Annual Report on Traffic on National Waterways: FY 2019-20

Inland Waterways Authority of India

Ministry of Shipping

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1. Introduction

Inland Water Transport (IWT) is one of the most cost effective and environment friendly mode of transportation. As per a World Bank study, IWT mode has the least operational cost of USD 0.015/ ton-km, compared to USD 0.033/ ton-km for Road and USD 0.02/ ton-km for Rail. Globally, inland waterways have been recognized and developed as a mode of transportation to leverage these benefits. India has approximately14,500 km of navigable waterways which comprise of rivers, canals, backwaters, creeks, etc. with significant potential to be developed as a mode of transportation. In the pre-independence years, IWT mode was used extensively in various parts of the country for transportation of both passengers and goods. However, post-independence, due to lack of adequate attention on developing the sector, the IWT mode lost recognition as a mode of transportation. As a result, despite the inherent advantages, the share of Inland waterway transport (IWT) mode in India is currently estimated to be around 2%. Inland waterways authority of India (IWAI), an authority under Ministry of Shipping, was established in 1986 to develop and regulate the inland waterways for shipping and navigation. Recognizing the benefits and importance of inland waterways and to increase its modal share, the Government of India declared 106 new waterways as National Waterways (NWs) through the National Waterways Act, 2016 taking the total number of NWs to 111. Out of the 111 NWs, based on various technical-economic feasibility studies, IWAI has identified 22 NWs for further development. For the development of these NWs, IWAI has been undertaking various activities including detailed technical and commercial studies, identifying projects for development and providing navigational infrastructure in the form of adequate fairways, locks, river information system, terminals and allied infrastructure for facilitating transportation of cargo and passenger using the IWT mode. The impact of these interventions along with various market outreach activities conducted by IWAI to promote the IWT sector is gradually resulting in recognition of IWT mode as an alternate mode of transportation by the industry.

This report carries out a detailed analysis of the traffic movement on the 16 operational NWs in FY-20 and covers the details such as traffic quantity and trend vis-à-vis previous year, commodity profile and key origin and destination jetties/ locations on the operational NWs.

2. Traffic on National Waterways

The total traffic movement on NWs in the FY-20 was recorded as 73.64 million tonne against 72.3 million tonne in FY-19 thereby recording a YoY growth of approx. 2%. The following table presents the details of traffic movement on different NWs.

S. No.	National Waterway	Quantity in tonne		% change
		FY-19	FY-20	
1	NW-1 (Ganga-Bhagirathi-Hooghly river system)	6,793,981	9,114,957	34%
2	NW-2 (River Brahmaputra)	502,003	392,767	- 22%
3	NW-3 (West Coast canal, Champakara canal, Udyogmandal canal)	408,790	546,051	34%
4	NW-4 (River Krishna)	452,066	82,226	- 82%
	Total - (NW 1, 2, 3, 4)	**8,156,840**	**10,136,001**	**24%**
Maharashtra Waterways				
5	NW-10 (River Amba)	22,381,100	22,014,464	-2%
6	NW-83 (Rajpuri Creek)	816,205	666,755	-18%
7	NW-85 (Revdanda Creek and River Kundalika)	1769,947	1,592,477	-10%
8	NW-91 (River Shastri – Jaigad fort Creek)	3374,399	119,443	-96%
	Total	**28,341,651**	**243,93,139**	**-14%**
Goa Waterways				
9	NW-68 (River Mandovi)	1,653,751	1,575,640	-5%
10	NW-111 (River Zuari)	2,104,219	1,358,202	-35%
	Total	**3,757,970**	**2,933,842**	**-22%**
Gujarat Waterways				
11	NW-73 (River Narmada)	40,941	99,614	143%
12	NW-100 (River Tapi)	28,780,183	30,916,062	7%
	Total	**28,821,124**	**31,015,676**	**8%**
13	NW-97 (Sunderbans)	3,227,460	3,461,280	7%
14	NW-16 (River Barak)	-	4,418	NA
15	NW-44 (River Ichhamati)	-	898,642	NA
16	NW-94 (River Sone)	-	800,000	NA
	Grand Total (tonne)	**72,305,045**	**73,642,998**	**2%**

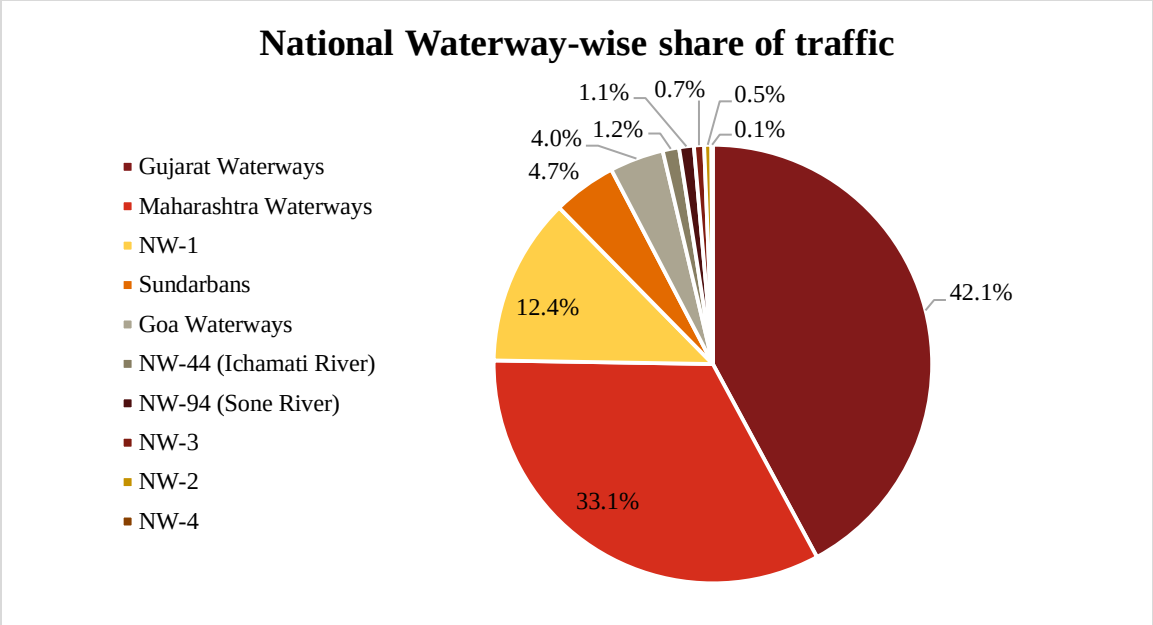


Figure 1: National Waterway-wise share of traffic

Gujarat Waterways (2 nos.) and Maharashtra Waterways (4 nos.) constituted more than 75% of the overall IWT traffic in FY-20.

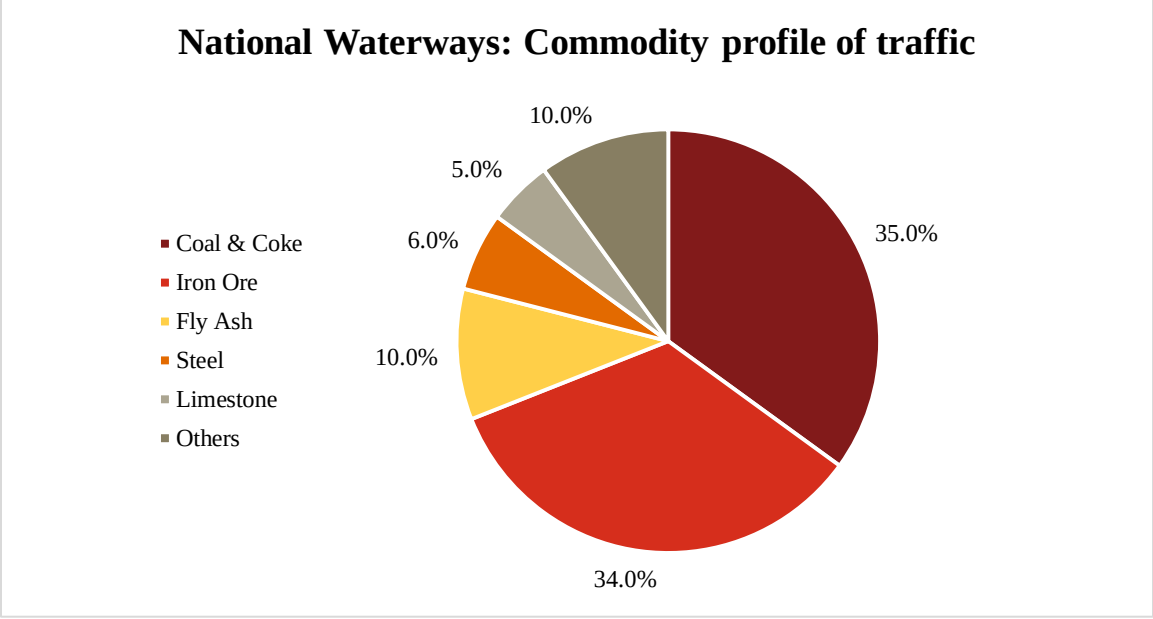


Figure 2- National Waterways-Commodity profile of traffic

Predominantly bulk commodities viz. coal & coke, iron ore, fly ash, limestone etc. are using the IWT mode in India and constitute more than 90% of the overall traffic.

The salient aspects of traffic movement recorded on NWs in FY-20 are as follows:

1. The number of operational NWs in FY-20 increased to 16 against 13 in FY-19. In FY-20, traffic movement on NW-16 (River Barak), NW-44 (River Ichhamati) and NW-94 (River Sone) was included.

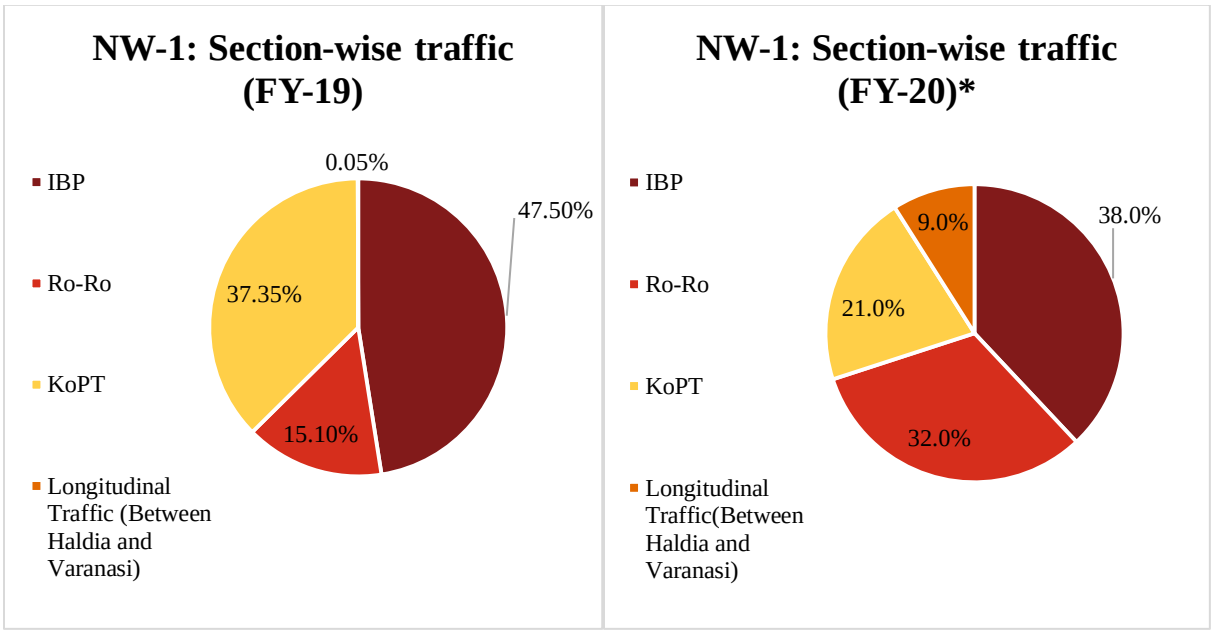
With the number of operational NWs increasing to 16, IWT traffic has displayed a moderate YoY growth of 2% in FY-20 despite multiple trade related challenges.

2. In case of NW-1, in addition to the regular traffic movement on the Indo Bangladesh Protocol (IBP) route, transshipment traffic belonging to Kolkata Port, Ro-Ro traffic in Sahibganj-Manihari area and some longitudinal traffic on O-Ds between Haldia and Varanasi, following traffic movements have been recorded and included in FY-20. These movements were not getting recorded till FY-19 due to lack of information and monitoring system to collect the data.
    a. Movement of sand by mechanized/ non-mechanized boats in Bihar from River Sone (NW-94) to various destinations on NW-1
    b. Movement of cargo through Ro-Ro operations between multiple O-Ds located on the Kolkata-Rajmahal stretch
3. In case of NW-2, movement of stone chips/ boulders originating from Bhutan and going to Bangladesh via the IBP route has gained traction. More than 10 shipments took place from IWAI's Dhubri (Assam) terminal using shallow draft vessels in FY-20 and these movements are expected to become regular. Additionally, five movements carrying coal and containerized cargo were successfully completed between Haldia and Guwahati during the year. These movements shall enhance the traffic to/ from North East region using IWT mode in the coming years.
4. The momentum of traffic movement on different NWs was interrupted due to multiple local and national level events in FY-20. On NW-1, the Ro-Ro traffic in the Sahibganj-Manihari region was impacted due to suspension of operations due to heavy floods during monsoon season. Traffic movement on NW-4 got suspended due to local disturbances and suspension of capital city construction works in Amravati. The traffic on Goa waterways has reduced significantly in last few years due to ban on iron ore mining in the State. With the nation-wide lockdown due to outbreak of Covid-19, the movement of vessels got suspended resulting in sharp fall in traffic in the month of March 2020.

3 National Waterway-1

The Ganga - Bhagirathi - Hooghly river system between Haldia (Sagar) & Allahabad (1,620 km) is declared as the National Waterway No.1 (NW-1). The Haldia-Varanasi section of NW-1 is being developed under the Jal Marg Vikas Project (JMVP) for navigational purposes. The traffic on NW-1 can be categorized in 4 different sections i.e. the traffic movement on the Indo-Bangladesh Protocol (IBP) route, which is primarily the movement of traffic from Kolkata/Haldia to different parts of Bangladesh, the transshipment/ lighterage traffic at Kolkata/Haldia Port, the Ro-Ro traffic on NW-1 and the longitudinal traffic between Haldia and Varanasi. The graphs and table given below show the split of traffic among these 4 sections in FY-19 and FY-20.

Figure 3- NW-1: Multimodal Terminal at Varanasi



*- Traffic for FY-20 does not include transshipment traffic of KoPT in the month of March'20

Figure 4- NW-1: Section-wise traffic (FY-19 and FY-20)

S. No.	NW-1 Section	Quantity in million tonne	
		FY-19	FY-20
1	Indo Bangladesh Protocol (IBP) route	3.22	3.46
2	KoPT (Transshipment/ lighterage)	2.54	1.95*
3	Ro-Ro	1.03	2.88
4	Longitudinal (between Haldia and Varanasi)	0.004	0.82
	Total	**6.79**	**9.11**

*- KoPT data does not include March'20 data

It can be observed that the traffic moving on the Indo-Bangladesh Protocol route is the primary contributor to the NW-1 traffic, followed by the Ro-Ro/Cross Bank traffic on NW-1. The Ro-Ro movement on NW-1 is primarily taking place in two specific areas:

A. Movement of stone chips between Sahibganj (Jharkhand) and Manihari (Bihar)
B. Movement of miscellaneous goods and passengers between multiple O-Ds located between Kolkata and Rajmahal (Jharkhand). The movement between multiple O-Ds between Kolkata and Rajmahal has been recorded in FY-20 and is not available for FY-19.

The longitudinal movement along NW-1 between Haldia and Varanasi primarily consists of sand movements originating from Koelwar (confluence point of River Ganga and River Sone in Bihar) and travelling to different points located on River Ganga (NW-1). These traffic movements have been recorded and included in the traffic of FY-20 and are not available for FY-19. In addition, few movements carrying ODC, stone chips, steel products and containerized cargo took place on NW-1

A detailed analysis of the traffic on the IBP route, Ro-Ro Traffic and the longitudinal traffic on NW-1 in FY-20 is given below.

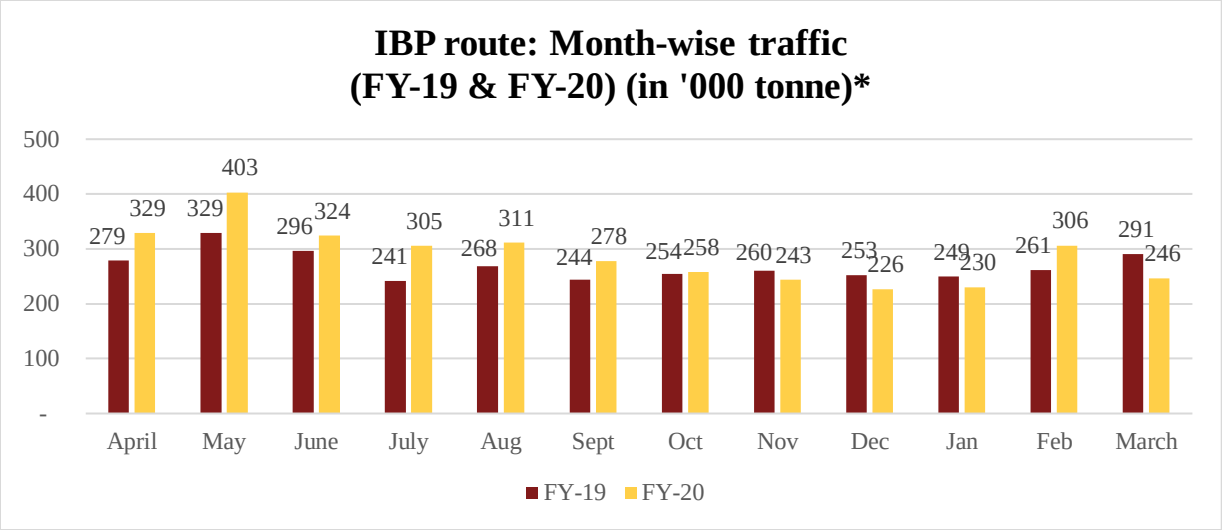
The Indo-Bangladesh Protocol route

India and Bangladesh have signed the Protocol on Inland Water Transit and Trade (PIWT&T) under which inland vessels of one country can transit through the specified protocol routes of the other country. Six Ports of call have been declared in each country under the PIWT&T. The Ports of call in India are Haldia (West Bengal), Kolkata (West Bengal), Dhubri (Assam), Pandu (Assam), Karimganj (Assam) and Silghat (Assam). The Ports of call in Bangladesh are Narayanganj, Khulna, Mongla, Sirajganj, Ashuganj and

Pangaon. With collaborative efforts of IWAI and BIWTA the traffic has been continuously increasing on the IBP route and both the countries have agreed to add 7 new ports of call on along with addition/ extension of waterway routes under PIWT&T.

Figure 5: The Indo Bangladesh Protocol routes under PIWT&T

Approx. 3.5 million tonne of traffic moved on the IBP route in FY-20 and displayed a growth of approx. 7% over FY-19.



*The actual numbers have been rounded off to the nearest thousand for representation purposes

Figure 6- IBP route: Month-wise traffic (FY-19 & FY-20)

Traffic on the IBP route predominantly consists of fly ash movement from Kolkata/Haldia to destinations based in Bangladesh. Fly ash movement to Bangladesh is driven by the requirement of Cement plants.

Figure 7- Vessels plying on the IBP route

The graph below shows the commodity profile of the traffic handled on the IBP route in FY-20.

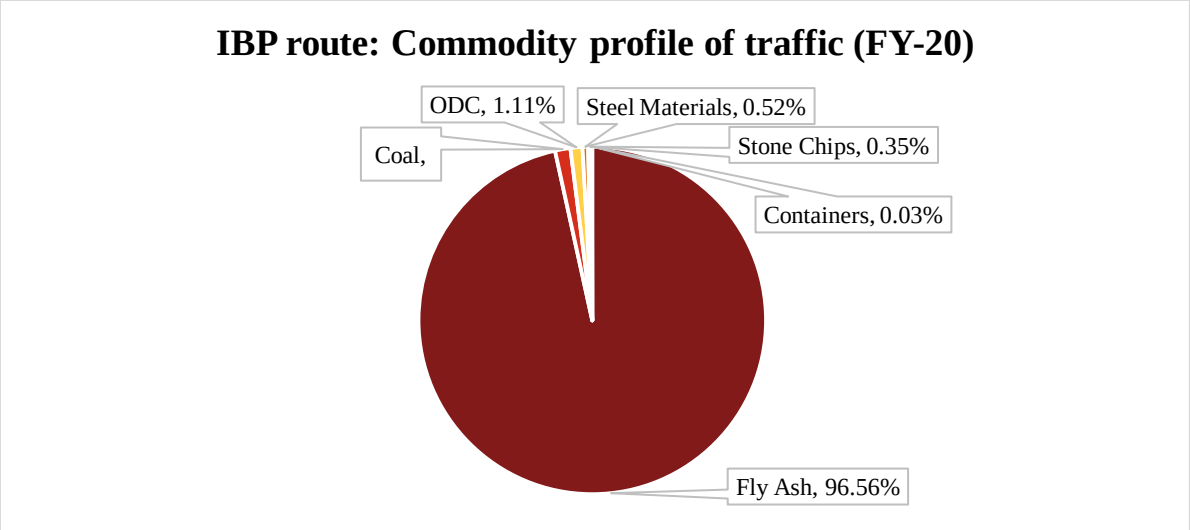


Figure 8- IBP route: Commodity profile of traffic (FY-20)

It can be observed that almost 97% of the traffic on the IBP route is fly ash. The jetties at the origin locations handling fly ash are IWAI Haldia Jetty (30%), Budge Budge, Kolkata (24%), T.T Shed (18%) and G.R Jetty 2 (14%). Among the jetties at the destination locations, Narayanganj receives 84% of this fly ash followed by Khulna which receives the remaining 16%. Commodities other than fly ash constitute approx. 3% of traffic on the IBP route, of which coal is the highest (1.4%) followed by Over Dimensional Cargo (ODC) (1.11%). Steel materials, Stone chips and Containers constitute less than 1% of the traffic.

