific advantages, the Indian Government 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 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).

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 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 and efforts done to initiate it. Chapter 3 presents the financial issues and chapter 4 the operational aspects. Based on the findings, crucial success factors and relevant requirements for commercially viable transport flows and their technical feasibility are discussed and recommendations on urgent need for action are derived.

The current project on Plan and Implementation Support for Commercialization of NW-1 aims to stimulate the further development of freight movements on India's longest National Waterway from Allahabad to Sagar Island. In order to improve utilization of the waterway infrastructure, facilitate actual business development and to ensure the future development of IWT in North Eastern India, the project fosters one to one interaction with relevant stakeholders, aiming at the closing of actual working contracts.

Having been awarded the contract to conduct the assignment, a Joint Venture of HPC Hamburg Port Consulting GmbH and 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. The group of international consultants is thereby supported by local experts under the roof of La Mer Maritime Limited with headquarters in Gurgaon/Haryana.

2 Preparation of Pilot Movement

During the coordination and implementation of the first pilot movement (by Dalmia Cement from Haldia via Bhagalpur to Patna) the JV team started to conduct a focused approaching initiative on cement shippers. The first findings and experiences as well as pictures of the first Pilot Movement – started on 31st January and completed on 2nd February 2017 – helped a lot to get a quite good and fast access for a first contact to the logistics directors of the relevant cement shippers. Beside other companies also UltraTech Cement Limited has been contacted by the JV team.

UltraTech Cement Ltd. is India's biggest cement company and India's largest exporter of cement clinker with its headquarters based in Mumbai. The company is part of the Aditya Birla Group and division of Grasim Industries.

Although the first contact was very much supported by the existence of the first Pilot Movement the discussions with the shippers – when it all comes down to prices/cost, service quality, speed and reliability – requested many meetings and conversations.

Initial business contact with UltraTech has already happened on 06th February 2017 by telephone. The JV team explained the major aims and issues of the project and tried to find out if a basic interest at company's logistics department exists. The approach of UltraTech by the JV team has been mentioned already in the very first Weekly Status Report (covering activities in calendar week no 6).

Figure 1: First Weekly Status Report

Status Report - Commercialization of NW-1 *

Report No. 1 **Week:** 06.02. - 10.02.2017 (calender week 6) **Submission Date:** 13th February 2017

1. Pilot Movement in progress **Total Accomplished:** 0

S.NO	Shipper	Barge operators	Vessel Name	Loading		Unloading		Remarks
1.1	Dalmia cement	IWAI	MV Zakir Hussain	Haldia	30.01.-02.02.17	Patna		350 MT cement / vessel currently at Shahibganj Terminal
1.2	IFFCO	IWAI		Paradeep	06.03.2017	Patna / Behrampur		Planning to move with 350MT from Paradeep
1.3	Ultratech	IWAI						Under Discussion
1.4	...							

2. Contacted Shippers **Total Signed LoI:** 1

S.NO	Shipper's name	Discussion / Meeting	Letter of Intent / B2B Meeting / Contract	Remarks
2.1	Dalmia Cement	Meeting 06.02.2017	Letter of Intent received from Dalmia	Highly interested for long term COA about 1.2MMT per annum
2.2	Ultratech Cement	Discussion on	Letter Of Intent format Sent	Need to finalize cost of labour which include loading, unloading, and Operations of Cargo
2.3	IFFCO	Meeting 06.02.2017	Draft tender in process . Same to be shared with HPC / La Mer By PWC	Done with meeting , Highly inerested for transportation of cargo from Paradeep to various locations; complete logistic solutions under development
2.4	Kalyanpur Cement	Meeting scheduled for 14.02.17		
2.5	Ramco Cement	Discussion on		
2.6	Grasim	Discussion on		
2.7	...			

