

FAP24

Government of
the People's
Republic of
Bangladesh

Water Resources
Planning
Organization

European
Commission

Delft
Hydraulics



Danish
Hydraulic
Institute



Hydroland
Approtech
Osiris

**RIVER
SURVEY
PROJECT**

(31)

**Special
Report
No.22**

**River Data Book
January 1993 - March 1995**

Part B.1: Bahadurabad

October 1996

2

Special Report 22

River Data Book
January 1993 - March 1995

Part B.1: Bahadurabad

October 1996

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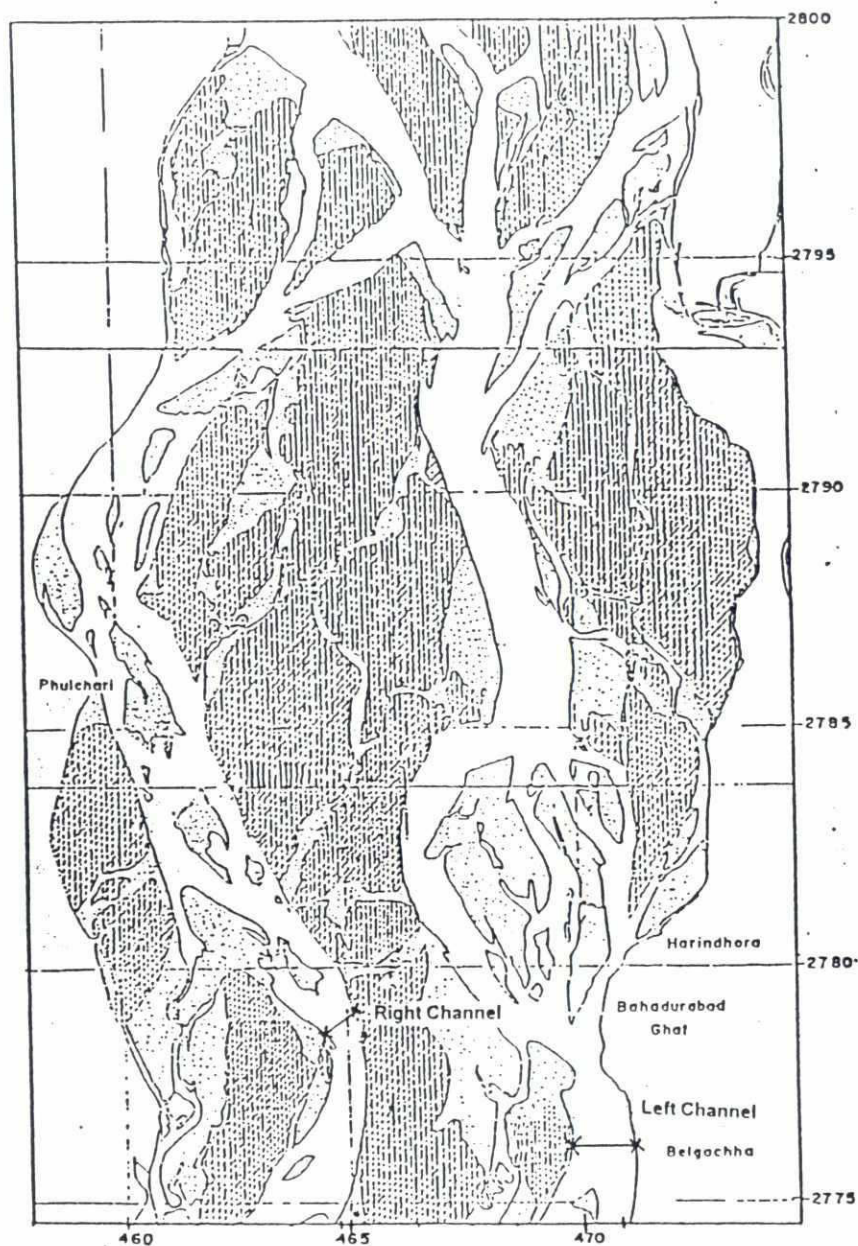
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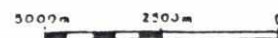
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LEGEND:-

- Measurement cross section
- High land
- Unstable/low char
- BWDB Embankment



Map is based on satellite
images of March, 1993



RIVER SURVEY PROJECT

Delft Hydraulics/Danish Hydraulic Institute
in association with Osiris/Approtech/Hydroland

Survey Bulletin No. 01- Jan, 1993

Location No. 1 : Jamuna River at Bahadurabad

File:

Date:

Scale:

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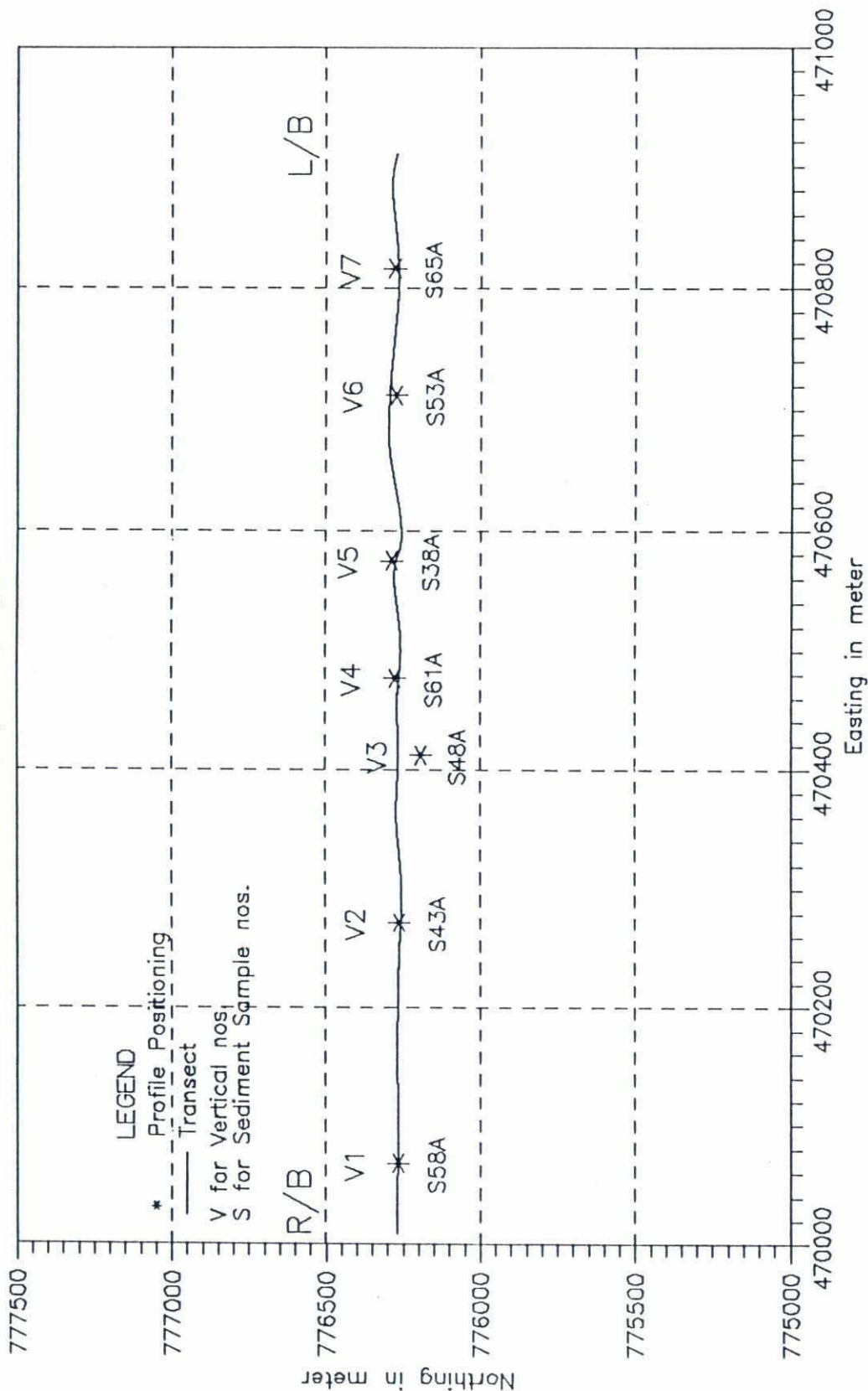
KEY PLAN

Fig.

FAP 24 River Survey Project

Location : Jamuna River (Left Channel)

Date of Survey : 14/01/93



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RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 01 : 14 - 16 Jan 1993

Location 1 : Jamuna River at Bahadurabad

Date :

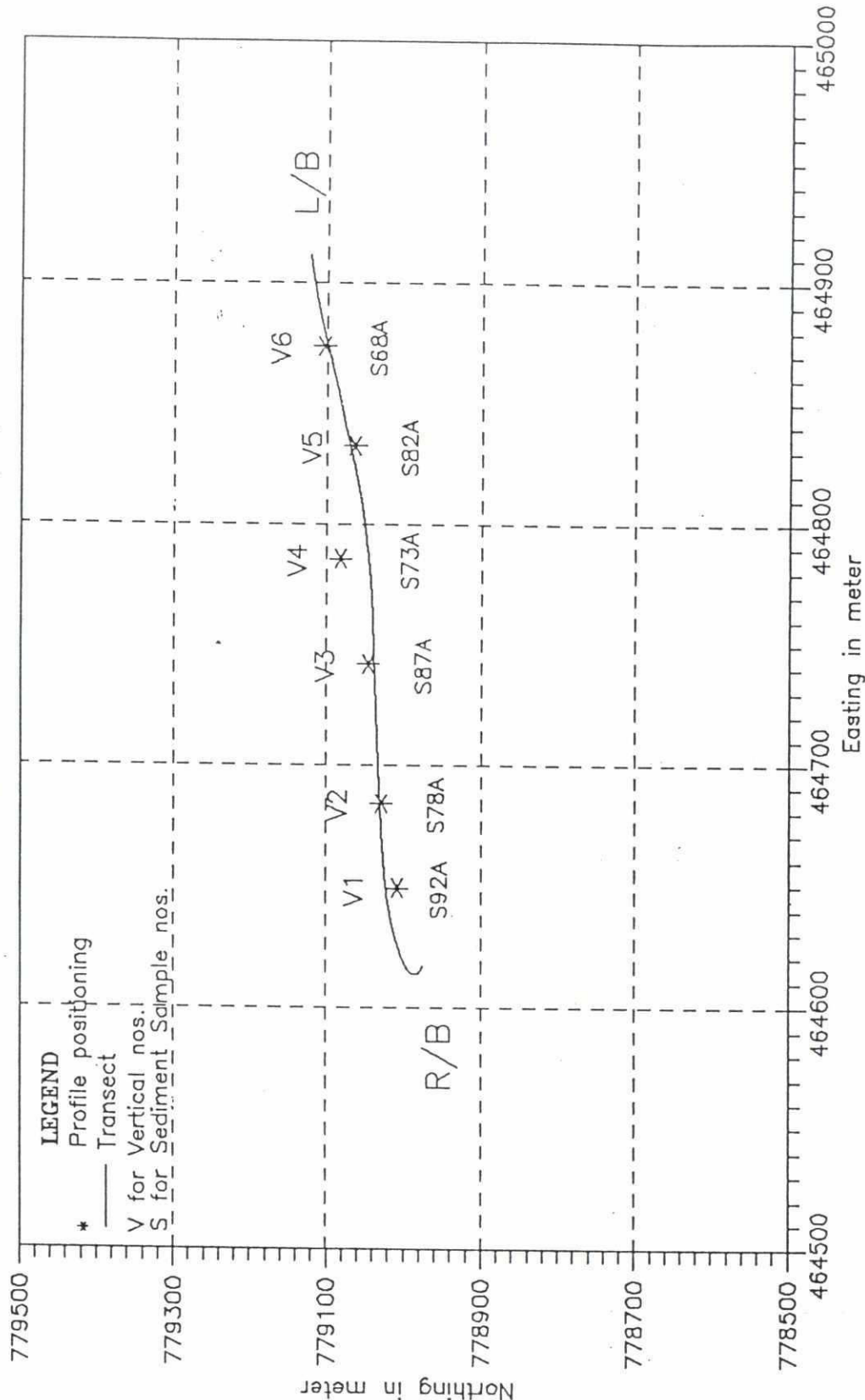
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Location of Measurments

FAP 24 River Survey Project

Location : Jamuna River (Right Channel)

Date of Survey : 15/01/93 and 16/01/93



FAP 24
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RIVER SURVEY PROJECT

Flood Plain Coordination Organization

Commission of the European Communities

Survey Bulletin 01 : 14 - 16 Jan 1993

Location 1 : Jamuna River, Bahadurabad

Date :

Init :

Location of Measurments

River : Brahmaputra-Jamuna
ADCP/EMF Discharge

Date of Survey : 14 January 1993

Location : Left Channel at Bahadurabad

Station No.1

Date	Transect	Bank		Water Level	Total Width	Area	Discharge
		Form	To	(m+PWD)	(m)	(sq.m)	(cumec)
14/01/93	B31E1T01	Left	Right	14.07	1401	5676	4292
14/01/93	B31E1T02	Right	Left	14.07	1347	5516	3981
14/01/93	B31E1T04	Left	Right	14.07	1357	5383	4041

Date of Survey : 15 & 16 January 1993

Location : Right Channel at Bahadurabad

15/01/93	B31F1T02	Right	Left	13.11	345	1783	1264
15/01/93	B31F1T03	Left	Right	13.11	348	1799	1280
15/01/93	B31F1T04	Right	Left	13.11	346	1756	1273
16/01/93	B31G1T04	Left	Right	13.11	360	1800	1247
16/01/93	B31G1T05	Right	Left	13.11	345	1817	1336

Table 3.1 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna
S4 velocity

Date of survey : 14 January 1993

Location : Jamuna River at Bahadurabad (Left channel)

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 3.60 m		Total depth = 7.40 m		Total depth = 7.30 m		Total depth = 7.40 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
0.50	0.39	0.50	0.99	0.50	1.12	0.50	1.08
2.03	0.39	2.11	0.92	1.94	1.04	1.93	0.99
2.56	0.38	2.90	0.87	3.06	1.01	3.04	0.94
3.09	0.26	4.44	0.76	4.33	0.97	4.39	0.85
		5.95	0.65	5.80	0.76	5.99	0.73
		6.66	0.51	6.50	0.52	6.58	0.61

Vertical 5		Vertical 6		Vertical 7	
Total depth = 7.40 m		Total depth = 4.90 m		Total depth = 6.80 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
0.50	1.01	0.50	0.63	0.50	0.21
1.95	0.85	1.99	0.49	1.92	0.14
2.95	0.85	2.90	0.47	4.00	0.21
4.52	0.77	3.85	0.41	5.37	0.11
5.82	0.60			6.11	0.06
7.22	0.31				

Date of survey : 15 & 16 January 1993

Location : Jamuna River at Fulchari (Right Channel)

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 5.00 m		Total depth = 5.50 m		Total depth = 6.30 m		Total depth = 5.80 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
0.50	0.58	0.50	0.64	0.50	0.86	0.50	0.83
2.07	0.52	2.00	0.64	2.00	0.74	2.04	0.69
2.95	0.50	3.25	0.59	2.53	0.73	2.46	0.71
4.55	0.38	4.45	0.47	3.72	0.65	3.76	0.63
		5.30	0.40	5.04	0.52	4.86	0.54
						5.47	0.46

Vertical 5		Vertical 6	
Total depth = 5.70 m		Total depth = 5.30 m	
Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]
0.50	0.93	0.50	0.38
1.99	0.79	2.05	0.69
2.83	0.75	2.49	0.69
3.47	0.69	3.20	0.64
4.54	0.60	4.31	0.58
5.31	0.45		

3.2 SUMMARY OF RESULTS (S4 discharge)

River : Brahmaputra-Jamuna
Concentration

Date of survey : 14 January 1993

Location : Jamuna River at Bahadurabad (Left Channel)

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 3.60 m		Total depth = 7.40 m		Total depth = 7.30 m		Total depth = 7.40 m	
Depth	Concentration	Depth	Concentration	Depth	Concentration	Depth	Concentration
[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]
2.00	92.94	2.10	98.53	2.00	129.66	1.90	112.41
2.60	89.04	2.90	110.53	3.05	128.05	3.00	118.06
3.10	97.37	4.45	175.00	4.32	123.94	4.40	122.48
		5.92	165.43	5.70	144.93	5.90	140.00
		6.56	227.38	6.50	156.00	6.70	157.82

Vertical 5		Vertical 5		Vertical 7	
Total depth = 7.40 m		Total depth = 4.90 m		Total depth = 6.80 m	
Depth	Concentration	Depth	Concentration	Depth	Concentration
[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]
2.00	84.72	1.99	80.56	2.00	60.00
2.95	86.90	2.91	88.72	4.00	65.79
4.52	103.66	3.87	110.28	6.70	26336.00
5.85	137.50				
7.28	131.58				

Date of survey : 15 & 16 January 1993

Location : Jamuna River at Fulchari (Right Channel)

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 5.00 m		Total depth = 5.50 m		Total depth = 6.30 m		Total depth = 5.80 m	
Depth	Concentration	Depth	Concentration	Depth	Concentration	Depth	Concentration
[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]
2.06	83.44	2.00	103.03	2.00	111.56	2.00	123.08
2.95	90.12	3.30	131.03	2.55	116.90	2.50	162.82
4.55	99.36	4.40	140.12	3.72	122.67	3.60	173.97
		5.32	168.49	4.99	152.56	4.90	217.72

Vertical 5		Vertical 6	
Total depth = 5.70 m		Total depth = 5.30 m	
Depth	Concentration	Depth	Concentration
[m]	[mg/l]	[m]	[mg/l]
2.00	194.37	2.00	127.59
2.83	172.66	2.50	131.08
3.47	211.69	3.18	145.00
4.53	118.25	4.25	164.20
5.31	232.68	4.39	162.82

Table 3.3 SUMMARY OF RESULTS (Suspended Sediment Concentration)

River : Jamuna
S4 Velocity

Date of Survey : 30 - 31 January 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Vertical 6	
Total depth = 8.20 m	
Depth	Velocity
[m]	[m/s]
0.50	1.17
1.60	1.13
3.20	1.09
4.80	1.01
6.40	0.85
7.90	0.66

Location : Jamuna River at Bahadurabad (Channel L-2)

Vertical 9	
Total depth = 2.20 m	
Depth	Velocity
[m]	[m/s]
0.40	0.06
1.30	0.05

Vertical 10	
Total depth = 3.70 m	
Depth	Velocity
[m]	[m/s]
0.70	0.79
2.20	0.67
3.00	0.61

Vertical 11	
Total depth = 4.80 m	
Depth	Velocity
[m]	[m/s]
1.00	0.70
2.90	0.65
3.80	0.59

Vertical 12	
Total depth = 2.40 m	
Depth	Velocity
[m]	[m/s]
0.50	0.34
1.40	0.37
1.90	0.32

Location : Jamuna River at Fulchari (Right channel)

Vertical 3	
Total depth = 4.00 m	
Depth	Velocity
[m]	[m/s]
0.50	0.51
0.80	0.55
1.60	0.43
2.40	0.41
3.20	0.40
3.40	0.35

Table 3.4 SUMMARY OF RESULTS (S4 Current)

River : Brahmaputra-Jamuna
Bed load

Date of Survey : 14 January 1993

Location : Jamuna River at Bahadurabad (Left channel)

Helley-Smith samples			
	Bed load sb in Kg/ms		
Vertical no.	1	2	3
2	0.00230	0.00214	
3	0.01732	0.03289	
5	0.00055	0.00066	

Date of Survey : 15 & 16 January 1993

Location : Jamuna River at Bahadurabad (Right channel)

Helley-Smith samples			
	Bed load sb in Kg/ms		
Vertical no.	1	2	3
3	0.00066	0.04101	
5	0.00110		

Table 3.4 Summary of results (sediment transport, bed load)



River : Brahmaputra-Jamuna
Grain Size of bad material

Date of survey : 14 & 16 January 93
Location : 1

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
1	14/01/93	11:50	0.325	0.372	0.426	1.379
2	14/01/93	12:00	0.325	0.373	0.428	1.416
3	14/01/93	13:10	0.254	0.301	0.356	1.679
4	14/01/93	13:20	0.261	0.308	0.364	1.710
5	14/01/93	14:35	0.210	0.261	0.325	1.741
6	14/01/93	14:45	0.216	0.279	0.338	1.774
7	16/01/93	11:10	0.214	0.274	0.334	1.702
8	16/01/93	12:40	0.232	0.283	0.337	1.601
9	16/01/93	12:50	0.239	0.288	0.341	1.598

Table 3.5 SUMMARY OF RESULTS (grain size bed load)

Type	Time		File Name	Ver. No.	Easting	Northing	DISCHARGE GAUGING				SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Profile	14:13:50	14:14:42	B31F1P01	6	464873.8	779104.2	P	P	P	P		68-72A				
Profile	13:22:47	13:26:12	B31F1P02	4	464785.8	779082.5	P	P	P	P		73-77A	77A			
Profile	17:23:37	18:16:53	B31F1P03	2	464684.0	779029.0	P	P	P	P		78-81A				
Transect	13:22:47	13:26:12	B31F1T02		464616.9	778975.9	T	T	T							
Transect	13:30:30	13:34:30	B31F1T03		466922.9	779102.9	T	T	T							
Transect	13:42:40	13:46:32	B31F1T04		464620.8	778973.0	T	T	T							

Table 2.3 SURVEY PROGRAMME ^ S MADE

Date of Survey : 15 January 93

Type	Time		File Name	Ver. No.	Easting	Northing	DISCHARGE GAUGING				SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	09:35:27	09:28:57	B31G1T02		464623.8	778969.9	T	T	T							
Profile	10:27:46	11:32:49	B31G1P01	5	464832.4	779063.7	P	P	P	P		82-86A		07		
Profile	11:50:44	12:55:25	B31G1P02	3	464742.3	779045.6	P	P	P	P		87-91A		08-09		
Profile	13:33:16	13:54:59	B31G1P03	1	464649.3	779007.6	P	P	P	P		92-94A				
Transect	14:22:59	14:26:54	B31G1T04		464915.0	779110.5	T	T	T							
Transect	14:30:05	14:33:21	B31G1T05	*	464617.8	778969.9	T	T	T							

* transect in PSD 24 data base

Table 2.4 SURVEY PROGRAMME AS MADE

Date of Survey : 16 January 93
Location : Jamuna River at Fulchari (Right channel)
Station No. 1

Type	Time		File Name	Ver. No.	Easting	Northing	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	11:50:25	11:54:40	B31B1T01				T	T	T							
Transect	12:20:12	12:28:10	B31B1T03				T	T	T							
Transect	12:47:36	12:57:06	B31B1T05				T	T	T							
Transect	13:01:06	13:09:51	B31B1T06				T	T	T							
Transect	14:21:45	14:26:21	B31B1T05				T	T	T							
Transect	15:13:00	15:17:26	B31B1T06				T	T	T							

Table 2.1 SURVEY PROGRAMME AS MADE

Date of Survey : 11 January 93

Type	Time		File Name	Ver. No.	Easting	Northing	DISCHARGE GAUGING				MEX	SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4		Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	08:56:03	09:05:11	B31E1T01		470910.5	776268.9	T	T	T							
Transect	09:08:54	09:15:37	B31E1T02		470041.1	776223.4	T	T	T							
Profile	09:34:15	10:13:51	B31E1P01	4	470477.4	776277.1	P	P	P	P		38-42A	42A			
Profile	11:05:09	12:15:57	B31E1P02	3	470412.3	776192.6	P	P	P	P		43-47A		01-02		
Profile	12:35:34	13:45:13	B31E1P03	2	470272.5	776264.1	P	P	P	P		48-52A	52A	03-04		
Profile	14:05:55	15:18:23	B31E1P04	5	470575.2	776285.8	P	P	P	P		53-57A	57A	05-06		
Profile	15:38:19	16:08:55	B31E1P05	6	470712.3	776273.6	P	P	P	P		58-60A				
Profile	16:27:12	16:50:29	B31E1P06	1	470068.6	776266.3	P	P	P	P		61-63A				
Profile	17:04:25	17:38:29	B31E1P07	7	470816.3	776279.1	P	P	P	P		64-67A				
Transect	15:38:19	16:08:55	B31E1T04	*	470880.6	776270.4	T	T	T	T						

* transect in PSD 24 data base

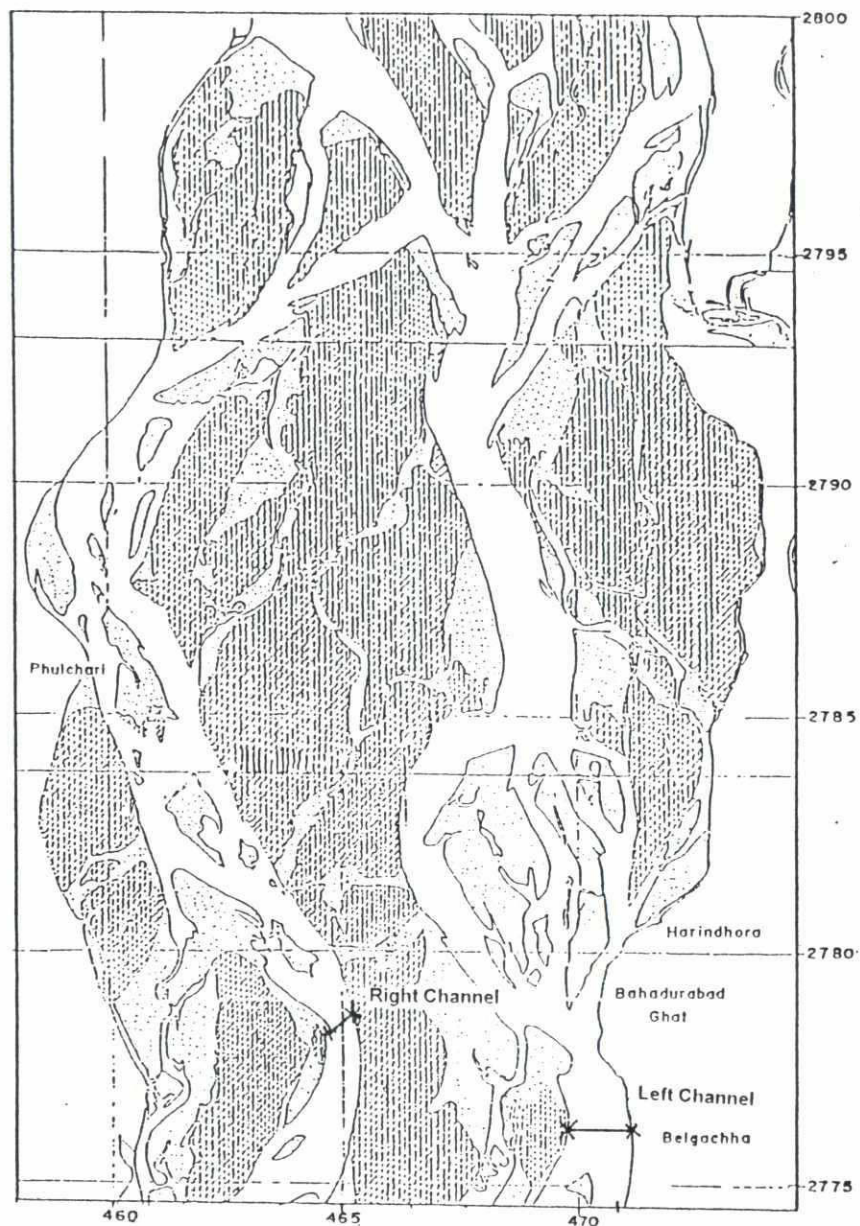
Table 2.2 SURVEY PROGRAMME AS MADE

Date of Survey : 14 January 93

Location : Jamuna River at Bahadurabad (Left channel)

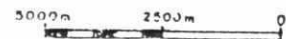
Station No. 1

Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B31E1T04 .ase
ADCP/S4/EMF	2	QUATTRO	B31E1T05 .ase
Echosounder	1	QUATTRO	B31E1T04 .ech
Echosounder	2	QUATTRO	B31E1T05 .ech
Sediment transport data	1	QUATTRO	B31E1T04 .sed
Sediment transport data	2	QUATTRO	B31E1T05 .sed
Bed load sediment analysis	1	QUATTRO	B31E1T04 .bdl
Bed load sediment analysis	2	QUATTRO	B31E1T05 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B31E1T04 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B31E1T05 .ssc
Transect plot data	1	QUATTRO	B31E1T04 .trs
Transect plot data	2	QUATTRO	B31E1T05 .trs
Iso-velocity plot data	1	MIKE 21	B31E1T04 .ct2
Iso-velocity plot data	1	MIKE 21	B31E1T04 .dt2
Iso-velocity plot data	2	MIKE 21	B31E1T05 .ct2
Iso-velocity plot data	2	MIKE 21	B31E1T05 .dt2
Table 5.1 PSD 24 Database file description			



LEGEND:-

- X—K Measurement cross section
- [Hatched Box] High land
- [Dotted Box] Unstable/low char
- [Line with Ticks] BWDB Embankment