Approx. 85% of the traffic moving on the IBP routes originates from 4 jetties on NW-1, while approx. 98% of the IBP traffic gets unloaded at Narayanganj and Khulna in Bangladesh.

The graph below shows the key shippers who used the IBP route for movement in FY-20.

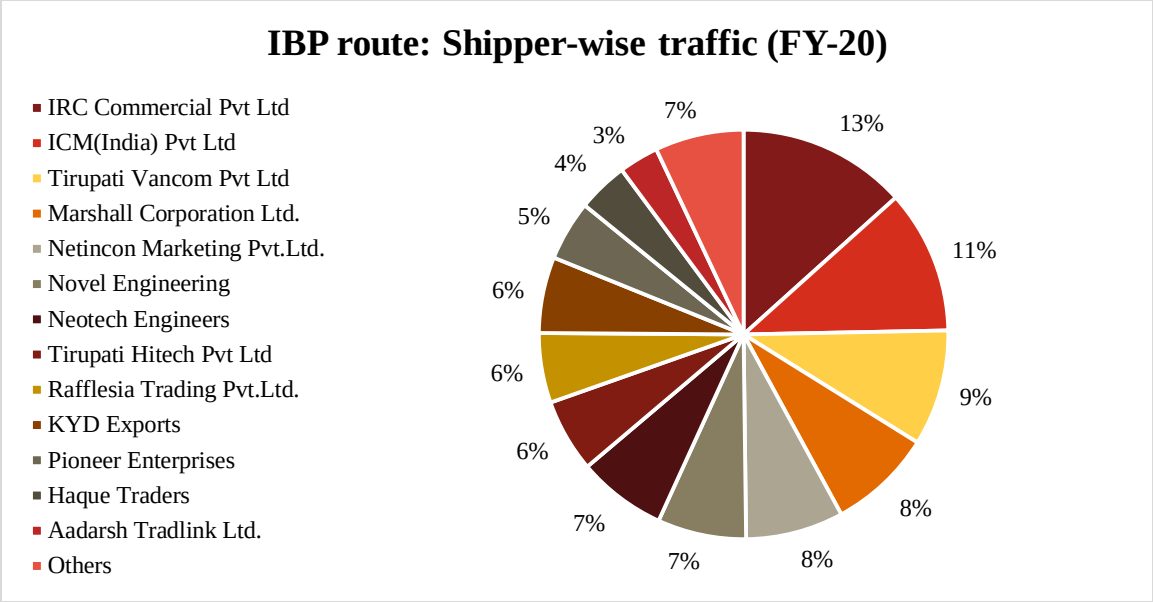


Figure 9- IBP route: Shipper-wise traffic (FY-20)

It can be observed that there are multiple shippers who move their cargo using the IBP route. Most of these shippers are exporters of fly ash. There are close to 39 shippers on the IBP route of which the top 13 constitute 93% of the traffic. The balance 25 shippers also include large scale companies like Bharat Heavy Electricals Limited (ODC, Steam Turbine & Steel), Jindal Steel & Power (Steel materials) and Tata Steel (Hot rolled steel coils). The graph below shows the jetty wise share of cargo handled both at the origin and the destination on the IBP Route in FY-20:

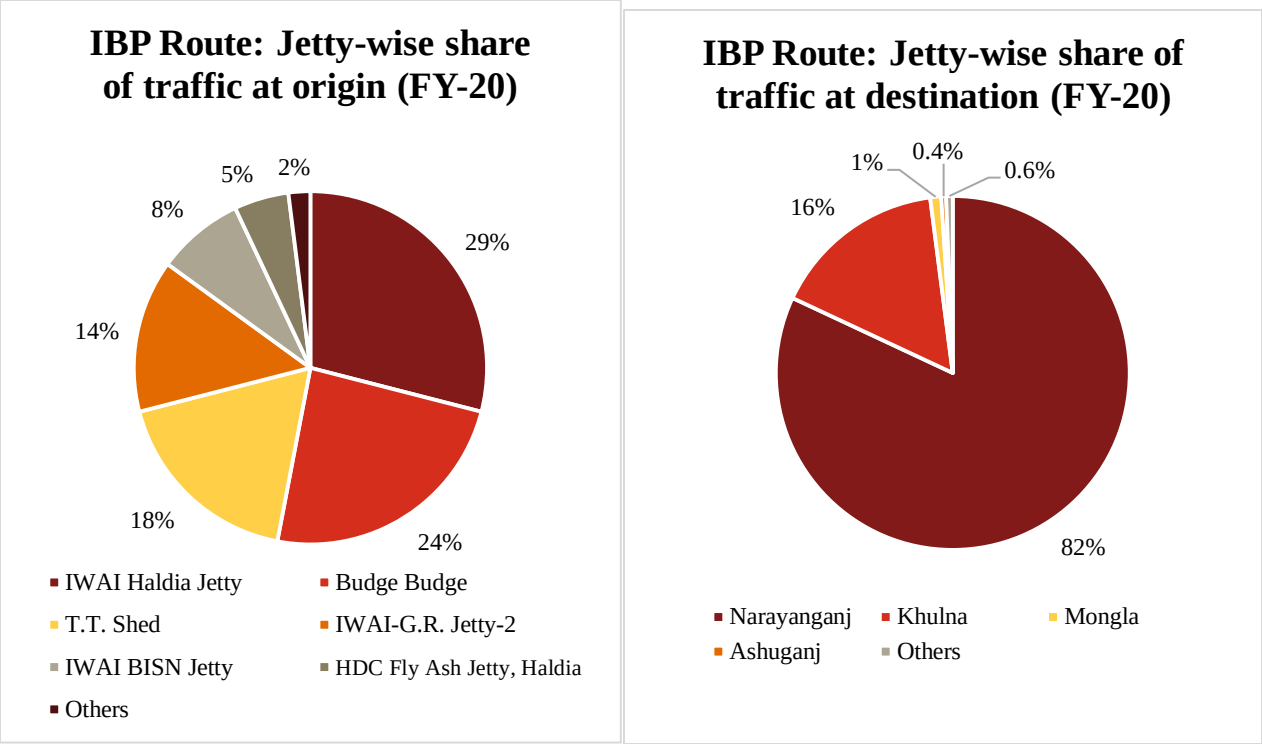
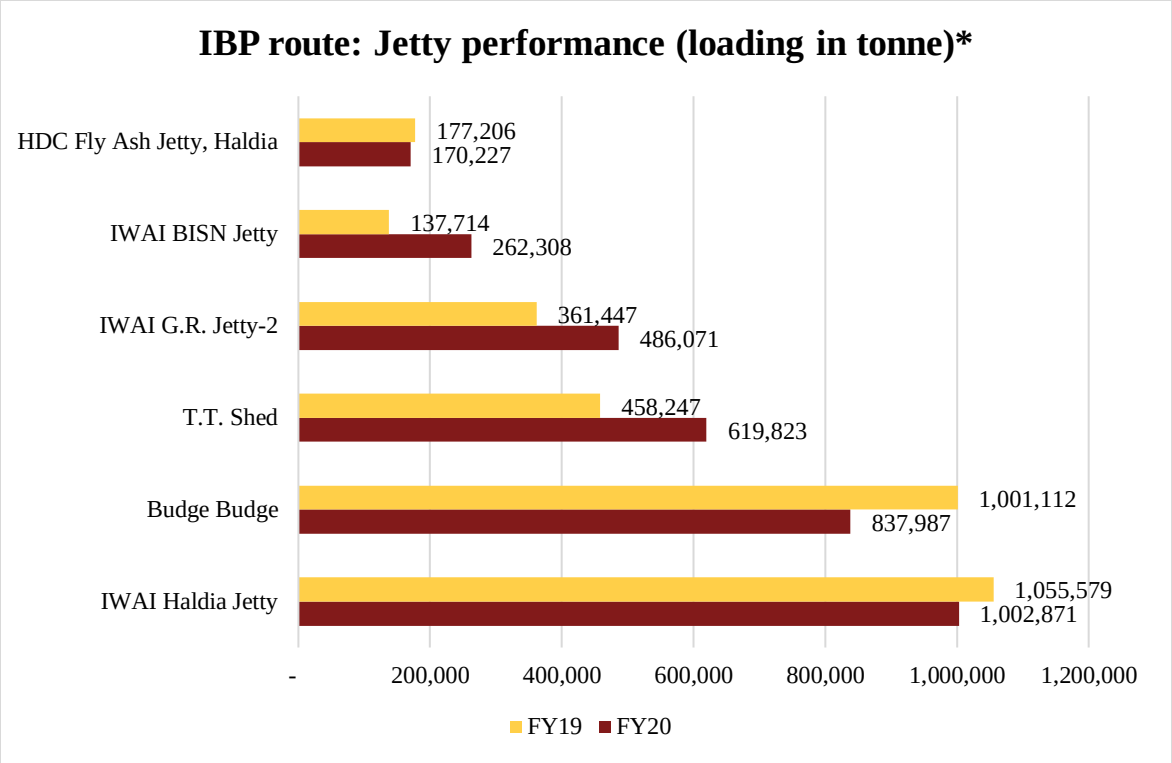


Figure 10- IBP route: Jetty-wise share of traffic at origin & destination (FY-20)

It can be observed that among the origin jetties/ports (India Ports of call), 85% of the traffic on the IBP route is handled at 4 jetties namely IWAI Haldia Jetty, Budge Budge-Kolkata, T.T Shed-Kolkata and G.R Jetty 2-Kolkata. Of these 4, the top 2 jetties, IWAI's Haldia Jetty and Budge Budge Jetty only handled fly ash and steam coal. T. T Shed primarily handled fly ash along with a small quantity of ODC and steam coal, whereas IWAI's G.R. Jetty 2 handled a variety of commodities. Of the remaining jetties, HDC fly ash Jetty and IWAI's BISN Jetty constituted 13% of the traffic. HDC fly ash jetty and IWAI BISN Jetty handled fly ash. The other jetties such as KPD, Kolkata, NS Dock, Kolkata and HDC, Kolkata jetties handled 2 % of the traffic mainly consisting of project cargo and steel materials.

In terms of the destination jetties/ports (Bangladesh Ports of call), Narayanganj and Khulna handled more than 98% of the traffic. Both these jetties predominantly unload fly ash along with small quantities of project cargo, steel material and stone chips.

A total of 12 jetties on NW-1 loaded traffic for the IBP route in FY-20, of which 6 jetties loaded 98% of the traffic. Given below is the traffic handled by these 6 jetties:

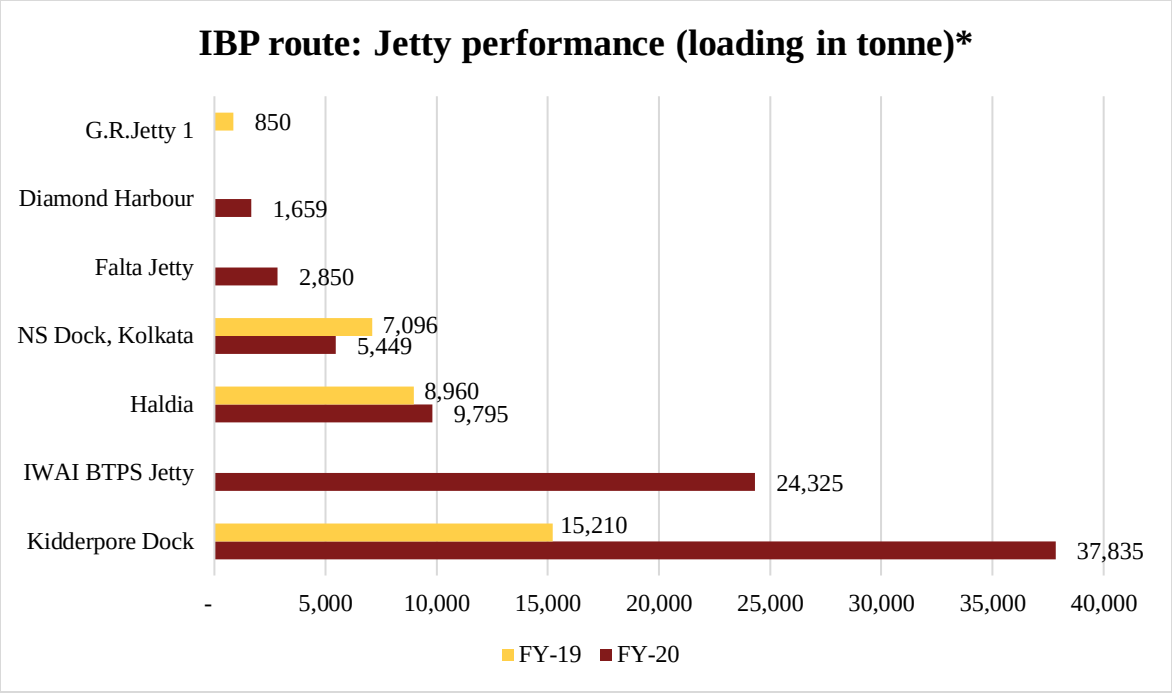


*- The above-mentioned jetties also handled KoPT's transshipment traffic (lighterage cargo), however same has not been included in this assessment

Figure 11- IBP route: Cargo handling performance of jetties (FY-19 & FY-20) (top 6 jetties)

Of the 6 jetties shown above, IWAI's Haldia Jetty and Budge Budge Jetty handled significant proportion of traffic. Among these 6 jetties, 3 jetties namely, IWAI Haldia Jetty, IWAI BISN Jetty and GR Jetty 2 are owned by IWAI. IWAI's Haldia Jetty has displayed a decrease in traffic handled in FY-20 vis-à-vis FY-19, whereas IWAI's GR Jetty 2 and IWAI BISN jetties have shown a significant increase.

The graph below shows the remaining 6 jetties on NW-1 that handled close to 2% of the traffic moving on the IBP route.



*- The above-mentioned jetties also handle KoPT's transshipment traffic (lighterage cargo), however same has not been included in this assessment

Figure 12- IBP route: Cargo handling performance of jetties (FY-19 & FY-20) - excluding top 6 jetties

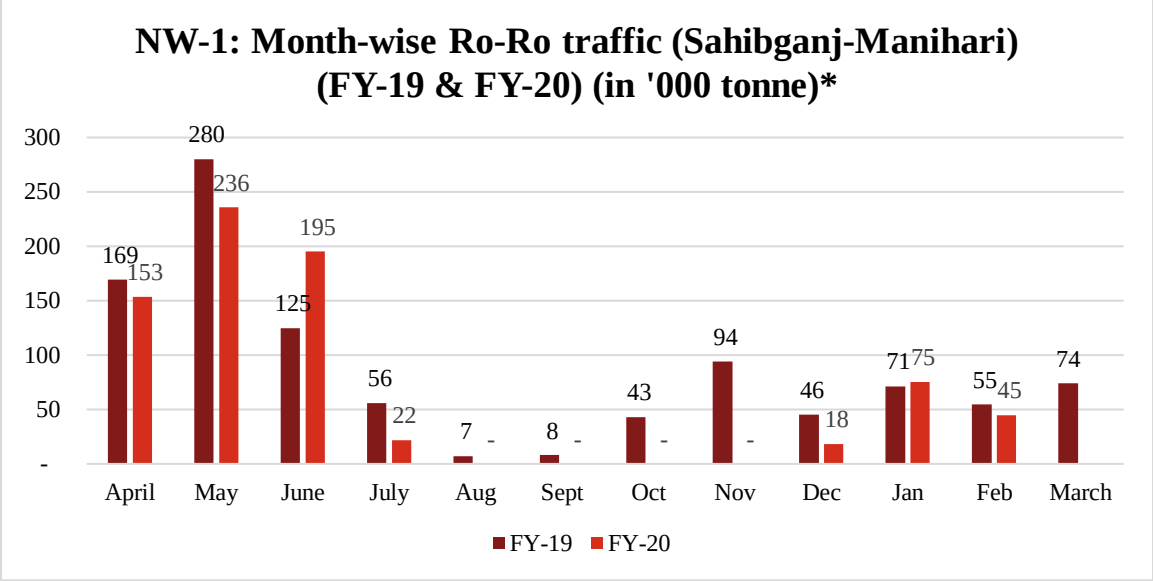
Amongst these 6 jetties, Kidderpore Dock and HDC belonging to Kolkata Port Trust handled the maximum share of traffic. Falta and IWAI BTPS jetty did not handle any cargo in FY-19, however they have started to handle traffic in FY-20, thereby allowing more options to the exporters. The details of various jetties are available in the annexure.

Although the IBP route is predominantly used for movement of goods from India to Bangladesh, the route is also used for movement of domestic transit traffic to/ from North East region. North Eastern states of India are surrounded by Bangladesh, Myanmar, Bhutan and China and the only land route access to these states from within India is through the Chicken neck corridor (Siliguri corridor), which passes through hilly terrain with steep roads and multiple circuitous bends. Transportation to/ from the region is through railways and road and there is increasing pressure on the corridor owing to the increase in growth and developmental activities in the North East. Every year during monsoon season, the corridor faces instances of closure and inordinate waiting of trucks resulting in delays. These challenges make the IBP route strategically important for regular access to North East region of India. To allow round the year navigation, two stretches on the IBP route viz. Sirajganj – Daikhawa and Ashuganj - Zakiganj in Bangladesh are being developed (2.5 m LAD) at a total cost of approx. Rs 305.84 Cr. on 80:20 cost sharing basis (80% being borne by India & 20% by Bangladesh). The development of these two stretches will provide seamless

navigation to and from North East India through waterways via the IBP route. To enhance use of the IBP route for transshipment of traffic to/ from North East regions, IWAI has initiated consultations with stakeholders such as Customs, BIWTA etc. to relax documentation procedures and improve navigation assisting services in Bangladesh waterways.

Ro-Ro Traffic

In FY-20, approx. 2.9 million tonne of traffic moved via Ro-Ro operations on NW-1. 2.2 million tonne of Ro-Ro traffic moved between various points located on the stretch between Kolkata and Rajmahal (Jharkhand). Additionally, 0.7 million tonne of Ro-Ro traffic moved from Sahibganj (Jharkhand) to Manihari (Bihar) wherein trucks loaded with stone chips get on board the Ro-Ro vessels on the Sahibganj side of NW-1 (South bank) and get off board the vessel on Manihari side (North bank). The graph below presents the month wise Ro-Ro traffic movement between Sahibganj and Manihari.



*The actual numbers have been rounded off to the nearest thousand for representation purposes. This data does not represent the movements taking place between O-Ds on Kolkata-Rajmahal stretch

Figure 13- NW-1: Month-wise Ro-Ro traffic (Sahibganj - Manihari) (FY-19 & FY-20)

It can be observed that the traffic in FY-20 was lower than the traffic in the corresponding period of FY-19. The overall traffic decreased 28% YoY from 1.03 million tonne in FY-19 to 0.74 million tonne in FY-20.

Figure 14- NW-1: Ro-Ro vessel loading operation

The graph below presents the share of traffic at the origin/ destination locations (jetties/ landing points) for Ro-Ro Traffic in FY-20.