3. Contacted Barge Operators **Total Signed Agreements:** 0

S.No	Operator's Name	Discussion / Meeting	Letter of Intent / B2B Meeting / Contract	Remarks
3.1	Ocean Sparkle	Discussion		
3.2	TCI Seaways	Discussion		
3.3	Polestar	Discussion		
3.4	Shipping Corporation of India	Discussion		
3.5	Era Shipping	Discussion		
3.6	...			

Total number of contacted stakeholders (meeting, by phone) **

Calender week	Contacted Shippers	Contacted Barge Operators	Contacted Others	Total contacts
6	15	5	2	22
7	15	5	5	planned
8	15	5	5	planned
9	15	5	5	planned
...				
			since start of project	**22**

accomplished
in progress
support requested

* *This report mentions actions where progress has been made with shippers and barge operators .*

** *Detailed list of contacted stakeholders could be provided by Consultants on request.*

Source: Consultants 2017

After the first contact on 06th February a second more comprehensive discussion via telephone has been conducted on 08th February. On 21st February a rate has been agreed after various discussions at UltraTech Office located Ambadeep Bldg, 12th Floor, KG Marg, Connaught Place, Barakhamba Road, Barakhamba, New Delhi, Delhi.

The results of the discussion and negotiations have been the agreed rate as well as the distribution of further costs between all involved stakeholders. As the by UltraTech accepted rate did not cover all occurring costs the JV-team has submitted a Gap Funding Request Sheet to IWAI on 22nd February 2017. The details of this request will be described in chapter 3. Additionally a Regulatory Request Sheet has been submitted on the same day. Due to minor availability of water depth the relevant river section only facilitated the transport of 200mt (metric tons) of bagged cement. As the parameters defined for a valid Pilot Movement request at least 300mt per movement it has to be clarified if this movement will be accepted as a valid Pilot Movement. A positive feedback has been given for this during a telephone call on 03rd March 2017 from IWAI to JV.

Figure 2: Regulatory Request Sheet

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REGULATORY Request Sheet from JV HPC UNICONSULT to IWAI

Submitted on:	**22nd Feb. 2017**
Request No.:	**#002**
Reply from IWAI requested until:	**23rd Feb. 2017**

Subject of this request: Provision of Regulatory Support

(like certificates, authorizations, pilotage, etc.)	**Confirmation of a 200t-transport as a valid pilot transport**	Place of action	**Patna**
		Period of action	**24th Feb. - 15th March 2017**

Transport scenario:

Commoditiy	**Cement**	Volume	**400** t				
Origin of cargo		Entry point NW1		Exit point NW1	**Patna**	Destination of Cargo	**Patna**
Involved shipper	**UltraTech Cement**						
Involved barge operator							
ETD							

Rationale of request:

(reason, alternative, background etc.)	**According to the Service Contract between IWAI and JV an IWT tranport will only be counted as one pilot movement if it covers a volume of at least 300 t and a distance of at least 20 km. In this particular case only 200 t can be transported at once due to not sufficient water depth mainly at Patna region for secure barge operations. Although the shipper provides 400 t to be transport by barge to Patna.**

Further details:

(Exact information/ data needed for regulatory action, etc.)	**Shipper is very interessted in the movement and has called today (22nd Feb.) after discussion yesterday (21st Feb.) when we expected conduct of movement.**

Responsible Consultant:

Name	**Avinash Kumar**
Phone	**91 -124 - 4313 407**
Email	projects@la-mermaritime.com

Source: Consultants 2017

3 Financial Aspects

IWT freight charges for the main leg transport of the cement shipment transported during this Pilot Movement summed up to a total of INR 95,000 for 200mt or INR 475 per mt. It can be assumed that this equals less than half the cost of a corresponding transport by truck, thus proving the potential cost effectiveness of transport by inland waterway vessel.

In addition to the charges directly associated to the vessel transport, a number of other expenditures occurred for pre- and onward transport, intermediate storage and cargo handling. In total, these costs summed up to approximately INR 1,250 per mt (excl. Service Tax). The following table presents a detailed breakdown of the costs of the Pilot Movement. In this particular case the first and last mile transport has been organized and financially covered by the shipper UltraTech.