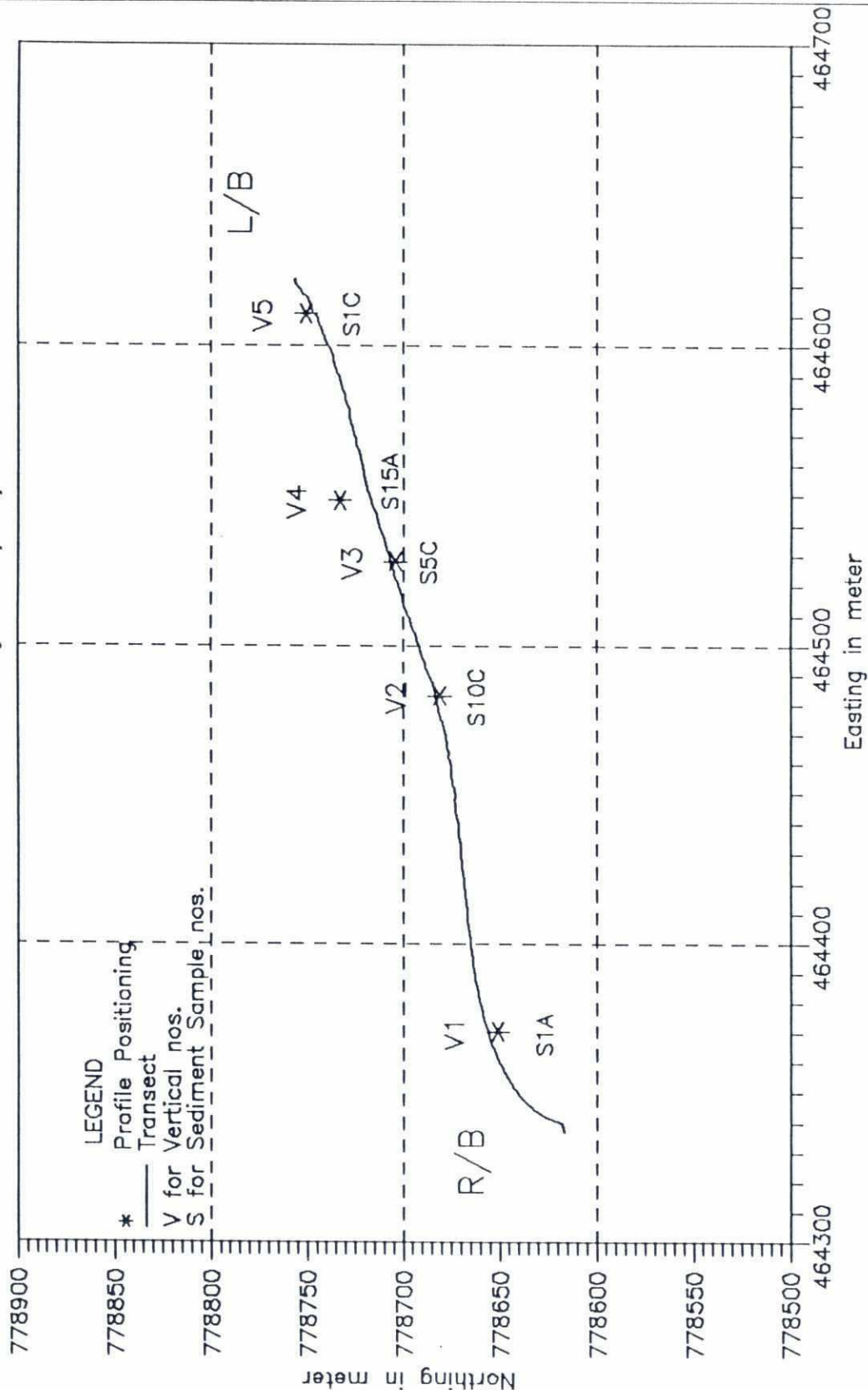
Map is based on satellite images of March, 1993

FAP 24  DELFT-DHI		RIVER SURVEY PROJECT Delft Hydraulics/Danish Hydraulic Institute in association with Osiris/Approtech/HydroLand		Survey Bulletin No. 2 - Feb , 1993	
		Location No.1 : Jamuna River at Bahadurabad			
File:		Date:		KEY PLAN	Fig.
Scale:		Init:			

FAP 24 River Survey Project

Location : Jamuna River (Right Channel)

Date of Survey : 13/02/93



Date :

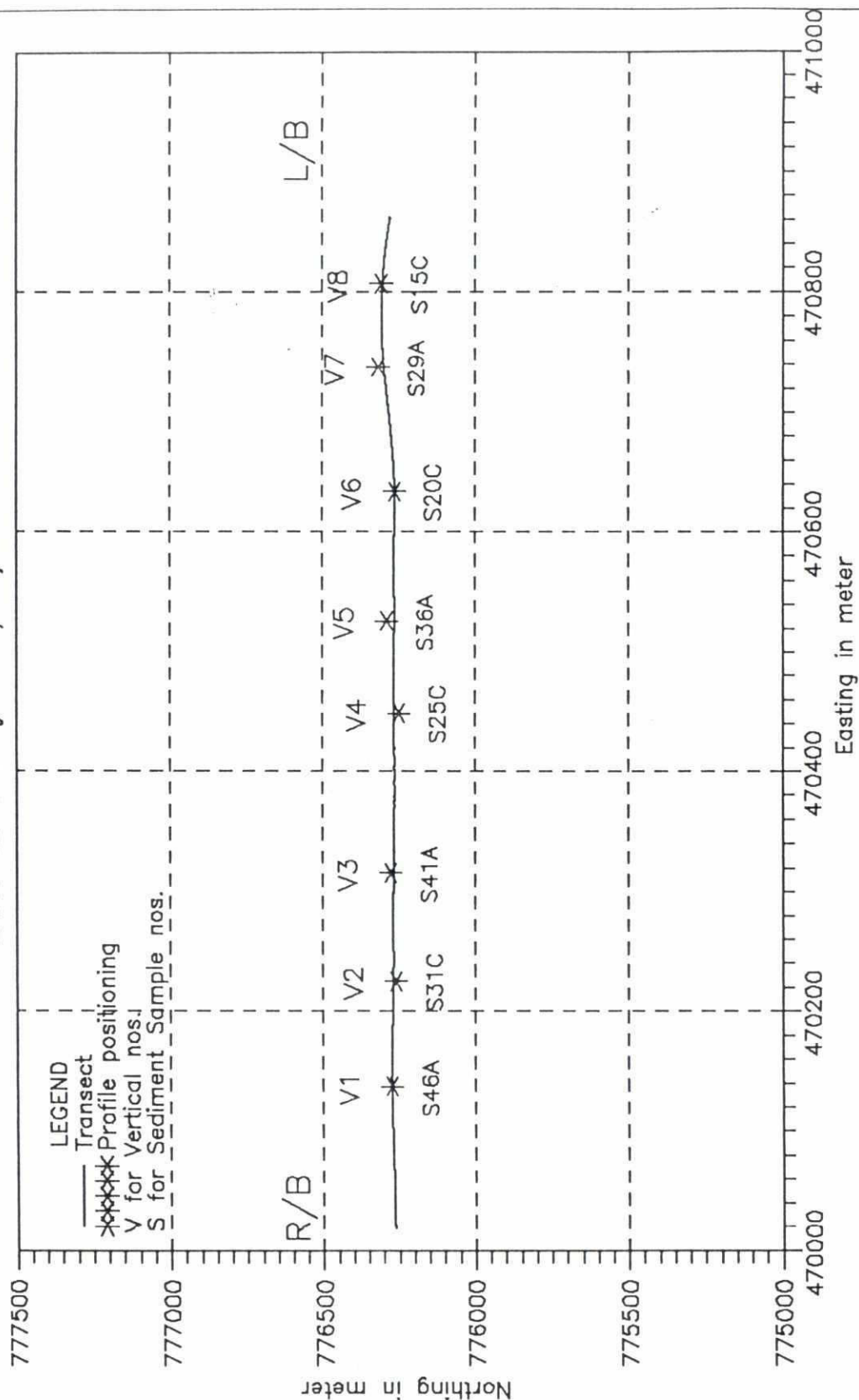
Init :

Location of Measurments

FAP 24 River Survey Project

Location : Jamuna River (Left Channel)

Date of Survey : 15/02/93



FAP 24
DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 02 : 13 - 15 Feb 1993

Location 1 : Jamuna River, Bahadurabad

Date :

Init :

Location of Measurements

River : Brahmaputra-Jamuna
ADCP/EMF Discharge

Date of Survey : 13 Februray 1993
Location : Right Channel at Fulchari

Date	Transect	Bank		Water Level	Toral Width	Area	Discharge
		Form	To	(m+PWD)	(m)	(sq.m)	(cumec)

13/02/93	B32D1T02	Right	Left	12.79	335	1509	956
13/02/93	B32D1T03	Left	Right	12.79	335	1524	898
13/02/93	B32D1T04	Left	Right	12.79	337	1525	915
13/02/93	B32D1T05	Right	Left	12.79	337	1519	935

Date of Survey : 15 February 1993
Location : Left Channel at Bahadurabad

15/02/93	B32F1T01	Left	Right	13.70	1150	4752	3331
15/02/93	B32F1T02	Right	Left	13.70	1170	4793	3364

Table 3.1 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna
S4 velocity

Date of survey : 13 February 1993

Location : Right Channel at Fulchari

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 4.80 m		Total depth = 5.00 m		Total depth = 5.00 m		Total depth = 5.50 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
1.45	0.49	1.00	0.76	1.06	0.75	1.24	0.57
1.96	0.53	2.00	0.79	1.50	0.81	1.80	0.58
3.02	0.55	3.08	0.68	2.21	0.76	2.76	0.57
4.14	0.44	4.05	0.58	3.29	0.66	3.59	0.43
		4.50	0.52	4.14	0.54		
				4.77	0.52		

Vertical 5	
Total depth = 4.60 m	
Depth	Velocity
[m]	[m/s]
1.00	0.70
2.00	0.64
3.00	0.59
4.00	0.49
4.50	0.46

Date of survey : 15 February 1993

Location : Left Channel at Bahadurabad

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 5.00 m		Total depth = 5.50 m		Total depth = 7.10 m		Total depth = 7.10 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
0.50	0.57	0.99	0.83	0.50	1.05	1.00	1.07
2.00	0.51	1.12	0.80	1.40	1.00	1.43	1.05
3.00	0.48	2.20	0.76	2.80	0.91	2.83	1.06
4.00	0.42	3.29	0.71	4.20	0.77	4.28	1.02
4.30	0.40	4.41	0.57	5.66	0.70	5.70	0.95
		4.99	0.50	6.60	0.56	6.45	0.86

Vertical 5		Vertical 6		Vertical 7		Vertical 8	
Total depth = 7.40 m		Total depth = 5.50 m		Total depth = 2.60 m		Total depth = 5.90 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
1.25	0.89	1.00	0.79	0.50	0.40	1.02	0.20
2.78	0.94	2.20	0.82	1.50	0.43	2.32	0.22
4.28	0.82	3.30	0.78	2.25	0.24	3.54	0.18
5.61	0.67	4.40	0.68			4.74	0.17
6.53	0.54	4.96	0.60			5.03	0.14

River : Brahmaputra-Jamuna
Concentration

Date of survey : 13 February 1993

Location : Right Channel at Fulchari

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 4.80 m		Total depth = 5.00 m		Total depth = 5.00 m		Total depth = 5.50 m	
Depth	Concentration	Depth	Concentration	Depth	Concentration	Depth	Concentration
[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]
1.45	48.61	1.00	71.14	1.00	135.40	1.52	97.33
1.95	55.68	2.00	87.34	2.00	158.23	2.21	98.16
3.02	62.34	3.00	93.88	3.00	201.50	3.30	116.56
4.01	63.41	4.00	106.58	4.00	228.79	4.10	118.12
4.28	75.95	4.50	121.21	4.50	236.62		

Vertical 5	
Total depth = 4.60 m	
Depth	Concentration
[m]	[mg/l]
1.00	71.23
1.80	75.00
2.76	81.69
3.68	84.00

Date of survey : 15 February 1993

Location : Left Channel at Bahadurabad

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 5.00 m		Total depth = 5.50 m		Total depth = 7.10 m		Total depth = 7.10 m	
Depth	Concentration	Depth	Concentration	Depth	Concentration	Depth	Concentration
[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]
0.50	83.33	0.99	123.08	1.40	65.79	1.00	137.50
3.00	82.14	1.12	133.77	2.77	136.23	1.43	115.86
4.00	107.25	2.20	180.61	4.23	152.15	2.83	115.92
4.30	120.83	3.29	186.90	5.60	156.30	4.28	150.00
		4.41	220.73	6.30	170.74	5.70	158.06
		4.99	282.67			6.45	189.87

Vertical 5		Vertical 6		Vertical 7		Vertical 8	
Total depth = 7.40 m		Total depth = 5.50 m		Total depth = 2.60 m		Total depth = 5.90 m	
Depth	Concentration	Depth	Concentration	Depth	Concentration	Depth	Concentration
[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]
1.40	59.52	1.00	47.68	0.50	59.54	1.00	29.11
2.80	69.68	2.20	80.85	1.50	78.48	2.36	42.11
4.20	106.59	3.30	89.47	2.25	103.36	3.54	45.00
5.64	106.29	4.40	109.20			4.74	60.53
6.50	139.24	4.96	137.97			5.03	81.21

3.3 SUMMARY OF RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna

Bed load

Date of Survey : 13 Februray 1993

Location : Right Channel at Fulchari

Helley-Smith samples				
Bed load sb in Kg/ms				
Vertical no.	1	2	3	4
1	0.00008	0.00055	0.00027	
2	0.00281	0.00363	0.00924	
3	0.00519	0.00049	0.00148	
4	0.00735	0.02332		
5	0.00024	0.00098	0.00007	0.01110

Date of Survey : 15 Februray 1993

Location : Left Channel at Bahadurabad

Helley-Smith samples				
Bed load sb in Kg/ms				
Vertical no.	1	2	3	4
1	0.00001	0.00003	0.00002	
2	0.00145	0.00344	0.00247	
3	0.00386	0.02101	0.05000	
4	0.00503	0.00418	0.00499	
5	0.00187	0.00157	0.04134	
6	0.00024	0.00154	0.00080	
7	0.00006	0.00240		

Table 3.4 Summary of results (sediment transport, bed load)

River : Brahmaputra-Jamuna
Van Veen Grab Bottom Samples

Date of Survey : 13 & 14 Februray 1993

Location : Right Channel at Fulchari

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
1	13/02/93	11:00	0.100	0.144	0.166	0.250	1.467
2	13/02/93	13:00	0.100	0.143	0.166	0.250	1.486
3	13/02/93	15:10	0.100	0.144	0.168	0.260	1.532
4	13/02/93	16:40	0.121	0.145	0.167	0.250	1.435
5	13/02/93	17:30	0.109	0.145	0.168	0.250	1.467
6	14/02/93	09:00	0.095	0.139	0.161	0.240	1.543
7	14/02/93	09:30	0.120	0.144	0.164	0.220	1.409

Date of Survey : 15 Februray 1993

Location : Left Channel at Bahadurabad

Sample No	Date	Time	D316 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
8	15/02/93	11:00	0.036	0.063	0.070	0.125	1.714
9	15/02/93	13:00	0.150	0.213	0.276	0.490	1.751
10	15/02/93	16:00	0.140	0.150	0.171	0.250	1.338
11	15/02/93	17:30	0.061	0.075	0.085	0.130	1.432
12	15/02/93	09:00	0.100	0.139	0.160	0.240	1.507
13	15/02/93	09:30	0.008	0.160	0.022	0.046	2.284
14	15/02/93	09:50	0.015	0.026	0.033	0.070	1.933
15	15/02/93	10:05	0.070	0.087	0.102	0.200	1.576
16	15/02/93	11:00	0.150	0.231	0.290	0.500	1.729
17	15/02/93	12:10	0.150	0.193	0.235	0.440	1.631
18	15/02/93	13:30	0.140	0.156	0.181	0.390	1.431
19	15/02/93	14:30	0.070	0.090	0.107	0.210	1.612
20	15/02/93	11:00	0.150	0.231	0.290	0.500	1.729

Table 3.5 SUMMARY OF RESULTS (grain size bed material)

River : Brahmaputra-Jamuna
Suspended Sediment Samples

Date of Survey : 13 Februray 1993

Location : Right Channel at Fulchari

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
5A	13/02/93	11:00	0.008	0.015	0.025	0.110	3.363
9A	13/02/93	12:30	0.025	0.065	0.080	0.200	2.693
10A	13/02/93	13:36	0.005	0.017	0.030	0.225	6.333
14A	13/02/93	14:00	0.008	0.020	0.035	0.135	3.758
18A	13/02/93	15:35	0.015	0.040	0.060	0.175	3.042

Date of Survey : 15 Februray 1993

Location : Left Channel at Bahadurabad

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
31A	15/01/93	11:44	0.006	0.020	0.031	0.130	4.196
40A	15/01/93	15:25	0.008	0.015	0.021	0.110	3.455
45A	15/01/93	16:14	0.014	0.025	0.058	0.190	3.407
49A	15/01/93	18:27	0.009	0.015	0.023	0.100	2.365
19C	15/01/93	14:05	0.015	0.040	0.055	0.180	3.197
24C	15/01/93	13:48	0.015	0.040	0.065	0.128	3.089
30C	15/01/93	15:03	0.010	0.024	0.058	0.180	4.106
36C	15/01/93	16:39	0.015	0.040	0.060	0.160	3.042

Table 3.6 SUMMARY OF RESULTS (grain size suspended sediment)

River : Brahmaputra-Jamuna

Grain Size of bad material

Date of Survey : 13 Februray 1993

Location : Right Channel at Fulchari

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
6	13/02/93	11:40	0.184	0.229	0.291	1.701
7	13/02/93	11:45	0.196	0.243	0.304	1.647
8	13/02/93	11:58	0.180	0.214	0.258	1.626
10	13/02/93	12:30	0.155	0.177	0.203	1.364
11	13/02/93	12:35	0.194	0.236	0.294	1.613
12	13/02/93	12:40	0.183	0.225	0.283	1.666
13	13/02/93	12:55	0.156	0.178	0.204	1.359
21	13/02/93	16:00	0.228	0.284	0.339	1.681
22	13/02/93	16:39	0.224	0.279	0.333	1.643
23	13/02/93	16:09	0.212	0.269	0.325	1.658
24	13/02/93	16:31	0.203	0.265	0.328	1.749
25	13/02/93	16:43	0.158	0.204	0.287	1.978
26	13/02/93	16:50	0.105	0.136	0.171	1.752
27	13/02/93	17:17	0.186	0.227	0.283	1.640
28	13/02/93	17:32	0.192	0.247	0.308	1.708

Date of Survey : 16 Februray 1993

Location : Left Channel at Bahadurabad

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
33	16/02/93	12:05	0.102	0.128	0.194	2.094
34	16/02/93	12:12	0.150	0.198	0.262	0.113
50	16/02/93	16:12	0.198	0.254	0.313	1.689
51	16/02/93	10:18	0.117	0.156	0.208	2.011
52	16/02/93	10:25	0.134	0.174	0.227	2.000
54	16/02/93	11:06	0.254	0.306	0.368	1.704
55	16/02/93	11:13	0.238	0.289	0.344	1.657
56	16/02/93	11:21	0.241	0.297	0.359	1.714
58	16/02/93	12:12	0.262	0.307	0.361	1.623
59	16/02/93	12:20	0.275	0.318	0.368	1.538
60	16/02/93	12:20	0.296	0.338	0.386	1.348
61	16/02/93	12:48	0.318	0.365	0.418	1.366
62	16/02/93	13:40	0.278	0.325	0.380	1.563
63	16/02/93	13:50	0.168	0.197	0.232	1.623
64	16/02/93	14:00	0.210	0.270	0.343	1.751
67	16/02/93	14:43	0.153	0.201	0.264	1.966
68	16/02/93	14:50	0.144	0.194	0.260	2.071
70	16/02/93	15:35	0.211	0.270	0.331	1.694
71	16/02/93	15:40	0.154	0.202	0.269	2.204
72	16/02/93	15:48	0.177	0.232	0.299	1.806

Table 3.7 SUMMARY OF RESULTS (grain size bed load)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING				SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	09:29:48	09:33:25	B32D1T02*				T	T	T							
Transect	09:35:57	09:40:20	B32D1T03				T	T	T							
Transect	18:00:54	18:05:10	B32D1T04				T	T	T							
Transect	18:07:37	18:11:47	B32D1T05				T	T	T							
Profile	10:28:55	12:08:15	B32D1P01	1	464370.5	778650.8	P	P	P	P		1A-5A	5A	6-8	9	1
Profile	14:20:37	15:49:59	B32D1P02	4	464548.1	778733.1	P	P	P	P		15A-18A	18A	21-22	19	2-3
Profile	10:32:30	11:30:27	B32D2P02	5	464610.5	778750.5		P		P		1C-4C		10-13	14	
Profile	11:43:17	12:48:16	B32D2P03	3	464528.0	778704.0		P		P		5C-9C	9A	23-25		4
Profile			B32D2P05	2	464483.0	778681.0		P		P		10C-14C	10A,14A	26-28		5-7

* transect in PSD 24 data base

Date Survey : 13 February 93

Location : Jamuna River at Fulchari (Right channel)

Station no.1

Table 2.1 SURVEY PROGRAMME AS MADE

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING				SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect			B32F1T01*				T	T	T							
Transect	10:13:58	10:23:26	B32F1T02				T	T	T							
Profile	11:56:03	12:04:23	B32F2P01	8	470806.6	776306.8		P		P		15C-19C	19C			12-14
Profile	14:01:13	14:08:08	B32F2P02	6	470633.4	776263.1		P		P		20C-24C	24C	50-52	53	15
Profile	15:19:53	15:38:38	B32F2P03	4	470448.6	776248.4		P		P		25C-30C	30C	58-60	61	17
Profile	16:49:08	17:08:36	B32F2P04	2	470225.1	776258.4		P		P		31C-34C	36C	66-68		19
Profile	11:02:08	11:47:33	B32F1P01	7	470737.4	776317.3	P	P	P	P		29A-31A	31A	33-34	35	8
Profile	12:49:19	14:11:12	B32F1P02	5	470526.0	776289.0	P	P	P	P		36A-40A	40A	54-56	57	9,16
Profile	15:07:00	15:53:16	B32F1P03	3	470316.0	776276.0	P	P	P	P		41A-45A	45A,44A	62-64	65	10,18
Profile			B32F1P05	1	470137.0	776273.0	P	P	P	P		46A-49A	49A	70-72	73	11,20

* transect in PSD 24 data base

Date Survey : 15 February 93

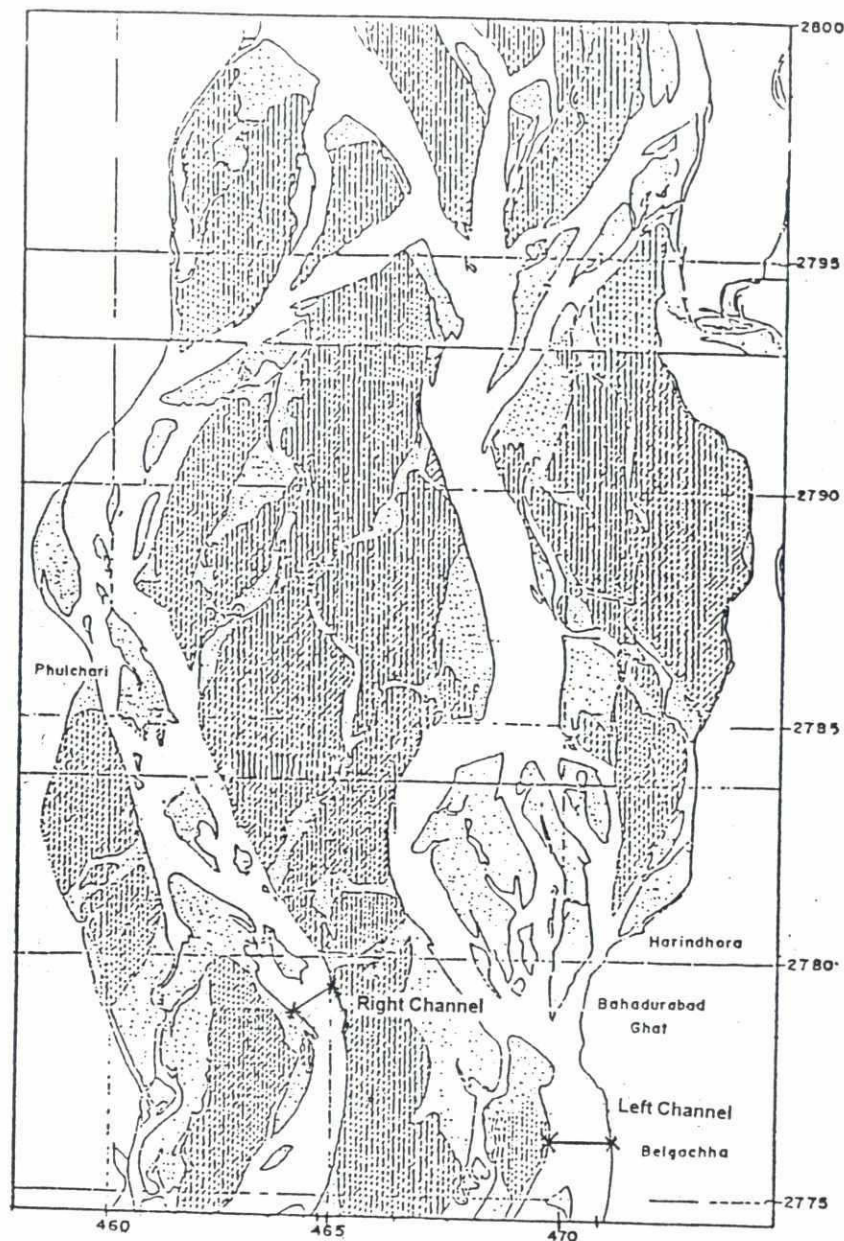
Location : Jamuna River at Bahadurabad (Left channel)

Station no.1

Table 2.2 SURVEY PROGRAMME AS MADE

Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B32F1T01 .ase
ADCP/S4/EMF	2	QUATTRO	B32D1T02 .ase
Echosounder	1	QUATTRO	B32F1T01 .ech
Echosounder	2	QUATTRO	B32D1T02 .ech
Sediment transport data	1	QUATTRO	B32F1T01 .sed
Sediment transport data	2	QUATTRO	B32D1T02 .sed
Bed load sediment analysis	1	QUATTRO	B32F1T01 .bdl
Bed load sediment analysis	2	QUATTRO	B32D1T02 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B32F1T01 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B32D1T02 .ssc
Transect plot data	1	QUATTRO	B32F1T01 .trs
Transect plot data	2	QUATTRO	B32D1T02 .trs
Iso-velocity plot data	1	MIKE 21	B32F1T01 .ct2
Iso-velocity plot data	1	MIKE 21	B32F1T01 .dt2
Iso-velocity plot data	2	MIKE 21	B32D1T02 .ct2
Iso-velocity plot data	2	MIKE 21	B32D1T02 .dt2

Table 5.1 PSD 24 Database file description



LEGEND:-

- X—K Measurement cross section
- High land
- Unstable/low char
- BWDB Embankment

5000m 2500m 0

Map is based on satellite images of March, 1993



RIVER SURVEY PROJECT

Delft Hydraulics/Danish Hydraulic Institute
in association with Osiris/Approtech/Hydroland

Survey Bulletin No. 03- March, 1993

Location No. 1 : Jamuna River at Bahadurabad

File:

Date:

Scale:

Init:

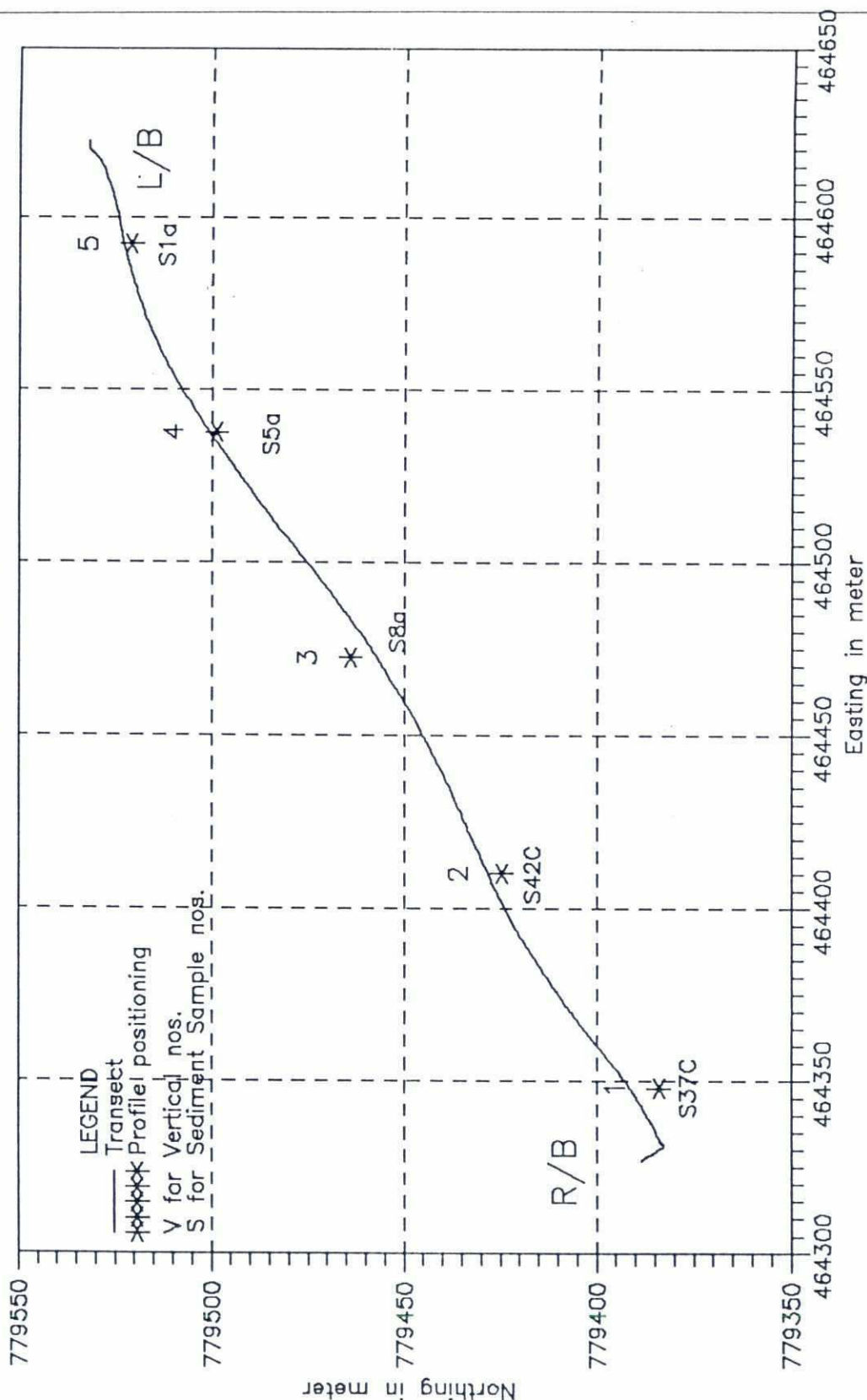
KEY PLAN

Fig.