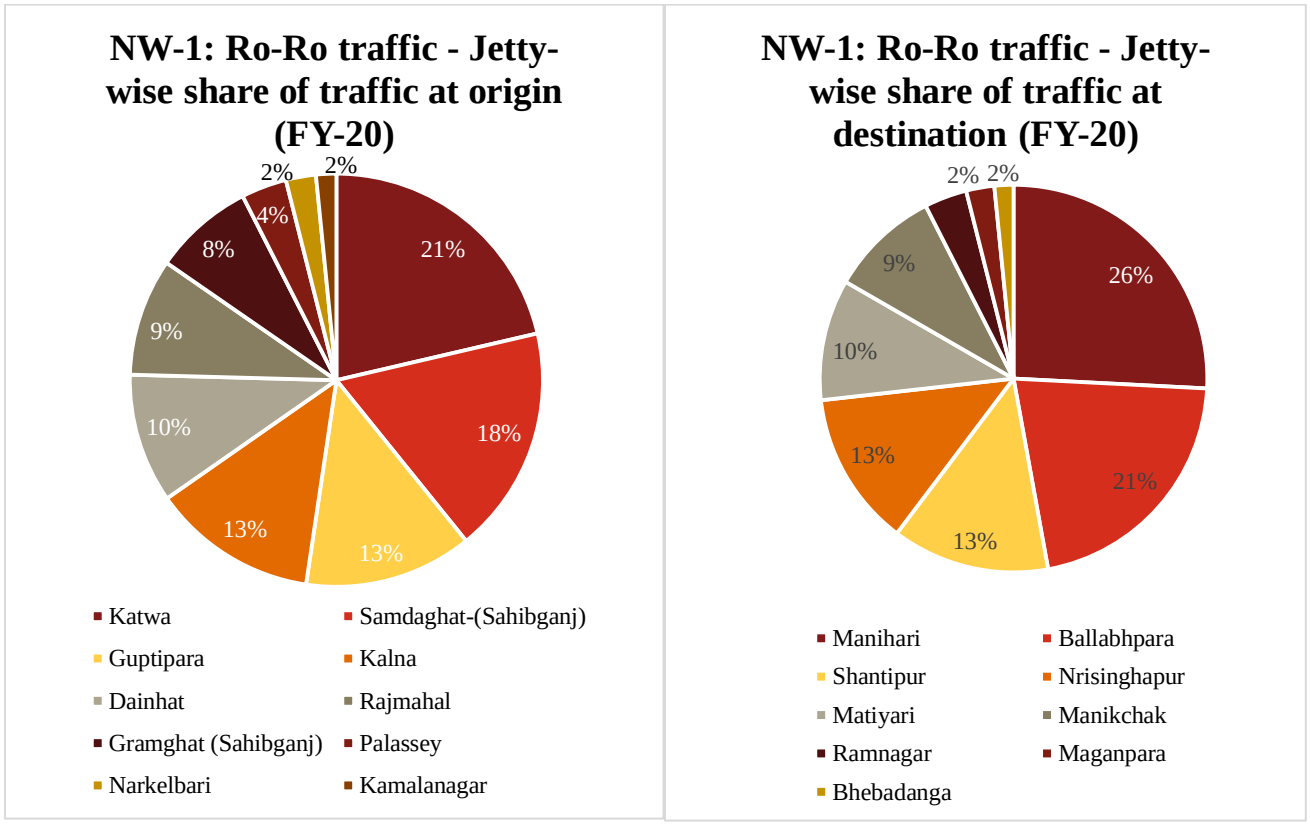
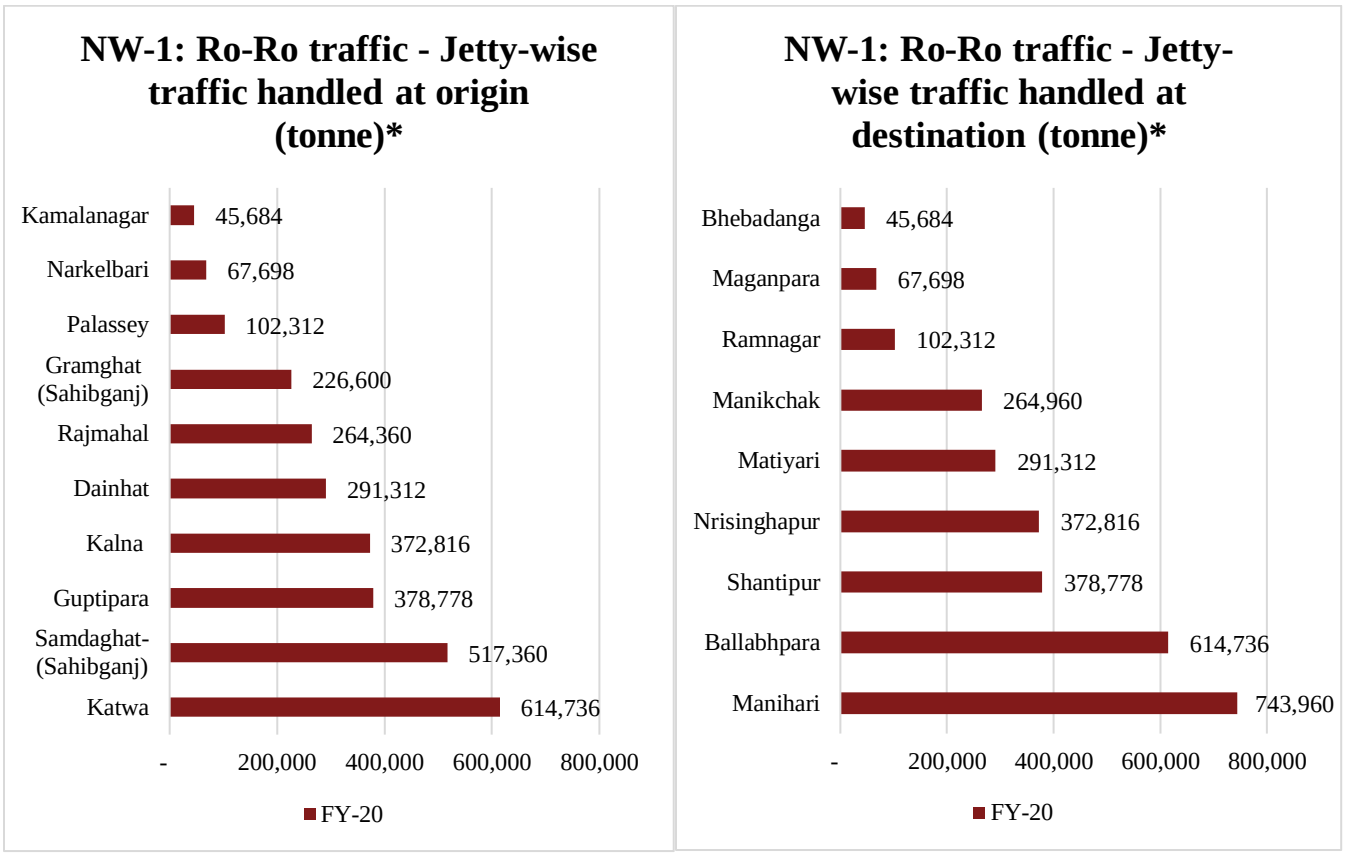


Figure 15- NW-1: Ro-Ro traffic – Jetty-wise share at origin & destination (FY-20)

There are 10 landing points on NW-1 where Ro-Ro vessels are on-loaded. Of these 10, Katwa accounts for the highest share of loaded traffic followed by Samdaghat (Sahibganj), Guptipara and Kalna. These 4-origin loading points account for 65% of the total traffic on-loaded. 8 out of these 10 locations, except Samdaghat and Gramghat, lie between Kolkata and Rajmahal.

There are 9 landing points on NW-1 where the Ro-Ro vessels are off-loaded. Of these, Manihari accounts for the highest share of off-loaded traffic followed by Ballabhpara, Shantipur and Nrisinghapur. These 4 jetties account for 73% of the total traffic off-loaded.

The graph below presents the traffic at origin/ destination locations (jetties/ landing points) for Ro-Ro Traffic in FY-20.

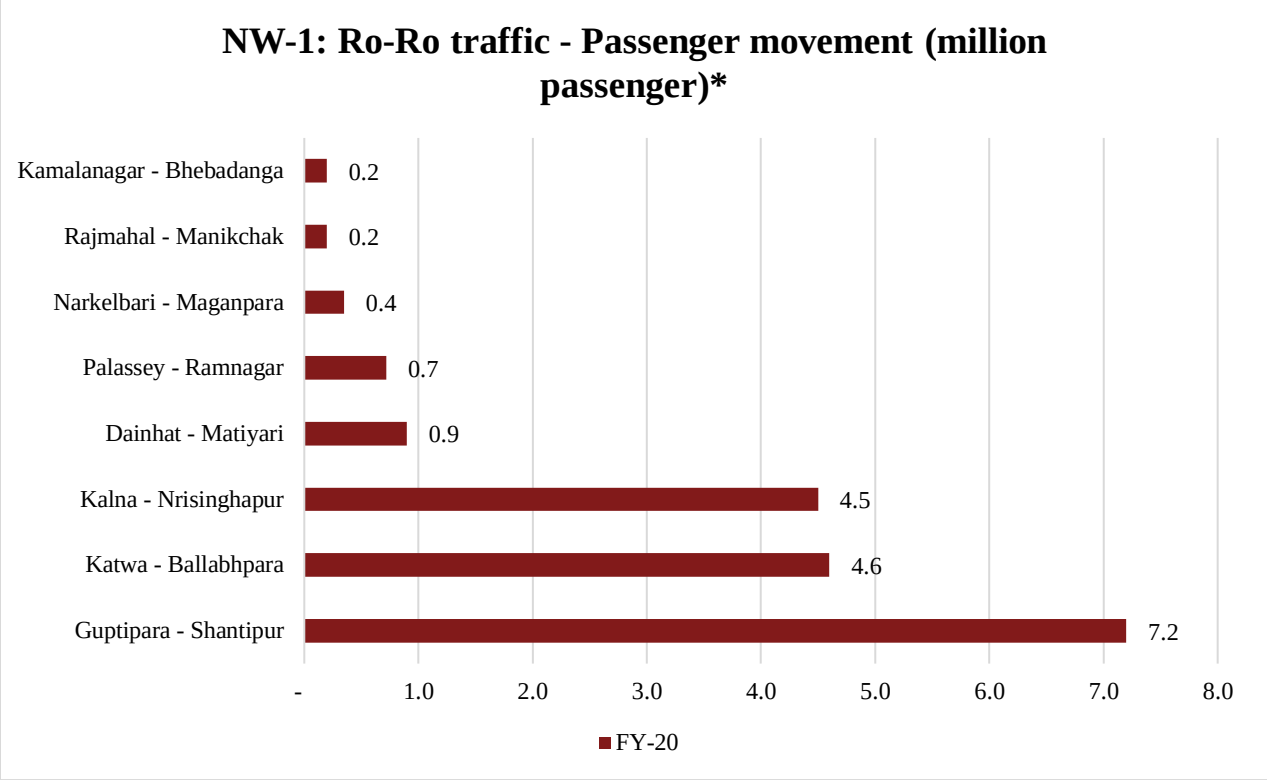


*- As per Ro-Ro traffic data available up to 18th March 2020

Figure 16- NW-1: Ro-Ro traffic – Traffic handling performance of jetties/ landing points (FY-20)

From origin locations except Samdaghat and Gramghat, commodities such as onions, potatoes, construction material, stone chips, furniture, wood and household items are transported to cross bank locations. From Samdaghat and Gramghat, stone chips are transported to Manihari.

The graph below presents the passenger traffic at origin/ destination locations (jetties/ landing points) for Ro-Ro Traffic in FY-20



*- As per Ro-Ro traffic data available up to 18th March 2020

Figure 17- NW-1: Ro-Ro traffic – Passenger traffic handling performance of jetties/ landing points (FY-20)

It can be observed that approx.18.5 million passengers were ferried via LCT/Ro-Ro and passenger launches between various points located on the stretch between Kolkata and Rajmahal. The top three location pairs between which passenger traffic movement was highest were Guptipara to Shantipur (7.2 million pax), Katwa to Ballabhpara (4.6 million pax) and Kalna to Nrisinghapur (4.5 million pax).

Longitudinal Movement (between Haldia and Varanasi)

In FY-20, 8,16,502 tonne traffic moved longitudinally between Haldia and Varanasi on NW-1 and comprised of pilot as well as commercial movements.

Of the total traffic moved, approx. 800,000 tonne of sand movements originated from Koelwar on the confluence of River Sone and River Ganga and travelled to different parts of the NW-1. These movements are active for 8 months (non-monsoon season) in and ferry approx. 100,000 tonne per month.

The remaining traffic (16,502 tonne) was moved via 20 longitudinal movements between Haldia and Varanasi. Of these 20 movements, 2 were pilot movements and 18 were commercial movements. With the operationalization of the MMT at Sahibganj, regular shipments of stone chips have started taking place and multiple shipments were sent Karagola on NW-1 in FY-20. The details of all the movements are given below.

Figure 18:Multimodal Terminal at Sahibganj

Sr. No	Month	Movement	Origin	Destination	Commodity	Quantity (tonne)	Distance (Km)
1	April	Commercial	Rajmahal	Begusarai	Crane	110	233
2	May	Pilot	Farakka	Narayanganj	Ballast (Stone)	1,050	544*
3	July	Pilot	Haldia	Sahibganj MMT	Edible Oil-(Containers)	1,300	920
4	Nov	Commercial	Haldia	Doriganj	Carbamate Condenser	487	965
5	Dec	Commercial	Sahibganj MMT	Karagola	Stone Chips	1,145	43
6	Dec	Commercial	Rajmahal	Doriganj	Ammonia Converter	574	417
7	Dec	Commercial	Rajmahal	Doriganj	Urea Stripper	712	417

Sr. No	Month	Movement	Origin	Destination	Commodity	Quantity (tonne)	Distance (Km)
8	Dec	Commercial	Gaighat (Patna)	Raghopur	TMT Bars	1,208	10
9	Jan	Commercial	Sahibganj MMT	Karagola	Stone Chips	1,566	43
10	Jan	Commercial	Sahibganj MMT	Karagola	Stone Chips	1,014	43
11	Jan	Commercial	Gaighat	Raghopur	TMT Bars	381	10
12	Feb	Commercial	Gaighat	Raghopur	TMT Bars	1,220	10
13	Feb	Commercial	Sahibganj MMT	Karagola	Stone Chips	1,575	43
14	Feb	Commercial	Diamond Harbour	Sahibganj	Secondary Reformer Main Equipment & Flare KO Drum	275	554
15	Feb	Commercial	Diamond Harbour	Semaria		276	789
16	Feb	Commercial	Diamond Harbour	Sahibganj	Ammonia vent drum	47	554
17	Feb	Commercial	Diamond Harbour	Semaria	Ammonia Converter	641	789
18	Feb	Commercial	Diamond Harbour	Semaria	Ammonia Converter	421	789
19	March	Commercial	Sahibganj MMT	Karagola	Stone Chips	1,300	43
20	March	Commercial	Sahibganj MMT	Karagola	Stone Chips	1,200	43

*- The distance mentioned is for stretch bon NW-1 (Farakka to Sagar)

The graph below presents the traffic at origin/ destination locations (jetties/ landing points) for longitudinal traffic.

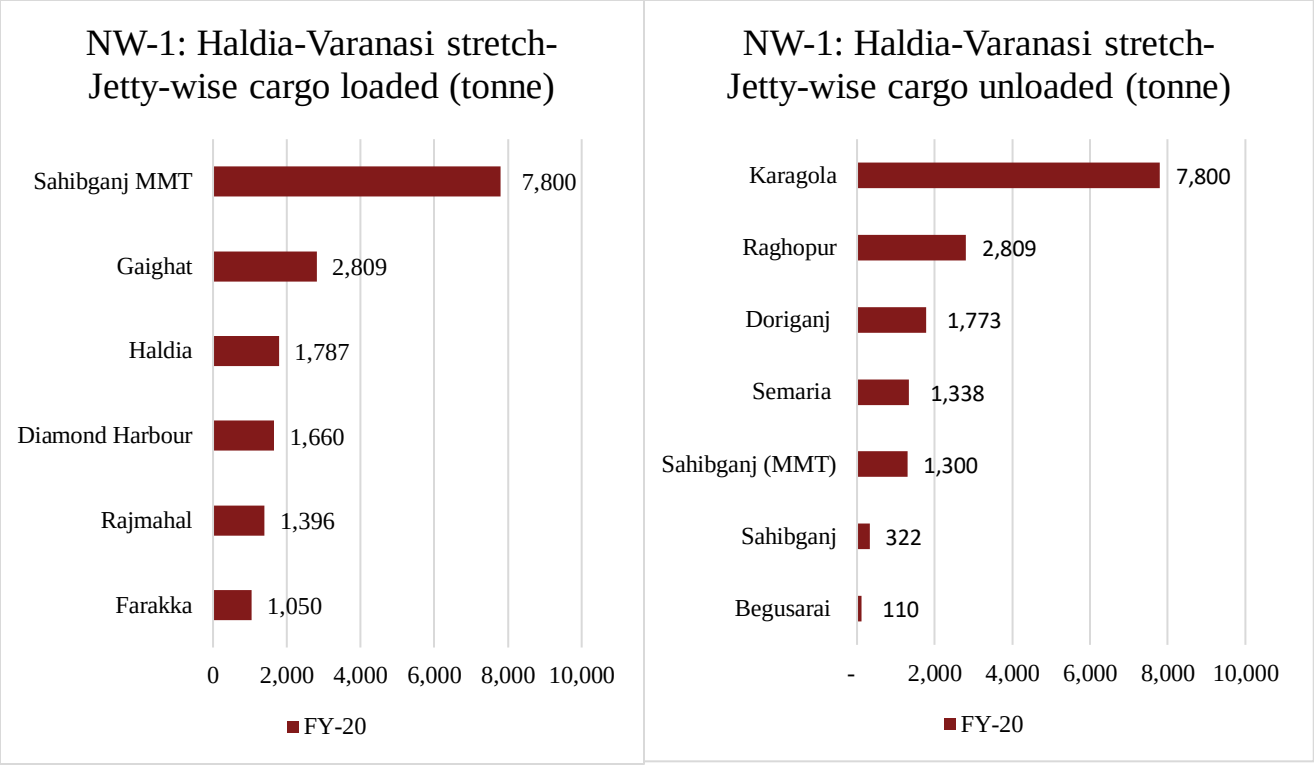


Figure 19- NW-1 wise jetty performance for longitudinal cargo movements

It can be observed that majority of the longitudinal cargo is loaded at Sahibganj MMT, followed by Gaighat. Sahibganj MMT began its operations from August 2019 onwards and currently regular movement is taking place to Karagola. Most of the other jetties handled ODC cargo. The details of various jetties are available in the annexure.

Over Dimensional Cargo (ODC) movement

Inland Waterway Transport (IWT) mode is the preferred mode for transportation of Over Dimensional Cargo (ODC) because of multiple advantages vis-à-vis land transport. Rail transport doesn't have significant flexibility to accommodate ODC cargo because of standard wagon sizes. Road transport faces significant challenges such as route and time restrictions, requirement of multiple permissions and significant effort in carrying out route surveys to carry ODC cargo. IWT mode allows movement of ODC cargo in a relatively convenient manner.

In FY-20, seven shipments constituting of approx. 3,500 tonne of Over Dimensional Cargo moved on NW-1.

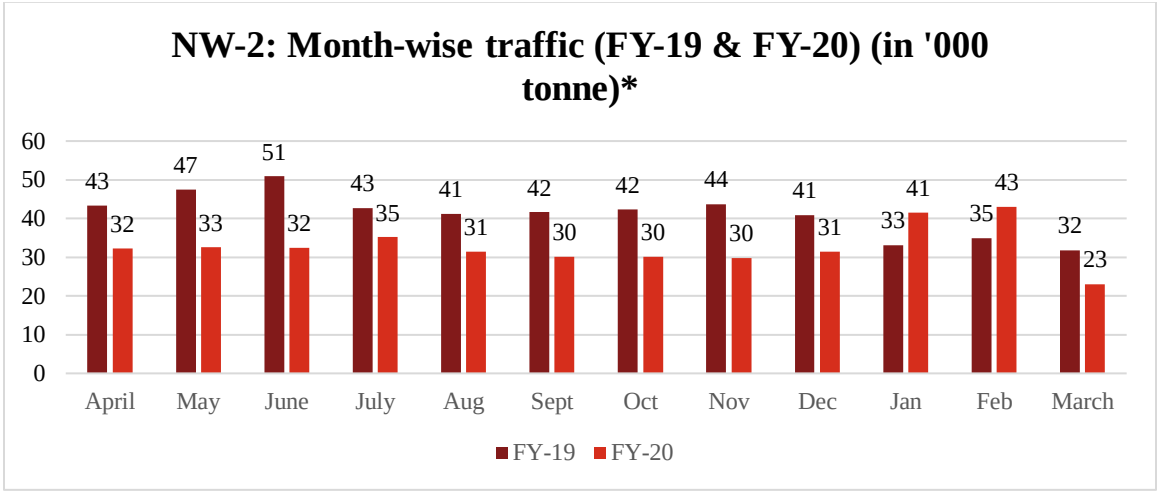
Figure 20- NW-1: ODC cargo movement

In FY-20 products such as Carbamate condenser, Ammonia condenser, Ammonia converter etc. were transported using IWT mode from Kolkata/ Haldia port to destinations along NW-1 where these products were imported for installation of fertilizer manufacturing unit.

4 National Waterway-2

National Waterway-2 is the 891 km stretch of River Brahmaputra between Bangladesh border near Dhubri and Sadiya. NW-2 has historically been a crucial mode of transportation for the state of Assam (in the North East India) and continues to remain so. IWAI maintains stretch-wise Least Available Depth (LAD) on NW-2 around the year, which has resulted in regular traffic movement. The traffic on NW-2 primarily consists of passengers, vehicles and goods movement taking place through ferries.

Approx. 0.39 million tonne of traffic moved on NW-2 in FY-20 between approx. 50 Origin-Destination pairs. The graph below presents the month wise traffic for FY-20 as compared to FY-19.



*- Actual numbers have been rounded off to the nearest thousand for representational purposes. The traffic data for March is up to 18th March 2020

Figure 21- NW-2: Month-wise traffic (FY-19 & FY-20)

The total traffic in FY-20 has decreased by approx. 22% from 0.5 million tonne in FY-19 to 0.39 million tonne in FY-20. The decrease in traffic is due to the shift of traffic from waterways to road after construction of the Bogibeel bridge over River Brahmaputra (NW-2) in December 2018. Due to the shift of traffic to road via Bogibeel bridge, NW-2 based cross river ferry movement at Bogibeel, Dibrugarh, Oriumghat and surrounding areas has stopped. In July 2019, movement of Bhutanese stone chips & boulders started using IWT mode from Dhubri to destinations in Bangladesh. The graph below presents the profile of traffic moving on NW-2 in FY-20.