Table 1: Freight and Transport Charges

Position (Cost Item)	Charges (excl. Service Tax)
Loading of vessel at Patna, Bihar	INR 364 per hour
Vessel transport freight charges	INR 475 per ton
Unloading at Bhagalpur, Bihar	INR 150 per hour
Opening of pontoon bridges	INR 60,000 for all

Source: The Consultants

For this Pilot Movement vessel transport freight charges mentioned above have been paid by UltraTech to charterer, whereas the rest of cost items have been paid by the charterer to respective concerned parties.

Figure 3: Funding Request Sheet

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FUNDING Request Sheet from JV HPC UNICONSULT to IWAI

Submitted on: **22nd Feb. 2017**
Request No.: **#003**
Reply from IWAI requested until: **23rd Feb. 2017**

Subject of this request: Provision of Gap Funding

(amount of gap funding in Rs.) **1,55,000 Rs**
Place of action **Patna**
Period of action **24th Feb. - 15th Mar. 2017**

Transport scenario:

Commoditiy	**Bagged Cements**	Volume	**200**	t			
Origin of cargo	**Shajahanpur**	Entry point NW1	**Patna**	Exit point NW1	**Bhagalpur**	Destination of Cargo	**Bhagalpur**
Involved shipper	**Ultratech Cement**						
Involved barge operator	**Spring Professional Services Private Limited**	(best offer)					
ETD	**t.b.a**						

Rationale of request:

(derivation of the gap in Rs per tonne)

Maximum rate accepted by Shipper	Lowest rate offered by barge operators	Cost of first mile distance	Cost for last mile transport	Cost at Port	Total transportation cost	Delta between accepted rate and total transport costs
475	**1,250**	**t.b.a**	**0**	**included**	**1,250**	**-775**

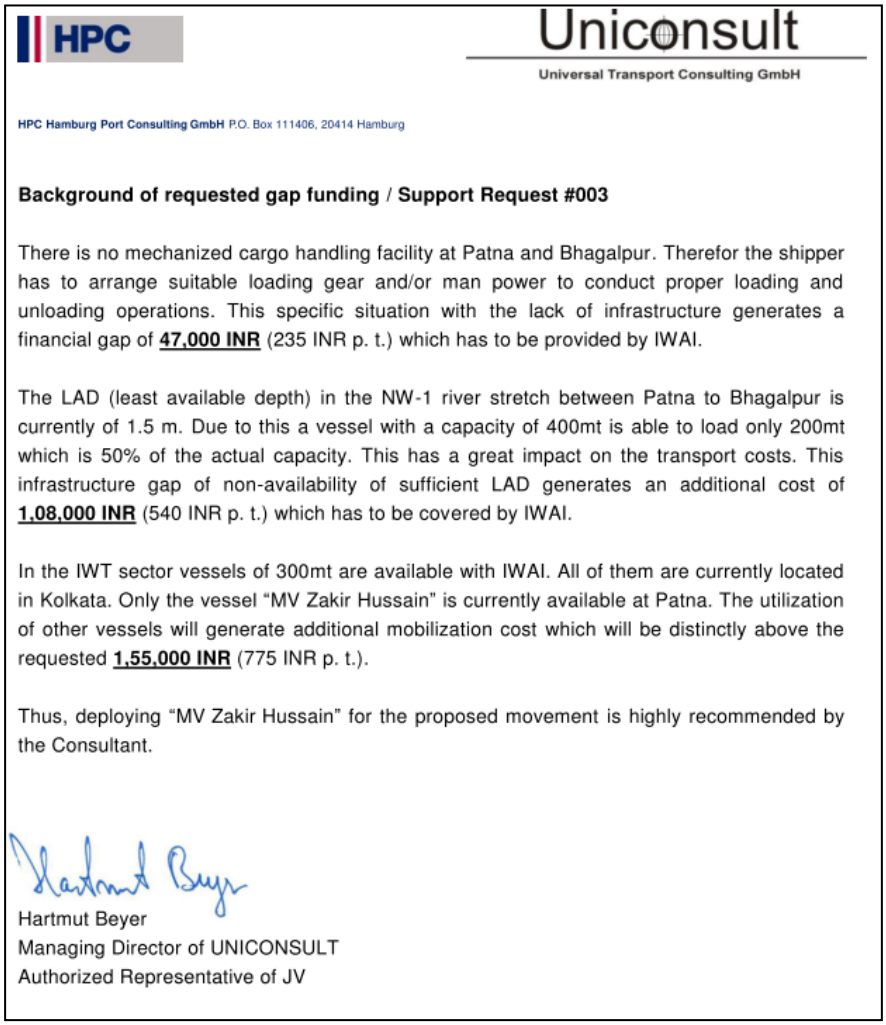
(further relevant information) **The lump sum offer of barge operator is 2,50,000 Rs for the whole movement including cargo loading and discharging at port. As there is a delta between highest acceptable rate by shipper and lowest offered rate by barge operator of about -775 Rs p. tonne a gap funding is requested.**