FAP 24 River Survey Project

Location : Jamuna River (Right Channel)

Date of Survey : 13/03/93



FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 03 : 13 - 17 March 1993

Location 1 : Jamuna River, Bahadurabad

Date :

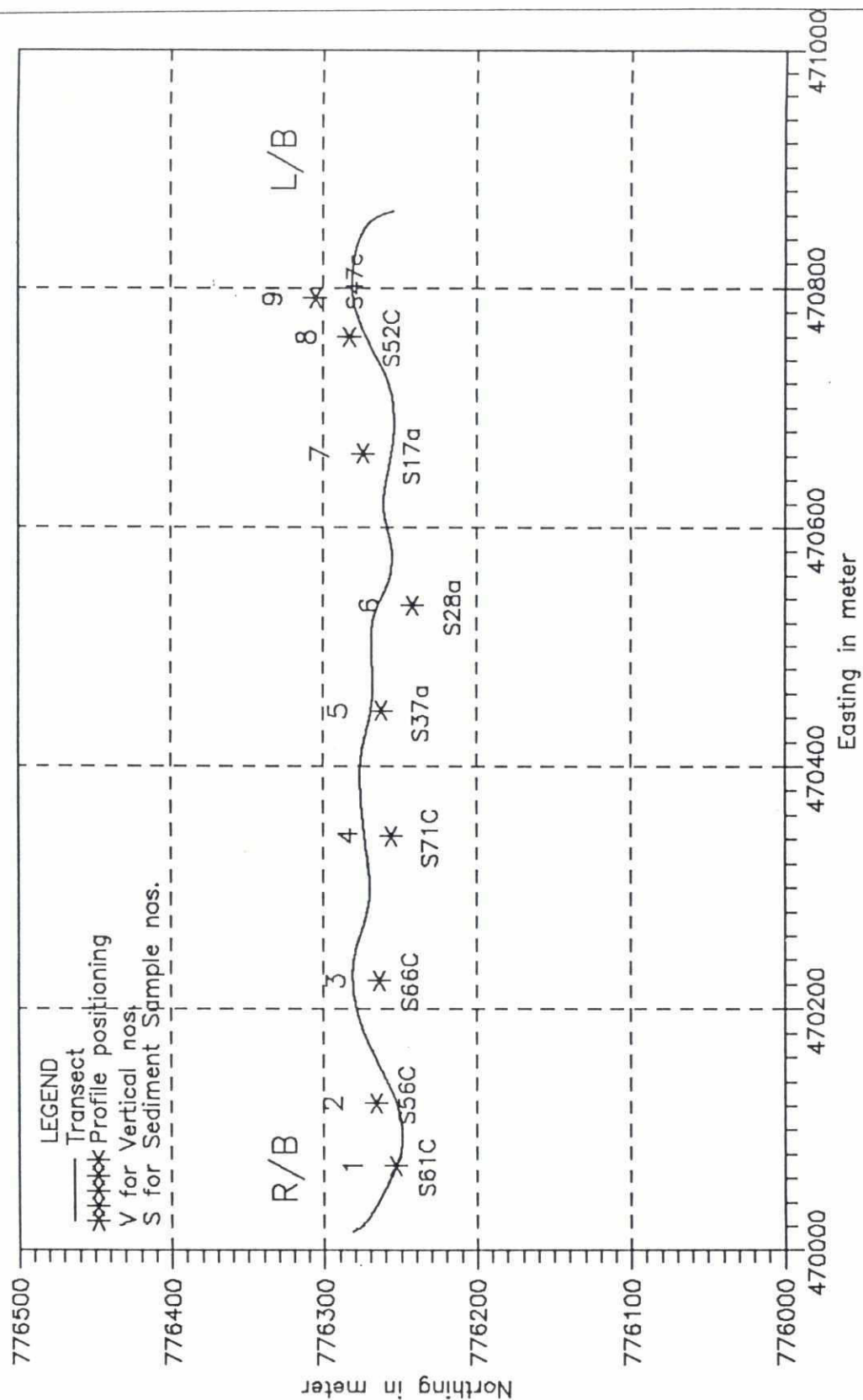
Init :

Location of Measurements

FAP 24 River Survey Project

Location : Jamuna River (Left Channel)

Date of Survey : 15/03/93



FAP 24

 DELFT - DHI

RIVER SURVEY PROJECT
 Flood Plan Coordination Organization
 Commission of the European Communities

Survey Bulletin 03 : 13 - 17 March 1993

Location 1 : Jamuna River, Bahadurabad

Date :

Init :

Location of Measurments

River : Brahmaputra-Jamuna
ADCP/EMF Discharge

Date of Survey : 13 March 1993
Location : Right Channel at Fulchari

Date	Transect	Bank		Water Level	Total Width	Area	Discharge
		From	To	(m+PWD)	(m)	(sq.m)	(cumec)
13/03/93	B33D1T01	Left	Right	13.45	342	1273	1101
13/03/93	B33D1T03	Right	Left	13.45	340	1553	1111

Date of Survey : 15 & 16 March 1993
Location : Left Channel at Bahadurabad

Date	Transect	Bank		Water Level	Total Width	Area	Discharge
		From	To	(m+PWD)	(m)	(sq.m)	(cumec)
15/03/93	B33F1T01	Left	Right	13.92	1219	4272	3445
15/03/93	B33F1T02	Right	Left	13.92	1362	4711	3565
16/03/93	B33G1T04	Right	Left	13.89	1290	4485	3660
16/03/93	B33G1T05	Left	Right	13.89	1332	4650	3591
16/03/93	B33G1T06	Left	Right	13.89	1319	4538	3525

Table 3.1 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna
S4 velocity

Date of survey : 13 March 1993

Location : Jamuna River at Fulchari (Right channel)

Vertical 1		Vertical 2		Vertical 3		Vertical 4		Vertical 5	
Total depth = 4.60 m		Total depth = 5.70 m		Total depth = 4.90 m		Total depth = 4.80 m		Total depth = 4.40 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
(m)	(m/s)	(m)	(m/s)	(m)	(m/s)	(m)	(m/s)	(m)	(m/s)
0.91	0.61	0.58	0.72	0.50	0.75	0.50	0.88	0.50	0.69
1.85	0.61	1.10	0.71	1.97	0.71	2.02	0.80	2.00	0.63
2.75	0.55	2.25	0.66	2.98	0.64	2.77	0.75	2.60	0.56
3.65	0.49	3.41	0.63	4.04	0.57	3.79	0.66	3.60	0.44
4.34	0.43	4.61	0.55	4.64	0.50	4.54	0.56	4.20	0.44

Date of survey : 15 March 1993

Location : Jamuna River at Fulchari (Right channel)

Vertical 1		Vertical 2		Vertical 3		Vertical 4		Vertical 5	
Total depth = 3.60 m		Total depth = 4.50 m		Total depth = 5.80 m		Total depth = 7.20 m		Total depth = 7.80 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
(m)	(m/s)	(m)	(m/s)	(m)	(m/s)	(m)	(m/s)	(m)	(m/s)
0.98	0.49	0.99	0.65	1.14	0.79	0.94	1.07	0.50	1.45
1.55	0.41	1.81	0.53	2.29	0.80	1.42	1.04	1.56	1.01
2.16	0.35	2.67	0.49	3.47	0.74	2.89	0.93	3.02	0.88
2.88	0.28	3.57	0.39	4.70	0.59	4.30	0.84	4.68	0.83
						5.72	0.69	6.15	0.74
						6.21	0.63	7.16	0.58

Vertical 6		Vertical 7		Vertical 8		Vertical 9	
Total depth = 7.40 m		Total depth = 5.10 m		Total depth = 3.10 m		Total depth = 5.50 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
(m)	(m/s)	(m)	(m/s)	(m)	(m/s)	(m)	(m/s)
0.50	1.15	0.50	1.05	0.95	0.35	1.08	0.21
2.00	1.04	1.03	0.65	1.78	0.34	2.18	0.18
3.00	0.96	2.02	0.63	2.41	0.26	3.30	0.16
4.40	0.89	2.97	0.55			4.37	0.16
6.60	0.89	3.95	0.51				
6.00	0.71	4.80	0.43				
7.00	0.63						

Table 3.2 SUMMARY OF RESULTS (S4 current)

River : Brahmaputra-Jamuna
Concentration

Date of survey : 13 March 1993

Location : Jamuna River at Fulchari (Right channel)

Vertical 1		Vertical 2		Vertical 3		Vertical 4		Vertical 5	
Total depth = 4.60 m		Total depth = 5.70 m		Total depth = 4.90 m		Total depth = 4.80 m		Total depth = 4.40 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
0.91	74.83	0.59	77.63	2.00	66.67	2.00	58.54	2.00	52.24
1.85	71.90	1.10	81.48	2.90	67.67	2.80	77.03	2.60	57.14
2.75	73.97	2.24	90.79	4.00	69.86	3.80	90.07	3.60	60.65
3.67	84.62	3.41	91.61	4.60	115.44			4.20	66.67
4.35	91.79	4.53	99.36						

Date of survey : 15 March 1993

Location : Jamuna River at Fulchari (Right channel)

Vertical 1		Vertical 2		Vertical 3		Vertical 4		Vertical 5	
Total depth = 3.60 m		Total depth = 4.50 m		Total depth = 5.80 m		Total depth = 7.20 m		Total depth = 7.80 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
0.98	146.15	0.95	187.33	1.16	87.84	0.96	73.13	1.50	63.38
1.55	173.81	1.78	217.11	2.29	96.97	1.42	93.79	3.10	86.76
2.16	181.58	2.68	394.59	3.47	132.87	2.90	102.59	4.70	93.33
2.88	181.90	3.56	631.82	4.73	131.21	4.32	104.18	6.20	92.99
						5.76	119.18	7.13	102.21
						6.20	162.76		

Vertical 6		Vertical 7		Vertical 8		Vertical 9	
Total depth = 7.40 m		Total depth = 5.10 m		Total depth = 3.10 m		Total depth = 5.50 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
2.00	45.39	1.00	34.90	1.00	69.33	1.10	30.49
3.00	68.00	2.00	57.69	1.80	87.14	2.18	43.24
4.40	78.91	3.00	49.30	2.44	143.48	3.30	51.19
6.00	98.67	4.00	72.60			4.38	111.25
7.00	105.06	4.80	88.72				

Table 3.3 SUMMARY OF RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Bed load

Date of survey : 13 March 1993

Location : Jamuna River at Fulchari (Right channel)

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.04417	0.00027
2	0.00621	0.00684
3	0.00961	0.00251
4	0.00553	0.00114
5	0.00026	0.00208

Date of survey : 15 March 1993

Location : Jamuna River at Bahadurabad (Left channel)

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
3	0.00059	0.00042
7	0.00090	
8	0.00002	0.00003

Table 3.4 Summary of results (Sediment transport, bed load)

River : Brahmaputra-Jamuna
 Suspended Sediment Samples

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
1	14/03/93	11:00	0.006	0.020	0.025	0.045	2.883
2	14/03/93	13:00	0.050	0.095	0.150	0.250	2.250
3	14/03/93	09:30	0.010	0.020	0.025	0.045	2.050
4	14/03/93	16:40	0.015	0.025	0.035	0.070	1.273
22A	15/03/93	09:30	0.075	0.090	0.106	0.200	1.589
36A	15/03/93	11:30	0.200	0.275	0.323	0.500	1.605
43A	15/03/93	13:30	0.175	0.237	0.291	0.490	1.676
50A	15/03/93	14:00	0.035	0.050	0.065	0.110	1.698
55A	15/03/93	12:00	0.045	0.070	0.080	0.135	1.670
60A	15/03/93	15:00	0.080	0.112	0.139	0.230	1.632
65A	15/03/93	16:30	0.150	0.148	0.170	0.250	1.415

Table 3.5 SUMMARY OF RESULTS (grain size suspended sediment)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
41A	13/03/93	13:30	0.005	0.012	0.018	0.100	4.022
46A	13/03/93	15:00	0.009	0.031	0.069	0.170	4.818
AS3	13/03/93	16:00	0.009	0.020	0.040	0.140	3.597
AS2	13/03/93	14:00	0.006	0.019	0.029	0.135	4.162
AS1	13/03/93	12:30	0.007	0.150	0.035	0.075	3.357
65C	15/03/93	13:30	0.009	0.019	0.024	0.060	2.354
60C	15/03/93	11:30	0.010	0.025	0.036	0.100	3.050
70C	15/03/93	15:00	0.010	0.025	0.038	0.100	3.150
77C	15/03/93	16:00	0.007	0.021	0.041	0.130	4.251
45A	15/03/93	14:15	0.008	0.019	0.020	0.100	3.425
35A	15/03/93	12:15	0.006	0.015	0.024	0.100	3.811
27A	15/03/93	10:00	0.009	0.019	0.035	0.120	3.487
55C	15/03/93	11:00	0.050	0.070	0.080	0.120	1.550
51C	15/03/93	11:00	0.014	0.040	0.096	0.100	1.550

Table 3.6 SUMMARY OF RESULTS (grain size suspended sediment)

River Brahmaputra-Jamuna
Helley-Smith Bed Load

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
HS1	13/03/93	11:50	0.226	0.281	0.337	1.659
HS2	13/03/93	12:10	0.157	0.178	0.203	1.338
HS3	13/03/93	13:45	0.180	0.227	0.288	1.704
HS4	13/03/93	13:55	0.258	0.302	0.353	1.627
HS5	13/03/93	15:20	0.136	0.161	0.192	1.608
HS6	13/03/93	15:30	0.161	0.203	0.259	1.835
HS7	13/03/93	16:30	0.222	0.277	0.333	1.627
HS8	13/03/93	16:45	0.210	0.264	0.322	1.641
HS9	13/03/93	17:20	0.171	0.197	0.227	1.504
HS10	13/03/93	17:30	0.227	0.280	0.335	1.614
HS11	14/03/93	16:50	0.105	0.157	0.218	2.685
HS12	14/03/93	17:00	0.090	0.133	0.197	2.645
21A	15/03/93	09:40	0.136	0.181	0.241	2.046
56A	15/03/93	09:50	0.224	0.285	0.345	1.762
57A	15/03/93	10:00	0.157	0.186	0.221	1.592

3.7 SUMMARY OF RESULTS (grain size bed load)

Type	Time		File Name	Var. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples	
Transect	10:53:08	10:57:09	B33D1T01*				T	T	T								
Transect	17:57:25	18:07:04	B33D1T03				T	T	T								
Profile	11:56:53	13:20:05	B33D1P01	5	464592.3	779520.9	P		P			4	1	2	2		
Profile	13:37:09	14:38:03	B33D1P02	4	464537.5	779498.8	P	P	P	P	P	3	1	2	2		
Profile	15:02:07	16:20:04	B33D1P03	3	464472.4	779463.9	P	P	P	P	P	4	1	2	2		
Profile	13:37:29	13:44:48	B33D2P05	1	464368.5	779367.6		P	P	P	P	5	1	2	2		
Profile	15:14:55	15:28:32	B33D2P08	2	464410.3	779424.7		P			P	5	1	2	2		

* transect in PSD 24 data base

Table 2.1 SURVEY PROGRAMME AS MADE

Date of Survey : 13 March 93
Location No. 1 : Jamuna River at Fulchari (Right Channel)
Station No.1

Type	Time		File Name	Var. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING				SEDIMENT TRANSPORT GAUGING						
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples	
Transect	08:15:17	00:00:00	B33F1T01*				T	T	T								
Transect	08:31:11	08:40:15	B33F1T02				T	T	T								
Profile	09:04:51	10:49:46	B33F1P01	7	470661.8	776274.4	P	P	P	P		5	1	1	2	1	1
Profile	11:08:45	12:33:58	B33F1P02	6	470534.7	776241.9	P	P	P			5	1		2	1	1
Profile	13:06:30	14:32:45	B33F1P03	5	470445.9	776262.2	P	P	P	P		4	1		2	1	1
Profile	09:05:25	10:21:06	B33F2P01	9	470791.5	776305.5		P		P		3	1	2	2	1	1
Profile	11:12:03	11:14:32	B33F2P02	8	470759.5	776283.1		P		P		4	1		2	1	1
Profile	11:15:57	12:09:56	B33F2P03	2	470122.6	776266.0		P		P		4	1		2	1	1
Profile	12:57:58	14:08:31	B33F2P04	1	470070.5	776253.2		P				4	1		2	1	1
Profile	14:21:11	15:13:02	B33F2P05	3	470223.3	776264.0		P		P		4	1	2	2	1	1
Profile	15:26:02	16:57:48	B33F2P06	4	470342.7	776256.3		P		P		6	1		2	1	1

* transect in PSD 24 data base

Table 2.2 SURVEY PROGRAMME AS MADE

Date of Survey : 15 March 93
Location No. 1 : Jamuna River at Bahadurabad (Left Channel)
Station No.1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING				SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	11:13:28	11:21:50	B33G1T04				T	T	T							
Transect	11:24:47	11:34:48	B33G1T04				T	T	T							
Transect	10:49:10	14:38:47	B33G1T04				T	T	T							

Table 2.3 SURVEY PROGRAMME AS MADE

Date of Survey : 16 March 93
Location No. 1 : Jamuna River at Bahadurabad (Left Channel)
Station No.1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	ADCP	HYDRO	EMF	S4	MEX	SEDIMENT TRANSPORT GAUGING				
	From	To										Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	12:41:22	12:57:31	B33H1T02				T	T	T							
Transect	13:11:25	13:24:06	B33H1T03				T	T	T							
Transect	13:34:57	15:09:41	B33H1T04				T	T	T							
Transect	15:30:25	15:42:48	B33H1T05				T	T	T							
Transect	15:54:41	16:07:55	B33H1T06				T	T	T							
Transect	16:12:25	16:40:43	B33H1T07				T	T	T							

Table 2.4 SURVEY PROGRAMME AS MADE

Date of Survey : 17 March 93
Location No. 1 : Jamuna River at Bahadurabad (Left Channel)
Station No.1

Type Of Samples	Sample	Total	Vertical
	Nos.	Sample Nos.	No.
Point Integrated Samples	37C,38C,39C,40C,41C	5	1
	42C,43C,44C,45C,46C	5	2
	8A,9A,10A,11A	4	3
	5A,6A,7A	3	4
	1A,2A,3A,4A	4	5
Depth Integrated Samples	IS9,IS10	2	1
	IS7,IS8	2	2
	IS5,IS6	2	3
	IS3,IS4	2	4
	IS1,IS2	2	5
Andreasen Tube Sample	41A	1	1
	46A	1	2
	AS3	1	3
	AS2	1	4
	AS1	1	5
Helley-Smith Samples	HS9,HS10	2	1
	HS7,HS8	2	2
	HS5,HS6	2	3
	HS3,HS4	2	4
	HS1,HS2	2	5
Vanveen Samples	--		
	--		
	--		
	--		
	--		

Table 2.5 List of Sediment Samples

Date of Survey : 13 March 93

Station No.1

Type Of Samples	Sample	Total	Vertical
	Nos.	Nos.	No.
Point Integrated Samples	61C,62C,63C,64C	4	1
	56C,57C,58C,59C	4	2
	66C,67C,68C,69C	4	3
	71C,72C,73C,74C,75C,76C	6	4
	37A,39A,40A,42A,44A	5	5
	28A,29A,30A,31A,34A	5	6
	17A,20A,23A,25A,26A	5	7
	52C,53C,54C	3	8
	47C,48C,49C,50C	4	9
Depth Integrated Samples	48A,49A	2	1
	51A,52A	2	2
	58A,59A	2	3
	61A,62A	2	4
	38A	1	5
	32A,33A	2	6
	18A,19A	2	7
	15,16	2	8
	13,14	2	9
Andreasen Tube Sample	65C	1	1
	60C	1	2
	70C	1	3
	77C	1	4
	45A	1	5
	35A	1	6
	27A	1	7
	55C	1	8
	51C	1	9
Helley-Smith Samples	48A,49A	2	1
	53A,54A	2	2
	56A,57A	2	3
	63A,64A	2	4
	41A	1	5
	--	--	6
	21A,25A	2	7
	11,12	2	8
	--	--	9
Vanveen Samples	50A	1	1
	55A	1	2
	60A	1	3
	65A	1	4
	43A	1	5
	36A	1	6
	22A	1	7
	1	1	8
	3	1	9

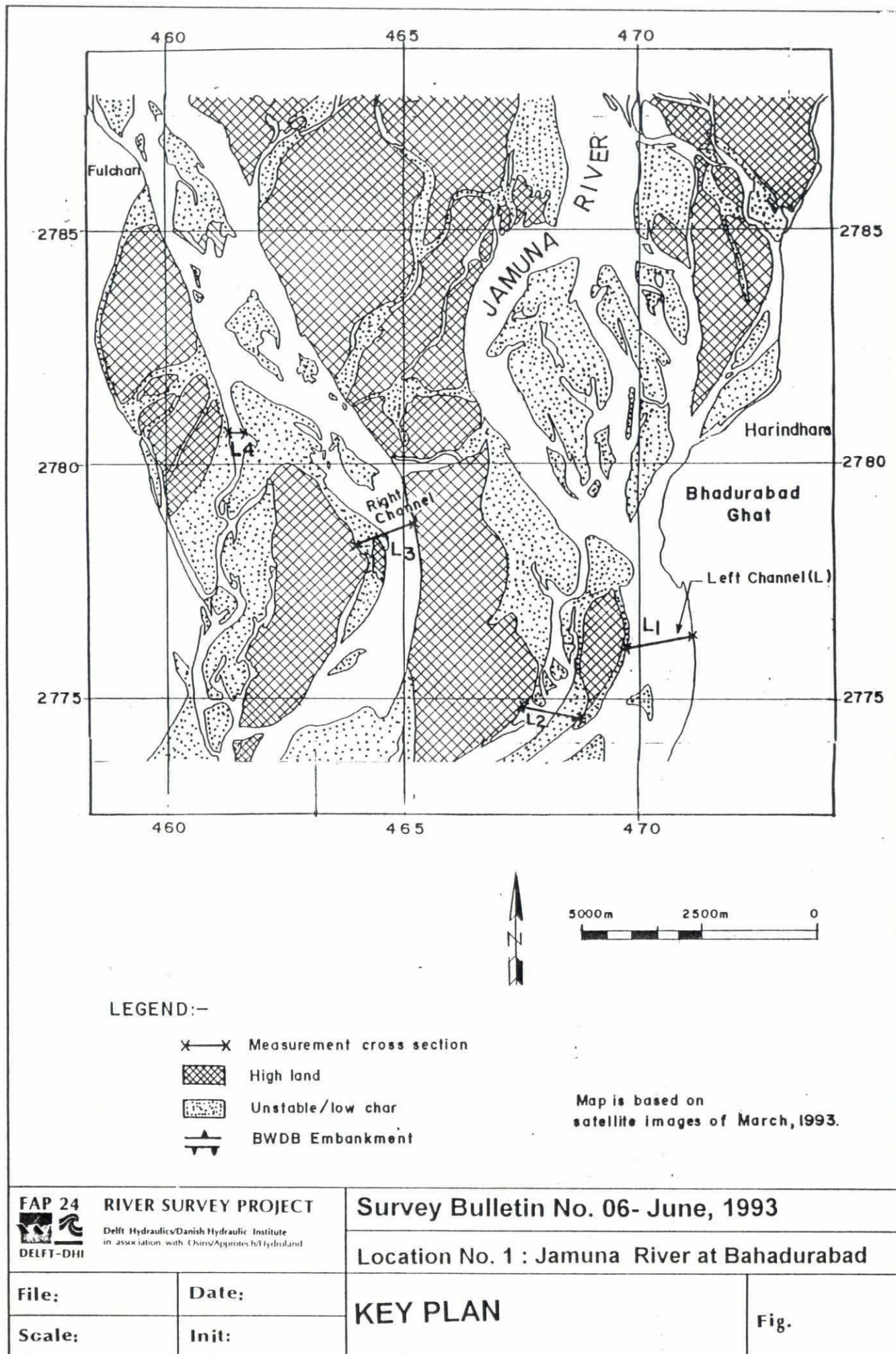
Table 2.6 List of Sediment Samples

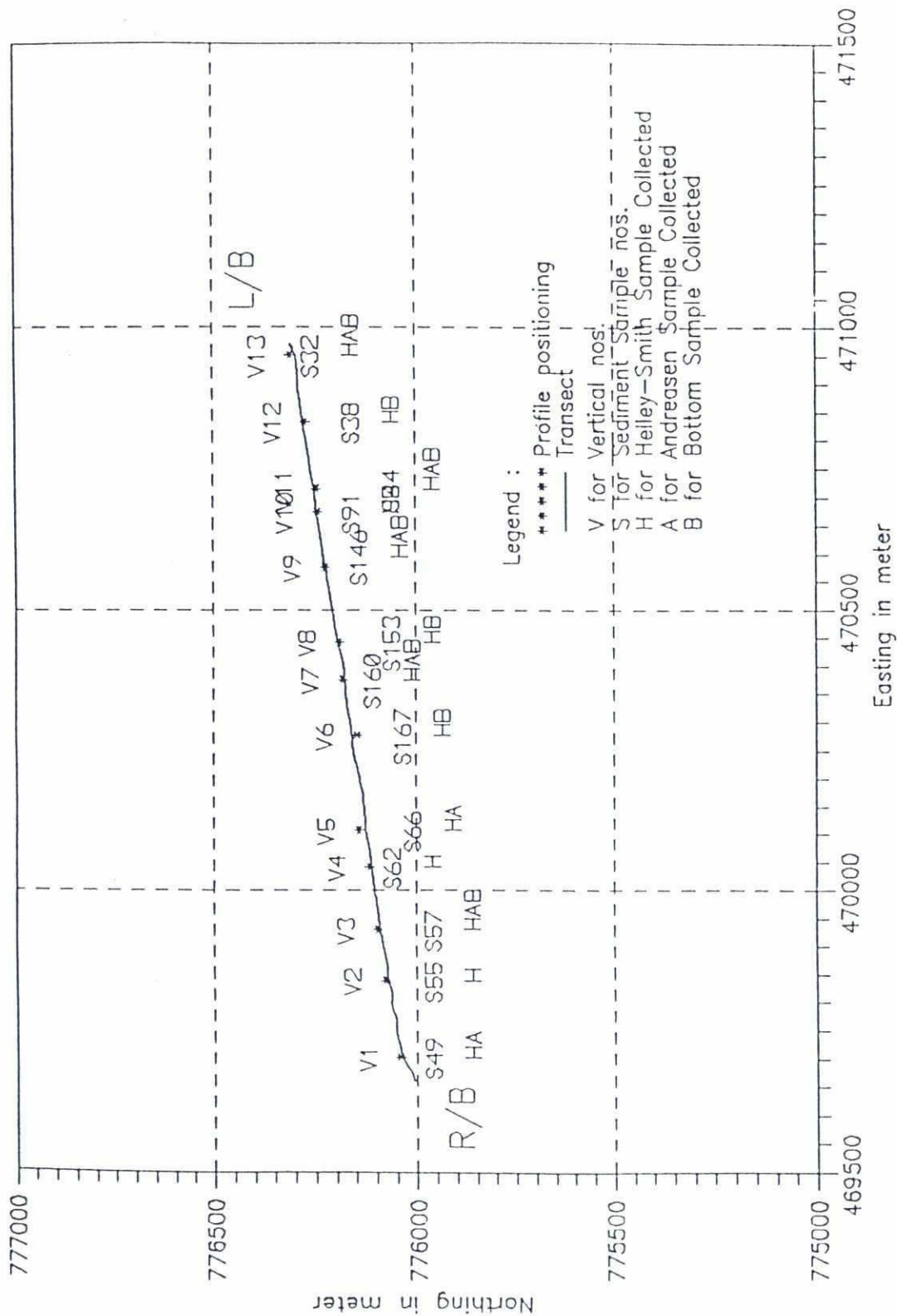
Date of Survey : 15 March 93
Station No.1