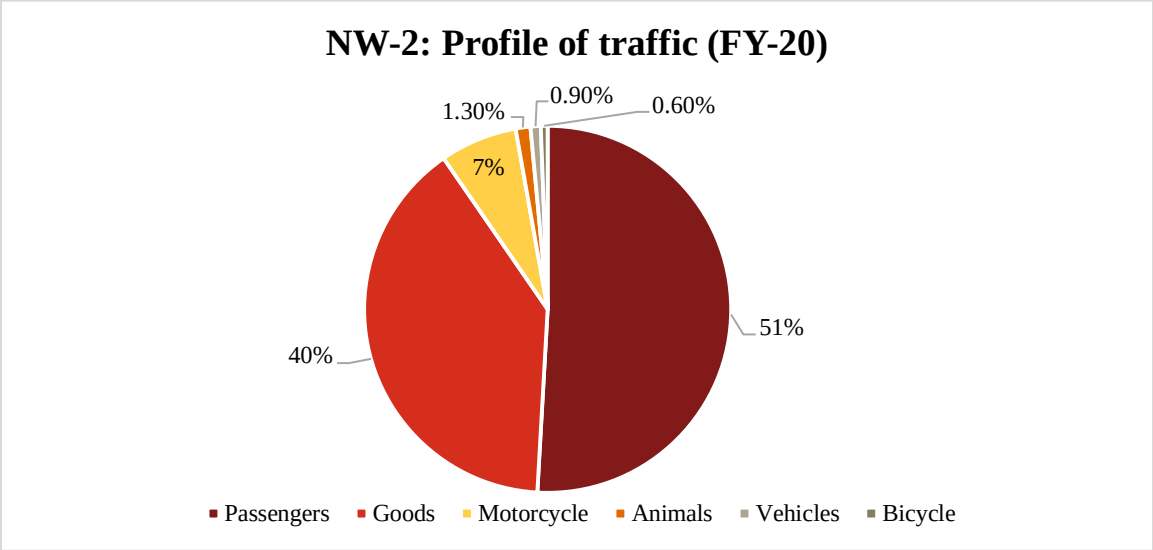


Figure 22- NW-2: Profile of traffic (FY-20)

Passengers (51%) account for the highest share of traffic moving on NW-2 followed by goods (40%). The goods movement on NW-2 is unorganized in nature consisting of personal items, vegetables etc. The graph below presents the share of jetties at the origin and destination locations on NW-2 for FY-20.

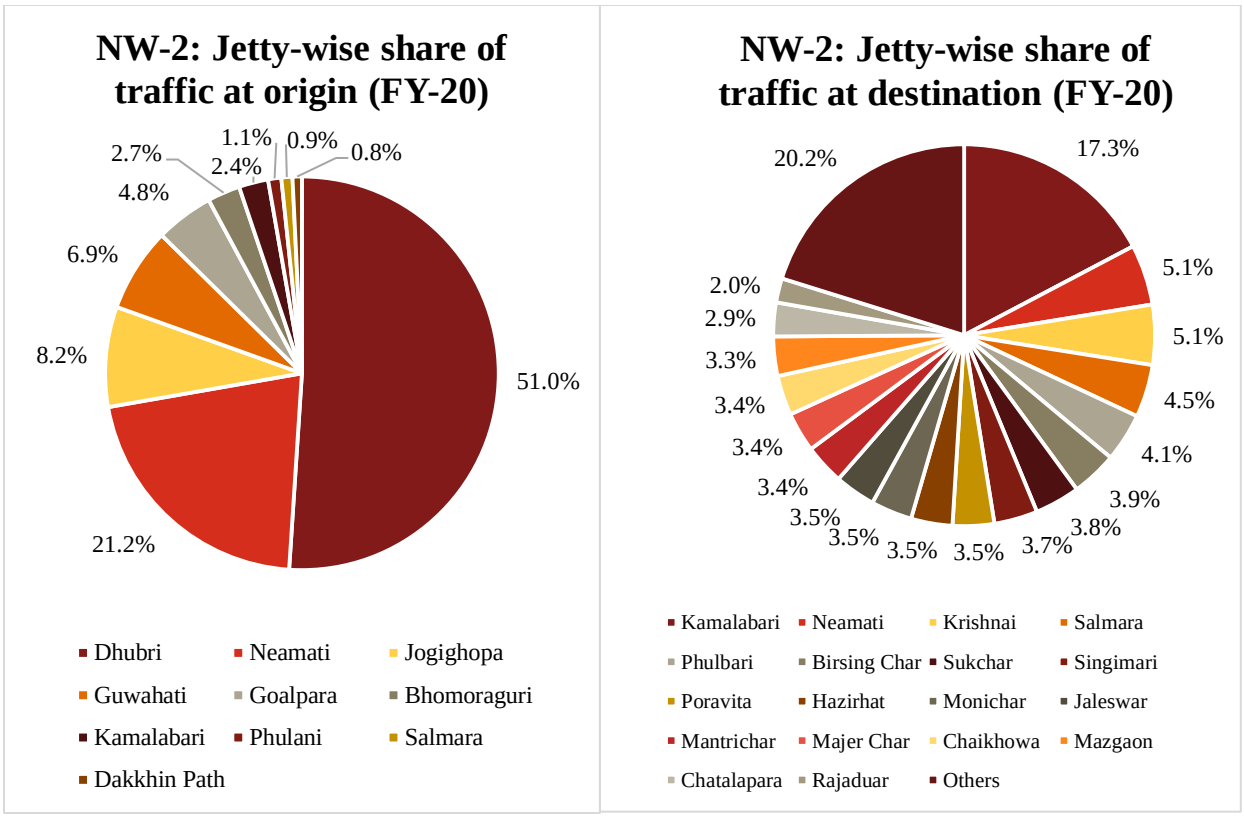


Figure 23- NW-2: Jetty-wise share of traffic at origin and destination (FY-20)

It can be observed that Dhubri is the major origin location accounting for 51.1% of the total traffic moving on NW-2. Traffic movement from Dhubri takes place to 17 destination locations. D hubri is followed by Neamati (21%) and Jogighopa (8%), and these 3 origin locations constitute 80% of the origin traffic in FY-20. The destination locations are highly fragmented with a total of 46 destination locations. Of these 46 locations, Kamalabari accounts for 17.1% and Neamati accounts for 5.1%. The remaining 44 locations handle less than 5% traffic each.

Figure 24- NW-2: Coal handling operations at Pandu terminal

In FY-20, traffic on National Waterway-2 has been recorded at approx. 60 jetties. These jetties handle goods, vehicles and passengers primarily through ferries. The traffic handled at the top 4 jetties has been depicted in the following graph.

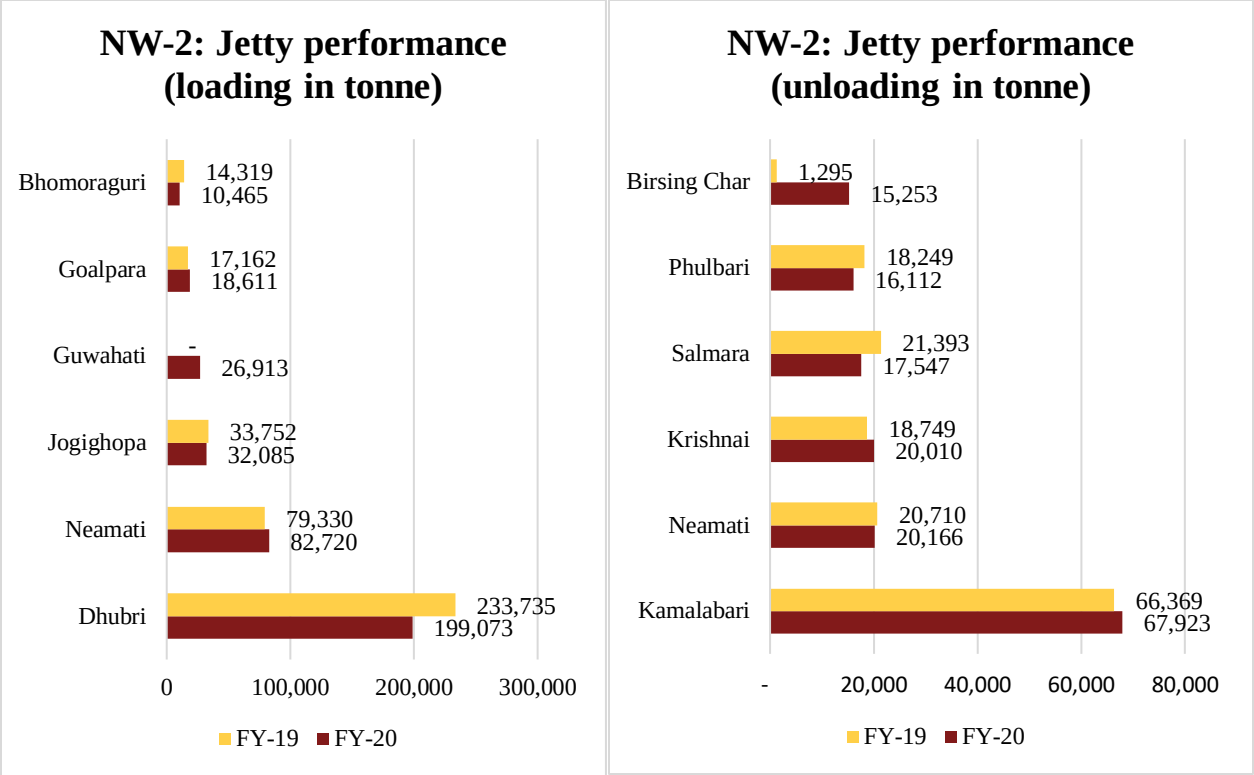


Figure 25- NW-2: Traffic handling performance of jetties (FY-19 & FY-20)

Among the jetties on NW-2, Dhubri handled the maximum loaded traffic however, it saw a dip in traffic in FY-20 as compared to FY-19. Neamati and Goalpara saw a slight increase in the loaded traffic, whereas Jogighopa and Bhomoraguri saw a slight decrease in the loaded traffic compared to FY-19.

Considering the unloaded traffic on the jetties on NW-2, Kamalabari handled the maximum traffic and saw an increase in its traffic as compared to FY-19. Birsing Char saw a drastic increase in the unloaded traffic, while Krishnai, Phulbari and Salmara saw a decrease in the unloaded traffic compared to FY-19. The details of various jetties are available in the annexure.

First ever containerized movement on NW-2

Successful completion of the first containerized movement on NW-2 marked FY-20 as a landmark year for Inland Waterway Transportation. In line with Government's focus on improving connectivity of the North Eastern Region (NER), a landmark Container cargo consignment sailed from Haldia Dock Complex (HDC) to IWAI's Pandu Port (Guwahati) on NW-2 on 4th November 2019. Shri Gopal Krishna, Secretary (Shipping) flagged off the inland vessel MV Maheshwari carrying 48 TEUs (with food & beverage, edible oil etc.) for its voyage via NW-1, NW-97 (Sundarbans), IBP route and NW-2.

Figure 26 – NW-2: First containerized movement

This initiative by IWAI (Ministry of Shipping) to commence containerized movement to North East via IWT mode has been appreciated by all stakeholders with great enthusiasm. IWAI is making concerted efforts to take up such movements to demonstrate the technical and commercial viability of Inland Waterways connectivity to NER to instill confidence in the industry for the modal shift of traffic and is at the same time engaging with stakeholders such as BIWTA, Customs authorities and Industry to address and resolve operational and procedural constraints.

Enabling Bhutan-Bangladesh trade via NW-2

Bhutan has been exporting significant quantity of stone aggregates through the land route for different construction projects in Bangladesh. Stone exporters have identified Inland waterways as an alternate mode of transportation considering the benefits associated with waterways mode such as lower transportation cost, larger shipment size compared to road, avoiding congestion on land routes etc.

In the first such movement of its kind, 1,005 tonne of crushed stone aggregates originating from Bhutan was transported from IWAI's jetty at Dhubri (Assam) on NW-2 to Narayanganj, Bangladesh on 11th July 2019. Stone aggregates were transported using trucks from Bhutan based stone quarries to IWAI's Dhubri jetty and subsequently loaded on IWAI's vessel MV AAI using mechanized loading system.

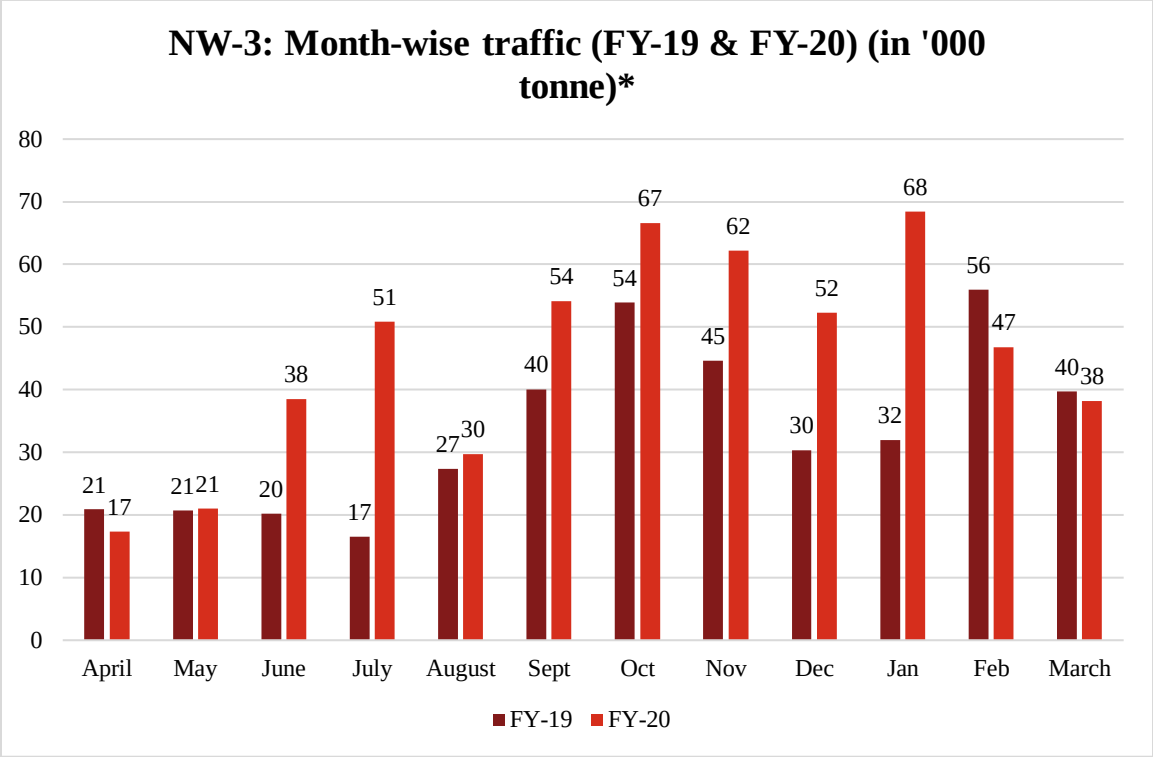
With successful completion of five pilot movements for bulk and containerized cargo, more than 10 movements of Bhutanese stone chips to Bangladesh in FY-20, and development of critical stretches on the IBP route, traffic on NW-2 is expected to increase in the coming years.

This movement evinced confidence in the Bhutanese exporters to increasingly shift to waterways mode and increase the trade of stone aggregates and other commodities between Bhutan and Bangladesh. As a result of the success of the first movement, movement of stone aggregates has become regular between Dhubri and Chilmari (Bangladesh) and more than 10 shipments of approx. 100-300 tonne size have been completed in FY-20.

Figure 27- NW-2: Loading operations at Dhubri jetty

5 National Waterway-3

Kottapuram- Kollam stretch of the West Coast canal along with Champakara canal and Udyogmandal canal has been declared as the National Waterway-3 (NW-3). Approx. 0.55 million tonne traffic moved on NW-3 in FY-20. Most of the traffic movement on NW-3 is contributed by the movement of raw materials belonging to M/s Fertilizers and Chemicals Travancore Ltd (FACT) from Cochin port to the jetties at FACT factories. The graph below presents the month-wise traffic movement on NW-3 in FY-20.



*- The traffic numbers have been rounded off to the nearest thousand for representational purposes

Figure 28- NW-3: Month-wise traffic (FY-19 & FY-20)

The total traffic in FY-20 has increased by approx. 34% to approx. 0.55 million tonne in FY-20 from approx. 0.41 million tonne in FY-19.

The graph below presents the commodity profile of traffic on NW-3 in FY-20.

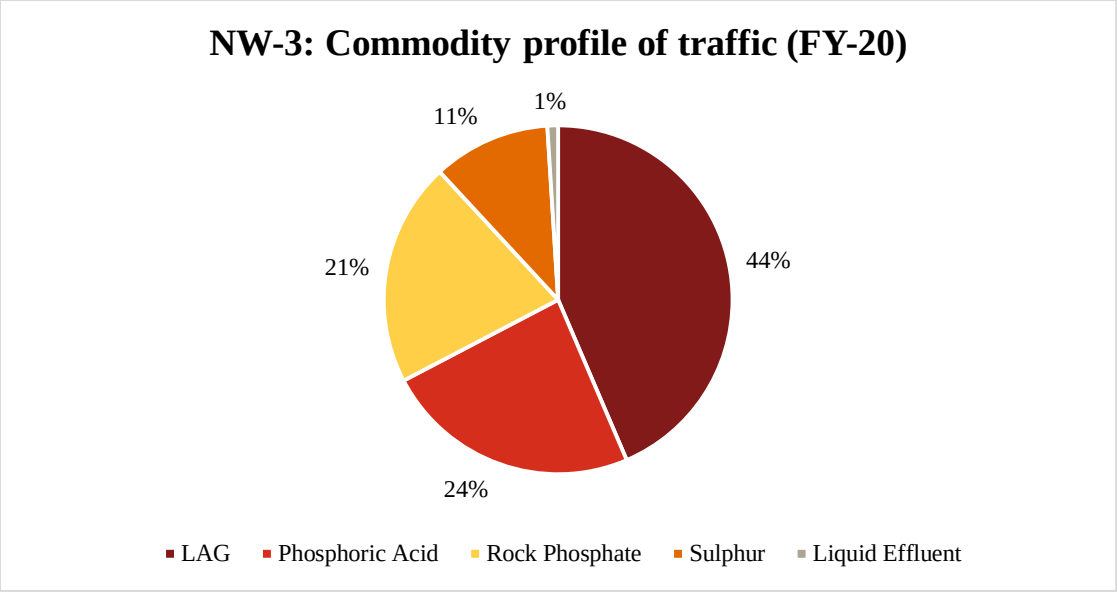


Figure 29- NW-3: Commodity profile of traffic (FY-20)

The traffic moving on NW-3 is primarily the raw materials moved by Fertilizers and Chemicals Travancore (FACT) to and in between their plants. LAG (44%) constitutes the highest share of traffic followed by Phosphoric Acid (24%) and Rock Phosphate (21%). LAG is transported to FACT's Cochin Division and Petrochemical Division; Phosphoric acid and Sulphur is transported to FACT's Cochin Division and Udyog Mandal Division while most of the Rock Phosphate is transported to FACT's Cochin Division jetty.

Figure 30- Vessel sailing on NW-3

The graph below presents the jetty-wise share at origin and destination in traffic on NW-3 in FY-20.