Responsible Consultant:

Name **Avinash Kumar**

Source: Consultants 2017

Figure 4: Enhancement of Funding Request Sheet



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Background of requested gap funding / Support Request #003

There is no mechanized cargo handling facility at Patna and Bhagalpur. Therefor the shipper has to arrange suitable loading gear and/or man power to conduct proper loading and unloading operations. This specific situation with the lack of infrastructure generates a financial gap of **47,000 INR** (235 INR p. t.) which has to be provided by IWAI.

The LAD (least available depth) in the NW-1 river stretch between Patna to Bhagalpur is currently of 1.5 m. Due to this a vessel with a capacity of 400mt is able to load only 200mt which is 50% of the actual capacity. This has a great impact on the transport costs. This infrastructure gap of non-availability of sufficient LAD generates an additional cost of **1,08,000 INR** (540 INR p. t.) which has to be covered by IWAI.

In the IWT sector vessels of 300mt are available with IWAI. All of them are currently located in Kolkata. Only the vessel "MV Zakir Hussain" is currently available at Patna. The utilization of other vessels will generate additional mobilization cost which will be distinctly above the requested **1,55,000 INR** (775 INR p. t.).

Thus, deploying "MV Zakir Hussain" for the proposed movement is highly recommended by the Consultant.

Hartmut Beyer
Managing Director of UNICONSULT
Authorized Representative of JV

Source: Consultants 2017

As the agreed freight rate for barge transport did not cover all occurring costs the JV submitted a Funding Request Sheet on 23rd February 2017 to IWAI. This Request Sheet explained the necessity of funding a financial gab of INR 775 per mt or INR 1,55,000 in total. INR 47,000 occurred as loading gear has been available neither at the loading nor at the unloading point. Thus, cargo has been handled manually. INR 1,08,000 occurred due to reduced utilization of the barge because of less available water depth. Cost for opening of the pontoon bridges occurred during the travel and have therefor not been considered during gap funding calculation. These additional costs have been covered by the charterer directly. The Funding Request has been answered and confirmed by IWAI on the 17th March 2017.

4 Operational Aspects

The arranged Pilot Movement covered a cargo volume of 200 mt of bagged cement from Gai Ghat at Patna to Khoti Ghat at Bhagalpur both in Bihar. Loading procedures started on 05th April at Gai Ghat location and have been accomplished on 07th April 2017. From 07th to 17th April the barge M.V. ZAKIR HUSSAIN traveled the 288 km long distance downstream to Khoti

Ghat at Bhagalpur. Unloading has been completed on 21st April. The summary of this basic information are shown in the following table.