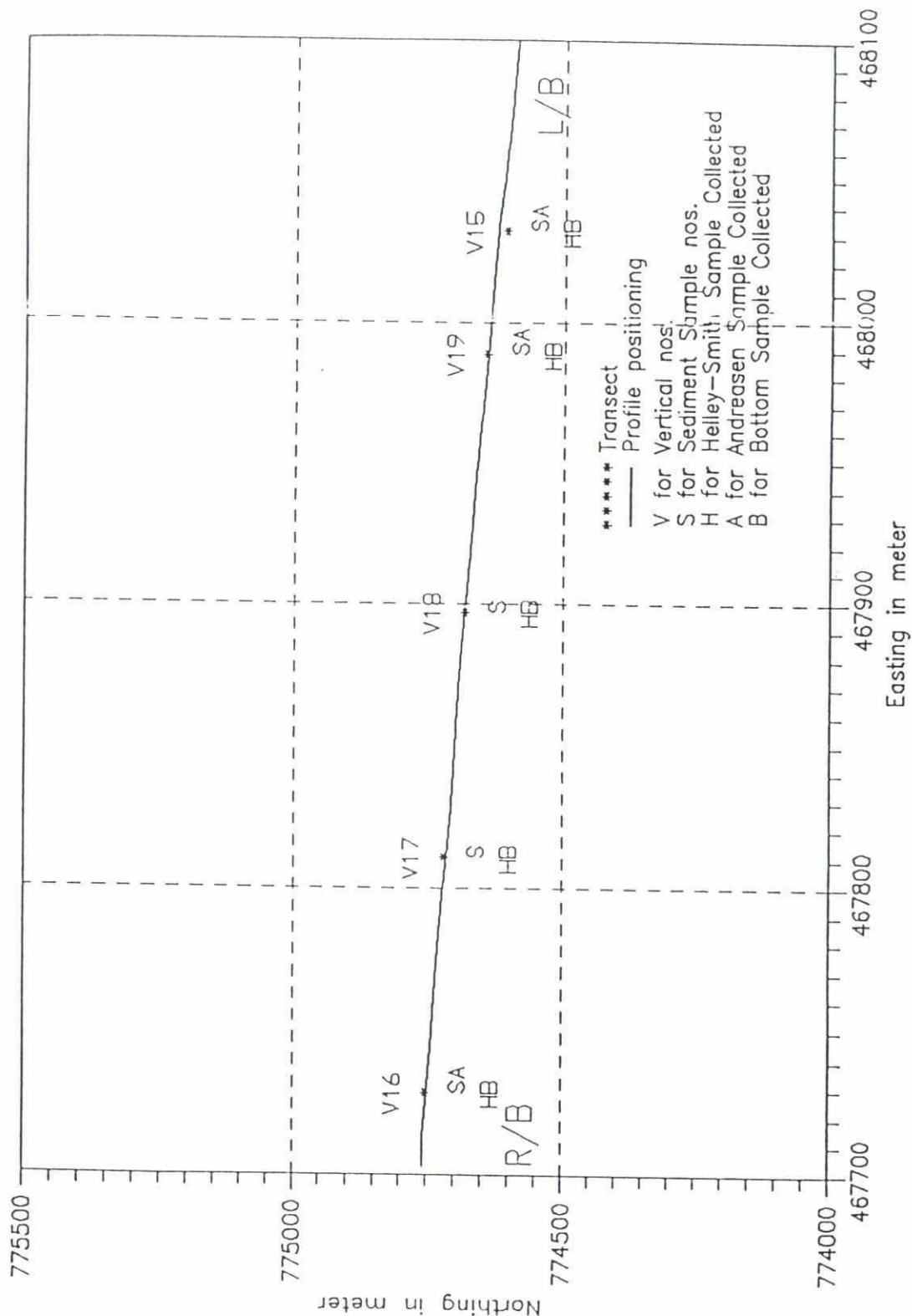
82

Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B33F1T01 .ase
ADCP/S4/EMF	2	QUATTRO	B33D1T01 .ase
Echosounder	1	QUATTRO	B33F1T01 .ech
Echosounder	2	QUATTRO	B33D1T01 .ech
Sediment transport data	1	QUATTRO	B33F1T01 .sed
Sediment transport data	2	QUATTRO	B33D1T01 .sed
Bed load sediment analysis	1	QUATTRO	B33F1T01 .bdl
Bed load sediment analysis	2	QUATTRO	B33D1T01 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B33F1T01 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B33D1T01 .ssc
Transect plot data	1	QUATTRO	B33F1T01 .trs
Transect plot data	2	QUATTRO	B33D1T01 .trs
Iso-velocity plot data	1	MIKE 21	B33F1T01 .ct2
Iso-velocity plot data	1	MIKE 21	B33F1T01 .dt2
Iso-velocity plot data	2	MIKE 21	B33D1T01 .ct2
Iso-velocity plot data	2	MIKE 21	B33D1T01 .dt2

Table 5.1 PSD 24 Database file description







FAP 24

 DELFT - DHI

RIVER SURVEY PROJECT
 Flood Plain Coordination Organization
 Commission of the European Communities

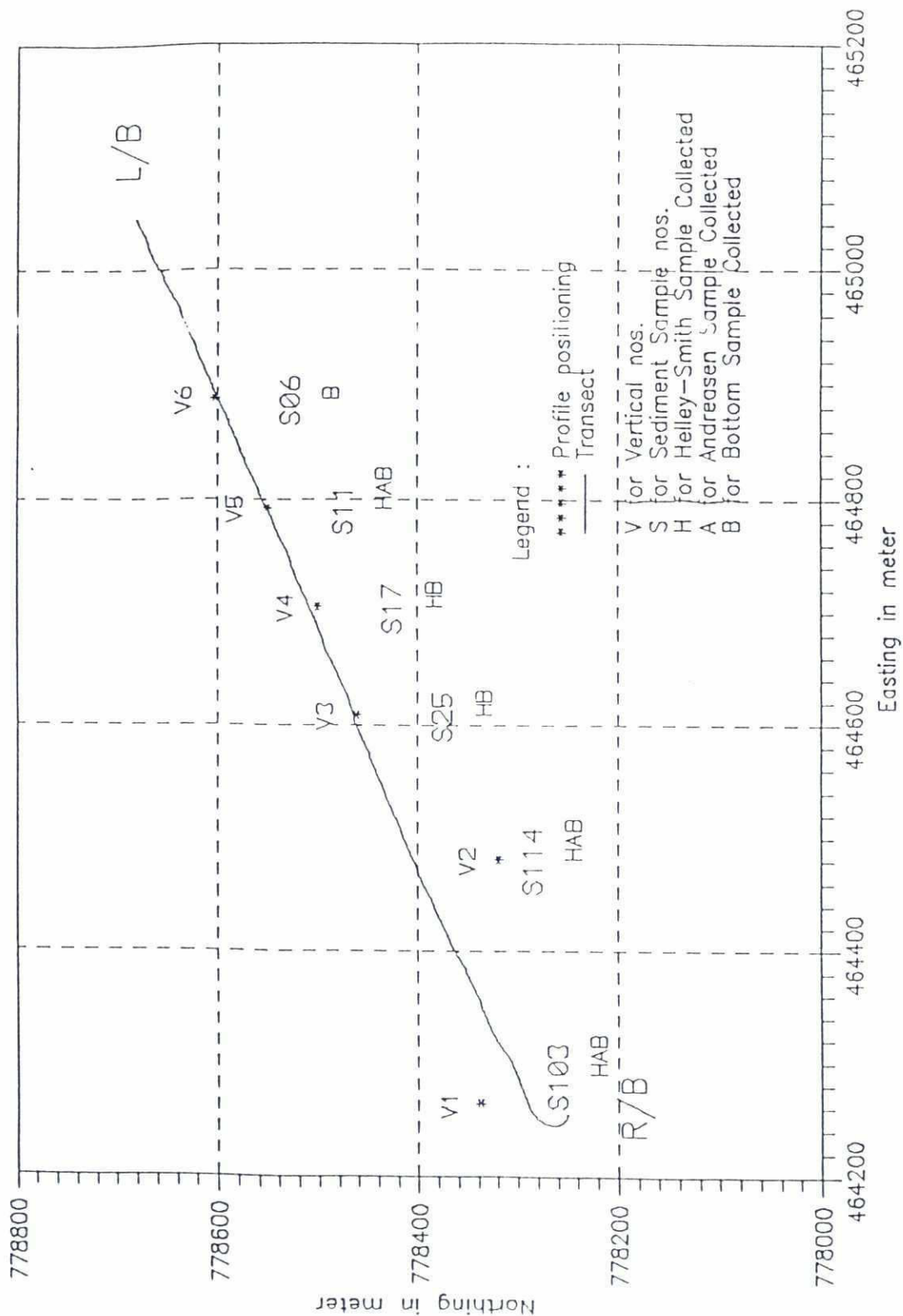
Survey Bulletin 06 : June 1993

Location 1: Jamuna River, Bahadurabad (Channel L-2)

Date

Init

Location of Measurements



FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

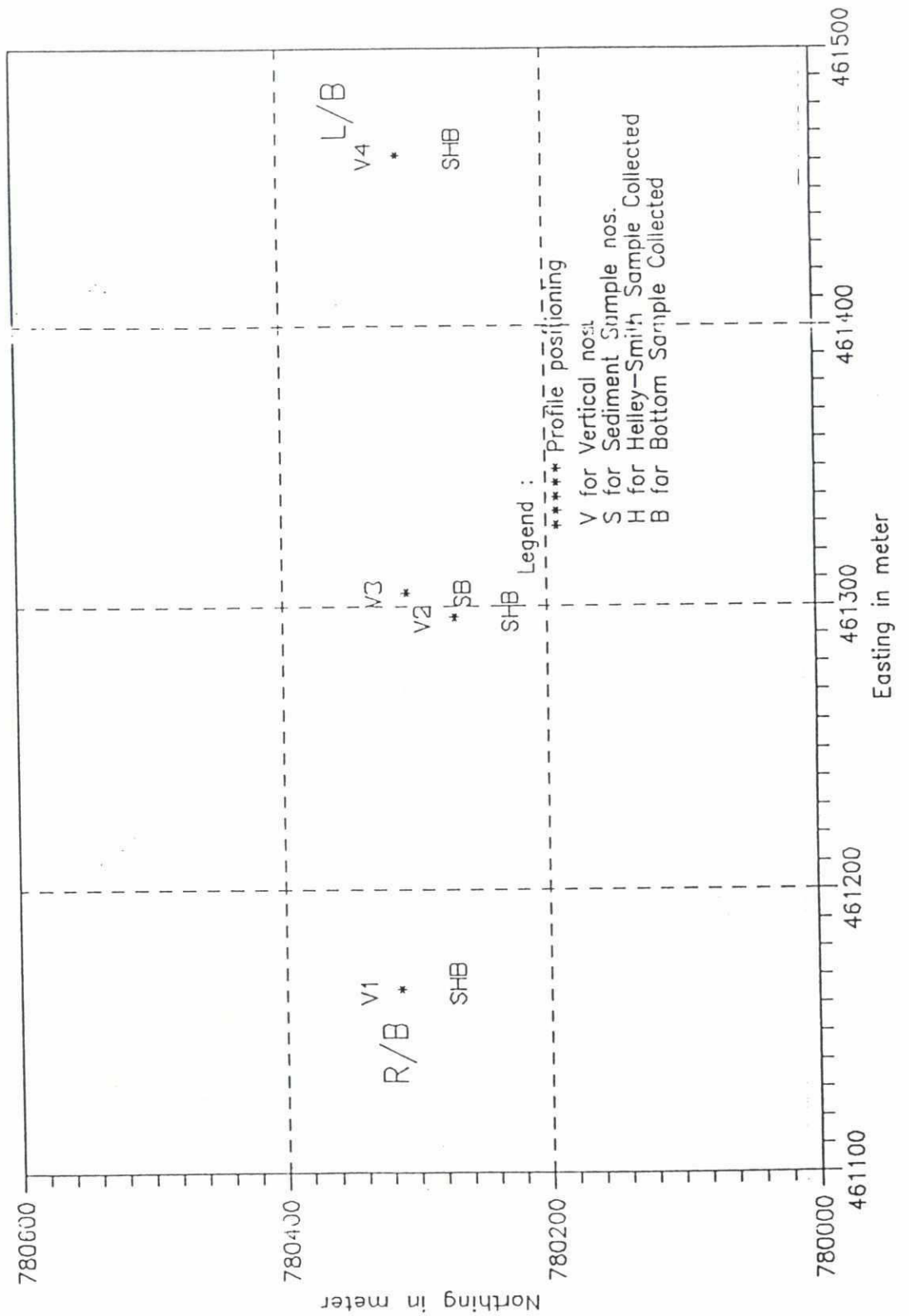
Survey Bulletin 06 : June 1993

Location 1: Jamuna River, Fulchari (Channel L-3)

Location of Measurements

Date :

Init :



FAP 24  DELFT - DHI		Survey Bulletin 06 : June 1993	
		Location 1: Jamuna River, Fulchari (Channel L-4)	
	Date :	Location of Measurements	
	Init		

River : Brahmaputra-Jamuna

ADCP/EMF Discharge

Date of Survey : 06-08 June 1993

Loction : Jamuna River at Bahadurabad (L-1)

Date	Transect	Bank		Water-level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
06-06-93	B3661T10	Right	Left	16.95	1439	9153	10134
06-06-93	B3661T11	Left	Right	16.95	1367	8852	10699
07-06-93	B3671T03	Left	Right	17.25	1370	8914	11597
07-06-93	B3671T04	Right	Left	17.25	1370	9036	11637
08-06-93	B3681T03	Left	Right	17.88	1382	10168	14988

Date of Survey : 08-09 June 1993

Loction : Jamuna River at Bahadurabad (L-2)

Date	Transect	Bank		Water-level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
08-06-93	B3681T05	Right	Left	17.98	726	2663	1902
09-06-93	B3691T03	Right	Left	18.36	741	2992	2088

Date of Survey : 06 June 1993

Loction : Jamuna River at Fulchari (L-3)

Date	Transect	Bank		Water-level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
06-06-93	B3661T02	Left	Right	15.73	900	5496	5502
06-06-93	B3661T03	Right	Left	15.73	903	5628	5444
06-06-93	B3661T05	Right	Left	15.73	907	5593	5359
06-06-93	B3661T06	Left	Right	15.75	935	5748	5332

Table 3.1 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna
S4 velocity

Date of survey : 07-08 June 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Vertical 1	
Total depth = 7.90 m	
Depth	Velocity
[m]	[m/s]
1.59	1.15
3.17	1.16
4.74	1.12
6.32	0.97
7.10	0.84

Vertical 2	
Total depth = 2.00 m	
Depth	Velocity
[m]	[m/s]
1.01	1.10
1.68	0.76

Vertical 3	
Total depth = 3.40 m	
Depth	Velocity
[m]	[m/s]
0.98	1.31
1.35	0.96
2.03	1.03
2.17	1.05

Vertical 4	
Total depth = 4.40 m	
Depth	Velocity
[m]	[m/s]
1.00	1.15
1.76	1.25
2.65	1.06
3.27	1.06

Vertical 5	
Total depth = 7.40 m	
Depth	Velocity
[m]	[m/s]
1.49	1.05
2.95	1.83
4.43	1.53
5.70	1.49

Vertical 6	
Total depth = 8.60 m	
Depth	Velocity
[m]	[m/s]
1.40	1.94
1.80	1.93
3.60	1.76
5.40	1.71
6.60	1.82
7.20	1.64

Vertical 7	
Total depth = 10.00	
Depth	Velocity
[m]	[m/s]
1.40	1.93
2.00	1.92
4.00	1.67
6.00	1.66
7.80	1.42
9.61	1.32

Vertical 8	
Total depth = 9.60 m	
Depth	Velocity
[m]	[m/s]
0.50	1.95
1.40	1.85
2.00	1.92
4.00	1.79
6.00	1.67
8.00	1.50
9.02	1.29

Vertical 9	
Total depth = 10.00	
Depth	Velocity
[m]	[m/s]
0.50	1.96
2.00	1.86
4.00	1.88
6.00	1.73
8.00	1.47
9.71	1.24

Vertical 10	
Total depth = 10.10	
Depth	Velocity
[m]	[m/s]
0.50	1.62
1.40	1.44
2.00	1.52
4.00	1.55
6.00	1.42
8.00	1.18
9.40	0.94

Vertical 11	
Total depth = 9.80 m	
Depth	Velocity
[m]	[m/s]
1.40	1.50
2.00	1.55
4.00	1.46
6.00	1.30
8.00	1.13
8.90	0.94

Vertical 12	
Total depth = 7.70 m	
Depth	Velocity
[m]	[m/s]
0.50	1.67
1.40	0.98
2.20	1.09
3.60	1.04
4.40	0.99
5.80	0.80

Vertical 13	
Total depth = 6.20 m	
Depth	Velocity
[m]	[m/s]
0.50	0.50
1.25	0.97
2.50	0.95
3.75	0.72
5.00	0.75
5.90	0.87

QW(1)=10738(m³/s)

Table 3.2 SUMMARY OF RESULTS (S4 current)

River : Brahmaputra-Jamuna

S4 velocity

Date of survey : 09 June 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Vertical 15	
Total depth = 3.30 m	
Depth	Velocity
[m]	[m/s]
1.40	1.22
1.85	1.29

Vertical 16	
Total depth = 6.20 m	
Depth	Velocity
[m]	[m/s]
1.20	1.40
2.40	1.34
3.40	1.29
4.70	1.12

Vertical 17	
Total depth = 3.90 m	
Depth	Velocity
[m]	[m/s]
1.40	1.76
2.00	1.70
3.66	1.21

Vertical 18	
Total depth = 3.20 m	
Depth	Velocity
[m]	[m/s]
1.02	1.40
1.92	1.19
2.15	1.04

Vertical 19	
Total depth = 2.60 m	
Depth	Velocity
[m]	[m/s]
1.00	1.16
1.56	1.29
1.91	1.18

$$Q_w (2) = 3492 (m^3/s)$$

Table : 3.3 SUMMARY OF RESULTS (S4 Currents)

River : Brahmaputra-Jamuna
S4 velocity

Date of survey : 04-06 June 1993

Location : Jamuna River at Bahadurabad (Channel L-3)

Vertical 1	
Total depth = 4.70 m	
Depth	Velocity
[m]	[m/s]
1.00	1.04
1.85	0.94
2.65	0.93
3.72	0.81
4.55	0.68

Vertical 2	
Total depth = 5.40 m	
Depth	Velocity
[m]	[m/s]
1.10	0.83
2.20	0.81
3.30	0.71
4.40	0.63
4.60	0.59

Vertical 3	
Total depth = 9.00 m	
Depth	Velocity
[m]	[m/s]
0.20	1.06
1.40	1.02
1.80	1.01
3.60	0.91
5.40	0.72
7.20	0.77

Vertical 4	
Total depth = 6.90 m	
Depth	Velocity
[m]	[m/s]
1.40	1.23
2.80	1.18
3.20	1.08
4.20	1.05
5.60	0.86

Vertical 5	
Total depth = 7.40 m	
Depth	Velocity
[m]	[m/s]
1.98	1.38
3.10	1.28
4.62	1.15
6.16	1.08
6.52	1.08

Vertical 6	
Total depth = 7.70 m	
Depth	Velocity
[m]	[m/s]
2.07	1.48
3.08	1.39
4.62	1.39
6.61	1.17
7.26	0.93

$Q_w (3) = 5897 (m^3/s)$

Table : 3.4 SUMMARY OF RESULTS (S4 Currents)

River : Brahmaputra-Jamuna
S4 velocity

Date of survey : 06 June 1993
Location : Jamuna River at Bahadurabad (Channel L-4)

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 1.60 m		Total depth = 4.40 m		Total depth = 5.40 m		Total depth = 2.70 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
0.55	1.01	1.23	1.50	1.09	0.99	0.99	0.48
1.06	0.67	2.58	1.01	2.16	0.97	1.60	0.62
		3.49	1.02	3.22	0.90	2.14	0.59
		4.32	0.83	4.30	0.81	2.07	0.47
				4.76	0.69		

$QW(4)=877(m^3/s)$

Table : 3.5 SUMMARY OF RESULTS (S4 Currents)

River : Brahmaputra-Jamuna
Concentration

Date of survey : 07-08 June 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

<table><tr><td colspan="2">Vertical 1</td></tr><tr><td colspan="2">Total depth = 7.90 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.12</td><td>328.00</td></tr><tr><td>1.59</td><td>442.00</td></tr><tr><td>3.17</td><td>458.00</td></tr><tr><td>4.74</td><td>444.00</td></tr><tr><td>6.32</td><td>632.00</td></tr><tr><td>7.10</td><td>1643.00</td></tr></table>	Vertical 1		Total depth = 7.90 m		Depth	Conc.	[m]	[mg/l]	0.12	328.00	1.59	442.00	3.17	458.00	4.74	444.00	6.32	632.00	7.10	1643.00	<table><tr><td colspan="2">Vertical 2</td></tr><tr><td colspan="2">Total depth = 2.00 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>1.01</td><td>419.00</td></tr><tr><td>1.68</td><td>473.00</td></tr></table>	Vertical 2		Total depth = 2.00 m		Depth	Conc.	[m]	[mg/l]	1.01	419.00	1.68	473.00	<table><tr><td colspan="2">Vertical 3</td></tr><tr><td colspan="2">Total depth = 3.40 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.11</td><td>317.00</td></tr><tr><td>0.98</td><td>357.00</td></tr><tr><td>1.35</td><td>414.00</td></tr><tr><td>2.03</td><td>448.00</td></tr><tr><td>2.17</td><td>434.00</td></tr></table>	Vertical 3		Total depth = 3.40 m		Depth	Conc.	[m]	[mg/l]	0.11	317.00	0.98	357.00	1.35	414.00	2.03	448.00	2.17	434.00	<table><tr><td colspan="2">Vertical 4</td></tr><tr><td colspan="2">Total depth = 4.40 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>1.00</td><td>354.00</td></tr><tr><td>1.76</td><td>398.00</td></tr><tr><td>2.65</td><td>378.00</td></tr><tr><td>3.27</td><td>529.00</td></tr></table>	Vertical 4		Total depth = 4.40 m		Depth	Conc.	[m]	[mg/l]	1.00	354.00	1.76	398.00	2.65	378.00	3.27	529.00	<table><tr><td colspan="2">Vertical 5</td></tr><tr><td colspan="2">Total depth = 7.40 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.09</td><td>327.00</td></tr><tr><td>1.49</td><td>333.00</td></tr><tr><td>2.95</td><td>348.00</td></tr><tr><td>4.43</td><td>465.00</td></tr><tr><td>5.70</td><td>472.00</td></tr></table>	Vertical 5		Total depth = 7.40 m		Depth	Conc.	[m]	[mg/l]	0.09	327.00	1.49	333.00	2.95	348.00	4.43	465.00	5.70	472.00																										
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[m]	[mg/l]																																																																																																																	
0.20	344.00																																																																																																																	
1.25	390.00																																																																																																																	
2.50	541.00																																																																																																																	
3.75	478.00																																																																																																																	
5.00	487.00																																																																																																																	
5.99	1583.00																																																																																																																	

Table 3.6 SUMMARY OF RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Concentration

Date of survey : 09 June 1993
Location : Jamuna River at Bahadurabad (Channel L-2)

Vertical 15	
Total depth = 3.30 m	
Depth	Conc.
[m]	[mg/l]
0.20	691.00
1.40	756.00
1.85	992.00

Vertical 16	
Total depth = 6.20 m	
Depth	Conc.
[m]	[mg/l]
0.20	413.00
1.20	663.00
2.40	566.00
3.40	565.00
4.70	521.00

Vertical 17	
Total depth = 3.90 m	
Depth	Conc.
[m]	[mg/l]
0.20	555.00
1.40	736.00
2.00	841.00
3.66	1762.00

Vertical 18	
Total depth = 3.20 m	
Depth	Conc.
[m]	[mg/l]
0.20	638.00
1.02	815.00
1.92	839.00
2.15	856.00

Vertical 19	
Total depth = 2.60 m	
Depth	Conc.
[m]	[mg/l]
0.20	753.00
1.00	820.00
1.56	914.00
1.91	1014.00

Ss (2)= 2957(Kg/s)

Table 3.7 SUMMARY OF RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Concentration

Date of survey : 04-06 June 1993

Location : Jamuna River at Bahadurabad (Channel L-3)

Vertical 1	
Total depth = 4.70 m	
Depth	Conc.
[m]	[mg/l]
1.00	387.00
1.85	464.00
2.65	471.00
3.72	574.00
4.55	549.00

Vertical 2	
Total depth = 5.40 m	
Depth	Conc.
[m]	[mg/l]
0.20	457.00
1.10	532.00
2.20	582.00
3.30	664.00
4.40	771.00
4.60	851.00

Vertical 3	
Total depth = 9.00 m	
Depth	Conc.
[m]	[mg/l]
0.20	288.00
1.40	338.00
1.80	352.00
3.60	397.00
5.40	467.00
7.02	549.00
7.20	540.00

Vertical 4	
Total depth = 6.90 m	
Depth	Conc.
[m]	[mg/l]
0.20	363.00
1.40	421.00
2.80	455.00
3.20	463.00
4.20	468.00
5.60	585.00
6.24	581.00

Vertical 5	
Total depth = 7.40 m	
Depth	Conc.
[m]	[mg/l]
0.12	413.00
1.98	510.00
3.10	529.00
4.62	522.00
6.16	574.00
6.52	578.00

Vertical 6	
Total depth = 7.70 m	
Depth	Conc.
[m]	[mg/l]
2.07	460.00
3.08	468.00
4.62	444.00
6.61	525.00
7.26	540.00

Ss (3)= 2657(Kg/s)

Table 3.8 SUMMARY OF RESULTS (Suspended Sediment Concentration)

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River : Brahmaputra-Jamuna
Concentration

Date of survey : 06 June 1993

Location : Jamuna River at Bahadurabad (Channel L-4)

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 1.60 m		Total depth = 4.40 m		Total depth = 5.40 m		Total depth = 2.70 m	
Depth	Conc.	Depth	Conc.	Depth	Conc.	Depth	Conc.
[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]
0.55	417.00	1.23	548.00	0.15	474.00	0.99	534.00
1.06	499.00	2.58	624.00	1.09	510.00	1.60	643.00
		3.49	690.00	2.16	527.00	2.14	759.00
		4.32	1075.00	3.22	542.00	2.07	1108.00
				4.30	594.00		
				4.76	587.00		

Ss(4)=510(Kg/s)

Table 3.9 SUMMARY OF RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Bed load

Date of survey : 07 June 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.024781	0.071655
2	0.078947	0.068859
3	0.110636	0.145066
4	0.079652	0.171875
6	0.736842	0.705263
8	0.284430	0.176151
9	0.017872	0.183663
10	0.028020	0.316638
11	0.022368	0.005383
12	0.005373	0.019170
13	0.000439	0.002900

Date of survey : 09 June 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.031360	0.090899
2	0.034868	0.137336
3	0.034211	0.084649
4	0.041776	0.060307
5	0.048629	0.087170
6	0.051316	0.042434

Table 3.10 Summary of results (Sediment transport, bed load)

River : Brahmaputra-Jamuna

Bed load

Date of survey : 04 June 1993

Location : Jamuna River at Fulchari Channel L-3)

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.102851	-
2	0.000348	0.001316
3	0.000350	0.004355
4	0.007634	0.007456
5	0.062281	0.007283

Date of survey : 06 June 1993

Location : Jamuna River at Fulchari Channel L-4)

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.181688	0.023684
2	0.013070	0.030370
4	0.000887	0.000508

Table 3.11 Summary of results (Sediment transport, bed load)

River : Brahmaputra-Jamuna

Grain size of bed material

Date of Survey : 07 June 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
9	07/06/93	13:36	0.148	0.171	0.196	0.386	1.486
A14	08/06/93	10:32	0.163	0.206	0.257	0.425	1.615
A13	07/06/93	16:50	0.123	0.291	0.330	0.461	1.345
A12	07/06/93	15:47	0.121	0.292	0.332	0.479	1.362
11	07/06/93	15:40	0.136	0.170	0.198	0.396	1.546
A11	07/06/93	14:00	0.118	0.293	0.335	0.384	1.395
A10	07/06/93	12:15	0.131	0.152	0.174	0.252	1.364
A9	07/06/93	11:41	0.132	0.156	0.177	0.245	1.329
A8	07/06/93	10:35	0.070	0.093	0.116	0.225	1.679
A7	07/06/93	09:15	0.070	0.081	0.091	0.150	1.330

Date of Survey : 09 June 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A15	09/06/93	12:35	0.127	0.148	0.168	0.236	1.330
A16	09/06/93	14:00	0.131	0.154	0.174	0.241	1.314
A17	09/06/93	14:50	0.056	0.077	0.093	0.200	1.723
A18	09/06/93	15:45	0.082	0.125	0.147	0.225	1.582
10	09/06/93	11:35	0.116	0.143	0.163	0.225	1.399
11	09/06/93	14:50	0.088	0.131	0.152	0.225	1.558

Table 3.12 SUMMARY OF RESULTS (grain size bed material)

River : Brahmaputra-Jamuna

Grain size of bed material

Date of Survey : 04 June 1993

Location : Jamuna River at Fulchari (Channel L-3)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
1C	04/06/93	15:53	0.200	0.307	0.345	0.481	1.303
3C	05/06/93	16:32	0.070	0.095	0.122	0.228	1.728
A5	06/06/93	11:15	0.136	0.157	0.185	0.381	1.544
A4	07/06/93	10:00	0.141	0.156	0.175	0.229	1.294
03	07/06/93	16:14	0.145	0.160	0.181	0.249	1.310
02	07/06/93	14:05	0.157	0.201	0.247	0.426	1.614

Date of Survey : 06 June 1993

Location : Jamuna River at Fulchari (Channel L-4)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
05	06/06/93	09:35	0.147	0.170	0.197	0.389	1.513
06	06/06/93	10:26	0.074	0.087	0.100	0.200	1.524
07	06/06/93	12:08	0.145	0.159	0.179	0.235	1.307
08	06/06/93	12:55	0.054	0.072	0.083	0.136	1.461

Table 3.13 SUMMARY OF RESULTS (grain size bed material)

River : Brahmaputra-Jamuna
Grain size of bed material

Date of Survey : 07 June 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
11	07/06/93	11:29	0.008	0.017	0.023	0.076	2.500
13	07/06/93	13:36	0.006	0.018	0.025	0.185	4.583
14	07/06/93	16:55	0.005	0.014	0.023	0.178	5.113
12	07/06/93	17:30	0.005	0.016	0.024	0.106	4.067
3	07/06/93	14:00	0.006	0.015	0.027	0.122	4.009
9	07/06/93	11:42	0.005	0.010	0.017	0.071	2.967
7	07/06/93	09:10	0.003	0.008	0.013	0.034	2.543

Date of Survey : 09 June 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
15	09/06/93	12:35	0.005	0.013	0.019	0.050	2.989
17	09/06/93	14:40	0.005	0.016	0.038	0.235	6.282
16	09/06/93	11:54	0.005	0.013	0.020	0.098	3.000
19	09/06/93	15:25	0.006	0.017	0.026	0.168	4.467