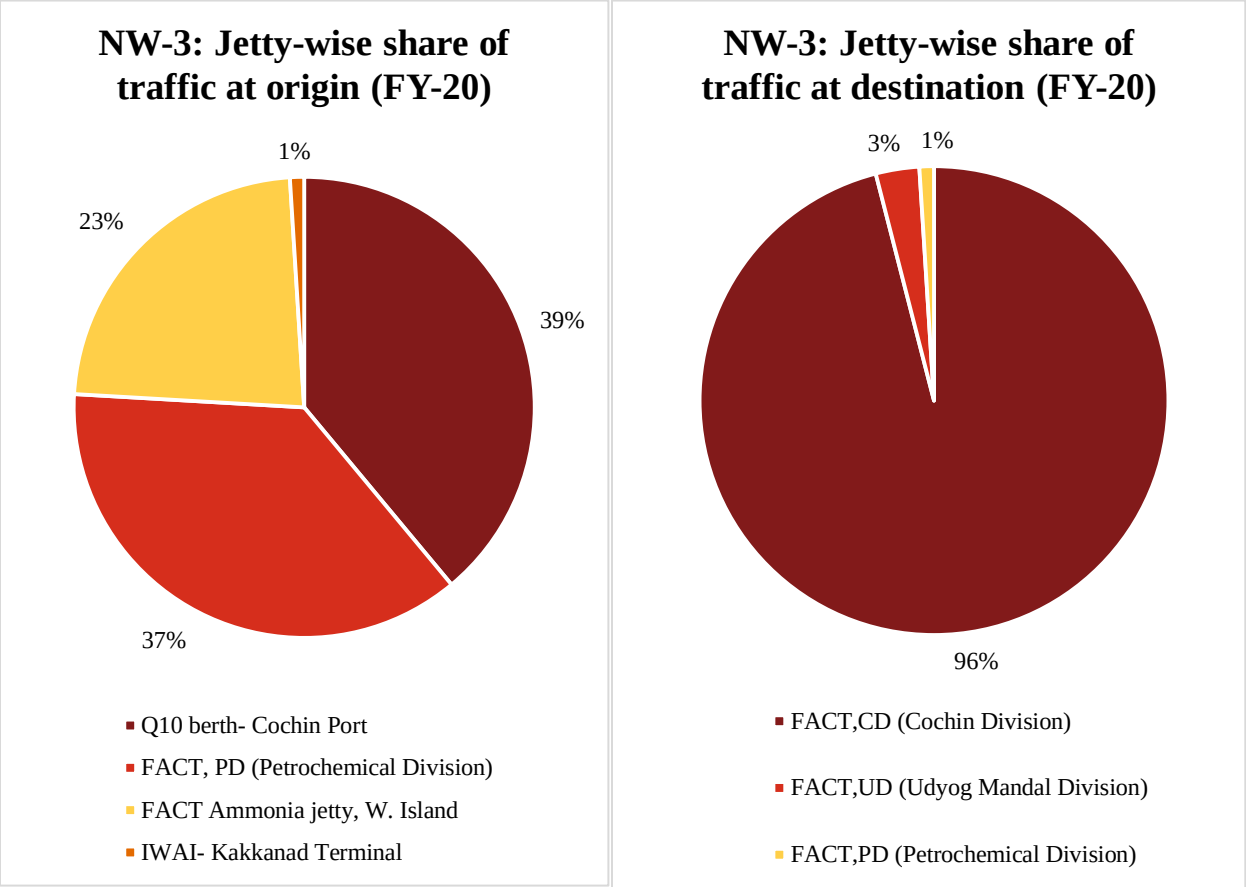


Figure 31- NW-3: Jetty-wise share of traffic at origin & destination (FY-20)

It can be observed that a major share of traffic on NW-3 originates from the Q10 berth-Cochin port and FACT, PD (Petrochemical Division) jetty. The Q10 berth-Cochin Port is used to transport Phosphoric acid, Rock phosphate and Sulphur to multiple destinations. FACT, PD jetty is used for transporting LAG, whereas the FACT Ammonia Jetty is used for transporting LAG, Phosphoric Acid, Rock Phosphate and Sulphur. Among the destination locations, FACT, CD (Cochin Division) jetty accounts for the largest share of traffic and handles multiple commodities i.e. Rock Phosphate, Sulphur, LAG and Phosphoric Acid. This

Traffic on NW-3 primarily consists of industrial products belonging to various divisions of M/s FACT. Connectivity of waterways in Kerala with Cochin port provides a distinct advantage to the IWT mode.

is followed by FACT, UD (Udyog Mandal Division) jetty, which receives Phosphoric Acid, Rock Phosphate, Sulphur and FACT, PD jetty, which receives only LAG.

The graph below shows the traffic handled at various jetties (including private jetties) on NW-3.

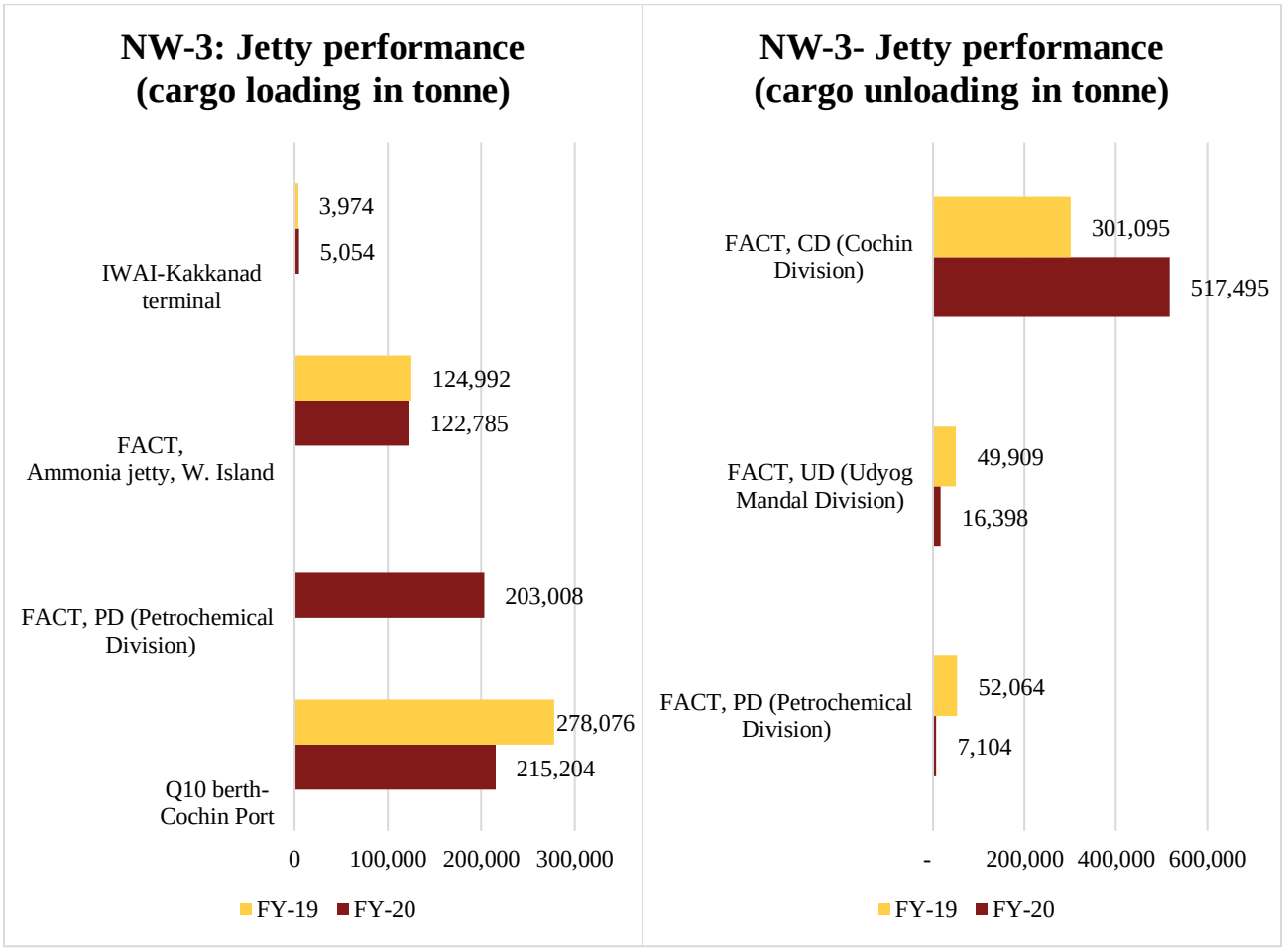


Figure 32- NW-3: Traffic handling performance of jetties (FY-19 & FY-20)

From the above graph it can be observed that the traffic handling on NW-3 is currently taking place at 7 jetties. There was a significant rise in the cargo unloading at FACT, CD jetty in FY-20, whereas cargo loading by Q10 berth-Cochin Port has decreased in FY-20 as compared to the same period last year. FACT, PD jetty was used as a loading point in FY-20, whereas in FY-19 it was only used as an unloading point.

The graph given below shows the jetty/ Port wise loaded commodities handled on NW-3.

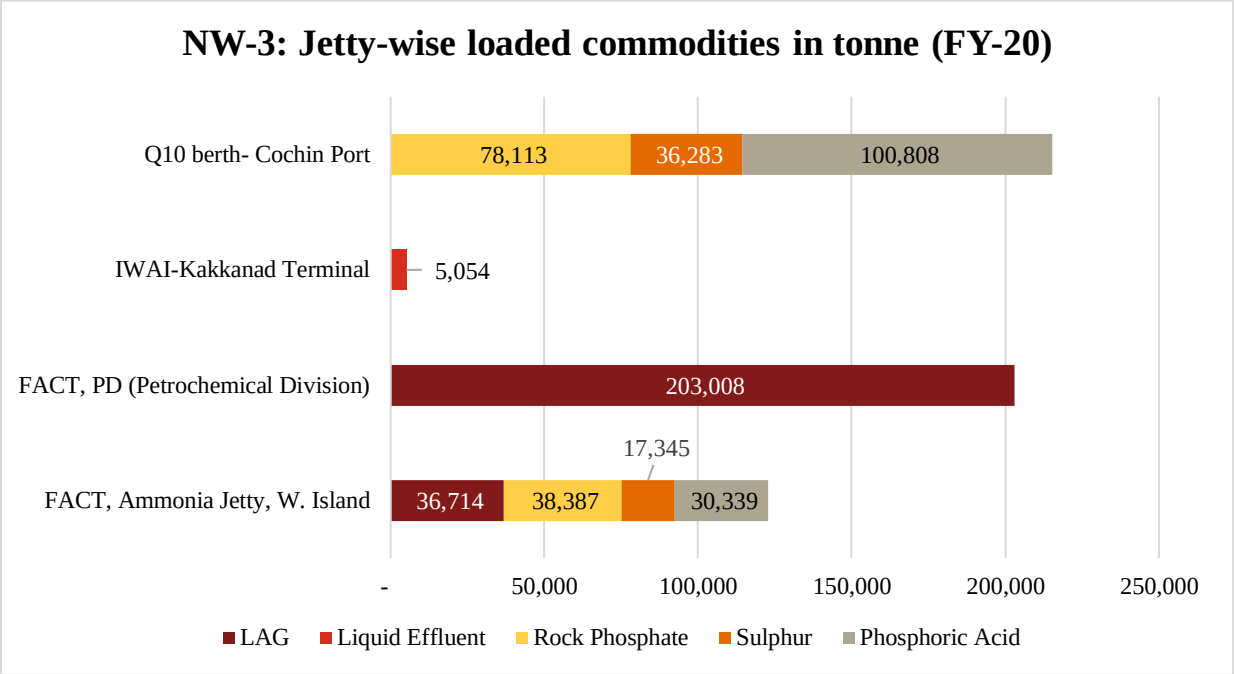


Figure 33- NW-3: Jetty-wise loaded commodities (FY-20)

Fertilizer and Container Travancore (FACT) uses jetties at Petrochemical Division (PD), Willington Island (Ammonia jetty) and Q10 berth-Cochin Port to transport Rock Phosphate, Sulphur and LAG to its jetties at Udyog Mandal Division (UD) and Cochin Division (CD). The Q10-berth at Cochin Port is used to transport Phosphoric Acid, Rock Phosphate and Sulphur to multiple destinations. FACT PD (Petrochemical Division) jetty is used exclusively for transporting LAG, whereas the FACT Ammonia Jetty (Willington island) is used for transporting LAG, Phosphoric Acid, Rock Phosphate and Sulphur.

The graph given below shows the jetty/ Port wise unloaded commodities handled on NW-3.

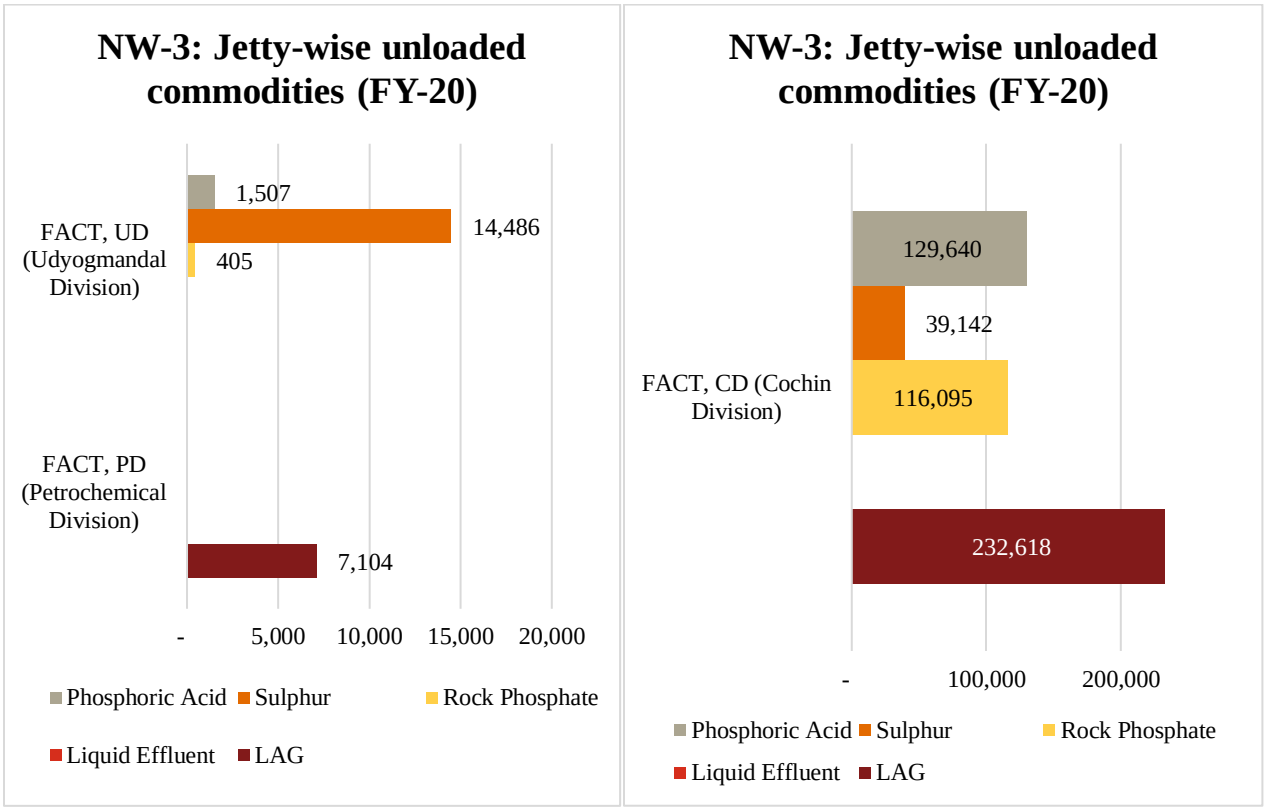
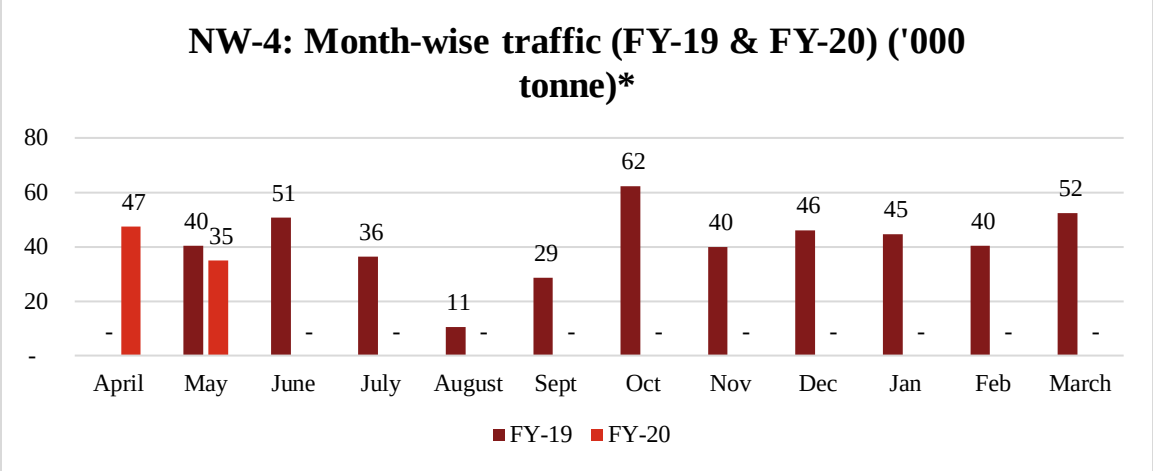


Figure 34- NW-3: Jetty-wise unloaded commodities (FY-20)

It can be observed that FACT, CD (Cochin Division) jetty accounts for the largest share of unloaded traffic and handles multiple commodities i.e. Rock Phosphate, Sulphur, LAG and Phosphoric Acid with LAG being the largest handled commodity at the jetty. This is followed by the FACT, UD (Udyog Mandal Division) jetty, which primarily receives Sulphur along with limited quantities of Phosphoric Acid and Rock Phosphate. FACT, PD (Petrochemical Division) jetty only handles LAG.

6 National Waterway-4

National Waterway 4 (NW-4) is a 2,890 kilometers long waterway consisting of stretches of River Krishna, River Godavari, Commamur Canal and Buckingham Canal. It passes through the Indian states of Telangana, Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra and the union territory of Puducherry. The graph below presents the month wise traffic movement on NW-4 in FY-20.



*- The traffic figures have been rounded off to the nearest thousand for representational purposes

Figure 35- NW-4: Month-wise traffic (FY-19 & FY-20)

The traffic movement on NW-4 is through Ro-Ro operations wherein trucks carrying construction material are carried from Ibrahimpatnam to Lingayapalam using Ro-Ro inland vessels. In FY-19, traffic handled on NW-4 was 452,066 tonne, while in FY-20 traffic reduced to 82,226 tonne due to suspension of operations due to local issues and suspension of capital city construction works in Amravati.

Figure 36- NW-4: Ro-Ro vessel operations

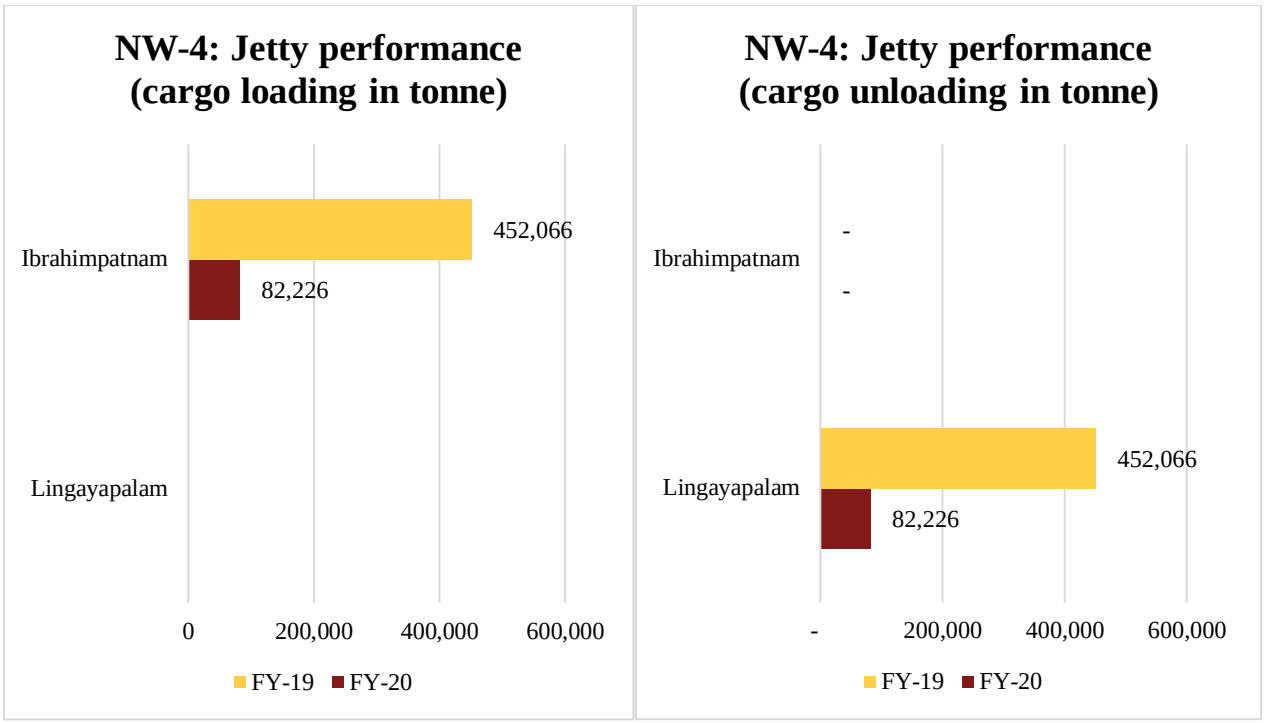


Figure 37-NW-4: Traffic handling performance of jetties/ landing points (FY-19 & FY-20)

Only a limited stretch of approx. 2 km on NW-4 was being used for the Ro-Ro operations with traffic recorded at only 2 jetties namely Ibrahimpatnam, which is used as a loading point and Lingayapalam which is used as an unloading point. Both the locations are used as Ro-Ro jetties/ landing points for movement of trucks carrying construction materials.

7 Maharashtra Waterways

Maharashtra has 4 operational NWs which are NW-10 (Amba River), NW-83 (Rajpuri creek), NW-85 (Revdanda creek/ Kundalika River) and NW-91 (Shastri River/ Jaigad Fort Creek). Maharashtra Waterways constituted approx. 33% of the total traffic handled on all National Waterways in the country in the FY-20. NW-10 handles close to 90% of the total traffic on Maharashtra Waterways followed by NW-85 which handles approx. 7% of the total traffic.

Figure 38- Maharashtra NWs: Operational waterways

In FY-19, traffic handled on the Maharashtra Waterways was approx. 28.3 million tonne, while in FY-20 traffic reduced to 24.4 million tonne mainly due to reduction in import/export traffic.

The graph below presents the commodity profile of traffic on Maharashtra Waterways in FY-20.