Table 2: Pilot Movement at a Glance

Route	Patna – Bhagalpur
Shipper	ULTRATECH Cement Ltd.
Vessel Operator	IWAI
Vessel Name	M.V. Zakir Hussain
Commodity	Cement (bagged)
Cargo quantity	200 metric tonnes
Distance on NW-1	288 km
Start of loading at Patna	05|04|2017
Date of Departure	07|04|2017
Date of Arrival at Bhagalpur	17|04|2017
End of Unloading	21|04|2017

Source: Consultants 2017

The origin of the cargo has been the UltraTech Cement Factory at Shahjahanpur, Fatuha/Patna which around 40 km away from Gai Ghat Patna by road. For last mile transport the cargo has to be transported around 10 km by road to the recipient in Bhagalpur area.

4.1 Loading Procedure

An unpaved loading location next to existing jetty facility at Gai Ghat, Patna has been chosen as jetty facility has been unsuitable for RORO barge operations (see figure below).

Figure 5: Loading Location

Source: Google Maps, Consultants 2017

Manual loading procedures have been conducted. Due to given conditions trucks were not able to enter the cargo barge but to park in a distance of about 15 m. The following figure shows some details of the loading location.

Figure 6: Loading Location Details

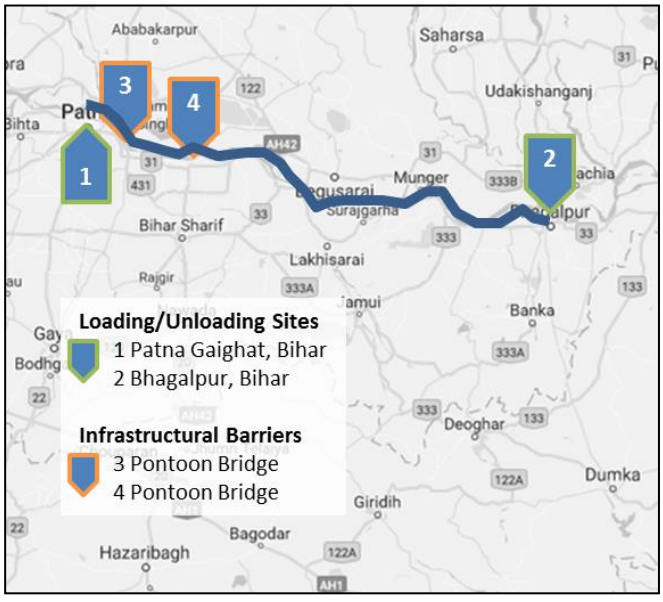
Source: Google Maps, Consultants 2017

River's current as well as other possible influences have not been recorded during loading procedure.

4.2 In-transit Procedure

The route of the loaded barge is shown in the following figure. Two pontoon bridges have to be passed on the down-stream travel. Due to insufficient navigational aid facilities the barge did not move during night time and anchored from 6 p.m. to 6 a.m.

Figure 7: Movement Plan



Source: The Consultants, Based on Google Maps

The figure above shows the entry and exit location of the Pilot Movement.

Figure 8: Stowage Pattern inside the Barge

Source: Consultants 2017

The stowage pattern has to take into account the stability issues of the cargo barge. A permanent supervision of loading operations has been provided.