Date of Survey : 04 June 1993

Location : Jamuna River at Fulchari (Channel L-3)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
10	04/06/93	15:53	0.004	0.008	0.013	0.033	2.533
6	05/06/93	11:20	0.004	0.006	0.010	0.026	2.469
2	05/06/93	16:15	0.004	0.008	0.014	0.041	2.895

Table 3.14 SUMMARY OF RESULTS (grain size suspended sediment)

River : Brahmaputra-Jamuna

Bed load

Date of Survey : 07 June 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Sample No	Date	Time	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
49	07/06/93	11:15	0.295	0.335	0.380	1.329
50	07/06/93	11:20	0.202	0.253	0.312	1.635
51	07/06/93	13:10	0.204	0.254	0.312	1.617
53	07/06/93	13:15	0.174	0.203	0.238	1.564
53	07/06/93	13:35	0.192	0.232	0.289	1.616
54	07/06/93	13:40	0.220	0.273	0.329	1.613
55	07/06/93	15:35	0.181	0.217	0.264	1.610
56	07/06/93	15:40	0.190	0.230	0.286	1.612
73	07/06/93	10:30	0.286	0.326	0.371	1.421
72	07/06/93	10:35	0.285	0.325	0.370	1.435
69	07/06/93	15:42	0.298	0.337	0.381	1.317
70	07/06/93	15:48	0.300	0.339	0.383	1.319
67	07/06/93	14:00	0.318	0.360	0.407	1.323
68	07/06/93	14:15	0.291	0.333	0.382	1.422
65	07/06/93	12:15	0.146	0.186	0.238	1.006
66	07/06/93	12:20	0.179	0.214	0.260	1.634
63	07/06/93	11:40	0.109	0.141	0.174	1.774
64	07/06/93	11:45	0.279	0.321	0.370	1.535
61	07/06/93	10:35	0.257	0.300	0.351	1.635
62	07/06/93	10:30	0.262	0.306	0.357	1.631
21	07/06/93	09:10	0.128	0.183	0.260	2.199
23	07/06/93	09:15	0.110	0.166	0.265	2.268

Date of Survey : 09 June 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Sample No	Date	Time	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
81	09/06/93	12:35	0.161	0.191	0.227	1.617
82	09/06/93	12:45	0.157	0.182	0.212	1.447
83	09/06/93	14:00	0.150	0.175	0.204	1.444
84	09/06/93	14:05	0.146	0.167	0.192	1.402
85	09/06/93	14:53	0.125	0.150	0.180	1.664
86	09/06/93	14:50	0.149	0.174	0.204	1.476
87	09/06/93	15:45	0.128	0.152	0.182	1.662
88	09/06/93	16:00	0.137	0.166	0.201	1.748
57	09/06/93	11:35	0.154	0.175	0.199	1.339
58	09/06/93	11:40	1.550	0.175	0.198	1.318
59	09/06/93	15:25	0.152	0.173	0.197	1.336
60	09/06/93	15:30	0.150	0.172	0.198	1.369

Table 3.15 SUMMARY OF RESULTS (grain size bed load)

River : Brahmaputra-Jamuna

Bed load

Date of Survey : 04 June 1993

Location : Jamuna River at Fulchari (Channel L-3)

Sample No	Date	Time	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
1	04/06/93	15:50	0.251	0.295	0.346	1.588
6	05/06/93	16:30	0.175	0.231	0.297	1.851
8	05/06/93	16:35	0.189	0.250	0.313	1.775
19	06/06/93	11:15	0.175	0.231	0.298	1.855
24	06/06/93	11:30	0.110	0.166	0.265	2.268
16	06/06/93	10:00	0.280	0.324	0.375	1.527
22	06/06/93	10:15	0.268	0.311	0.362	1.578
9	05/06/93	16:15	0.263	0.306	0.357	1.569
11	05/06/93	16:20	0.285	0.325	0.372	1.433

Date of Survey : 06 June 1993

Location : Jamuna River at Fulchari (Channel L-4)

Sample No	Date	Time	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
13	06/06/93	09:37	0.171	0.205	0.245	1.629
14	06/06/93	09:45	0.182	0.215	0.259	1.594
15	06/06/93	10:26	0.103	0.130	0.171	1.775
17	06/06/93	10:42	0.103	0.130	0.167	1.718
18	06/06/93	12:55	0.148	0.198	0.265	2.165
20	06/06/93	13:10	0.167	0.222	0.290	2.157

Table 3.16 SUMMARY OF RESULTS (grain size bed load)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	16:51:00	17:02:11	B3661T10*				T	T	T							
Transect	17:05:56	17:16:13	B3661T11				T	T	T							
Transect	11:45:13	11:54:45	B3681T03				T	T	T							
Transect	18:00:12	18:09:47	B3671T03				T	T	T							
Transect	18:11:02	18:22:30	B3671T04				T	T	T							
Profile	09:18:54	09:50:03	B3671P01	13	470942	776326	P	P	P	P	P	6	1	2		1
Profile	10:30:46	10:57:43	B3671P02	12	470840	776272	P	P	P	P	P	6		2		
Profile	11:34:53	12:10:23	B3671P03	11	470716	776244	P				P	6	1	2		1
Profile	12:27:03	12:58:06	B3671P04	10	470674	776239	P	P				7		2		1
Profile	13:58:34	14:45:30	B3671P05	9	470570	776224	P	P	P	P	P	7	1	2		1
Profile	15:36:30	16:26:02	B3671P06	8	470443	776189	P	P	P	P	P	7		2		2
Profile	16:31:28	17:35:33	B3671P07	7	470369	776179	P	P	P	P	P	7	1			2
Profile	11:24:53	11:51:32	B3672P01	1	469703	776043	P	P	P	P	P	6	1	2		1
Profile	13:11:26	13:25:36	B3672P02	2	469839	776079	P	P	P	P	P	2		2		
Profile	13:43:33	14:09:35	B3672P03	3	469930	776097	P	P	P	P	P	5	1	2		
Profile	15:36:28	16:05:01	B3672P04	4	470042	776117	P	P	P	P	P	4		2		1
Profile	13:58:34	14:45:30	B3671P05	5	470107	776143	P	P	P	P	P	5	1			
Profile	10:36:23	11:21:54	B3681P01	6	470277	776147	P	P	P	P	P	7		2		1

Transect in PSD 24 data base

* transect in PSD 24 data base

Table 2.1 SURVEY PROGRAMME AS MADE

Date of Survey : 06 - 08 June 1993
Location : Jamuna River at Bahadurabad (L-1)
Station No. 1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	15:58:00	16:17:08	B3691T05				T	T	T							
Transect	16:07:27	16:13:11	B3691T03*				T	T	T							
Profile	14:41:21	15:20:33	B3691P04	16	467731	774752		P			P	5		1	2	1
Profile	15:46:50	15:48:21	B3691P05	17	467813	774721	P	P	P	P	P	4		2		1
Profile	11:43:29	12:05:16	B3692P01	18	467897	774683	P	P	P	P	P	4	1	2		1
Profile	15:06:00	15:45:18	B3692P02	19	467989	774644	P	P	P	P	P	4	1	2		1

* Transect in PSD 24 data base

Table 2.2 SURVEY PROGRAMME AS MADE

Date of Survey : 08 - 09 June 1993
Location : Jamuna River at Bahadurabad (L-2)
Station No. 1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	09:05:50	09:12:31	B3661T02				T	T	T							
Transect	09:13:36	09:21:57	B3661T03				T	T	T							
Transect	09:31:43	09:40:39	B3661T05*				T	T	T							
Transect	12:10:06	12:17:06	B3661T06				T	T	T							
Profile	16:14:20	14:24:24	B3642P01	1	464264	778338	P	P	P	P		5	1	1		1
Profile	14:04:55	14:54:53	B3651P01	6	464887	778603	P	P	P	P		5				1
Profile	15:28:56	17:22:42	B3651P03	5	464783	778545	P	P	P	P	P	6	1	2		1
Profile	10:02:23	10:45:47	B3661P01	4	464703	778508	P	P	P	P	P	7		2		1
Profile	11:14:53	11:44:28	B3661P02	3	464606	778463	P	P	P	P	P	7		2		1

* transect in PSD 24 data base

Table 2.3 SURVEY PROGRAMME AS MADE

Date of Survey : 04 - 06 June 1993
 Location : Jamuna River at Fulchhari (L-3)
 Station No. 1

DISCHARGE GAUGING							SEDIMENT TRANSPORT GAUGING									
Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
	From	To														
Profile	09:47:51	10:07:16	B3662P01	1	461165	780314	P	P	P	P		2		2		1
Profile	10:25:49	10:48:16	B3662P03	2	461296	780271	P	P	P	P		4		2		1
Profile	12:15:31	12:37:37	B3662P04	3	461305	780307	P	P	P	P		6	1			1
Profile	12:54:41	00:00:00	B3662P05	4	461462	780310	P	P	P	P		4		2		1

Table 2.4 SURVEY PROGRAMME AS MADE

Date of Survey : 06 June 1993
Location : Jamuna River at Fulchari (L-4)
Station No. 1

Type Of Samples	Sample Nos.	Total No.	Vertical No.
Point Integrated Samples	49,50,51,52,53,54	6	1
	55,56	2	2
	57,58,59,60,61	5	3
	62,63,64,65	4	4
	66,67,68,69,70	5	5
	167,168,169,170,171,172,173	7	6
	160,161,162,163,164,165,166	7	7
	153,154,155,156,157,158,159	7	8
	146,150,147,148,24,151,152	7	9
	91,92,93,94,95,96,145	7	10
	44,45,46,47,48,89,90	7	11
	38,39,40,41,42,43	6	12
	32,33,34,35,36,37	6	13
Andreasen Tube Sample	11	1	1
	13	1	3
	14	1	5
	12	1	7
	03	1	9
	09	1	11
	07	1	13
Helley-Smith Samples	49,50	2	1
	51,52	2	2
	53,54	2	3
	55,56	2	4
	73,72	2	6
	69,70	2	8
	67,68	2	9
	65,66	2	10
	63,64	2	11
	61,62	2	12
Vanveen Samples	21,23	2	13
	9	1	3
	A13	1	7
	A14	1	6
	A12,11	2	8
	A11	1	9
	A10	1	10
	A9	1	11
	A8	1	12
	A7	1	13

Table : 2.5 List of Sediment Samples

Location No. L-1: Bahadurabad

Date of Survey : 03/06/93 - 09/06/93

Type Of Samples	Sample	Total	Vertical
	Nos.	Sample Nos.	No.
Point Integrated Samples	174,179,175,176,177,178	6	1
	180,181,182	3	2
	183,184,185,186,187	5	3
	188,189,190,191	4	4
	121,122,123,124	4	5
	125,126,127,128	4	6
Andreasen Tube Samples	15	1	1
	17	1	3
	16	1	6
	19	1	4
Helley-Smith Samples	81,82	2	1
	83,84	2	2
	85,86	2	3
	87,88	2	4
	57,58	2	5
	59,60	2	6
Vanveen Samples	A15	1	1
	A16	1	2
	A17	1	3
	A18	1	4
	10	1	5
	11	1	6

Date of Survey : 09/06/93

Location No. L-2 : Bahadurabad

Table 2.6 List of Sediment Samples

Type Of Samples	Sample	Total	Vertical
	Nos.	Sample Nos.	No.
Point Integrated Samples	97,103,105,106,107	5	1
	114,115,116,117,118,119	6	2
	25,26,27,28,29,30,31	7	3
	17,18,19,20,21,22,23	7	4
	11,12,13,14,15,16	6	5
	06,07,08,09,10	5	6
Andreasen Tube Samples	10	1	1
	06	1	2
	02	1	5
Helley-Smith Samples	01	1	1
	6,8	2	2
	19,24	2	3
	16,22	2	4
	09,11	2	5
Vanveen Samples	1C	1	1
	3C	1	2
	A5	1	3
	A4	1	4
	03	1	5
	02	1	6

Date of Survey :04/06/93 - 06/06/93

Location No. L-3 : Fulchari

Type Of Samples	Sample	Total	Vertical
	Nos.	Sample Nos.	No.
Point Integrated Samples	73,74	2	1
	75,76,77,78	4	2
	79,80,81,82,83,84	6	3
	85,86,87,88	4	4
Helley-Smith Samples	13,14	2	1
	15,17	2	2
	18,20	2	4
Vanveen Samples	05	1	1
	06	1	2
	07	1	3
	08	1	4

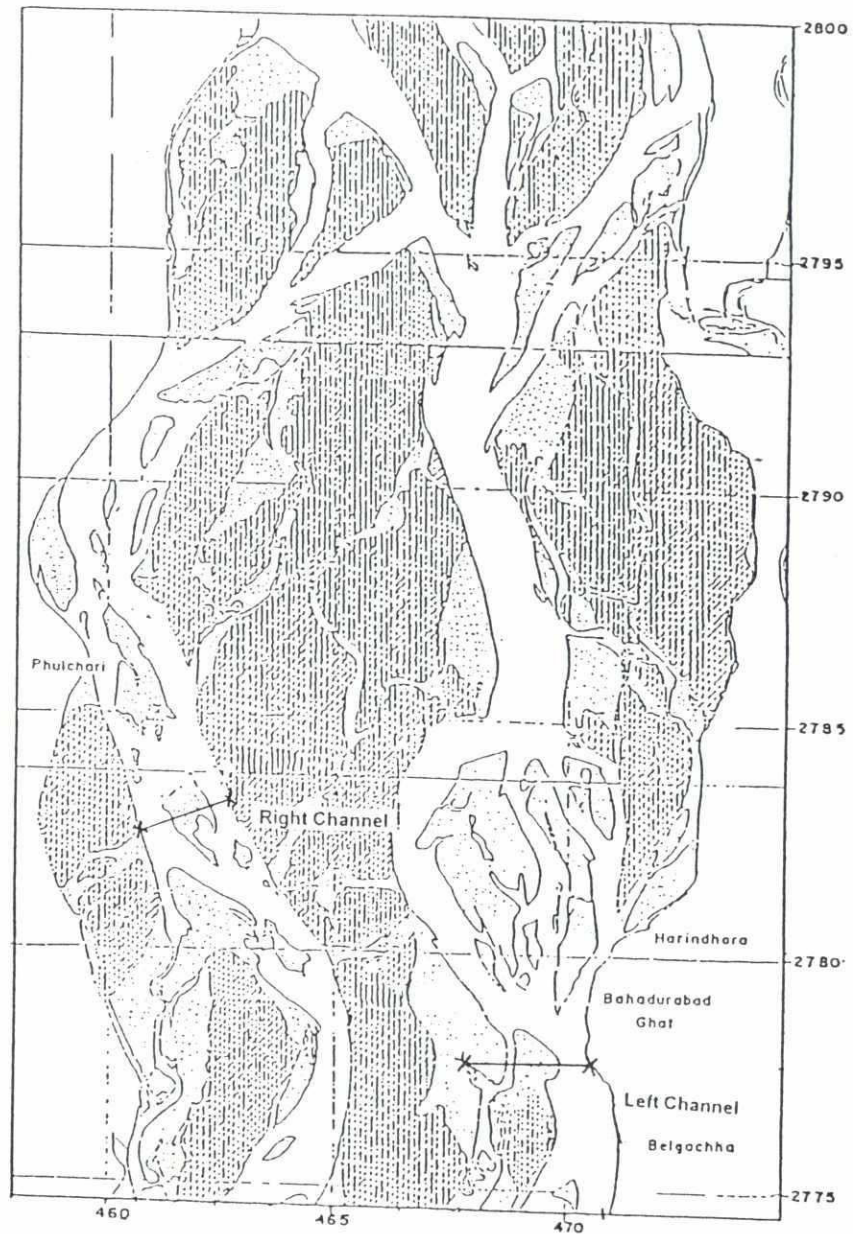
Date of Survey : 06/06/93

Location No. L-4 : Fulchari

Table 2.7 List of Sediment Samples

Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B3661T10 .ase
ADCP/S4/EMF	2	QUATTRO	B3691T03 .ase
ADCP/S4/EMF	3	QUATTRO	B3661T05 .ase
Echosounder	1	QUATTRO	B3661T10 .ech
Echosounder	2	QUATTRO	B3691T03 .ech
Echosounder	3	QUATTRO	B3661T05 .ech
Sediment transport data	1	QUATTRO	B3661T10 .sed
Sediment transport data	2	QUATTRO	B3691T03 .sed
Sediment transport data	3	QUATTRO	B3661T05 .sed
Bed load sediment analysis	1	QUATTRO	B3661T10 .bdl
Bed load sediment analysis	2	QUATTRO	B3691T03 .bdl
Bed load sediment analysis	3	QUATTRO	B3661T05 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B3661T10 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B3691T03 .ssc
Suspended sed. conc. analysis	3	QUATTRO	B3661T05 .ssc
Transect plot data	1	QUATTRO	B3661T10 .trs
Transect plot data	2	QUATTRO	B3691T03 .trs
Transect plot data	3	QUATTRO	B3661T05 .trs
Iso-velocity plot data	1	MIKE 21	B3661T10 .ct2
Iso-velocity plot data		MIKE 21	B3661T10 .dt2
Iso-velocity plot data	2	MIKE 21	B3691T03 .ct2
Iso-velocity plot data		MIKE 21	B3691T03 .dt2
Iso-velocity plot data	3	MIKE 21	B3661T05 .ct2
Iso-velocity plot data		MIKE 21	B3661T05 .dt2

Table 5.1 PSD 24 Database file description



LEGEND:-

- X—K Measurement cross section
- High land
- Unstable/low char
- BWDB Embankment



Map is based on satellite images of March, 1993



RIVER SURVEY PROJECT

Delft Hydraulics/Danish Hydraulic Institute
in association with Osiris/Approtech/Hydroland

Survey Bulletin No. 07- July, 1993

Location No. 1 : Jamuna River at Bahadurabad

File:

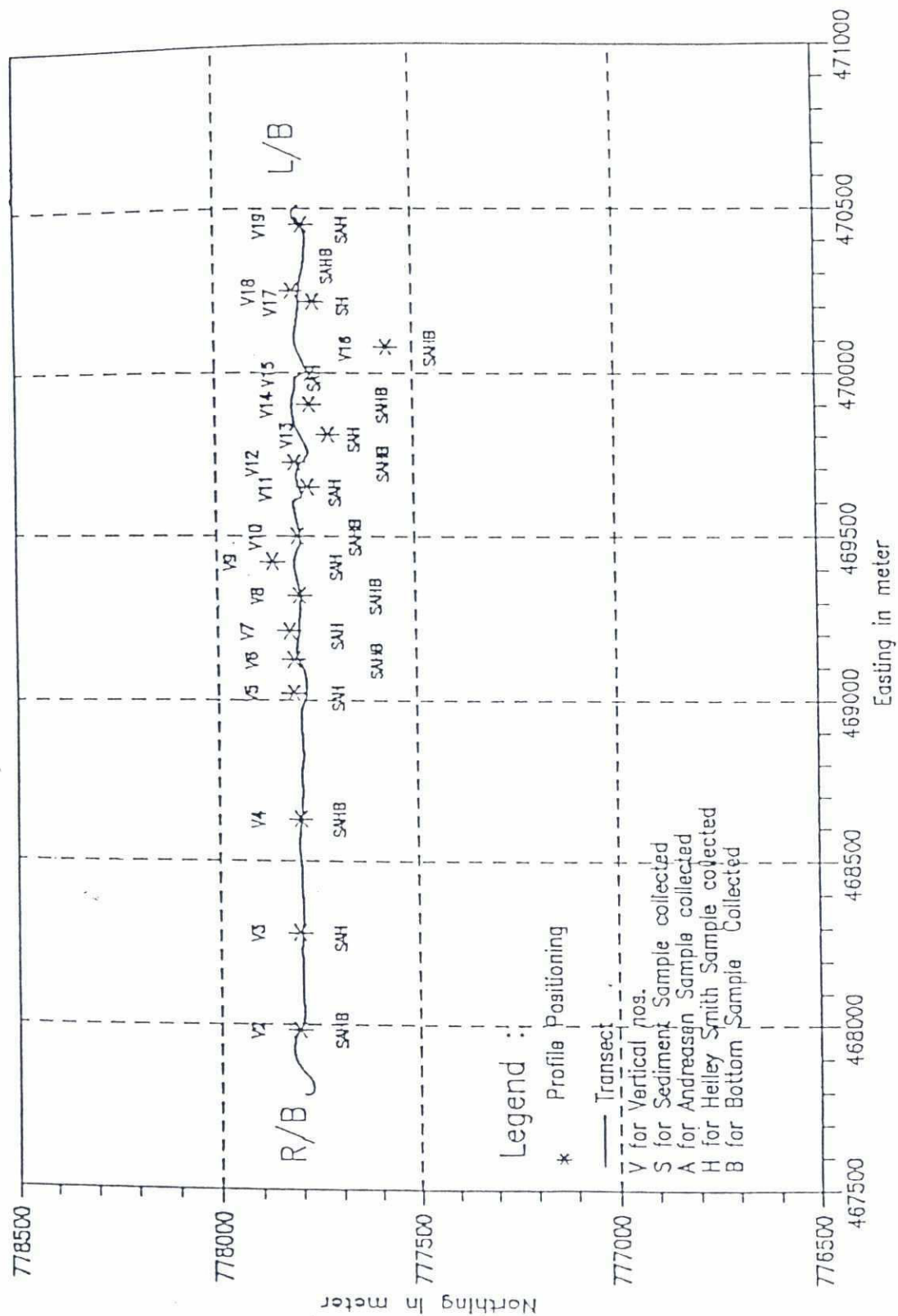
Date:

Scale:

Init:

KEY PLAN

Fig.



FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plain Coordination Organization

Commission of the European Communities

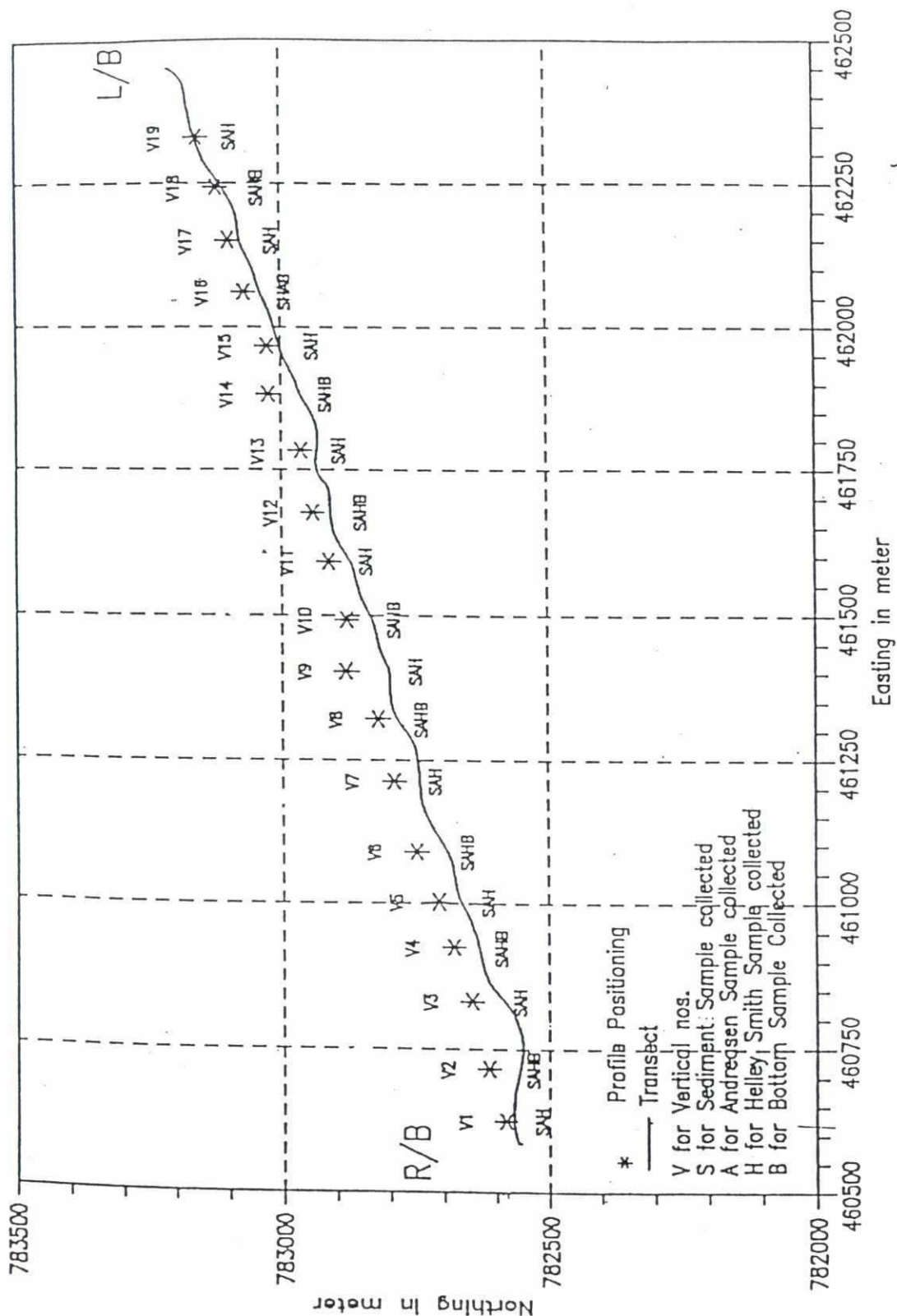
Survey Bulletin 07 : July 1993

Location 1 : Jurnuna River , Bahadurabad

Date :

Init :

Location of Measurements



FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organisation

Commission of the European Communities

Survey Bulletin 07 : July 1993

Location 1 : Jumuna River , Fulchari

Date :

Init :

Location of Measurements

River : Brahmaputra-Jamuna

ADCP/EMF Discharge

Date of Survey : 10 - 13 July 1993

Location : Left Channel at Bahadurabad

Date	Transect	Bank		Water Level	Total Width	Area	Discharge
		From	To	(m+PW)	(m)	(sq.m)	(cumec)

10-07-93	B37A1T02	Left	Right	20.39	3606	22833	39117
10-07-93	B37A1T05	Left	Right	20.39	3591	22940	39973
10-07-93	B37A1T06	Right	Left	20.38	3578	23454	40014
10-07-93	B37A1T07	Left	Right	20.38	3598	22933	38354
10-07-93	B37A1T08	Right	Left	20.38	3580	23137	37770

11-07-90	B37B1T01	Left	Right	20.17	3568	22219	37047
11-07-90	B37B1T02	Right	Left	20.17	3609	22619	35112

12-07-93	B37C1T01	Left	Right	20.02	3603	21680	32374
12-07-93	B37C1T04	Left	Right	19.88	3566	21113	32454
12-07-93	B37C1T05	Right	Left	19.88	3565	21643	31196

13-07-93	B37D1T01	Left	Right	19.70	3602	20792	29674
13-07-93	B37D1T02	Right	Left	19.70	3585	20972	28843
13-07-93	B37D1T03	Right	Left	19.61	3612	21469	32186

Date of Survey : 15-17 July 1993

Location : Right Channel at Fulchari

Date	Transect	Bank		Water Level	Total Width	Area	Discharge
		From	To	(m+PW)	(m)	(sq.m)	(cumec)

15-07-9	B37F1T03	Right	Left	18.13	1967	11583	12041
16-07-9	B37G1T01	Right	Left	17.99	1978	11310	10236
16-07-9	B37G1T02	Left	Right	17.98	1975	11002	12485
16-07-9	B37G1T03	Right	Left	17.91	1973	11081	10823
16-07-9	B37G1T04	Left	Right	17.90	1980	11116	12310
17-07-9	B37H1T01	Right	Left	17.85	1948	10808	11575
17-07-9	B37H1T02	Left	Right	17.84	2017	10976	11564
17-07-9	B37H1T03	Right	Left	17.82	2141	10961	10508
17-07-9	B37H1T04	Left	Right	17.81	2166	10891	11836
17-07-9	B37H1T05	Left	Right	17.81	1961	10949	10295

Table 3.1 SUMMARY OF RESULTS (ADCP/EMF Discharge)