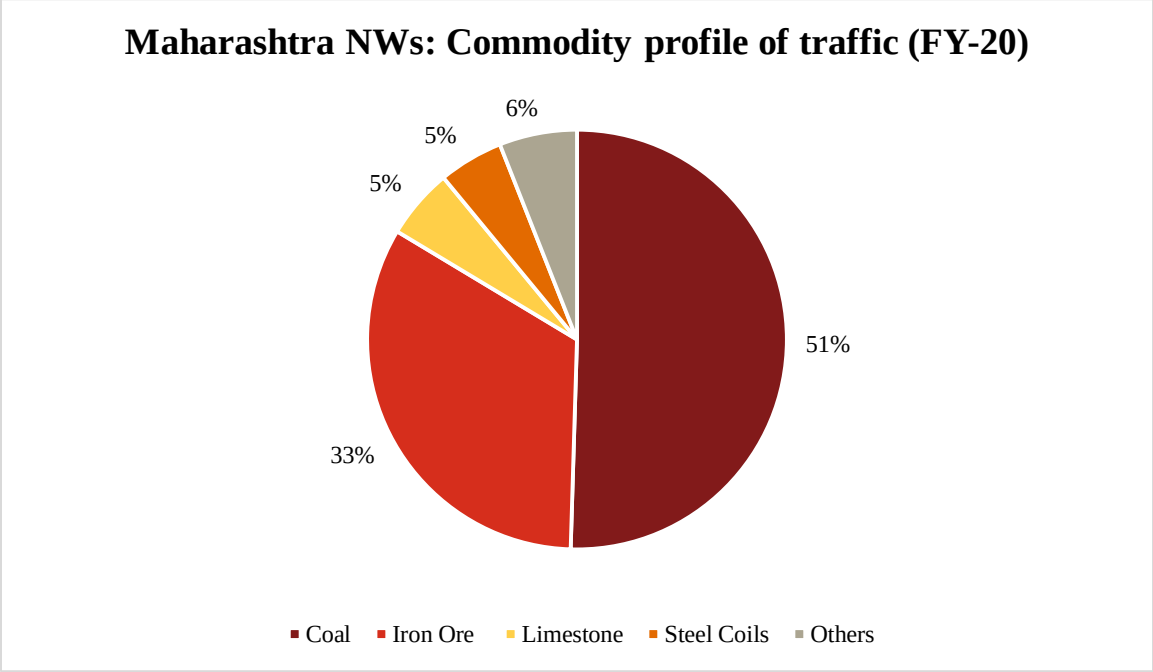


Figure 39- Maharashtra NWs: Commodity profile of traffic (FY-20)

It can be observed that Coal (51%) followed by Iron Ore (33%) account for 84% of the traffic moved on the Maharashtra Waterways. Limestone and Steel coils each account for 5% of the traffic moved, whereas commodities such as Dolomite, Clinker and lose cement make up for most of the other category of commodities.

The graph below presents the jetty-wise share of traffic at origin and destination on the Maharashtra waterways in FY-20.

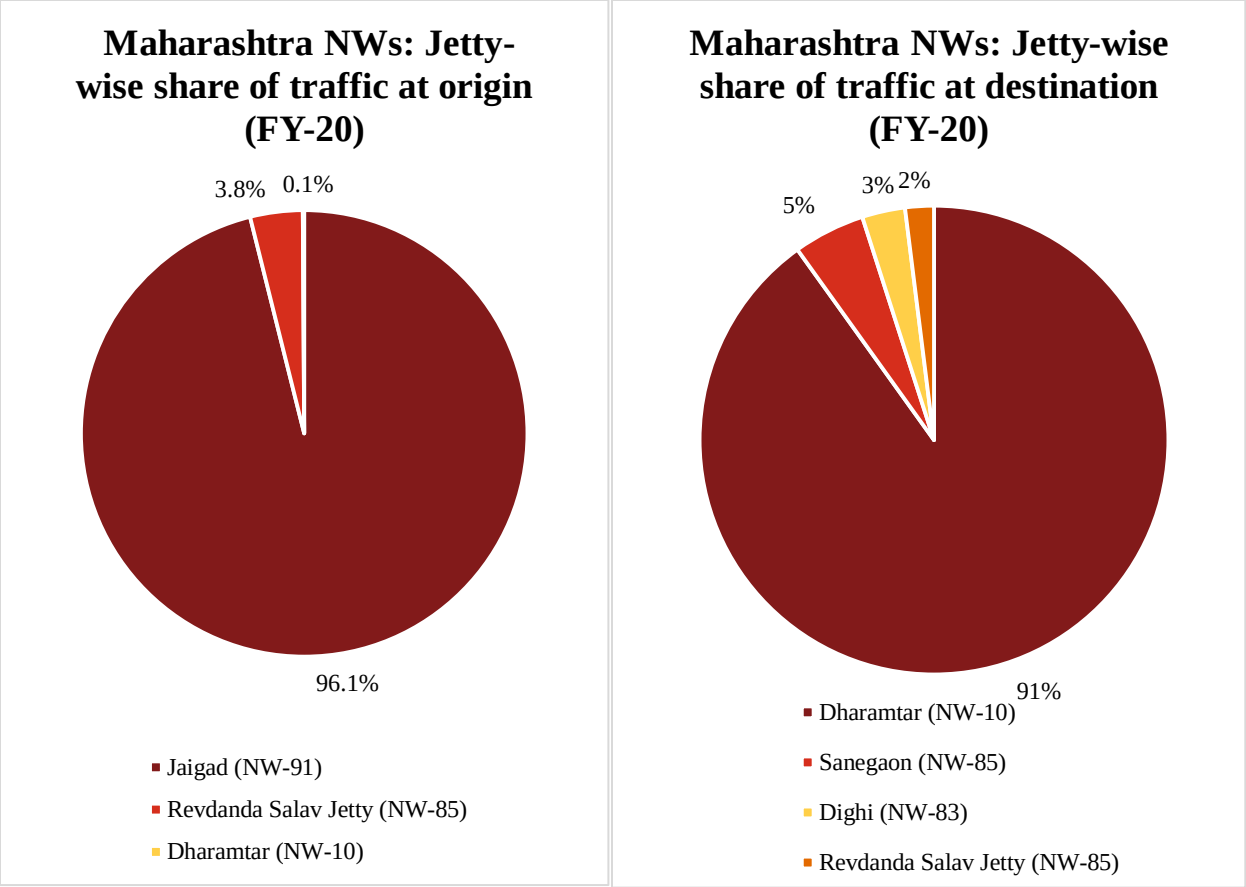


Figure 40- Maharashtra NWs: Jetty-wise share of traffic at origin & destination (FY-20)

Of the total traffic moving on the Maharashtra Waterways, approx. 40% originates from the jetties present on the Maharashtra Waterways while 60% originates either from foreign ports or from the coastal ports of India. Of this 40% which originates on the Maharashtra Waterways, approx. 96% is handled by Jaigad and close to 4% is handled by Revdanda Salav Jetty. There is no originating traffic from Dighi or Sanegaon jetty while Dharamtar handles a very limited share of the originating traffic.

Maharashtra waterways constitute approx. 33% of the entire IWT traffic in India. Industrial units/ Ports/ Lighterage points located at the interface of Coastal and Inland Waterways drive this traffic.

Of the total traffic moving on the Maharashtra Waterways, 99% goes to jetties present on the Maharashtra Waterways while the remaining 1% is destined for coastal ports of India. Of this 99% which is destined

for the Maharashtra Waterways, Dharamtar handles 91%, Sanegaon handles 5%, Dighi handles 3% and Revdanda Salav jetty handles 2%.

The graph given below shows the jetty/ Port wise traffic handled on the Maharashtra Waterways.

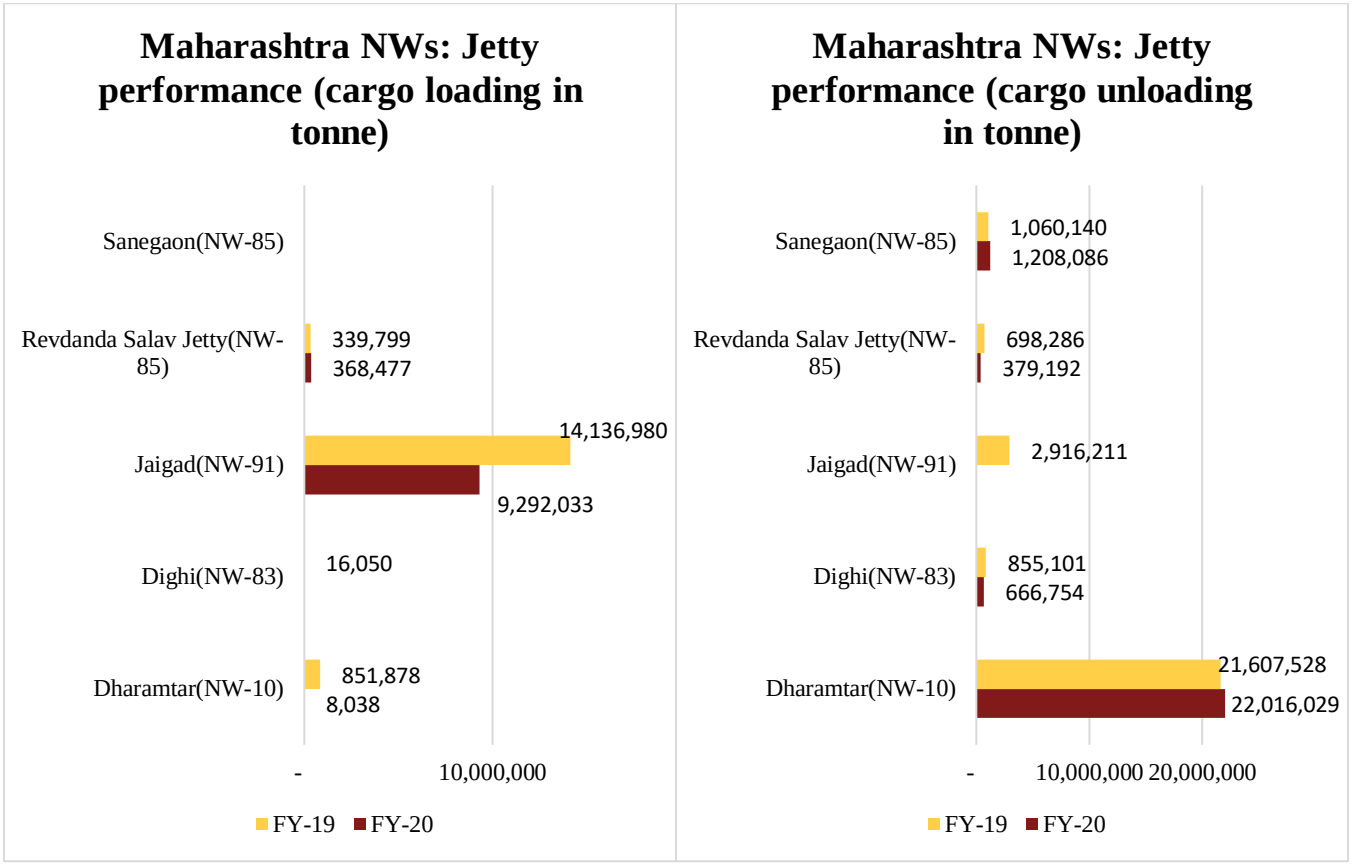


Figure 41- Maharashtra NWs: Traffic handling performance of jetties (FY-19 & FY-20)

It can be observed that Dharamtar (on NW-10) handled majority of the unloaded traffic on the Maharashtra waterways i.e. 80% in FY-19 and 91% in FY-20, whereas Jaigad (on NW-91) handled majority of the loaded traffic i.e. 92% in FY-19 and 80% in FY-20. Dharamtar has seen an increase in traffic handled, whereas Jaigad has seen a drastic decrease in the traffic handled. The other jetties/ Ports on the Maharashtra Waterways are Dighi Port on NW-83, Revdanda Salav jetty and Sanegaon jetty on NW-85. Dighi had limited traffic loaded from it in FY-19, however in FY-20 it was used only as an unloading jetty. Revdanda Salav jetty is used as both loading and unloading jetty, whereas Sanegaon was used for unloading only. Revdanda Salav jetty, Jaigad, and Dighi have seen a decrease in traffic handled over the same period in the past year.

The graph given below shows the profile of commodities loaded on different jetties/ Ports on the Maharashtra Waterways.

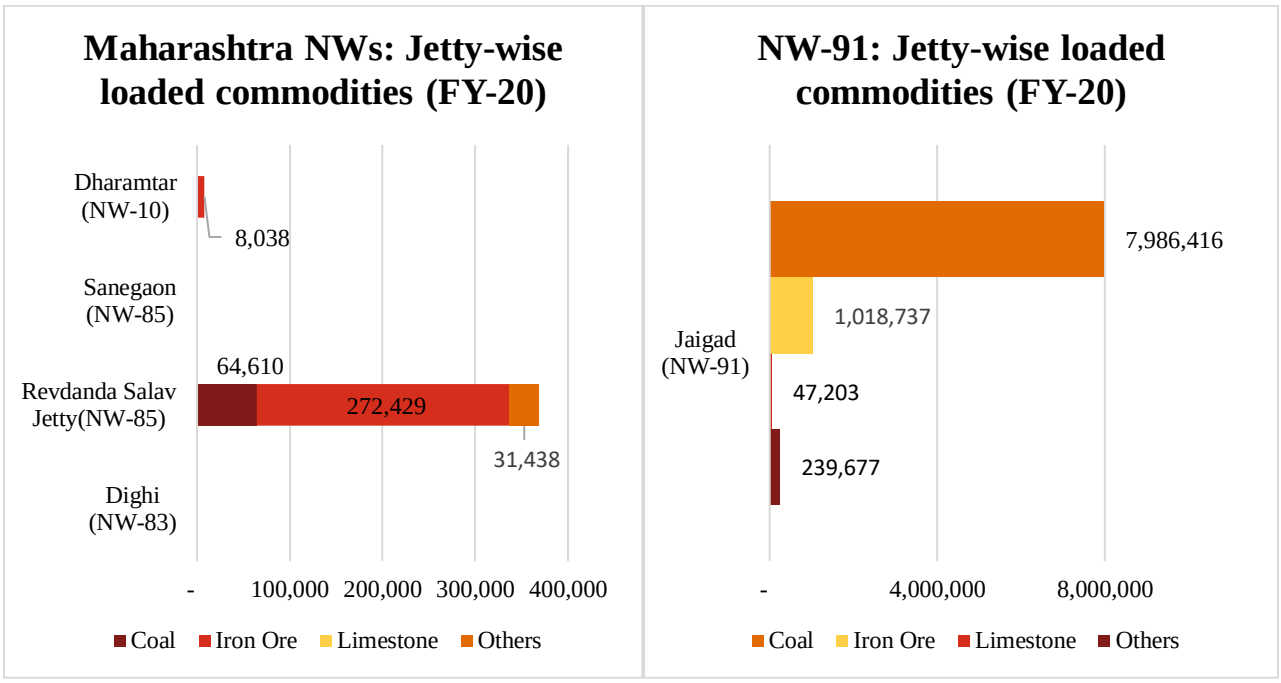


Figure 42- Maharashtra Waterways: Jetty-wise loaded commodities (FY-20)

Among the jetties on the Maharashtra Waterways, Jaigad followed by Revdanda Salav Jetty accounted for the highest share of loaded traffic. Coal accounted for majority of the traffic loaded at Jaigad followed by Iron Ore and both these commodities were predominantly transported to Dharamtar port. Revdanda Salav Jetty has been mainly used as a loading point for Iron Ore fines shipments to Dharamtar port. Dharamtar port had limited traffic movements of Iron Ore to Revdanda, whereas Dighi and Sanegaon did not load any cargo in FY-20.

The graph given below shows the profile of unloaded commodities on different jetties/ Ports on the Maharashtra Waterways.

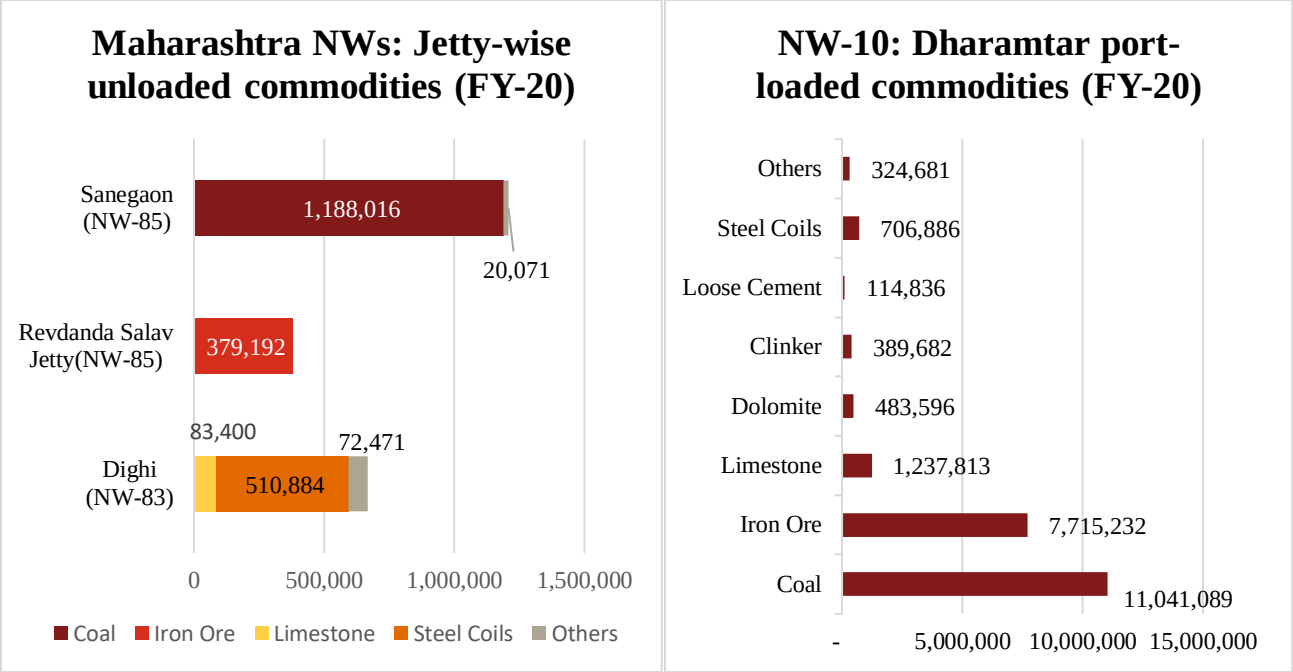


Figure 43- Maharashtra NWs: Jetty-wise unloaded commodities (FY-20)

In terms of the jetties used for unloading on the Maharashtra Waterways, Dharamtar followed by Sanegaon jetty accounted for the highest unloaded traffic. Dharamtar primarily received Coal, Iron ore and Limestone from origin points such as Jaigad, coastal ports such as Paradip and Vizag and foreign ports. Sanegaon received Coal via lighterage operations at Revdanda Anchorage. Dighi is primarily used for receiving steel coils from Hazira and Revdanda Salav jetty received Iron ore via lighterage operations at Revdanda Anchorage.

8 Goa Waterways

Goa has 2 operational National Waterways i.e. NW-68 (River Mandovi) and NW-111 (River Zuari).

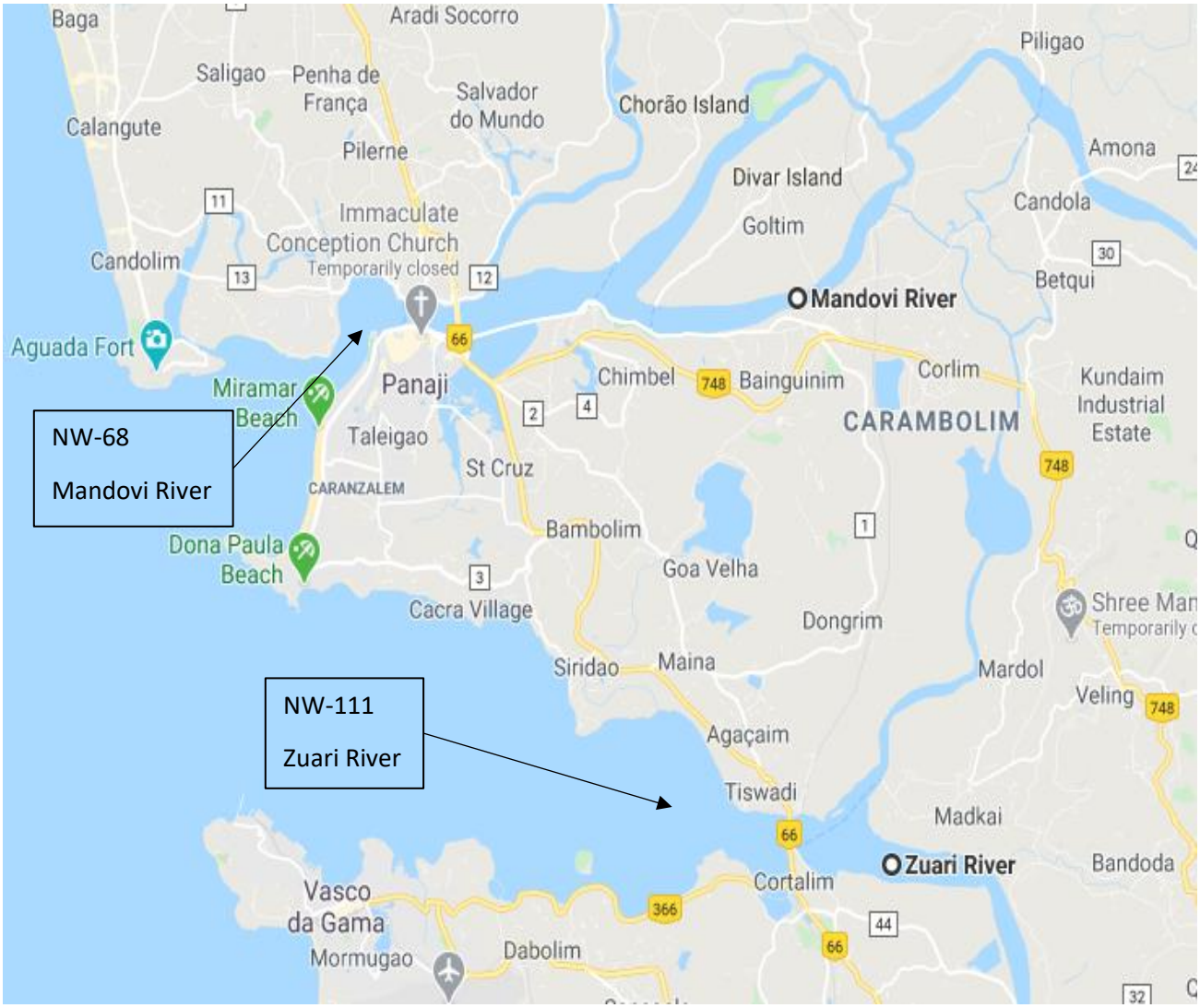


Figure 44- Goa Waterways: Operational NWs

With traffic movement of approx. 2.9 million tonne, the Goa waterways constituted approx. 4% of the total traffic on all NWs in FY-20. 51% (approx. 1.6 million tonne) of the total traffic on the Goa Waterways was handled on NW-68, whereas the remaining 49% (approx. 1.3 million tonne) was handled on NW-111. The graph below presents the month wise traffic movement on the Goa waterways in FY-20.