Figure 9: Impressions of Pontoon Bridge

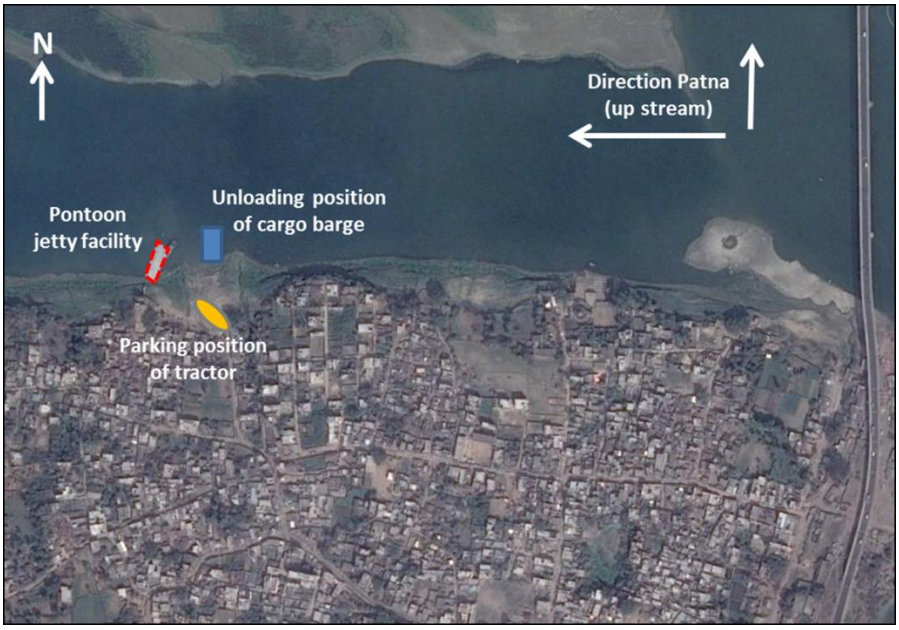
Source: Consultants

The organization of and the agreement on opening the two pontoon bridges down-stream of Patna turned out to become quite challenging. It took the team several calls, discussions on site and in total 7 days to approach the opening of the pontoon bridges.

4.3 Unloading Procedure

On 17th April the cargo barge arrives at Khoti Ghat at Bhagalpur. The unpaved loading location is located next to an existing pontoon jetty facility has been chosen as the jetty facility has been unsuitable for RORO barge operations.

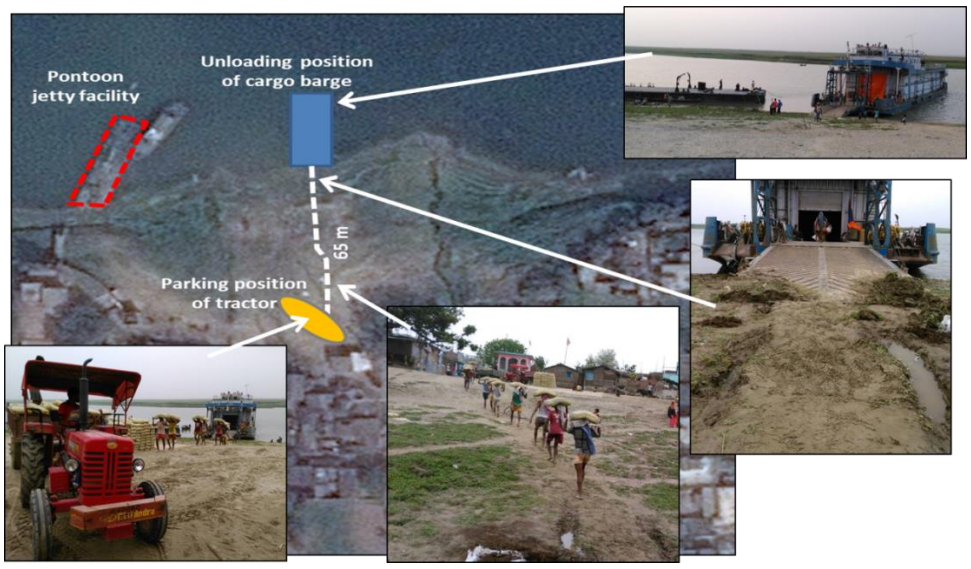
Figure 10: Unloading Location



Source: Google Maps, Consultants 2017

As the location has been known to the JV team a tractor has been organized for last mile movement. The team expected that a tractor could reach the barge across the sandy beach much better than a truck – which has been tried without success during previous Pilot Movement. But due to quite rainy weather during the days before arrival the sandy beach area became kind of swampy. Thus, even the tractor was not able to reach the barge. This resulted in distance of 65 m which has to be cover for each bag of cement (see figure below).