River : Brahmaputra-Jamuna

S4 velocity

Date of Survey : 10-13 July 1993

Location : Left Channel at Bahadurabad

Vertical 2 Total depth = 3.60 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>0.67</td></tr><tr><td>1.27</td><td>0.60</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	0.67	1.27	0.60	Vertical 3 Total depth = 4.40 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.15</td></tr><tr><td>0.95</td><td>0.93</td></tr><tr><td>2.55</td><td>1.02</td></tr><tr><td>3.74</td><td>0.82</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	1.15	0.95	0.93	2.55	1.02	3.74	0.82	Vertical 4 Total depth = 5.90 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.05</td></tr><tr><td>1.11</td><td>1.39</td></tr><tr><td>3.61</td><td>1.27</td></tr><tr><td>4.76</td><td>1.05</td></tr><tr><td>5.80</td><td>0.60</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	1.05	1.11	1.39	3.61	1.27	4.76	1.05	5.80	0.60	Vertical 5 Total depth = 5.90 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.12</td></tr><tr><td>1.19</td><td>1.11</td></tr><tr><td>2.27</td><td>1.04</td></tr><tr><td>3.35</td><td>0.99</td></tr><tr><td>4.64</td><td>0.80</td></tr><tr><td>5.38</td><td>0.43</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	1.12	1.19	1.11	2.27	1.04	3.35	0.99	4.64	0.80	5.38	0.43	Vertical 6 Total depth = 7.00 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.00</td></tr><tr><td>1.34</td><td>0.99</td></tr><tr><td>2.92</td><td>0.96</td></tr><tr><td>4.22</td><td>0.85</td></tr><tr><td>5.72</td><td>0.73</td></tr><tr><td>6.63</td><td>0.54</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	1.00	1.34	0.99	2.92	0.96	4.22	0.85	5.72	0.73	6.63	0.54														
Depth	Velocity																																																																																			
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4.22	0.85																																																																																			
5.72	0.73																																																																																			
6.63	0.54																																																																																			
Vertical 7 Total depth = 9.80 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.03</td></tr><tr><td>1.90</td><td>0.97</td></tr><tr><td>3.70</td><td>0.98</td></tr><tr><td>5.65</td><td>0.92</td></tr><tr><td>7.68</td><td>0.73</td></tr><tr><td>8.47</td><td>0.62</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	1.03	1.90	0.97	3.70	0.98	5.65	0.92	7.68	0.73	8.47	0.62	Vertical 8 Total depth = 12.40 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.24</td></tr><tr><td>2.61</td><td>1.33</td></tr><tr><td>5.14</td><td>1.29</td></tr><tr><td>7.90</td><td>1.24</td></tr><tr><td>10.78</td><td>0.80</td></tr><tr><td>12.73</td><td>0.75</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	1.24	2.61	1.33	5.14	1.29	7.90	1.24	10.78	0.80	12.73	0.75	Vertical 9 Total depth = 13.40 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>2.73</td><td>1.00</td></tr><tr><td>5.23</td><td>1.21</td></tr><tr><td>7.80</td><td>1.08</td></tr><tr><td>10.62</td><td>1.10</td></tr><tr><td>12.94</td><td>0.79</td></tr></table>	Depth	Velocity	[m]	[m/s]	2.73	1.00	5.23	1.21	7.80	1.08	10.62	1.10	12.94	0.79	Vertical 10 Total depth = 12.70 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.26</td></tr><tr><td>2.74</td><td>1.13</td></tr><tr><td>5.20</td><td>1.19</td></tr><tr><td>7.92</td><td>0.88</td></tr><tr><td>10.44</td><td>1.03</td></tr><tr><td>12.37</td><td>0.71</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	1.26	2.74	1.13	5.20	1.19	7.92	0.88	10.44	1.03	12.37	0.71	Vertical 11 Total depth = 10.20 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>2.12</td></tr><tr><td>2.12</td><td>2.27</td></tr><tr><td>4.69</td><td>1.80</td></tr><tr><td>6.74</td><td>1.78</td></tr><tr><td>8.87</td><td>1.52</td></tr><tr><td>10.65</td><td>1.35</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	2.12	2.12	2.27	4.69	1.80	6.74	1.78	8.87	1.52	10.65	1.35		
Depth	Velocity																																																																																			
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6.74	1.78																																																																																			
8.87	1.52																																																																																			
10.65	1.35																																																																																			
Vertical 12 Total depth = 6.80 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>2.41</td></tr><tr><td>1.43</td><td>2.58</td></tr><tr><td>2.81</td><td>2.14</td></tr><tr><td>4.10</td><td>2.28</td></tr><tr><td>5.46</td><td>1.85</td></tr><tr><td>6.56</td><td>1.75</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	2.41	1.43	2.58	2.81	2.14	4.10	2.28	5.46	1.85	6.56	1.75	Vertical 13 Total depth = 6.90 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>2.77</td></tr><tr><td>1.40</td><td>2.88</td></tr><tr><td>2.79</td><td>2.63</td></tr><tr><td>3.94</td><td>2.60</td></tr><tr><td>5.71</td><td>2.33</td></tr><tr><td>6.76</td><td>1.74</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	2.77	1.40	2.88	2.79	2.63	3.94	2.60	5.71	2.33	6.76	1.74	Vertical 14 Total depth = 9.20 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>2.26</td></tr><tr><td>2.08</td><td>2.62</td></tr><tr><td>3.59</td><td>2.77</td></tr><tr><td>5.83</td><td>2.47</td></tr><tr><td>7.25</td><td>2.36</td></tr><tr><td>8.69</td><td>1.59</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	2.26	2.08	2.62	3.59	2.77	5.83	2.47	7.25	2.36	8.69	1.59	Vertical 15 Total depth = 11.30 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>3.00</td></tr><tr><td>2.57</td><td>3.09</td></tr><tr><td>4.76</td><td>3.01</td></tr><tr><td>7.30</td><td>2.74</td></tr><tr><td>9.69</td><td>2.46</td></tr><tr><td>10.80</td><td>1.84</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	3.00	2.57	3.09	4.76	3.01	7.30	2.74	9.69	2.46	10.80	1.84	Vertical 16 Total depth = 13.00 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>3.58</td></tr><tr><td>2.51</td><td>3.59</td></tr><tr><td>4.67</td><td>3.56</td></tr><tr><td>7.22</td><td>3.22</td></tr><tr><td>7.44</td><td>3.18</td></tr><tr><td>10.92</td><td>1.15</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	3.58	2.51	3.59	4.67	3.56	7.22	3.22	7.44	3.18	10.92	1.15
Depth	Velocity																																																																																			
[m]	[m/s]																																																																																			
0.50	2.41																																																																																			
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7.44	3.18																																																																																			
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Vertical 17 Total depth = 11.70 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>2.88</td></tr><tr><td>2.33</td><td>3.05</td></tr><tr><td>4.69</td><td>3.18</td></tr><tr><td>6.95</td><td>3.13</td></tr><tr><td>9.60</td><td>2.63</td></tr><tr><td>11.19</td><td>1.58</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	2.88	2.33	3.05	4.69	3.18	6.95	3.13	9.60	2.63	11.19	1.58	Vertical 18 Total depth = 11.00 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>2.92</td></tr><tr><td>0.62</td><td>2.15</td></tr><tr><td>1.94</td><td>2.98</td></tr><tr><td>4.21</td><td>2.97</td></tr><tr><td>6.20</td><td>2.82</td></tr><tr><td>7.53</td><td>2.79</td></tr><tr><td>7.92</td><td>2.58</td></tr><tr><td>9.39</td><td>2.15</td></tr><tr><td>9.58</td><td>2.06</td></tr><tr><td>9.99</td><td>1.67</td></tr><tr><td>10.28</td><td>1.64</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	2.92	0.62	2.15	1.94	2.98	4.21	2.97	6.20	2.82	7.53	2.79	7.92	2.58	9.39	2.15	9.58	2.06	9.99	1.67	10.28	1.64	Vertical 19 Total depth = 4.70 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>0.82</td></tr><tr><td>0.81</td><td>1.49</td></tr><tr><td>2.05</td><td>2.04</td></tr><tr><td>2.87</td><td>2.01</td></tr><tr><td>3.98</td><td>1.60</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	0.82	0.81	1.49	2.05	2.04	2.87	2.01	3.98	1.60	Qw = 33227(m3/s)																									
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3.98	1.60																																																																																			

3.2 SUMMARY OF RESULTS (S4 Current)

Date of survey : 15-17 July 1993

Location : Right Channel at Fulchari Ghat

<table><tr><th colspan="2">Vertical 1</th></tr><tr><th colspan="2">Total depth = 2.10</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.45</td><td>0.75</td></tr><tr><td>1.70</td><td>0.65</td></tr></table>	Vertical 1		Total depth = 2.10		Depth	Velocity	(m)	(m/s)	0.45	0.75	1.70	0.65	<table><tr><th colspan="2">Vertical 2</th></tr><tr><th colspan="2">Total depth = 6.70</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.09</td></tr><tr><td>1.18</td><td>1.06</td></tr><tr><td>2.48</td><td>1.26</td></tr><tr><td>3.85</td><td>1.14</td></tr><tr><td>4.99</td><td>1.11</td></tr><tr><td>6.09</td><td>0.86</td></tr></table>	Vertical 2		Total depth = 6.70		Depth	Velocity	(m)	(m/s)	0.50	1.09	1.18	1.06	2.48	1.26	3.85	1.14	4.99	1.11	6.09	0.86	<table><tr><th colspan="2">Vertical 3</th></tr><tr><th colspan="2">Total depth = 7.10</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.58</td></tr><tr><td>1.30</td><td>1.52</td></tr><tr><td>2.74</td><td>1.52</td></tr><tr><td>4.02</td><td>1.49</td></tr><tr><td>5.43</td><td>1.34</td></tr><tr><td>6.81</td><td>1.14</td></tr></table>	Vertical 3		Total depth = 7.10		Depth	Velocity	(m)	(m/s)	0.50	1.58	1.30	1.52	2.74	1.52	4.02	1.49	5.43	1.34	6.81	1.14	<table><tr><th colspan="2">Vertical 4</th></tr><tr><th colspan="2">Total depth = 7.40</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>2.15</td></tr><tr><td>1.36</td><td>1.41</td></tr><tr><td>2.90</td><td>1.34</td></tr><tr><td>4.37</td><td>1.26</td></tr><tr><td>5.81</td><td>1.11</td></tr><tr><td>7.43</td><td>0.36</td></tr></table>	Vertical 4		Total depth = 7.40		Depth	Velocity	(m)	(m/s)	0.50	2.15	1.36	1.41	2.90	1.34	4.37	1.26	5.81	1.11	7.43	0.36	<table><tr><th colspan="2">Vertical 5</th></tr><tr><th colspan="2">Total depth = 7.50</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.26</td></tr><tr><td>1.42</td><td>1.05</td></tr><tr><td>2.82</td><td>1.02</td></tr><tr><td>4.23</td><td>0.87</td></tr><tr><td>5.55</td><td>0.78</td></tr><tr><td>6.08</td><td>0.69</td></tr></table>	Vertical 5		Total depth = 7.50		Depth	Velocity	(m)	(m/s)	0.50	1.26	1.42	1.05	2.82	1.02	4.23	0.87	5.55	0.78	6.08	0.69
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<table><tr><th colspan="2">Vertical 6</th></tr><tr><th colspan="2">Total depth = 3.90</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>0.84</td></tr><tr><td>2.40</td><td>0.78</td></tr><tr><td>3.22</td><td>0.68</td></tr></table>	Vertical 6		Total depth = 3.90		Depth	Velocity	(m)	(m/s)	0.50	0.84	2.40	0.78	3.22	0.68	<table><tr><th colspan="2">Vertical 7</th></tr><tr><th colspan="2">Total depth = 6.10</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>0.88</td></tr><tr><td>2.03</td><td>0.85</td></tr><tr><td>3.08</td><td>0.79</td></tr><tr><td>4.13</td><td>0.78</td></tr><tr><td>4.94</td><td>0.56</td></tr></table>	Vertical 7		Total depth = 6.10		Depth	Velocity	(m)	(m/s)	0.50	0.88	2.03	0.85	3.08	0.79	4.13	0.78	4.94	0.56	<table><tr><th colspan="2">Vertical 8</th></tr><tr><th colspan="2">Total depth = 7.40</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.12</td></tr><tr><td>1.34</td><td>1.02</td></tr><tr><td>2.74</td><td>0.97</td></tr><tr><td>4.14</td><td>0.95</td></tr><tr><td>5.68</td><td>0.86</td></tr><tr><td>6.73</td><td>0.68</td></tr></table>	Vertical 8		Total depth = 7.40		Depth	Velocity	(m)	(m/s)	0.50	1.12	1.34	1.02	2.74	0.97	4.14	0.95	5.68	0.86	6.73	0.68	<table><tr><th colspan="2">Vertical 9</th></tr><tr><th colspan="2">Total depth = 6.90</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.05</td></tr><tr><td>1.35</td><td>1.07</td></tr><tr><td>2.65</td><td>1.02</td></tr><tr><td>3.96</td><td>0.93</td></tr><tr><td>5.31</td><td>0.79</td></tr><tr><td>6.58</td><td>0.51</td></tr></table>	Vertical 9		Total depth = 6.90		Depth	Velocity	(m)	(m/s)	0.50	1.05	1.35	1.07	2.65	1.02	3.96	0.93	5.31	0.79	6.58	0.51	<table><tr><th colspan="2">Vertical 10</th></tr><tr><th colspan="2">Total depth = 4.00</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.17</td></tr><tr><td>2.59</td><td>1.03</td></tr><tr><td>3.24</td><td>0.97</td></tr></table>	Vertical 10		Total depth = 4.00		Depth	Velocity	(m)	(m/s)	0.50	1.17	2.59	1.03	3.24	0.97						
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<table><tr><th colspan="2">Vertical 11</th></tr><tr><th colspan="2">Total depth = 4.50</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>0.84</td></tr><tr><td>2.74</td><td>0.90</td></tr><tr><td>3.72</td><td>0.74</td></tr></table>	Vertical 11		Total depth = 4.50		Depth	Velocity	(m)	(m/s)	0.50	0.84	2.74	0.90	3.72	0.74	<table><tr><th colspan="2">Vertical 12</th></tr><tr><th colspan="2">Total depth = 2.90</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.08</td></tr><tr><td>1.76</td><td>1.19</td></tr><tr><td>2.36</td><td>1.08</td></tr></table>	Vertical 12		Total depth = 2.90		Depth	Velocity	(m)	(m/s)	0.50	1.08	1.76	1.19	2.36	1.08	<table><tr><th colspan="2">Vertical 13</th></tr><tr><th colspan="2">Total depth = 5.20</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.59</td></tr><tr><td>2.22</td><td>1.48</td></tr><tr><td>3.26</td><td>1.40</td></tr><tr><td>4.52</td><td>1.24</td></tr></table>	Vertical 13		Total depth = 5.20		Depth	Velocity	(m)	(m/s)	0.50	1.59	2.22	1.48	3.26	1.40	4.52	1.24	<table><tr><th colspan="2">Vertical 14</th></tr><tr><th colspan="2">Total depth = 5.60</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.53</td></tr><tr><td>2.22</td><td>1.37</td></tr><tr><td>3.37</td><td>1.32</td></tr><tr><td>4.36</td><td>1.22</td></tr><tr><td>5.80</td><td>0.82</td></tr></table>	Vertical 14		Total depth = 5.60		Depth	Velocity	(m)	(m/s)	0.50	1.53	2.22	1.37	3.37	1.32	4.36	1.22	5.80	0.82	<table><tr><th colspan="2">Vertical 15</th></tr><tr><th colspan="2">Total depth = 6.10</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.29</td></tr><tr><td>1.18</td><td>1.21</td></tr><tr><td>2.52</td><td>1.36</td></tr><tr><td>3.70</td><td>1.39</td></tr><tr><td>4.87</td><td>1.39</td></tr><tr><td>7.32</td><td>0.99</td></tr><tr><td>5.83</td><td>1.21</td></tr></table>	Vertical 15		Total depth = 6.10		Depth	Velocity	(m)	(m/s)	0.50	1.29	1.18	1.21	2.52	1.36	3.70	1.39	4.87	1.39	7.32	0.99	5.83	1.21								
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7.32	0.99																																																																																															
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<table><tr><th colspan="2">Vertical 16</th></tr><tr><th colspan="2">Total depth = 8.30</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.79</td></tr><tr><td>0.57</td><td>1.17</td></tr><tr><td>1.58</td><td>1.82</td></tr><tr><td>3.30</td><td>1.88</td></tr><tr><td>4.97</td><td>1.77</td></tr><tr><td>6.63</td><td>1.54</td></tr><tr><td>7.29</td><td>1.41</td></tr></table>	Vertical 16		Total depth = 8.30		Depth	Velocity	(m)	(m/s)	0.50	1.79	0.57	1.17	1.58	1.82	3.30	1.88	4.97	1.77	6.63	1.54	7.29	1.41	<table><tr><th colspan="2">Vertical 17</th></tr><tr><th colspan="2">Total depth = 7.40</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.78</td></tr><tr><td>1.54</td><td>1.92</td></tr><tr><td>3.01</td><td>1.96</td></tr><tr><td>4.34</td><td>1.95</td></tr><tr><td>5.91</td><td>1.77</td></tr><tr><td>6.80</td><td>1.47</td></tr></table>	Vertical 17		Total depth = 7.40		Depth	Velocity	(m)	(m/s)	0.50	1.78	1.54	1.92	3.01	1.96	4.34	1.95	5.91	1.77	6.80	1.47	<table><tr><th colspan="2">Vertical 18</th></tr><tr><th colspan="2">Total depth = 6.60</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.68</td></tr><tr><td>1.35</td><td>1.67</td></tr><tr><td>2.77</td><td>1.58</td></tr><tr><td>3.77</td><td>1.45</td></tr><tr><td>5.03</td><td>1.26</td></tr><tr><td>6.18</td><td>1.10</td></tr></table>	Vertical 18		Total depth = 6.60		Depth	Velocity	(m)	(m/s)	0.50	1.68	1.35	1.67	2.77	1.58	3.77	1.45	5.03	1.26	6.18	1.10	<table><tr><th colspan="2">Vertical 19</th></tr><tr><th colspan="2">Total depth = 4.80</th></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.05</td></tr><tr><td>2.65</td><td>0.98</td></tr><tr><td>3.66</td><td>0.95</td></tr></table>	Vertical 19		Total depth = 4.80		Depth	Velocity	(m)	(m/s)	0.50	1.05	2.65	0.98	3.66	0.95	Qw = 12075(m ³ /s)																
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3.3 SUMMARY OF RESULTS (S4 Current)

River : Brahmaputra-Jamuna
Concentration

Date of Survey : 10-13 July 1993

Location : Left Channel at Bahadurabad

Vertical 2	
Total depth = 3.60	
Depth	Conc.
[m]	[mg/l]
0.50	545.20
1.20	572.26
1.60	570.93

vertical 3	
Total depth = 4.40	
Depth	Conc.
[m]	[mg/l]
0.90	614.30
2.64	618.00
3.52	643.30
4.00	726.53

vertical 4	
Total depth = 5.90	
Depth	Conc.
[m]	[mg/l]
1.18	548.57
3.54	994.37
4.72	1468.30
5.77	2509.78

vertical 5	
Total depth = 5.90	
Depth	Conc.
[m]	[mg/l]
0.50	645.52
1.20	544.45
2.30	698.04
3.40	695.54
4.50	765.96
5.40	1268.42

vertical 6	
Total depth = 7.00	
Depth	Conc.
[m]	[mg/l]
0.50	372.30
1.40	463.50
2.90	396.82
4.30	577.42
5.80	720.96
6.70	982.40

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Vertical 7	
Total depth = 9.80	
Depth	Conc.
[m]	[mg/l]
0.50	566.91
1.90	421.74
3.70	458.82
5.60	555.00
7.70	745.00
8.50	7479.70

Vertical 8	
Total depth = 12.40	
Depth	Conc.
[m]	[mg/l]
0.50	645.83
2.64	544.26
5.28	1058.34
7.92	941.67
0.56	1067.13
3.00	1749.30

Vertical 9	
Total depth = 13.40	
Depth	Conc.
[m]	[mg/l]
0.50	636.36
2.64	617.14
5.28	754.61
7.92	858.83
0.56	1056.34
3.04	546.94

Vertical 10	
Total depth = 12.70	
Depth	Conc.
[m]	[mg/l]
0.50	689.70
2.60	795.65
5.20	916.67
7.80	977.34
0.40	1213.98
2.50	1697.23

Vertical 11	
Total depth = 10.20	
Depth	Conc.
[m]	[mg/l]
0.50	1255.78
2.20	927.16
4.50	1110.14
6.70	1216.92
8.90	1215.80
0.60	1556.70

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Vertical 12	
Total depth = 6.80	
Depth	Conc.
[m]	[mg/l]
0.50	866.20
1.40	969.92
2.70	1048.34
4.20	1110.30
5.50	1252.90
6.60	2840.28

Vertical 13	
Total depth = 6.90	
Depth	Conc.
[m]	[mg/l]
0.50	812.60
1.40	1027.09
2.80	987.14
4.20	1136.84
5.60	1530.56
6.80	3158.00

Vertical 14	
Total depth = 9.20	
Depth	Conc.
[m]	[mg/l]
0.50	693.34
2.00	905.04
3.70	1037.09
5.60	1228.00
7.40	1448.98
8.70	3365.22

Vertical 15	
Total depth = 11.30	
Depth	Conc.
[m]	[mg/l]
0.50	693.48
2.40	1263.03
4.70	1548.61
7.00	1926.87
9.40	2108.40
10.70	6184.50

Vertical 16	
Total depth = 13.00	
Depth	Conc.
[m]	[mg/l]
0.50	983.87
2.40	857.56
4.70	1215.28
7.00	2284.70

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Vertical 17	
Total depth = 11.70	
Depth	Conc.
[m]	[mg/l]
0.50	975.21
2.40	1132.94
4.70	1386.32
7.00	2051.40
9.40	2667.12
10.20	3033.34

Vertical 18	
Total depth = 11.00	
Depth	Conc.
[m]	[mg/l]
0.50	950.00
2.00	1435.90
4.00	1809.20
6.00	1934.80
8.00	3475.80
9.90	5090.10

Vertical 19	
Total depth = 4.70	
Depth	Conc.
[m]	[mg/l]
0.20	5487.10
0.80	1719.60
2.00	3678.70
3.00	2231.70
4.00	3693.40

Ss = 41202(Kg/s)

Table 3.4 SUMMARY OF RESULTS(Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Concentration

Date of survey : 15-17-July 1993

Location : Right Channel at Fulchari Ghat

Vertical 1	
Total depth = 2.10	
Depth	Conc.
(m)	(mg/l)
0.50	658.40
1.38	828.60
1.70	832.92

Vertical 2	
Total depth = 6.70	
Depth	Conc.
(m)	(mg/l)
0.50	585.52
1.26	546.92
2.52	659.31
3.78	618.57
5.04	638.03
6.10	635.20

Vertical 3	
Total depth = 7.10	
Depth	Conc.
(m)	(mg/l)
0.50	654.81
1.36	678.38
2.72	795.95
4.08	41.26
5.44	947.89
6.80	1296.64

Vertical 4	
Total depth = 7.40	
Depth	Conc.
(m)	(mg/l)
0.50	534.24
1.44	581.20
2.88	800.00
4.32	816.45
5.76	927.63
7.20	1548.87

Vertical 5	
Total depth = 7.50	
Depth	Conc.
(m)	(mg/l)
0.50	626.76
1.40	640.85
2.80	743.94
4.20	838.96
5.60	890.91
6.00	1000.00

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Vertical 6	
Total depth = 3.90	
Depth	Conc.
(m)	(mg/l)
0.80	746.85
2.40	891.03
3.20	1062.59

Vertical 7	
Total depth = 6.10	
Depth	Conc.
(m)	(mg/l)
0.50	525.34
1.04	553.42
2.08	657.89
3.12	774.65
4.16	893.24
4.90	1224.36

Vertical 8	
Total depth = 7.40	
Depth	Conc.
(m)	(mg/l)
0.50	419.72
2.00	608.28
4.20	619.74
5.60	720.55
6.70	1067.58

Vertical 9	
Total depth = 6.90	
Depth	Conc.
(m)	(mg/l)
0.50	546.27
1.34	511.24
2.68	554.97
4.02	654.42
5.36	814.60
6.54	1187.41

Vertical 10	
Total depth = 4.00	
Depth	Conc.
(m)	(mg/l)
0.80	587.20
2.50	850.00
3.30	988.89

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Vertical 11	
Total depth = 4.50	
Depth	Conc.
(m)	(mg/l)
0.90	704.11
2.80	845.51
3.80	968.71

Vertical 12	
Total depth = 2.90	
Depth	Conc.
(m)	(mg/l)
0.50	988.89
1.70	702.89
2.30	722.98

Vertical 13	
Total depth = 5.20	
Depth	Conc.
(m)	(mg/l)
0.50	543.06
1.20	618.98
2.20	692.75
3.30	765.40
4.40	906.48
4.70	1115.86

Vertical 14	
Total depth = 5.60	
Depth	Conc.
(m)	(mg/l)
0.50	613.60
1.10	666.20
2.20	751.15
3.30	784.61
4.40	989.85
5.50	1494.11

Vertical 15	
Total depth = 6.10	
Depth	Conc.
(m)	(mg/l)
0.50	719.21
1.24	748.21
2.48	661.54
3.72	638.21
4.96	798.41
6.00	763.91

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Vertical 16	
Total depth = 8.30	
Depth	Conc.
(m)	(mg/l)
0.50	604.54
1.64	624.24
3.28	632.62
4.92	864.60
6.56	998.68
7.32	973.25

Vertical 17	
Total depth = 7.40	
Depth	Conc.
(m)	(mg/l)
0.50	277.70
1.50	289.31
3.00	610.69
4.40	654.30
5.90	909.92
6.80	1926.87

Vertical 18	
Total depth = 6.60	
Depth	Conc.
(m)	(mg/l)
0.50	550.77
1.30	576.77
2.60	919.15
3.70	1160.63
5.00	1279.20
6.20	1499.27

Vertical 19	
Total depth = 4.80	
Depth	Conc.
(m)	(mg/l)
0.50	463.16
2.80	507.94
3.70	530.77

| Ss = 8725(Kg/s) | | | | | |

3.5 SUMMARY OF RESULTS (Suspended Sediment Concentration)

Location: Left Channel at Bahadurabad
Date of Survey: 10-13 July 1993

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.001074	0.003186
2	0.027960	0.069180
3	0.011950	0.001250
4	0.024170	0.040240
5	0.002946	0.027960
6	0.003839	0.006447
7	0.020660	0.022530
8	0.013080	0.005750
9	0.049122	0.003074
10	0.000438	0.002274
11	0.078947	0.213596
12	0.194956	0.160960
13	0.217670	0.467320
14	0.177540	0.122150
15	0.084210	0.233110
16	0.346180	0.408330
17	0.036400	0.065130
18	0.081300	0.033380
19	0.048130	0.491220

Location: Right Channel at Fulchari
Date of Survey: 15-17 July 1993

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.028280	0.076860
2	0.040296	0.007840
3	0.031710	0.042949
4	0.006578	0.002481
5	0.000776	0.009168
6	0.000471	0.002995
7	0.004133	0.002920
8	0.001296	0.001245
9	0.000701	0.000697
10	0.002057	0.046780
11	0.002739	0.002695
12	0.018366	0.005631
13	0.026647	0.026644
14	0.075076	0.038590
15	0.011950	0.068936
16	0.055208	0.077190
17	0.072971	0.076370
18	0.040603	0.048030
19	0.051535	0.030866

Table 3.6 Summary of results(sediment transport, bed load)

Vertical No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
2	13/07/93	14:50	0.150	0.201	0.248	0.450	1.616
4	13/07/93	13:00	0.160	0.268	0.310	0.450	1.614
6	13/07/93	10:18	0.150	0.164	0.191	0.400	1.516
8	12/07/93	17:00	0.250	0.293	0.334	0.490	1.380
10	12/07/93	13:55	0.070	0.087	0.102	0.200	1.576
12	12/07/93	11:00	0.075	0.100	0.125	0.210	1.630
14	12/07/93	09:05	0.135	0.153	0.174	0.250	1.342
16	11/07/93	16:25	0.140	0.154	0.177	0.300	1.370
18	10/07/93	15:45	0.150	0.173	0.212	0.450	1.706

Date of Survey : 10-13 July 1993

Location : Jumuna River at Bahadurabad (Left Channel)

Vertical No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
2	17/07/93	11:15	0.158	0.178	0.211	0.403	1.602
4	17/07/93	09:30	0.151	0.165	0.191	0.374	1.480
6	16/07/93	17:08	0.080	0.125	0.147	0.228	1.617
8	16/07/93	15:00	0.695	0.080	0.092	0.176	1.361
10	16/07/93	12:45	0.082	0.130	0.152	0.232	1.594
12	16/07/93	11:00	0.075	0.100	0.124	0.215	1.622
14	16/07/93	09:00	0.130	0.148	0.168	0.242	1.339
16	15/07/93	15:25	0.100	0.142	0.163	0.235	1.454
18	15/07/93	13:15	0.164	0.215	0.270	0.418	1.621

Date of Survey : 15-17 July 1993

Location : Jumuna River at Fulchari (Right channel)

Table 3.7 SUMMARY of RESULTS (grain size suspended sediment)

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Vertical No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
1	13/07/93	15:45	---	0.012	0.021	0.225	---
2	13/07/93	14:50	0.006	0.014	0.021	0.250	4.131
3	13/07/93	14:00	0.004	0.015	0.025	0.210	5.778
5	13/07/93	11:30	0.015	0.032	0.042	0.120	2.471
6	13/07/93	10:20	0.010	0.040	0.090	0.220	5.611
7	13/07/93	09:10	0.030	0.150	0.180	0.400	3.972
8	12/07/93	17:00	0.025	0.090	0.165	0.400	4.057
9	12/07/93	15:10	---	0.006	0.008	0.039	---
10	12/07/93	13:45	0.003	0.013	0.022	0.045	4.575
11	12/07/93	12:35	0.017	0.060	0.079	0.180	3.209
12	12/07/93	11:00	0.025	0.070	0.094	0.218	2.864
14	12/07/93	09:00	0.025	0.070	0.098	0.225	2.980
15	11/07/93	17:15	0.020	0.040	0.075	0.200	3.075
18	10/07/93	15:45	0.006	0.018	0.027	0.045	3.083
19	10/07/93	14:40	0.010	0.035	0.068	0.130	3.494

Date of Survey : 10-13 July 1993

Location : Jumuna River at Bahadurabad (Left Channel)

Vertical No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
1	17/07/93	12:05	0.015	0.095	0.150	0.225	5.715
2	17/07/93	11:15	0.007	0.020	0.045	0.210	5.436
3	17/07/93	10:20	0.015	0.035	0.070	0.180	3.405
4	17/07/93	09:25	0.018	0.070	0.125	0.230	4.272
5	17/07/93	08:25	0.007	0.018	0.030	0.150	4.226
6	16/07/93	17:10	0.005	0.018	0.030	0.130	4.667
7	16/07/93	16:00	0.008	0.025	0.043	0.125	3.908
8	16/07/93	15:00	0.007	0.028	0.058	0.130	4.815
9	16/07/93	14:10	0.010	0.035	0.069	0.130	4.283
10	16/07/93	12:45	0.006	0.019	0.035	0.120	4.345
12	16/07/93	11:00	0.005	0.018	0.035	0.150	5.286
13	16/07/93	10:00	0.008	0.027	0.050	0.150	4.375
14	16/07/93	08:50	0.019	0.075	0.100	0.225	3.632
15	15/07/93	16:35	0.035	0.080	0.107	0.225	2.463
17	15/07/93	14:30	0.025	0.065	0.075	0.150	2.333
18	15/07/93	13:15	0.013	0.027	0.045	0.210	3.731
19	15/07/93	12:00	0.006	0.013	0.017	0.045	2.722