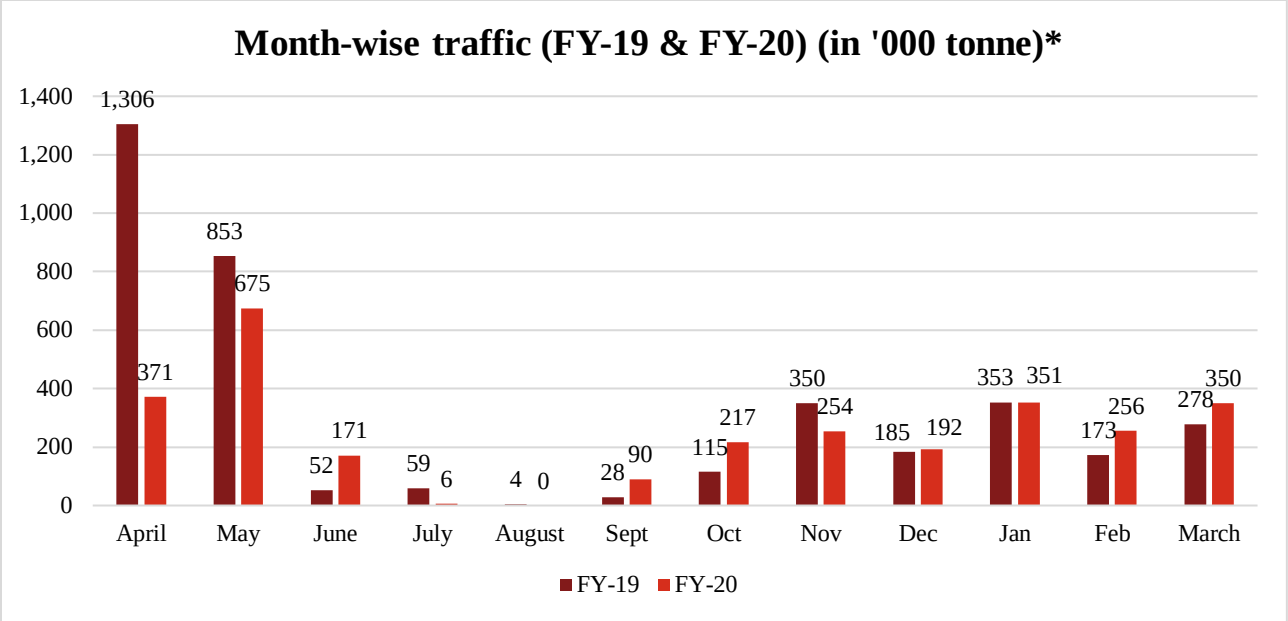


Figure 45- Goa NWs: Month-wise traffic (FY-19 & FY-20)

*- The traffic numbers have been rounded off to the nearest thousand for representational purposes

Traffic on the Goa Waterways has been continuously decreasing post the ban on iron ore mining in the state. The traffic declined from approx. 3.7 million tonne in FY-19 to approx. 2.9 million tonne in FY-20. Although iron ore has been the key commodity moving on Goa Waterways, there are various other industrial commodities that use the IWT mode in Goa. The graph below presents the commodity profile of traffic on Goa Waterways in FY-20.

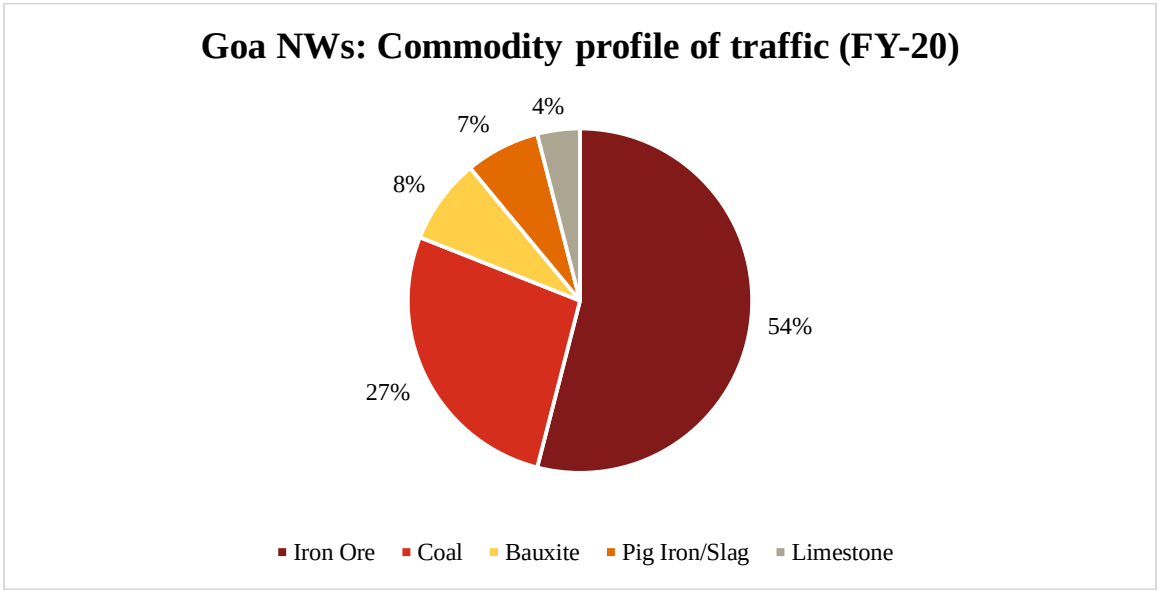


Figure 46- Goa NWs: Commodity Profile of traffic (FY-20)

It can be observed that the top two commodities on the Goa Waterways are Iron Ore (54%) and Coal (27%). Most of the Iron Ore is exported to foreign countries from Mormugao Port, whereas coal is imported from foreign ports to Mormugao Port. Amongst the other commodities, Bauxite is imported from foreign ports by Aluminum manufacturers such as Hindalco.

9 Gujarat Waterways

Gujarat has 2 operational National Waterways i.e. NW-73 (River Narmada) and NW-100 (River Tapi). With approx. 31 million traffic, the Gujarat waterways constituted 42% of the total traffic on all National Waterways in FY-20. Over 99% of the Gujarat Waterway traffic is handled on NW-100 (River -Tapi).

Figure 47- Gujarat Waterways: Operational NWs

The graph below presents the month wise traffic movement on NW-100 (Tapi River) in FY-20.

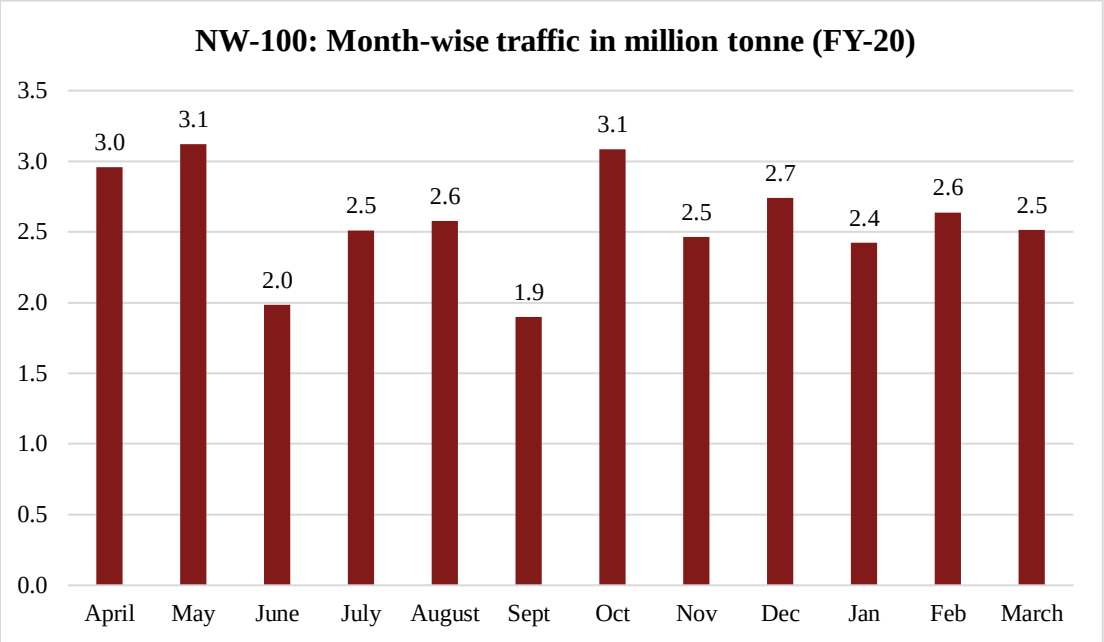


Figure 48- NW-100: Month-wise traffic (FY-20)

With total traffic of 30.09 million tonne in FY-20, NW-100 displayed a growth of 7% vis-à-vis traffic of approx. 28.70 million tonne in FY-19.

The graph below presents the month wise traffic movement on NW-73 (Narmada River) in FY-20.

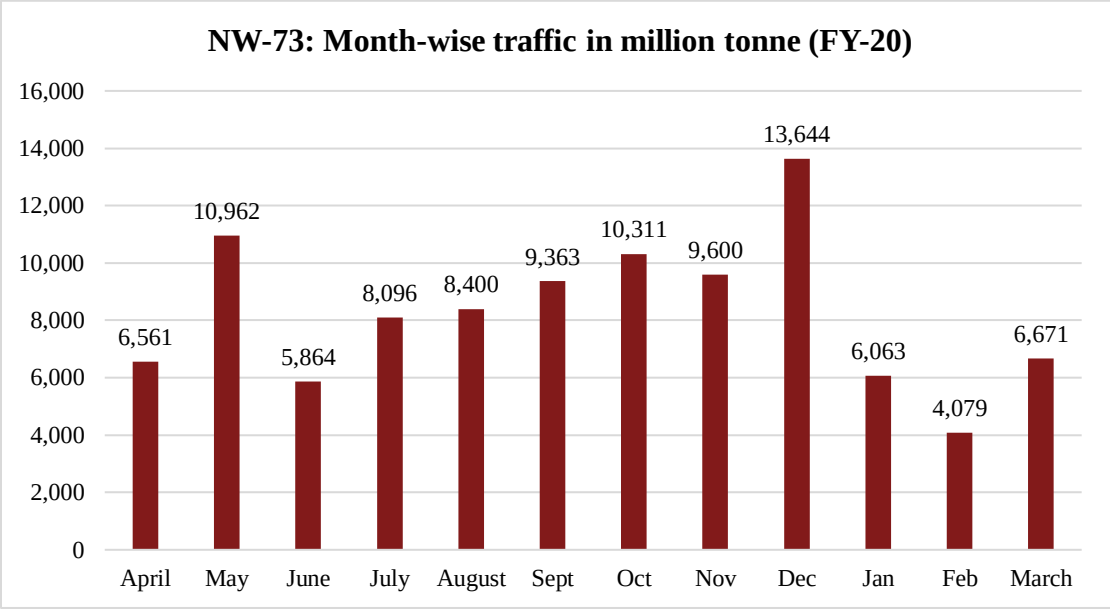


Figure 49-NW-73: Month-wise traffic (FY-20)

In FY-20, 99,614 tonne of traffic was handled on NW-73 as compared to 40,941 tonne in FY-19, thereby displaying a growth of 143%.

The graph below presents the commodity profile of traffic on Gujarat Waterways in FY-20.

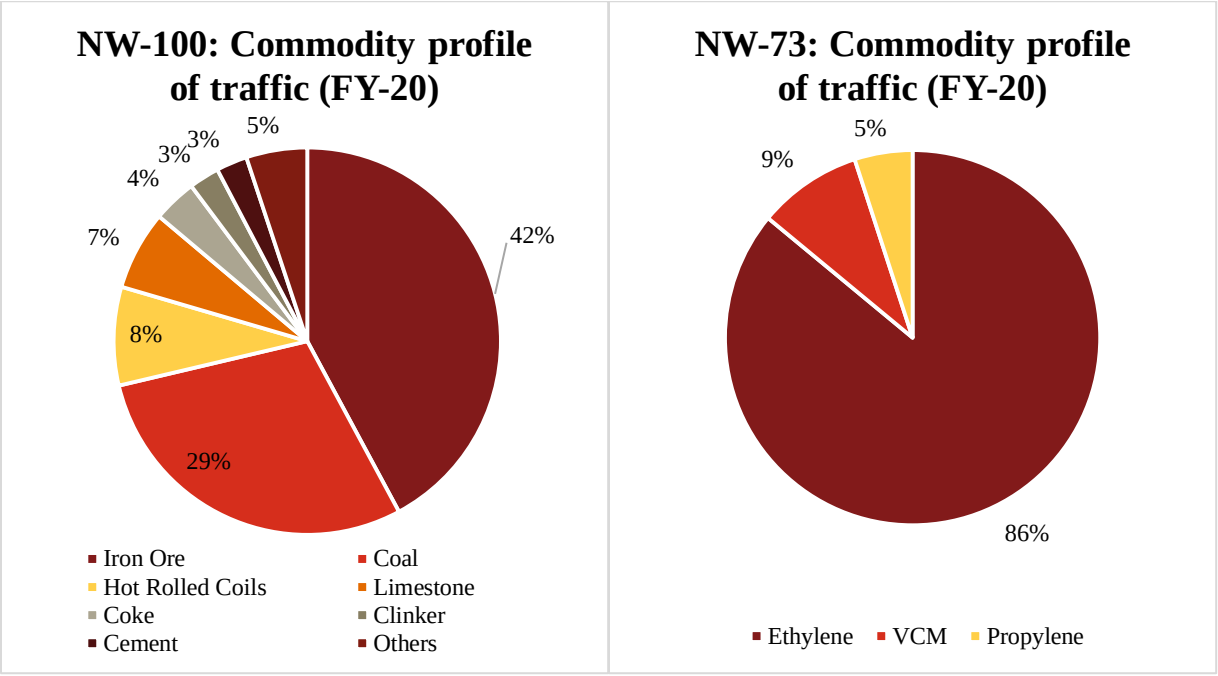


Figure 50- Gujarat NWs: Commodity profile of traffic (FY-20)

It can be observed that the top two commodities i.e. Iron Ore (42%) and Coal (29%) form 71% of the total traffic moving on NW-100 (Tapi River). These are followed by Hot rolled coils and Limestone which account for 8% and 7% of the traffic respectively. Other commodities moving on the NW-100 are Coke, Clinker, Cement etc.

Only 3 commodities were transported on NW-73 (Narmada River) in FY-20 of which Ethylene (86%) accounted for the highest share of the total traffic followed by Vinyl Chloride, VCM (9%) and Propylene (5%). Traffic is handled on two group of jetties on the Gujarat Waterways i.e. Magdalla (on NW-100) and Dahej (on NW-73). The graph below shows the traffic handled at these group of jetties on the Gujarat Waterways.

Gujarat waterways constituted 43% of the entire IWT traffic in India in FY-20. Industries have set-up their private & captive jetties for handling their raw material and finished goods.

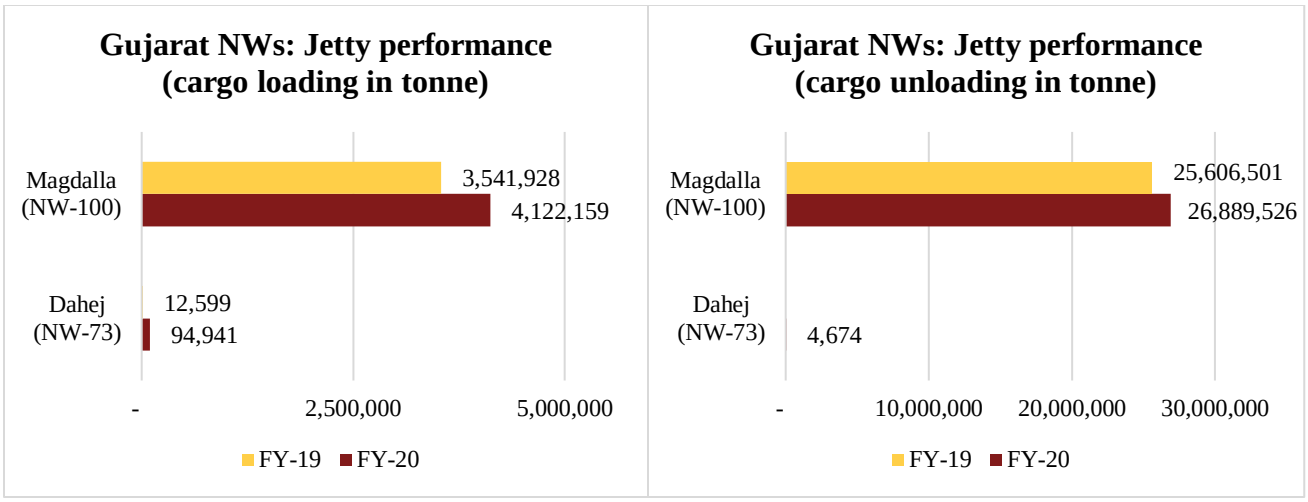


Figure 51- Gujarat NWs: Traffic handling performance of jetties (FY-19 & FY-20)

Magdalla based jetties handled more than 99% of the total traffic of Gujarat Waterways. These jetties are primarily used for various inward commodities, which are used as raw material primarily by steel and metal industries. In FY-20, Magdalla based jetties have collectively seen an increase of 17% and 5% in the loaded and unloaded traffic handled respectively. Similarly, Dahej based jetties have also seen a drastic increase in the traffic handled, however the overall traffic quantity handled is not significant as compared to traffic handled at Magdalla based jetties. The graph given below shows the loaded and unloaded commodities handled on NW-100.

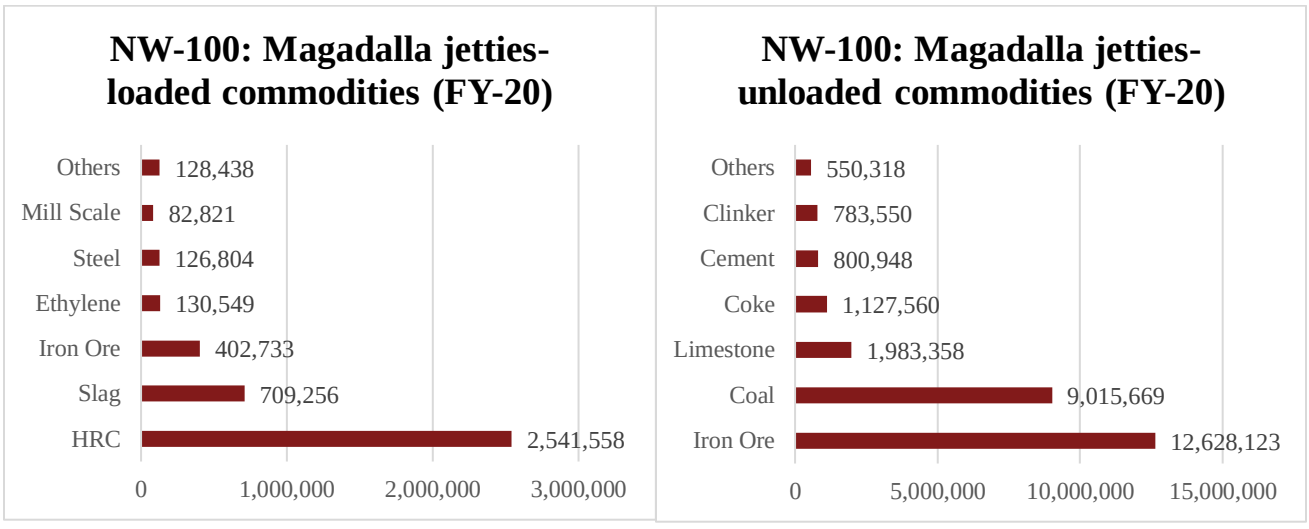


Figure 52- NW-100: Magdalla based jetties – Loaded and unloaded commodities (FY-20)

The major commodity loaded on NW-100 is Hot Rolled Coils, which is transported through coastal shipping route to multiple Indian ports. Additionally, Slag is shipped to foreign ports and Iron ore is mostly shipped to Vizag, Paradip and Ennore through coastal shipping.