Figure 11: Unloading Location Details



Source: Google Maps, Consultants 2017

Manual unloading procedures have been conducted as due to unavailability of unloading gear and soft ground and/or unpaved access road.

Figure 12: Unloading Procedures

Source: Consultants 2017

An unloading supervisor has been provided by the shipper at Bhagalpur.

5 Experiences and Findings

During conduct of 2nd Pilot Movement several issues have been documented by the consulting team. These are mainly:

- Processing and passing of submitted "Gap Funding Request" of INR 1,55,000 took 23 days (22nd February to 17th March 2017).
- It has been decided to enhance the "Funding Request Sheet" by a written explanation of relevant details.
- Local road conditions at both locations did not allow the trucks to reach the cargo barge directly.
- Local jetty facility conditions at both locations have been unsuitable for RORO barges. Thus, unpaved river bank stretches have been used for mooring/berthing.
- Opening of two pontoon bridges caused temporal delays of in total 7 days and additional costs of INR 60,000 occurred although fees have been paid in advance to local government.
- Actual in-transit time (excluding loading + unloading) has been 11 days. This includes 7 days delay due to pontoon bridge opening process and approvals at Patna Region.
- The LAD (least available draft) on the stretch between Patna and Bhagalpur has been 1.5 m. This led to underutilization of cargo barge (200 mt although capacity for 300 mt available).
- No grounding incidents have been reported during this pilot movement.
- Insufficient labour availability at Gai Ghat Patna and Khoti Ghat Bhagalpur led to extended loading/unloading time.
- Lack of navigation aid lights led to partly reduced velocity and to interruption of travel during the night time. Barge did not move between 6 pm and 6 am.
- Local people/authorities did not allow deployment of labour from other areas in this operation, as they want themselves to take advantages of this movement/business.

6 Recommendations and Conclusions

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

- Implement measures to speed-up processing of Funding Requests
  - Target: response within 4 working days
- Facilitate information of local authorities in advance to arrange/agree on distinct date for opening of pontoon bridges and clarify payment of fees in advance
  - Target: Future maximum delay during movement due to pontoon bridge opening 30 min. each
- Improve access road condition at Gai Ghat, Patna and Khoti Ghat, Bhagalpur
  - Suggestion: Extent pavement of existing jetty in Western direction at Gai Ghat, Patna (around 3m x 25m = 75m² to be paved) and pave an access road at Khoti Ghat, Bhagalpur (3m x 65m = 195m² to be paved)
- Provide sufficient and suitable navigation aid facilities
  - Target: Enable continuously travelling of barges day and night all along the NW-1.
- Identify locally available suitable work forces for loading and unloading operations

    - Suggestion: Implementation of local work force pools of approx. 25 workers each
- Inform local authorities about loading and unloading procedures to avoid interruption or disturbance by public.
    - Suggestion: Announce commencement of operations locally at least 3 days in advance

7 Conclusion

Organizational and/or processual measures requesting low investment and could tap the potential to improve the competitiveness of IWT distinctly.

With a reliable procedure to organize the opening of the pontoon bridges in advance and a suitable navigation aid system the actual travel time of this pilot movement could have been cut down from actual 11 days to 2 days!

The issue „work force“ has to be developed as currently less availability and local (authority) interest had an negative impact on duration of conduct of this specific movement.

Construction of most flexible jetty infrastructure and/or river bank reinforcement will increase the utilization of these facilities at Patna and Bhagalpur and reduce loading and unloading costs.

The involved shipper ULTRATECH CEMENT has been very well aware of performing an initial Pilot Movement.

Shipper is – despite all negative incidents – still interested in conducting further transport of bagged cement on several stretches of NW-1.