Date of Survey : 15-17 July 1993

Location : Jumuna River at Fulchari (Right channel)

Table 3.8 SUMMARY of RESULTS (grain size suspended sediment)

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
144	13/07/93	15:45	0.235	0.286	0.340	1.622
135	13/07/93	15:50	0.255	0.299	0.351	1.587
139	13/07/93	14:50	0.252	0.295	0.347	1.578
141	13/07/93	15:00	0.238	0.287	0.340	1.591
113	13/07/93	14:00	0.300	0.338	0.381	1.314
114	13/07/93	14:05	0.279	0.320	0.367	1.485
110	13/07/93	13:00	0.300	0.339	0.382	1.312
105	13/07/93	13:05	0.263	0.305	0.355	1.625
142	13/07/93	11:30	0.271	0.314	0.363	1.545
140	13/07/93	11:35	0.270	0.312	0.360	1.527
143	13/07/93	10:15	0.268	0.311	0.361	1.555
146	13/07/93	10:20	0.265	0.308	0.358	1.555
108	13/07/93	09:05	0.292	0.331	0.377	1.359
109	13/07/93	09:15	0.303	0.341	0.384	1.309
99	12/07/93	16:50	0.301	0.340	0.383	1.312
100	12/07/93	17:00	0.256	0.301	0.353	1.670
101	12/07/93	15:10	0.074	0.088	0.106	1.700
103	12/07/93	15:20	0.229	0.850	0.340	1.696
128	12/07/93	13:55	0.161	0.209	0.273	1.936
130	12/07/93	14:05	0.224	0.282	0.338	1.700
136	12/07/93	12:35	0.126	0.170	0.229	2.126
137	12/07/93	12:45	0.105	0.133	0.166	1.702
21	12/07/93	11:00	0.139	0.161	0.187	1.537
150	12/07/93	11:05	0.131	0.156	0.185	1.634
65	12/07/93	10:30	0.149	0.171	0.198	1.394
127	12/07/93	10:35	0.147	0.169	0.194	1.394
62	12/07/93	09:00	0.142	0.169	0.200	1.617
70	12/07/93	09:15	0.257	0.300	0.350	1.570
67	11/07/93	17:15	0.147	0.170	0.197	1.459
68	11/07/93	17:25	0.139	0.163	0.190	1.563
64	11/07/93	16:20	0.161	0.188	0.219	1.513
66	11/07/93	16:25	0.174	0.207	0.246	1.621
61	11/07/93	14:30	0.148	0.175	0.206	1.578
63	11/07/93	14:35	0.143	0.167	0.195	1.545
115	10/07/93	15:45	0.140	0.171	0.210	1.834
116	10/07/93	15:50	0.143	0.177	0.220	1.894
111	10/07/93	14:40	0.146	0.171	0.200	1.544
112	10/07/93	14:50	0.138	0.163	0.192	1.694

Date of Survey : 10-13 July 1993

Location : Jumuna River at Bahadurabad (Left Channel)

3.9 SUMMARY OF RESULTS (grain size bed load)

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Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
133	17/07/93	12:00	0.163	0.188	0.216	1.452
134	17/07/93	12:05	0.163	0.185	0.211	1.343
49	17/07/93	11:10	0.212	0.265	0.322	1.621
51	17/07/93	11:15	0.269	0.311	0.360	1.535
55	17/07/93	10:20	0.103	0.131	0.164	1.705
91	17/07/93	10:30	0.111	0.141	0.173	1.702
119	17/07/93	09:30	0.294	0.333	0.377	1.326
123	17/07/93	09:35	0.264	0.306	0.356	1.569
56	17/07/93	08:20	0.212	0.271	0.329	1.686
87	17/07/93	08:30	0.207	0.264	0.324	1.679
88	16/07/93	17:00	0.154	0.183	0.218	1.615
124	16/07/93	17:10	0.199	0.263	0.322	1.760
120	16/07/93	16:05	0.158	0.204	0.266	1.927
121	16/07/93	16:15	0.177	0.230	0.294	1.766
96	16/07/93	15:00	0.251	0.296	0.350	1.653
98	16/07/93	15:10	0.212	0.275	0.333	1.739
77	16/07/93	14:00	0.194	0.258	0.319	1.775
122	16/07/93	14:10	0.201	0.261	0.320	1.708
76	16/07/93	12:40	0.196	0.252	0.312	1.699
125	16/07/93	12:50	0.150	0.170	0.193	1.329
117	16/07/93	12:35	0.186	0.235	0.298	1.709
118	16/07/93	12:45	0.204	0.264	0.323	1.704
80	16/07/93	11:10	0.121	0.151	0.186	1.745
89	16/07/93	11:15	0.201	0.259	0.319	1.704
59	16/07/93	10:00	0.102	0.132	0.170	1.787
69	16/07/93	10:15	0.110	0.142	0.180	1.795
60	16/07/93	08:50	0.146	0.170	0.198	1.486
93	16/07/93	09:00	0.156	0.184	0.218	1.570
17	15/07/93	16:35	0.222	0.278	0.334	1.652
23	15/07/93	16:45	0.148	0.170	0.196	1.418
16	15/07/93	15:25	0.128	0.152	0.181	1.645
18	15/07/93	15:35	0.145	0.167	0.193	1.482
11	15/07/93	14:30	0.088	0.105	0.125	1.650
15(2)	15/07/93	14:35	0.084	0.099	0.117	1.617
14	15/07/93	13:15	0.196	0.252	0.310	1.689
15(1)	15/07/93	13:25	0.202	0.263	0.320	1.719
12	15/07/93	12:00	0.181	0.213	0.251	1.586
13	15/07/93	12:05	0.195	0.236	0.294	1.611

Date of Survey : 15-17 July 1993

Location : Jumuna River at Fulchari (Right Channel)

3.10 SUMMARY OF RESULTS (grain size bed load)



Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	09:57:35	10:25:01	B37A1T02				T	T	T							
Transect	11:20:13	11:57:14	B37A1T05				T	T	T							
Transect	12:04:01	12:40:27	B37A1T06				T	T	T							
Transect	17:21:46	17:55:47	B37A1T07				T	T	T							
Transect	17:59:50	18:27:43	B37A1T08				T	T	T							
Profile	14:39:50	15:16:38	B37A1P04	19	470449.2	777781.8	P	P	P	P	P	6	1	2	1	
Profile	15:49:16	16:34:14	B37A1P06	18	470248.7	777810.1	P	P	P	P	P	3	1	2	1	

Date of Survey : 10 July 93

Location : Jamuna River at Bahadurabad (Left channel)
Station No.1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	18:11:43	18:36:31	B37B1T01				T	T	T							
Transect	18:39:57	19:04:48	B37B1T02				T	T	T							
Profile	14:32:42	15:15:32	B37B1P01	17	470215.7	777756.8	P	P	P	P	P	6	1	2		
Profile	16:22:54	16:59:06	B37B1P02	16	470078.9	777568.1	P	P	P	P	P	6	1	2	1	
Profile	17:13:51	17:55:48	B37B1P03	15	469998.3	777763.6	P	P	P	P	P	6	1	2		

Tabel 2.1 SURVEY PROGRAMME AS MADE

Date of Survey : 11 July 93

Location : Jamuna River at Bahadurabad (Left channel)
Station No.1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreassen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	07:42:21	08:08:16	B37C1T01				T	T	T							
Transect	08:13:09	08:53:25	B37C1T02				T	T	T							
Transect	17:54:33	18:19:07	B37C1T04*				T	T	T							
Transect	18:21:42	18:44:47	B37C1T05				T	T	T							
Profile	09:45:49	09:51:37	B37C1P03	14	469901.7	777767.5	P	P	P	P	P	6	1	2	1	
Profile	10:27:38	11:04:45	B37C1P04	13	469809.1	777720.7	P	P	P	P	P	6	1	2		
Profile	11:27:25	12:15:28	B37C1P05	12	469719.8	777806.5	P	P	P	P	P	3	1	2	1	
Profile	12:47:18	13:26:40	B37C1P07	11	469645.1	777774.4	P	P	P	P	P	3	1	2		
Profile	13:55:05	14:43:36	B37C1P08	10	469499.3	777800.7	P	P	P	P	P	3	1	2	1	
Profile	15:12:24	16:46:49	B37C1P10	9	469422.7	777864.3	P	P	P	P	P	6	1	2		
Profile	16:54:05	17:34:33	B37C1P12	8	469322.4	777798.4	P	P	P	P	P	6	1	2	1	
* transect in PSD 24 data base																

* transect in PSD 24 data base

Date of Survey : 12 July 93
Location : Jamuna River at Bahadurabad (Left channel)
Station No.1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	07:53:36	08:18:48	B37D1T01				T	T	T							
Transect	08:20:39	08:46:16	B37D1T02				T	T	T							
Transect	16:27:05	17:23:10	B37D1T03				T	T								
Profile	09:09:17	09:50:28	B37D1P01	7	469212.9	777823.7	P	P	P	P	P	6	1	2		
Profile	10:18:03	11:01:21	B37D1P02	6	469125.2	777814.6	P	P	P	P	P	3	1	2	1	
Profile	11:30:14	12:03:56	B37D1P03	5	469024.0	777816.3	P	P	P	P	P	6	1	2		
Profile	13:01:51	13:35:19	B37D1P04	4	468628.6	777801.8	P	P	P	P	P	6	1	2	1	
Profile	13:58:49	14:26:26	B37D1P05	3	468284.6	777805.5	P	P	P	P	P	6	1	2		
Profile	14:53:13	15:19:55	B37D1P06	2	467985.9	777809.0	P	P	P	P	P	6	1	2	1	
Profile	15:48:31	15:56:49	B37D1P07				P	P	P	P		3	1	2		

Tabel 2.2 SURVEY PROGRAMME AS MADE

Date of Survey : 13 July 93
Location : Jamuna River at Bahadurabad (Left channel)
Station No.1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	10:09:23	10:28:07	B37F1T03*				T	T	T							
Transect	10:32:47	10:34:25	B37F1T04				T	T	T							
Transect	10:41:59	10:51:14	B37F1T05				T	T	T							
Profile	12:02:31	12:32:34	B37F1P01	19	462330.6	783153.5	P	P	P	P	P	3	1	2		
Profile	13:13:59	14:01:06	B37F1P02	18	462242.8	783116.9	P	P	P	P	P	6	1	2	1	
Profile	14:30:17	15:09:07	B37F1P03	17	462151.1	783095.1	P	P	P	P	P	6	1	2		
Profile	15:29:37	16:12:48	B37F1P04	16	462062.1	783066.0	P	P	P	P	P	6	1	2	1	
Profile	16:38:06	17:11:33	B37F1P05	15	461966.6	783023.9	P	P	P	P	P	6	1	2		

* transect in PSD 24 data base

Date of Survey : 15 July 93

Location : Jamuna River at Fulchari (Right channel)

Station No.1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	07:43:29	07:59:38	B37G1T01				T	T	T							
Transect	08:03:27	08:24:48	B37G1T02				T	T	T							
Transect	17:43:59	18:00:31	B37G1T03				T	T	T							
Transect	18:02:56	18:24:21	B37G1T04				T	T	T							
Profile	08:49:17	09:33:43	B37G1P01	14	461883.8	783021.8	P	P	P	P	P	6	1	2	1	
Profile	10:05:52	10:47:07	B37G1P02	13	461783.5	782962.6	P	P	P	P	P	6	1	2		
Profile	11:04:53	11:26:30	B37G1P03	12	461676.7	782940.4	P	P	P	P	P	3	1	2	1	
Profile	00:00:00	12:16:09	B37G1P04	11	461592.6	782911.1	P	P	P	P	P	3	1	2		
Profile	12:56:55	13:06:56	B37G1P06	10	461492.5	782878.4	P	P	P	P	P	3	1	2	1	
Profile	14:05:43	14:43:44	B37G1P07	9	461404.1	782879.3	P	P	P	P	P	6	1	2		
Profile	15:06:19	16:46:44	B37G1P08	8	461321.3	782820.8	P	P	P	P	P	6	1	2	1	
Profile	00:00:00	16:49:46	B37G1P09	7	461213.2	782791.6	P	P	P	P	P	6	1	2		
Profile	00:00:00	17:34:37	B37G1P10	6	461089.0	782750.5	P	P	P	P	P	3	1	2	1	

Tabel 2.3 SURVEY PROGRAMME AS MADE

Date of Survey : 16 July 93

Location : Jamuna River at Fulchari (Right channel)

Station No.1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	07:27:31	07:45:46	B37H1T01				T	T	T							
Transect	07:48:07	08:07:21	B37H1T02				T	T	T							
Transect	13:50:19	14:12:58	B37H1T03				T	T	T							
Transect	14:19:09	14:43:04	B37H1T04				T	T	T							
Transect	14:55:20	15:14:44	B37H1T05				T	T	T							
Profile	08:21:59	09:14:25	B37H1P01	5	461002.4	782710.3	P	P	P	P	P	6	1	2		
Profile	09:35:39	00:00:00	B37H1P03	4	460925.1	782681.8	P	P	P	P	P	6	1	2	1	
Profile	10:20:40	10:57:25	B37H1P04	3	460831.9	782648.2	P	P	P	P	P	6	1	2		
Profile	11:13:39	11:46:26	B37H1P05	2	460715.9	782616.2	P	P	P	P	P	6	1	2	1	
Profile	12:22:27	12:46:43	B37H1P07	1	460626.1	782583.3	P	P	P	P	P	3	1	2		

Tabel 2.4 SURVEY PROGRAMME AS MADE

Date of Survey : 17 July 93
Location : Jamuna River at Fulchari (Right channel)
Station No.1

Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	543,544,545	3	1
	540,541,542	3	2
	536,537,538,539	4	3
	532,533,534,535	4	4
	526,527,528,529,530,531	6	5
	520,521,522,523,524,525	6	6
	514,515,516,517,518,519	6	7
	508,509,510,511,512,513	6	8
	502,503,504,505,506,507	6	9
	185,187,189,190,241,501	6	10
	177,179,180,181,183,184	6	11
	158,161,164,174,171,175	6	12
	15,152,160,157,103,147	6	13
	11,51,65,119,151,153	6	14
	123,126,127,128,146,148	6	15
	173,172,121,122	4	16
	94,117,167,169,168,170	6	17
	22,52,55,58,59,61	6	18
	02,06,08,17	4	19
Depth Integrated Samples	138	1	2
	145	1	4
	107	1	6
	102	1	8
	106	1	10
	104	1	12
	73	1	14
	72	1	15
Andreasen Tube Sample	147	1	18
	505	1	1
	504	1	2
	503	1	3
	22	1	4
	32	1	5
	24	1	6
	507	1	7
	501	1	8
	27	1	9
	29	1	10
	23	1	11
	33	1	12
	31	1	13
	34	1	14
	18	1	15
	122	1	16
	170	1	17
	30	1	18
	25	1	19
Helley-Smith Samples	135,144	2	1
	141,139	2	2
	113,114	2	3
	105,110	2	4
	140,142	2	5
	146,143	2	6
	108,109	2	7
	99,100	2	8
	103,101	2	9
	128,130	2	10
	136,137	2	11
	21,150	2	12
	65,127	2	13
	62,70	2	14
	67,68	2	15
	64,66	2	16
	63,61	2	17
	115,116	2	18
	111,112	2	19
Vanveen Samples	dha-3	1	2
	dha-2	1	4
	dha-1	1	6
	dha-4	1	8
	dha-31	1	10
	dha-21	1	12
	dha-11	1	14

Table 2.5 List of Sediment Samples

Date of Survey : 10-13 July 1993
Location No.1

Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	85,82,89	3	1
	84,83,76,79,162,150	6	2
	30,73,74,48,93,91	6	3
	32,33,35,36,40,41	6	4
	110,111,114,27,29,26	6	5
	102,112,113	3	6
	60,67,70,107,98,99	6	7
	49,23,50,53,54,56	6	8
	118,104,105,101,109,69	6	9
	200,201,202	3	10
	195,196,197	3	11
	202,193,194	3	12
	133,139,140,141,143,144	6	13
	130,136,137,132,134,135	6	14
	94,95,96,71,72,192	6	15
	77,78,80,87,90,92	6	16
	43,44,45,46,47,48	6	17
	39,37,38,24,28,42	6	18
	25,31,34	3	19
Depth Integrated Samples	54	1	2
	08	1	4
	83	1	6
	79	1	8
	129	1	10
	05	1	12
	92	1	14
	09	1	16
Andreasen Tube Sample	22	1	18
	03	1	1
	19	1	2
	09	1	3
	14	1	4
	506	1	5
	05	1	6
	04	1	7
	10	1	8
	17	1	9
	12	1	10
	31	1	11
	13	1	12
	11	1	13
	06	1	14
	08	1	15
	20	1	16
	01	1	17
	15	1	18
Helley-Smith Samples	07	1	19
	134,133	2	1
	49,51	2	2
	91,55	2	3
	119,123	2	4
	87,56	2	5
	88,124	2	6
	121,120	2	7
	96,98	2	8
	122,77	2	9
	125,76	2	10
	118,117	2	11
	80,89	2	12
	69,59	2	13
	60,93	2	14
	17,23	2	15
	18,16	2	16
	11,15(ii)	2	17
	14,15(i)	2	18
	12,13	2	19
Vanveen Samples	dha-2	1	2
	dha-1	1	4
	dha-5	1	6
	dha-4	1	8
	dha-3	1	10
	dha-2(i)	1	12
	dha-1(i)	1	14
	dha-2(ii)	1	16
	dha-1(ii)	1	18

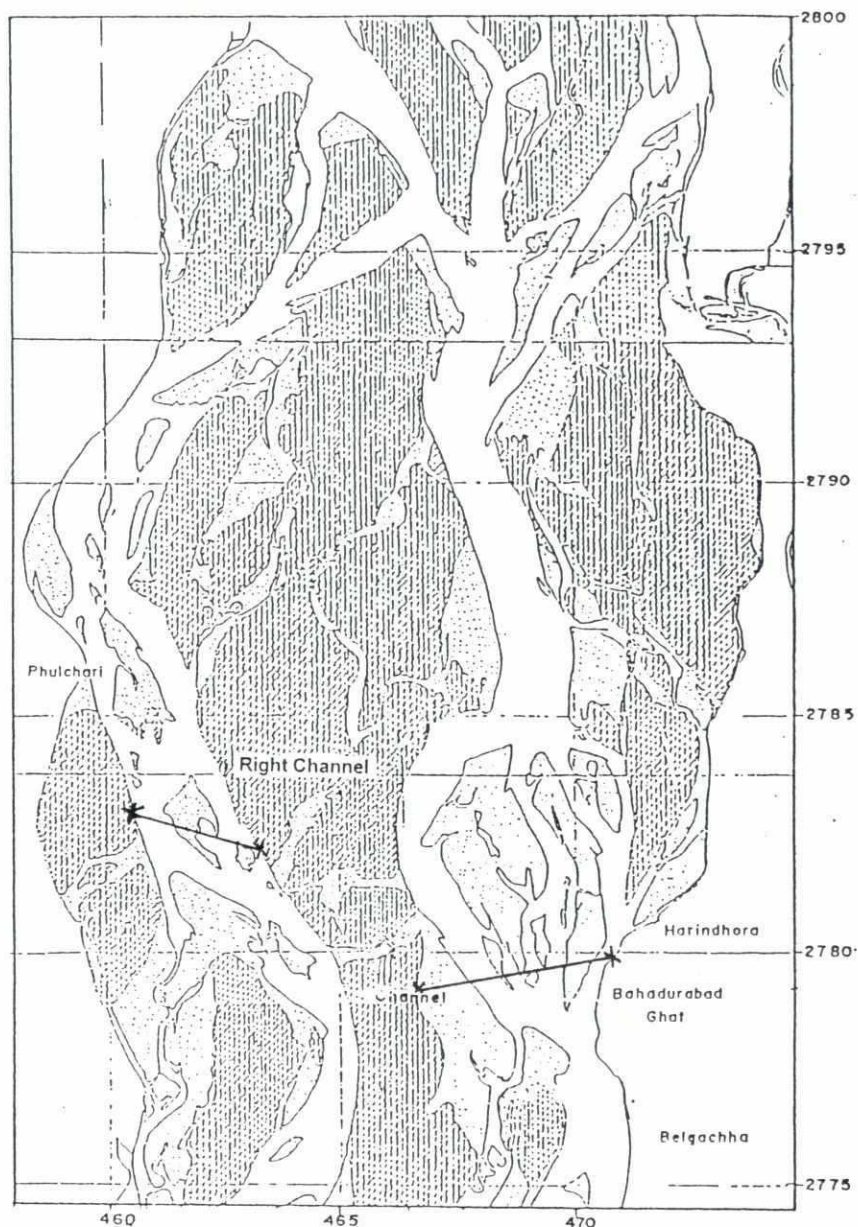
Table 2.6 List of Sediment Samples

Date of Survey : 15-17 July 1993
Location No.1

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Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B37C1T04 .ase
ADCP/S4/EMF	2	QUATTRO	B37F1T03 .ase
Echosounder	1	QUATTRO	B37C1T04 .ech
Echosounder	2	QUATTRO	B37F1T03 .ech
Sediment transport data	1	QUATTRO	B37C1T04 .sed
Sediment transport data	2	QUATTRO	B37F1T03 .sed
Bed load sediment analysis	1	QUATTRO	B37C1T04 .bdl
Bed load sediment analysis	2	QUATTRO	B37F1T03 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B37C1T04 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B37F1T03 .ssc
Transect plot data	1	QUATTRO	B37A1T02 .trs
Transect plot data	2	QUATTRO	B37F1T03 .trs
Iso-velocity plot data	1	MIKE 21	B37C1T04 .ct2
		MIKE 21	B37C1T04 .dt2
Iso-velocity plot data	2	MIKE 21	B37F1T03 .ct2
		MIKE 21	B37F1T03 .dt2

Table 5.1 PSD 24 Database file description



LEGEND:-

- X—K Measurement cross section
- High land
- Unstable/low char
- BWDB Embankment



Map is based on satellite images of March, 1993



RIVER SURVEY PROJECT

Delft Hydraulics/Danish Hydraulic Institute
in association with Osiris/Approptech/Hydroland

Survey Bulletin No. 10 - Aug, 1993

Location No.1 : Jamuna River at Bahadurabad

File:

Date:

Scale:

Init:

KEY PLAN

Fig.

River : Brahmaputra-Jamuna

ADCP/EMF Discharge

Date of Survey : 23 August 1993

Location : Jamuna River at Fulchari (Right channel)

Station No.1

Date	Transect	Bank		Water-level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
23-08-93	B38N1T03	Left	Right	18.60	2831	16817	14879
23-08-93	B38N1T04	Right	Left	18.60	2716	16133	15775
23-08-93	B38N1T06	Left	Right	18.60	2729	16227	15251
23-08-93	B38N1T07	Right	Left	18.60	2729	16309	15315
23-08-93	B38N1T11	Left	Right	18.60	2268	13651	15035

Date of Survey : 24 August 1993

Location : Jamuna River at Bahadurabad (Left channel)

Station No.1

Date	Transect	Bank		Water-level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
24-06-93	B38O1T01	Right	Left	19.12	4629	29950	27535
24-06-93	B38O1T02	Left	Right	19.12	4597	29184	28509
24-06-93	B38O1T04	Right	Left	19.12	4601	29101	27626

Table 3.1 SUMMARY OF RESULTS 9ADCP/EMF-Discharge)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	10:00:47	10:27:10	B38N1T03*				T	T	T							
Transect	10:30:17	10:54:23	B38N1T04				T	T	T							
Transect	12:36:46	13:04:03	B38N1T06				T	T	T							
Transect	13:50:46	14:10:35	B38N1T07				T	T	T							
Transect	15:55:01	16:20:05	B38N1T11				T	T	T							

* transect in PSD 24 data base

Date of Survey : 23 August 1993

Location : Jamuna River at Fulchari (Right channel)

Station No.1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	09:10:02	09:54:40	B38O1T01*				T	T	T							
Transect	11:00:41	11:42:05	B38O1T02				T	T	T							
Transect	12:14:31	12:54:00	B38O1T04				T	T	T							

* transect in PSD 24 data base

Date of Survey : 24 August 1993

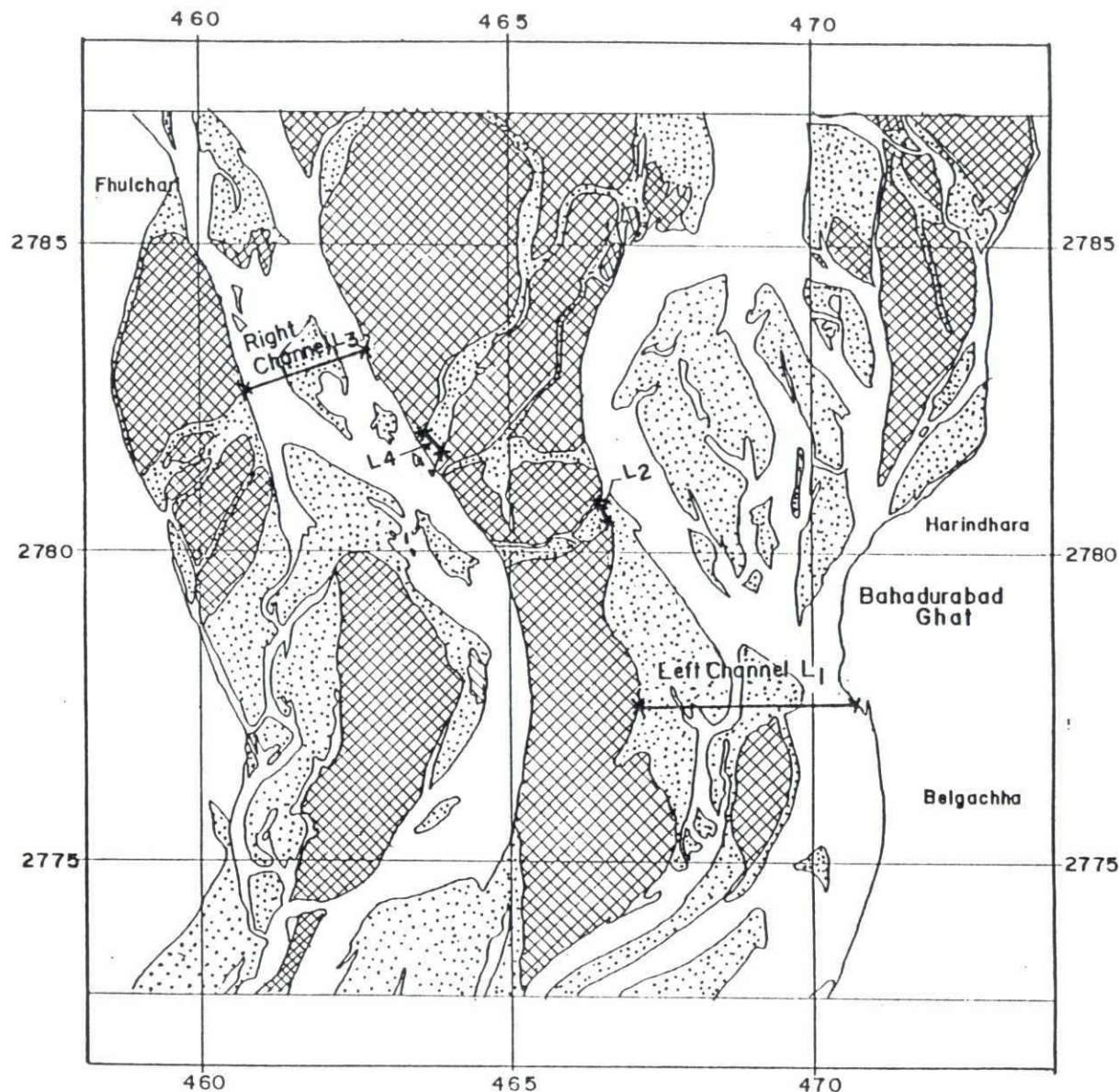
Location : Jamuna River at Bahadurabad (Left channel)

Station No.1

Tabel 2.1 SURVEY PROGRAMME AS MADE

Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B38O1T01 .ase
ADCP/S4/EMF	2	QUATTRO	B38N1T03 .ase
Echosounder	1	QUATTRO	B38O1T01 .ech
Echosounder	2	QUATTRO	B38N1T03 .ech
Sediment transport data	1	QUATTRO	B38O1T01 .sed
Sediment transport data	2	QUATTRO	B38N1T03 .sed
Bed load sediment analysis	1	QUATTRO	B38O1T01 .bdl
Bed load sediment analysis	2	QUATTRO	B38N1T03 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B38O1T01 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B38N1T03 .ssc
Transect plot data	1	QUATTRO	B38O1T01 .trs
Transect plot data	2	QUATTRO	B38N1T03 .trs
Iso-velocity plot data	1	MIKE 21	B38O1T01 .ct2
Iso-velocity plot data	1	MIKE 21	B38O1T01 .dt2
Iso-velocity plot data	2	MIKE 21	B38N1T03 .ct2
Iso-velocity plot data	2	MIKE 21	B38N1T03 .dt2

Table 5.1 PSD 24 Database file description



LEGEND:-

- Measurement cross section
- High land
- Unstable/low char
- BWDB Embankment

Map is based on most recent satellite images of March, 1993.