The major commodity unloaded on NW-100 is Iron Ore, which is received via Coastal route from Vizag and Paradip Ports, and Coal and Limestone which are received from multiple foreign ports.

The graph given below shows the commodities handled on the NW-73 in FY-20.

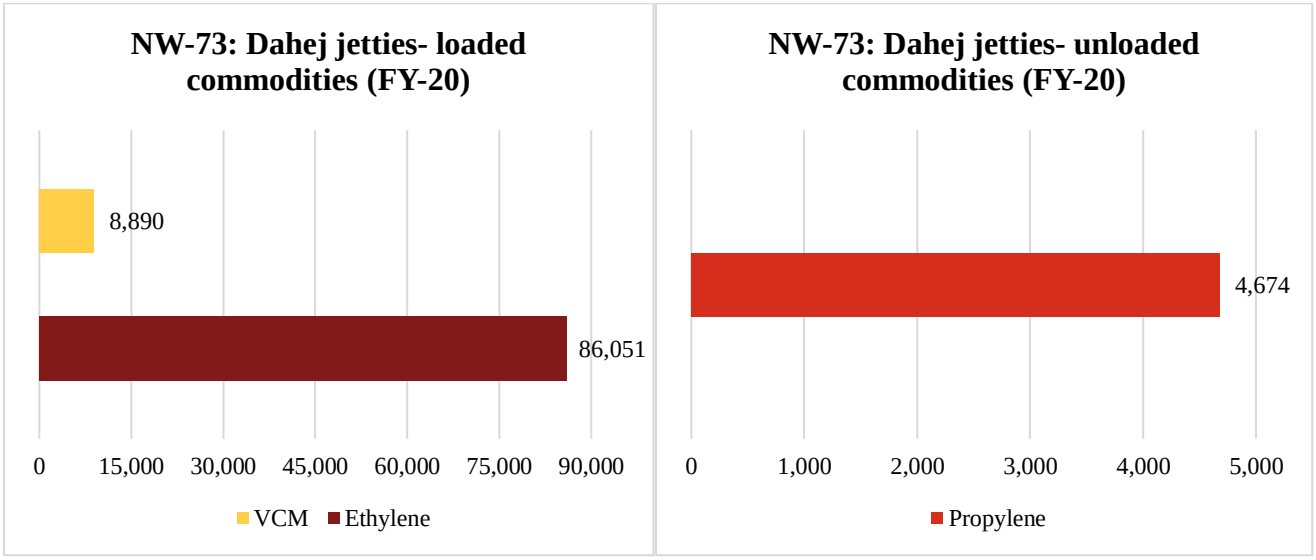


Figure 53- NW-73: Dahej based jetties – Loaded and unloaded commodities (FY-20)

Dahej based jetties handled less than 1% of the total traffic on Gujarat Waterways. The traffic at the port is primarily outward movement of Ethylene and inward movement of Propylene.

10 Newly Operational National Waterways

The number of operational NWs has increased to 16 in FY-20 with the inclusion of traffic on NW-16 (River Barak), NW-44 (River Ichhamati) and NW-94 (River Sone). The details of traffic on these newly included NWs are as follows:

1. **NW-16 (River Barak):** In FY-20, approx. 4,400 tonne of traffic consisting of Ginger and fruits (Orange, Pineapple, Grapes) moved on NW-16. This traffic was moved on small country boats, which ply between Karimganj (Assam, India) and Zakiganj (Bangladesh) through the Indo Bangladesh Protocol (IBP) route.

2. **NW-44 (River Ichhamati)**: In FY-20, approx. 0.9 million tonne of traffic consisting of construction material such as bricks, stone chips, sand and cement moved on NW-44. This traffic originated from Basirhat and travelled to multiple destinations such as Dayapur/ Sajjalia/ Pathakali/ Raghunathganj/ Namkhana (Sundarbans Delta Islands) on NW-1 and in and around Basirhat Brick kilns on NW-44.

3. **NW-94 (River Sone)**: In FY-20, approx. 0.8 million tonne of traffic (mainly sand) moved on NW-94. This traffic movement using mechanized/ non-mechanized boats was recorded to be taking place in Bihar region from Koelwar (confluence point of River Ganga and River Sone in Bihar) to multiple destinations such as Doriganj, Avtarnagar, Pehleja, Gangajal, Maturapur, Kalighat, Tiwarighat, Jahajghat, Masanghat and Sabalpur located along River Ganga (NW-1).

11 Initiatives for growth of traffic on National Waterways

To enhance the utilization of NWs for transportation of cargo and passengers, IWAI is pursuing multiple initiatives in consultation with different stakeholders. These initiatives are briefly summarized as follows.

1. **Fairway development works**: Fairway development works to ensure Least Available Depth (LAD) of 3.0 meter in Haldia-Barh, 2.5 meter in Barh-Ghazipur and 2.2 meter in Ghazipur-Varanasi stretches on NW-1 are in progress under the Jal Marg Vikas Project (JMVP) which has been undertaken by IWAI with technical and financial assistance from World Bank. Similarly, to improve the connectivity between NW-1 and NW-2/ NW-16 via the Indo Bangladesh protocol route, the critical and shallow stretches between Sirajganj and Daikhowa on protocol route No1 & 2 and Ashuganj and Zakiganj on protocol rote no 3 &4in Bangladesh are being jointly developed by India and Bangladesh for round the year navigability (with targeted LAD of 2.5 mtrs). Similarly, fairway development works are being carried out on NW-97 in Sunderbans to allow smooth navigation of vessels on the Indo-Bangladesh Protocol Route.
2. **Operations & Management of IWAI's terminals by Private Operators**: IWAI is in the process of handing over its terminals on all NWs to private operators on PPP basis. The newly constructed Multimodal Terminals (MMTs) at Varanasi (capacity 1.26 million tonne), Sahibganj (capacity 3.03 million tonne) and Haldia (capacity 3.18 million tonne) on NW-1 under JMVP are in the process of being tendered out private operators on PPP basis for operation and maintenance. Similar exercise is in progress for IWAI's terminals at Gaighat (Patna) on National Waterway-1 and Dhubri, Pandu (Guwahati) on National Waterway-2. Subsequently, IWAI's terminals on NW-3 and NW-16 are also planned to be handed over for O&M to private players. Appointment of O&M operators will bring in necessary operations and marketing experience and contribute to increasing traffic on the IWT mode.
3. **Policy for development of Private jetty/ terminal**: With the growth of IWT traffic on NWs, private entities have exhibited interest to build and operate private terminals on NWs. Allowing private entities to build, operate and manage the terminals will enable rapid development of terminal network on NWs. In view of the advantages associated with private sector participation in development of terminals on NWs, IWAI has proposed to permit the private sector to develop their own jetties and operate them on commercial basis. Recently IWAI has permitted RO-RO operations by private operators on NW-1 using their land on banks as landing points on temporary basis. This initiative is

expected to bring in much needed participation of private sector in augmenting the development of infrastructure and modal shift of cargo in favor of IWT.

4. **Development of portals FOCAL and LAD:** A dedicated portal named FOCAL (Forum of Cargo Owners and Logistics Operators) was developed by IWAI to connect cargo owners interested in moving their cargo using the IWT mode and vessel operators who are operating vessels on National Waterways (NWs). The portal allows registered users to share their transportation requirement and positioning of vessels on different NWs. Also, IWAI has internally developed a portal 'LAD' to facilitate the day-to-day operations of inland vessels plying on NWs and to avoid any hindrance in service and operation. The portal enhances credibility and efficiency of information sharing to achieve seamless operations on NWs, besides pre-empting problems that may occur during movement of vessels.
5. **Digital portal for dissemination of information to IWT users**: IWAI is currently developing a digital portal to disseminate key systematic and aggregated River and Navigational information related to NWs to various stakeholders. The portal shall provide detailed information on various NWs in India such as fairway (LAD, etc.), infrastructure facilities (jetties, pontoons, cargo handling equipment, storage facilities), cross river structures (bridge locations locks, barrages), connectivity at jetties, emergency services, vessel sailing plan details etc. for facilitating transportation of cargo and other vessels through NWs. This will help different stakeholders to better understand the key features of the NWs that are essential for decision making on the use of IWT mode.

Initiatives such as Fairway development for vessel navigation, Private sector participation in sector development and Digital portal for information access & operational planning shall promote ease of accessing the IWT system.

6. **Facilitation of Cargo transportation by the local community**: IWT has been traditionally used by the local community for transportation of their produce and passengers. Facilitation of movement of goods on waterways and local level as part of the Arth Ganga vision will further enhance use of IWT.
7. **Enhanced regional trade using IWT mode:**
   a. **Addition of new Ports of Call and routes in India and Bangladesh under PIWT&T:** With 7 new ports of call agreed to be added on each side along with addition/ extension of waterway routes under PIWT&T between India and Bangladesh, the accessibility of IWT mode for trade

between India and Bangladesh is expected to increase and result in growth of traffic on NWs. As per an assessment, approx. 2.5 million tonne of traffic is expected to get diverted to IWT mode with the extension of Rajshahi-Dhuliyan route up to Aricha in Bangladesh.

b. **Inclusion of IWT mode in the Indo Nepal trade treaty:** Inland waterways mode has been agreed for inclusion in the trade treaty between India and Nepal. This will allow Nepal bound cargo (coming from 3rd country via Kolkata port and India's exports) to take waterway up to Sahibganj MMT (Jharkhand), proposed Kalughat terminal near Patna (Bihar) and Varanasi MMT (UP) and further movement to Nepal via road. The IWT route will provide an alternate option to the traffic, which currently faces significant challenges such as congestion and delays on the rail and road mode currently.

c. **Trade between Bhutan and Bangladesh:** Stone exporters from Bhutan have identified Inland waterways as an alternate mode of transportation considering the benefits associated with waterways mode such as lower transportation cost, larger shipment size compared to road, avoiding congestion on land routes etc. The first movement under supervision of IWAI was successfully executed in July 2019. This movement evinced confidence in the Bhutanese exporters to increasingly shift to waterways mode and increase the trade of stone aggregates and other commodities between Bhutan and Bangladesh. As a result of the success of the first movement, transportation of stone aggregates has become regular between Dhubri and Chilmari (Bangladesh) and more than 10 shipments of approx. 100-300 tonne size have been completed in FY-20. This trade using the IWT mode is expected to continue and reach a significant scale in the coming years.

8. **Delineation and relaxation of Customs procedures for transportation of transit goods via Bangladesh through the IBP route:** To further facilitate use of the IWT mode for movements of goods to/ from North East states of India via the IBP route (under PIWT&T), IWAI held consultations with the Central Board of Indirect Taxes and Customs (CBIC), Ministry of Finance (GoI) to delineate the Customs procedure and consider possible relaxations. In view of this, CBIC has issued Transportation of Goods (Through Foreign Territory), Regulations, 2020 on 21st February 2021. These regulations delineate the procedures to be followed by the trade for transit goods passing through the IBP route and have also dispensed with the requirement of Cross Border Certificate for the purpose of the subject regulations.
9. **Facilitation of Ro-Ro/ Ro-PAX traffic**: IWAI has procured Ro-Ro and Ro-PAX vessels for operations NW-1, 2 and 3. Discussions are in progress with multiple State Governments to operate these vessels and to regularize the operations of informal sector.

10. **Container movement between Cochin port and Kottayam port via IWT**: After the success of the pilot movement in 2019, containerized movement between Cochin port and Kottayam port via NW-3 and NW-9 is expected to become regular in the coming years, thereby shifting traffic from road to IWT mode and helping in reducing road congestion.
11. **Development of new National Waterways**: IWAI has identified 20-25 new National Waterways (NWs) through technoeconomic feasibility studies for undertaking technical interventions to make the waterways navigable for transportation purpose. Once ready, these new waterways will provide an alternate mode of transportation in respective geographies.
12. **Stakeholder consultations**: IWAI carried out stakeholder consultations at six different locations (Kolkata, Kochi, Mumbai, Patna, Goa and Dhaka) in FY-20. These interactions helped in promoting waterways as a mode of transportation and understanding expectations and feedback of stakeholders. IWAI is undertaking targeted initiatives to address the expectation and feedback received to further enhance traffic on NWs.

The above initiatives shall promote ease of accessing and using the IWT system, besides enhancing the efficiency and safety of operations and shall result in traffic increase on the National Waterways in the coming years.

12 Annexure

A. Details of IWAI's permanent jetties on National Waterways

National Waterway-1				
Location	**Jetty/ Terminal**	**Storage Facility**	**Equipment**	**Other Facilities**
Varanasi MMT	RCC jetty (Length- 200m, Width-35m) Passenger Jetty (Floating pontoons – length 20m, Width-10m)	No covered storage facility. Space available for development of covered storage.	Two Mobile Harbour Cranes of capacity 50 MT each	
Gaighat, Patna	Low flood level RCC jetty (Length – 46m, Width – 15m) High flood level RCC jetty (Length – 70m, Width – 30m)	Transit shed (length-45m, breath – 15m)	One rubber tyre mobile crane of capacity 70 MT and Two 30 MT rubber tyre mobile crane	
Sahibganj MMT	RCC jetty (Length- 270m, Width-25m)	Storage shed (132 m X 30 m), Stock yard development for stone chips & coal: 50,000 sqm	One Mobile Harbour crane, Eight front end loaders, Conveyor system with fixed hopper (1,200 TPH), Two weigh bridges	
Garden Reach Jetty II, Kolkata	RCC jetty (Length – 70m)	Storage shed (1,396.6 sq. m.)	One Mobile Harbour crane, One Reach stacker	Customs Notified

National Waterway-2				
Location	**Jetty/ Terminal**	**Storage Facility**	**Equipment**	**Other Facilities**
Pandu, Guwahati	Low level RCC jetty – (Length – 50 m, Width – 20 m) High level RCC jetty – (Length – 50 m, Width – 20 m)	2 nos. Transit Sheds (75 m x 21 m each), Open storage area: 553.90 sq. m.	Two hydraulic shore cranes of 20 MT and 75 MT capacity, One Weigh bridge: 100 MT capacity	A Railway Broad Gauge (BG) siding Customs Notified

Dhubri	Ro-Ro RCC Jetty - (Length – 186 m, Width – 15.6 m)	2 nos. Transit Sheds (25 m x15 m each), Open storage area: 553.90 sq. m.	One Shore crane - 20 MT capacity, One Weigh Bridge - 60 MT capacity	Customs Notified

National Waterway-3				
Location	**Jetty/ Terminal**	**Storage Facility**	**Equipment**	**Other Facilities**
Kottapuram	RCC jetty: 30 m length	Covered storage - 300 sqm, Open Storage - 800 sqm	One Mobile hydraulic crane of capacity 18 MT, One forklift of capacity 3 MT	
Aluva	RCC jetty: 30 m length	Covered storage - 300 sqm, Open Storage 1500 sqm	One Mobile hydraulic crane of capacity 18 MT, One forklift of capacity 3 MT	
CSEZ (Kakkanad)	Land only. Temporary berthing jetty – 10 m length	Nil	Nil	
Maradu	RCC jetty: 30 m length	Covered storage - 300 sqm, Open Storage - 2000 sqm	One Mobile hydraulic crane of capacity 18 MT, One forklift of capacity 3 MT	
Vaikkom	RCC jetty: 30 m length	Covered storage - 300 sqm, Open Storage - 800 sqm	One Mobile hydraulic crane of capacity 18 MT, One forklift of capacity 3 MT	
Thannermukkom	RCC jetty: 30 m length	Covered storage - 300 sqm, Open Storage - 800 sqm	One Mobile hydraulic crane of capacity 18 MT, One forklift of capacity 3 MT	
Alappuzha	RCC jetty: 30 m length	Covered storage - 300 sqm, Open Storage - 2000 sqm	Nil	
Thrikunnappuzha	RCC jetty: 30 m length	Covered storage - 300 sqm,	One Mobile hydraulic crane of capacity 18 MT,	

		Open Storage - 800 sqm	One forklift of capacity 3 MT	
Kayamkulam	RCC jetty: 30 m length	Covered storage - 300 sqm, Open Storage - 2000 sqm	One Mobile hydraulic crane of capacity 18 MT, One forklift of capacity 3 MT	
Chavara	Land Only	Nil	Nil	
Kollam	RCC jetty: 30 m length	Covered storage - 300 sqm, Open Storage - 2000 sqm	One Mobile hydraulic crane of capacity 18 MT, One forklift of capacity 3 MT	
Bolgatty	Ro-Ro/Lo-Lo landing point	Nil	Nil	
Willingdon Island	Ro-Ro/Lo-Lo landing point	Nil	Nil	

National Waterway-16				
Terminal location	**Jetty**	**Storage Facility**	**Equipment (proposed)**	**Other Facilities**
Badarpur	RCC jetty – (Length - 91 m, Width - 37 m)	Covered storage (29.84 m x 16.07 m), Open stack space	One shore crane, One floating pontoon, One forklift	
Karimganj	RCC jetty - (Length - 136.5 m, Width - 14.5 m)	Covered storage (85 m x 23 m), Open stack area of 553.90 sq. m.	One shore crane, One floating pontoon, One forklift	Customs Notified

B. Other terminals, jetties (permanent & temporary), landing points, ghats on NW-1, NW-2

National Waterway	Location
NW-1	IWAI Haldia Fly ash jetty, Haldia*
	HDC Fly Ash Jetty, Haldia*
	Budge Budge jetty, Kolkata*
	IWAI BISN Jetty, Kolkata*
	Kidderpore Dock, Kolkata (KoPT)
	T.T. Shed, Kolkata*
	Netaji Subhash Dock, Kolkata (KoPT)*
	Haldia Dock Complex, Kolkata (KoPT)*
	Manglahat (Howrah)
	IWAI BTPS Jetty, Bandel*
	Falta Jetty (South 24 Parganas)
	Srirampur* (South 24 Parganas)
	Surinam* (South 24 Parganas)
	Pakur (Putimari)* (Murshidabad)
	Farakka Barrage Project (RCC & Terminal ghat)* (Murshidabad)
	KTPS, Kolaghat* (East Medinipur)
	Katwa (East Bardhman) (Ro-Ro)
	Guptipara (Hooghly) (Ro-Ro)
	Dainhat (East Bardhman) (Ro-Ro)
	Narkelbari (Murshidabad) (Ro-Ro)
	Kalna (East Bardhman) (Ro-Ro)
	Palassey (Nadia) (Ro-Ro)
	Shantipur (Nadia) (Ro-Ro)
	Matiyari (Nadia) (Ro-Ro)
	Ramnagar (East Medinipur) (Ro-Ro)
	Ballabhpara (Nadia) (Ro-Ro)
	Nrisinghapur (Nadia) (Ro-Ro)
	Manikchak (Malda) (Ro-Ro)
	Maganpara (Murshidabad) (Ro-Ro)
	Manihari (Ro-Ro) (Katihar) (Ro-Ro)
	Samdaghat (Sahebganj) (Ro-Ro)
	Gram Ghat (Sahebganj) (Ro-Ro)
	Rajmahal (Sahibganj)
	Tintanga (Bhagalpur)
	Gaighat (Patna)
	Begusarai
	Doriganj (Saran)
	Karagola (Katihar)
	Raghopur (Vaishali)
	Semaria (Siwan)

** Customs notified*

National Waterway	Location
NW-2	Bogibil (Dibrugarh)
	Tezpur (Sonitpur)
	Jogighopa (Bongaigaon)
	Sengajan (Golaghat)
	Silghat* (Nagaon)
	Biswnath Ghat (Biswanath)
	Dibrugarh
	Oriumghat (Golaghat)
	Bhomoraguri (Sontipur)
	Goalpara
	Guwahati
	Kamalabari (Jorhat)
	Karen Chapri (Dhemaji)
	Neamati (Jorhat)
	Phulani (Nagaon)
	Salmara (South Salmara Mankachar)
	Bagbor (Barpeta)
	Baluguri (Tinsukia)
	Chaikhowa (Tinsukia)
	Chapar (Dhubri)
	Chunari (Goalpara)
	Dolgama (Goalpara)
	Hatsingimari (South Salmara Mankachar)
	Hazirhat (Dhubri)
	Jaleswar (Goalpara)
	Kadamtala (Barpeta)
	Karikhaiti (Barpeta)
	Khankhawa (Dhubri)
	Krishnai (Goalpara)
	Majer Char (Dhubri)
	Mantrichar (Dhubri)
	Moimbari (Barpeta)
	Mondia (Dhubri)
	Panpur (Sonitpur)
	Phulbari (Sonitpur)
	Poravita (Dhubri)
	Rajaduar (North Guwahati)
	Singimari (Nagaon)
	Sukchar (Dhubri)
	Umananda (North Guwahati)
	Madhyamkhanda (Kamrup)
	Mazgaon (Barpeta)

** Customs notified*

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