RIVER SURVEY PROJECT
Delft Hydraulics/Danish Hydraulic Institute
in association with Osiris/Approtech/Hydroland

Survey Bulletin No. 11 - Sep , 1993

Location No.1 : Jamuna River at Bahadurabad

File:

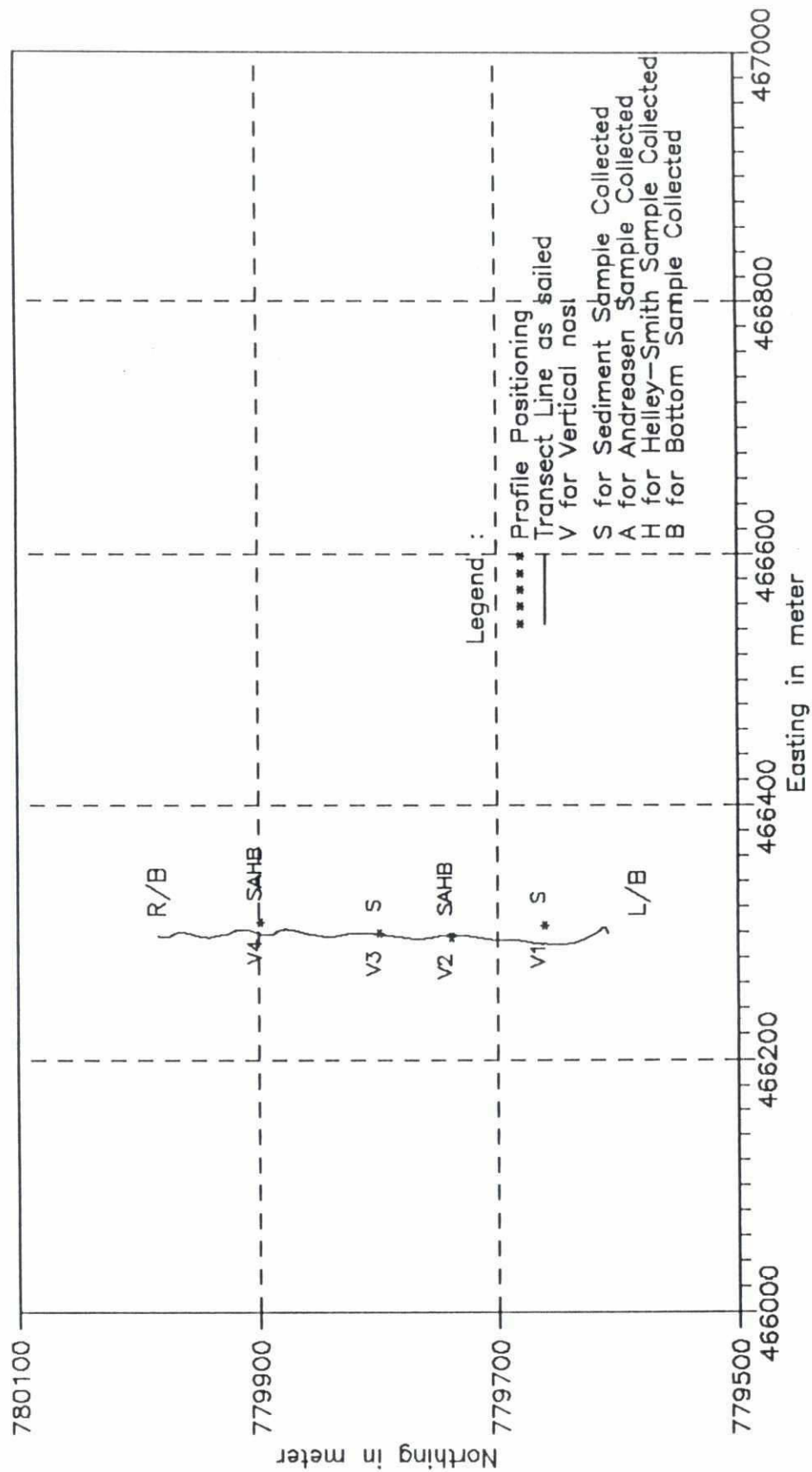
Date:

Scale:

Init:

KEY PLAN

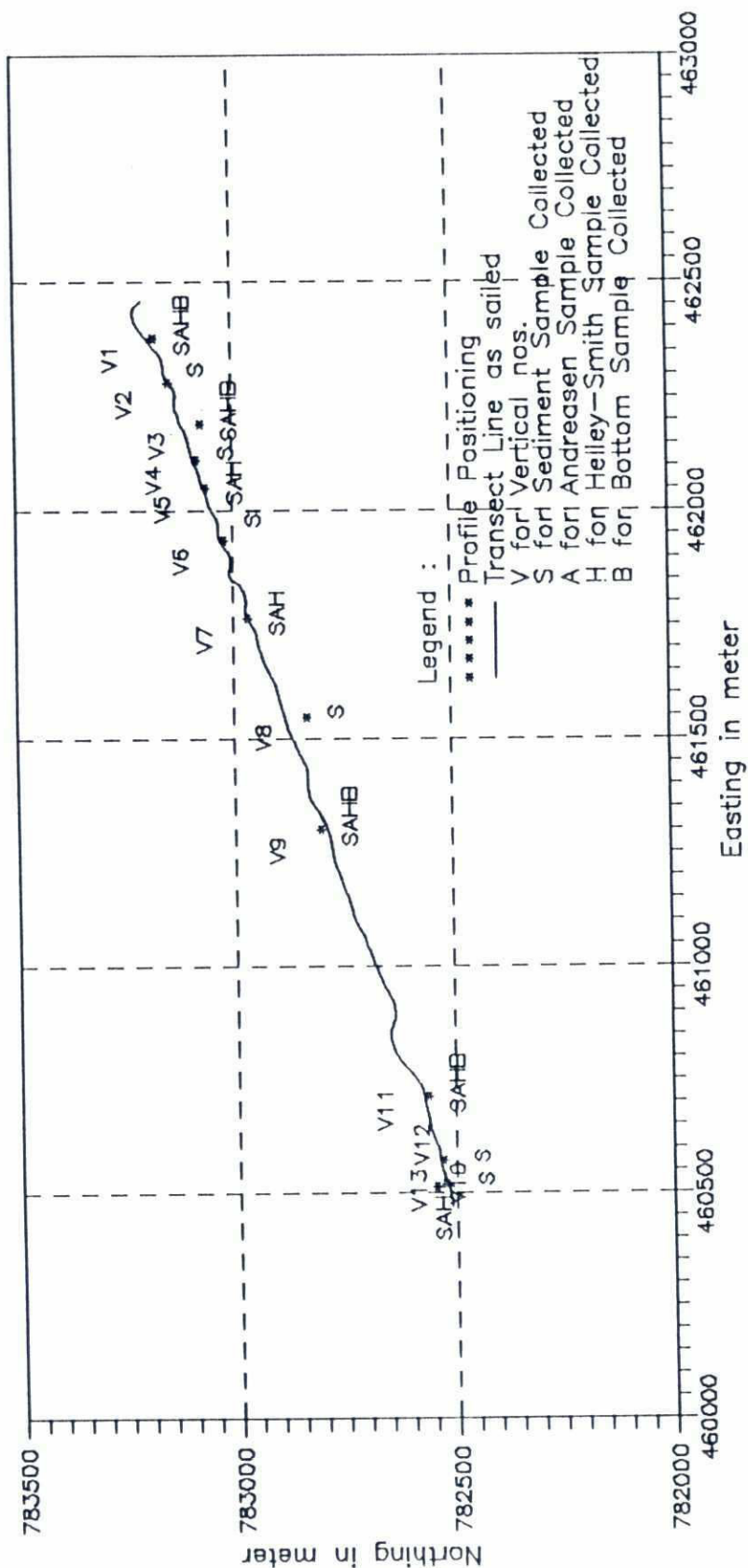
Fig.

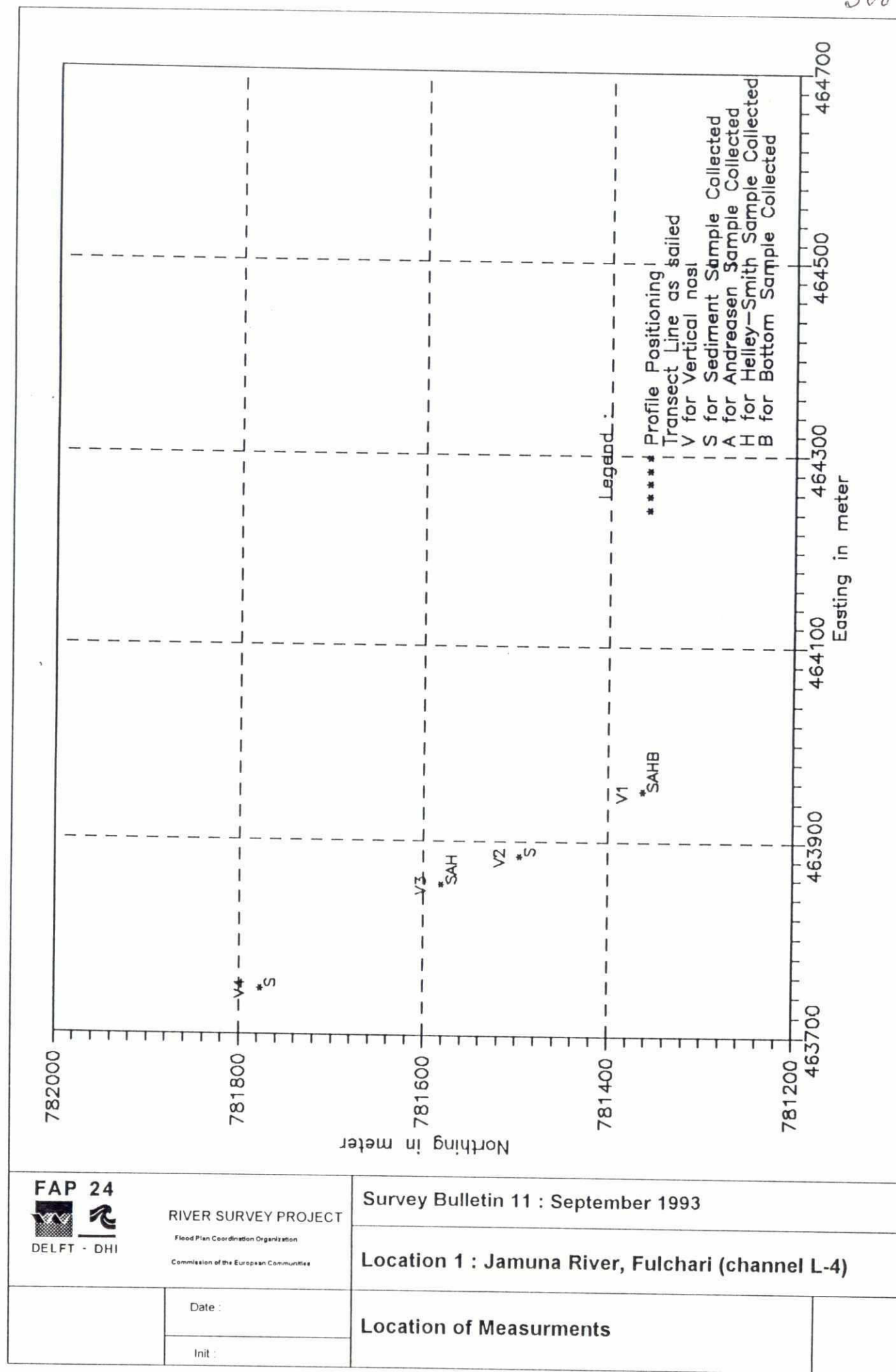


Date :

Init :

Location of Measurements





RIVER SURVEY PROJECT
 Flood Plan Coordination Organization
 Commission of the European Communities

Survey Bulletin 11 : September 1993

Location 1 : Jamuna River, Fulchari (channel L-4)

Date :
 Init :

Location of Measurments

iver : Brahmaputra-Jamuna
DCP/EMF Discharge

ate of survey : 06-11 September 1993

ocation : Jumuna River at Bahadurabad (Left channel -1)

ation No. 1

Date	Transect	Bank		Level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
06-09-93	B3961T02	Left	Right	19.01	2918	20981	29231
06-09-93	B3961T03	Right	Left	19.01	2934	20960	29317
06-09-93	B3961T06	Left	Right	19.10	2928	20956	29801
07-09-93	B3971T02	Right	Left	18.95	2944	20612	27361
07-09-93	B3971T04	Left	Right	18.93	2918	20737	28559
08-09-93	B3981T02	Left	Right	18.87	2947	20980	27001
08-09-93	B3981T03	Right	Left	18.87	2965	20908	26369
08-09-93	B3981T06	Left	Right	18.86	2968	20850	27018
08-09-93	B3981T07	Right	Left	18.86	2915	20669	27135
11-09-93	B39B1T06	Left	Right	18.47	2645	19095	22780
11-09-93	B39B1T08	Right	Left	18.47	2668	19135	23596

Table 3.1 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna
ADCP/EMF Discharge

Date of survey : 11 September 1993

Location : Jumuna River at Bahadurabad (Left channel -2)

Station No. 1

Date	Transect	Bank		Level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
11/09/93	B39B1T01	Left	Right	19.37	357	1227	1011
11/09/93	B39B1T02	Right	Left	19.37	312	1093	954
11/09/93	B39B1T03	Left	Right	19.38	372	1264	1025
11/09/93	B39B1T04	Right	Left	19.38	334	1149	912

Table 3.2 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna
ADCP/EMF Discharge

Date of survey : 09 September 1993

Location : Jumuna River at Fulchari (Right channel -3)

Station No. 1

Date	Transect	Bank		Level	Width	Area	Discharge
		From	To	(m+PWD)	(m)	(sq.m)	(cumec)
09-09-93	B3991T01	Left	Right	16.18	2136	11295	12528
09-09-93	B3991T02	Right	Left	16.17	2150	11637	12517
09-09-93	B3991T03	Left	Right	16.12	2126	11278	12451
09-09-93	B3991T06	Left	Right	16.10	2128	11301	12098

Table 3.3 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna

S4 velocity

Date of survey : 06-08 September 1993

Location : Jumuna River at Bahadurabad (L-1)

Station No. 1

Vertical 1 Total depth = 5.95 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.41</td></tr><tr><td>2.43</td><td>1.53</td></tr><tr><td>3.61</td><td>1.52</td></tr><tr><td>4.70</td><td>1.44</td></tr><tr><td>6.03</td><td>1.10</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	1.41	2.43	1.53	3.61	1.52	4.70	1.44	6.03	1.10	Vertical 2 Total depth = 9.80 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>2.30</td></tr><tr><td>1.98</td><td>2.40</td></tr><tr><td>3.90</td><td>2.34</td></tr><tr><td>5.93</td><td>2.22</td></tr><tr><td>7.94</td><td>2.13</td></tr><tr><td>9.46</td><td>1.69</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	2.30	1.98	2.40	3.90	2.34	5.93	2.22	7.94	2.13	9.46	1.69	Vertical 3 Total depth = 12.40 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>2.75</td></tr><tr><td>2.39</td><td>2.90</td></tr><tr><td>4.53</td><td>2.96</td></tr><tr><td>6.78</td><td>2.88</td></tr><tr><td>9.10</td><td>2.68</td></tr><tr><td>10.99</td><td>1.34</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	2.75	2.39	2.90	4.53	2.96	6.78	2.88	9.10	2.68	10.99	1.34	Vertical 4 Total depth = 12.50 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>2.80</td></tr><tr><td>2.50</td><td>2.84</td></tr><tr><td>5.00</td><td>2.77</td></tr><tr><td>7.50</td><td>2.68</td></tr><tr><td>10.00</td><td>2.43</td></tr><tr><td>11.80</td><td>1.81</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	2.80	2.50	2.84	5.00	2.77	7.50	2.68	10.00	2.43	11.80	1.81	Vertical 5 Total depth = 9.85 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>2.64</td></tr><tr><td>2.05</td><td>2.70</td></tr><tr><td>4.05</td><td>2.59</td></tr><tr><td>5.75</td><td>2.51</td></tr><tr><td>7.93</td><td>2.37</td></tr><tr><td>9.08</td><td>2.12</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	2.64	2.05	2.70	4.05	2.59	5.75	2.51	7.93	2.37	9.08	2.12		
Depth	Velocity																																																																																			
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5.75	2.51																																																																																			
7.93	2.37																																																																																			
9.08	2.12																																																																																			
Vertical 6 Total depth = 8.60 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.52</td></tr><tr><td>1.70</td><td>1.79</td></tr><tr><td>3.41</td><td>1.59</td></tr><tr><td>5.14</td><td>1.50</td></tr><tr><td>6.75</td><td>1.26</td></tr><tr><td>7.19</td><td>1.23</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	1.52	1.70	1.79	3.41	1.59	5.14	1.50	6.75	1.26	7.19	1.23	Vertical 7 Total depth = 8.90 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.45</td></tr><tr><td>1.83</td><td>1.50</td></tr><tr><td>3.79</td><td>1.38</td></tr><tr><td>5.70</td><td>1.30</td></tr><tr><td>7.71</td><td>1.02</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	1.45	1.83	1.50	3.79	1.38	5.70	1.30	7.71	1.02	Vertical 8 Total depth = 6.95 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>0.76</td></tr><tr><td>1.37</td><td>0.90</td></tr><tr><td>2.74</td><td>0.93</td></tr><tr><td>4.08</td><td>0.85</td></tr><tr><td>5.50</td><td>0.71</td></tr><tr><td>6.54</td><td>0.53</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	0.76	1.37	0.90	2.74	0.93	4.08	0.85	5.50	0.71	6.54	0.53	Vertical 9 Total depth = 12.80 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>0.66</td></tr><tr><td>2.52</td><td>0.78</td></tr><tr><td>5.01</td><td>0.72</td></tr><tr><td>7.55</td><td>0.78</td></tr><tr><td>9.87</td><td>0.75</td></tr><tr><td>12.36</td><td>0.50</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	0.66	2.52	0.78	5.01	0.72	7.55	0.78	9.87	0.75	12.36	0.50	Vertical 10 Total depth = 11.90 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>0.73</td></tr><tr><td>2.32</td><td>0.86</td></tr><tr><td>4.74</td><td>0.87</td></tr><tr><td>7.06</td><td>0.84</td></tr><tr><td>9.43</td><td>0.65</td></tr><tr><td>10.93</td><td>0.47</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	0.73	2.32	0.86	4.74	0.87	7.06	0.84	9.43	0.65	10.93	0.47		
Depth	Velocity																																																																																			
[m]	[m/s]																																																																																			
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[m]	[m/s]																																																																																			
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1.83	1.50																																																																																			
3.79	1.38																																																																																			
5.70	1.30																																																																																			
7.71	1.02																																																																																			
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10.93	0.47																																																																																			
Vertical 11 Total depth = 8.30 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>0.86</td></tr><tr><td>1.67</td><td>0.92</td></tr><tr><td>3.34</td><td>0.85</td></tr><tr><td>4.97</td><td>0.77</td></tr><tr><td>6.60</td><td>0.65</td></tr><tr><td>7.59</td><td>0.45</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	0.86	1.67	0.92	3.34	0.85	4.97	0.77	6.60	0.65	7.59	0.45	Vertical 12 Total depth = 6.40 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.53</td><td>0.92</td></tr><tr><td>1.31</td><td>0.90</td></tr><tr><td>2.59</td><td>0.84</td></tr><tr><td>3.90</td><td>0.77</td></tr><tr><td>5.24</td><td>0.64</td></tr><tr><td>5.78</td><td>0.55</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.53	0.92	1.31	0.90	2.59	0.84	3.90	0.77	5.24	0.64	5.78	0.55	Vertical 13 Total depth = 7.00 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.56</td><td>0.89</td></tr><tr><td>1.29</td><td>0.99</td></tr><tr><td>2.61</td><td>0.88</td></tr><tr><td>3.94</td><td>0.81</td></tr><tr><td>5.20</td><td>0.77</td></tr><tr><td>6.42</td><td>0.62</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.56	0.89	1.29	0.99	2.61	0.88	3.94	0.81	5.20	0.77	6.42	0.62	Vertical 14 Total depth = 8.05 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.51</td><td>1.08</td></tr><tr><td>1.58</td><td>1.13</td></tr><tr><td>3.22</td><td>1.09</td></tr><tr><td>4.80</td><td>0.95</td></tr><tr><td>6.45</td><td>0.81</td></tr><tr><td>7.54</td><td>0.65</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.51	1.08	1.58	1.13	3.22	1.09	4.80	0.95	6.45	0.81	7.54	0.65	Vertical 15 Total depth = 5.20 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>0.99</td></tr><tr><td>1.07</td><td>1.11</td></tr><tr><td>2.05</td><td>1.13</td></tr><tr><td>3.16</td><td>1.08</td></tr><tr><td>4.01</td><td>0.90</td></tr><tr><td>4.64</td><td>0.78</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.50	0.99	1.07	1.11	2.05	1.13	3.16	1.08	4.01	0.90	4.64	0.78
Depth	Velocity																																																																																			
[m]	[m/s]																																																																																			
0.50	0.86																																																																																			
1.67	0.92																																																																																			
3.34	0.85																																																																																			
4.97	0.77																																																																																			
6.60	0.65																																																																																			
7.59	0.45																																																																																			
Depth	Velocity																																																																																			
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0.53	0.92																																																																																			
1.31	0.90																																																																																			
2.59	0.84																																																																																			
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5.24	0.64																																																																																			
5.78	0.55																																																																																			
Depth	Velocity																																																																																			
[m]	[m/s]																																																																																			
0.56	0.89																																																																																			
1.29	0.99																																																																																			
2.61	0.88																																																																																			
3.94	0.81																																																																																			
5.20	0.77																																																																																			
6.42	0.62																																																																																			
Depth	Velocity																																																																																			
[m]	[m/s]																																																																																			
0.51	1.08																																																																																			
1.58	1.13																																																																																			
3.22	1.09																																																																																			
4.80	0.95																																																																																			
6.45	0.81																																																																																			
7.54	0.65																																																																																			
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[m]	[m/s]																																																																																			
0.50	0.99																																																																																			
1.07	1.11																																																																																			
2.05	1.13																																																																																			
3.16	1.08																																																																																			
4.01	0.90																																																																																			
4.64	0.78																																																																																			
Vertical 16 Total depth = 5.10 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.56</td><td>1.14</td></tr><tr><td>1.00</td><td>1.19</td></tr><tr><td>2.02</td><td>1.07</td></tr><tr><td>3.00</td><td>1.00</td></tr><tr><td>4.50</td><td>0.83</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.56	1.14	1.00	1.19	2.02	1.07	3.00	1.00	4.50	0.83	Vertical 17 Total depth = 4.60 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.52</td><td>0.96</td></tr><tr><td>1.05</td><td>1.03</td></tr><tr><td>2.02</td><td>1.03</td></tr><tr><td>3.08</td><td>0.91</td></tr><tr><td>4.08</td><td>0.72</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.52	0.96	1.05	1.03	2.02	1.03	3.08	0.91	4.08	0.72	Vertical 18 Total depth = 7.00 <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.56</td><td>0.52</td></tr><tr><td>1.37</td><td>0.61</td></tr><tr><td>2.73</td><td>0.58</td></tr><tr><td>4.10</td><td>0.55</td></tr><tr><td>5.65</td><td>0.48</td></tr></table>	Depth	Velocity	[m]	[m/s]	0.56	0.52	1.37	0.61	2.73	0.58	4.10	0.55	5.65	0.48	Qw(L1)= 27857 m³/s																																							
Depth	Velocity																																																																																			
[m]	[m/s]																																																																																			
0.56	1.14																																																																																			
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[m]	[m/s]																																																																																			
0.52	0.96																																																																																			
1.05	1.03																																																																																			
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3.08	0.91																																																																																			
4.08	0.72																																																																																			
Depth	Velocity																																																																																			
[m]	[m/s]																																																																																			
0.56	0.52																																																																																			
1.37	0.61																																																																																			
2.73	0.58																																																																																			
4.10	0.55																																																																																			
5.65	0.48																																																																																			

Table 3.4 SUMMARY of RESULTS (S4 Current)

River : Brahmaputra-Jamuna

S4 velocity

Date of survey : 11 September 1993

Location : Jumuna River at Bahadurabad (L-2)

Station No. 1

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 3.70		Total depth = 4.10		Total depth = 4.30		Total depth = 3.30	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
0.50	0.62	0.50	0.76	0.50	1.06	0.50	0.70
1.89	0.87	1.03	0.85	1.00	0.93	1.14	0.83
2.74	0.72	1.60	1.00	1.90	1.02	1.82	0.88
3.40	0.69	2.39	0.88	2.70	0.88	2.38	0.74
		3.15	0.83	3.50	0.80	2.89	0.58
		3.74	0.68				

$Q_w(L2) = 1105 \text{ m}^3/\text{s}$

Table 3.5 SUMMARY of RESULTS (S4 Current)

River : Brahmaputra-Jamuna
S4 velocity

Date of survey : 09 September 1993
Location : Jumuna River at Fulchari (L-3)
Station No. 1

<table><tr><th colspan="2">Vertical 1</th></tr><tr><td colspan="2">Total depth = 20.90</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.13</td></tr><tr><td>4.11</td><td>1.08</td></tr><tr><td>8.41</td><td>1.07</td></tr><tr><td>12.67</td><td>0.99</td></tr><tr><td>16.49</td><td>1.11</td></tr><tr><td>21.61</td><td>0.75</td></tr></table>	Vertical 1		Total depth = 20.90		Depth	Velocity	[m]	[m/s]	0.50	1.13	4.11	1.08	8.41	1.07	12.67	0.99	16.49	1.11	21.61	0.75	<table><tr><th colspan="2">Vertical 2</th></tr><tr><td colspan="2">Total depth = 7.20</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.41</td></tr><tr><td>1.33</td><td>1.31</td></tr><tr><td>2.69</td><td>1.59</td></tr><tr><td>4.16</td><td>1.31</td></tr><tr><td>5.58</td><td>1.04</td></tr><tr><td>6.95</td><td>1.15</td></tr></table>	Vertical 2		Total depth = 7.20		Depth	Velocity	[m]	[m/s]	0.50	1.41	1.33	1.31	2.69	1.59	4.16	1.31	5.58	1.04	6.95	1.15	<table><tr><th colspan="2">Vertical 3</th></tr><tr><td colspan="2">Total depth = 11.60</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.36</td></tr><tr><td>2.21</td><td>1.49</td></tr><tr><td>2.93</td><td>1.54</td></tr><tr><td>4.47</td><td>1.37</td></tr><tr><td>6.55</td><td>1.14</td></tr><tr><td>8.80</td><td>1.20</td></tr><tr><td>11.14</td><td>0.72</td></tr></table>	Vertical 3		Total depth = 11.60		Depth	Velocity	[m]	[m/s]	0.50	1.36	2.21	1.49	2.93	1.54	4.47	1.37	6.55	1.14	8.80	1.20	11.14	0.72	<table><tr><th colspan="2">Vertical 4</th></tr><tr><td colspan="2">Total depth = 10.90</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.13</td></tr><tr><td>2.16</td><td>1.41</td></tr><tr><td>4.36</td><td>1.37</td></tr><tr><td>6.60</td><td>1.32</td></tr><tr><td>8.79</td><td>1.31</td></tr><tr><td>10.42</td><td>1.01</td></tr></table>	Vertical 4		Total depth = 10.90		Depth	Velocity	[m]	[m/s]	0.50	1.13	2.16	1.41	4.36	1.37	6.60	1.32	8.79	1.31	10.42	1.01	<table><tr><th colspan="2">Vertical 5</th></tr><tr><td colspan="2">Total depth = 7.50</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.51</td><td>1.10</td></tr><tr><td>1.61</td><td>1.24</td></tr><tr><td>3.19</td><td>1.09</td></tr><tr><td>4.81</td><td>0.99</td></tr><tr><td>6.23</td><td>0.86</td></tr><tr><td>8.09</td><td>0.51</td></tr></table>	Vertical 5		Total depth = 7.50		Depth	Velocity	[m]	[m/s]	0.51	1.10	1.61	1.24	3.19	1.09	4.81	0.99	6.23	0.86	8.09	0.51
Vertical 1																																																																																																										
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8.09	0.51																																																																																																									
<table><tr><th colspan="2">Vertical 6</th></tr><tr><td colspan="2">Total depth = 3.80</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.61</td><td>1.24</td></tr><tr><td>1.49</td><td>1.17</td></tr><tr><td>3.07</td><td>1.05</td></tr></table>	Vertical 6		Total depth = 3.80		Depth	Velocity	[m]	[m/s]	0.61	1.24	1.49	1.17	3.07	1.05	<table><tr><th colspan="2">Vertical 7</th></tr><tr><td colspan="2">Total depth = 2.60</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.51</td><td>1.00</td></tr><tr><td>1.09</td><td>1.04</td></tr><tr><td>1.92</td><td>0.93</td></tr></table>	Vertical 7		Total depth = 2.60		Depth	Velocity	[m]	[m/s]	0.51	1.00	1.09	1.04	1.92	0.93	<table><tr><th colspan="2">Vertical 8</th></tr><tr><td colspan="2">Total depth = 3.30</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.04</td></tr><tr><td>0.66</td><td>1.09</td></tr><tr><td>1.32</td><td>1.23</td></tr><tr><td>2.08</td><td>1.14</td></tr></table>	Vertical 8		Total depth = 3.30		Depth	Velocity	[m]	[m/s]	0.50	1.04	0.66	1.09	1.32	1.23	2.08	1.14	<table><tr><th colspan="2">Vertical 9</th></tr><tr><td colspan="2">Total depth = 1.80</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.54</td></tr><tr><td>0.90</td><td>1.46</td></tr><tr><td>1.35</td><td>1.42</td></tr></table>	Vertical 9		Total depth = 1.80		Depth	Velocity	[m]	[m/s]	0.50	1.54	0.90	1.46	1.35	1.42	<table><tr><th colspan="2">Vertical 10</th></tr><tr><td colspan="2">Total depth = 16.65</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.51</td><td>1.72</td></tr><tr><td>1.64</td><td>1.47</td></tr><tr><td>3.27</td><td>1.54</td></tr><tr><td>5.04</td><td>1.43</td></tr><tr><td>6.61</td><td>0.85</td></tr><tr><td>7.52</td><td>0.83</td></tr></table>	Vertical 10		Total depth = 16.65		Depth	Velocity	[m]	[m/s]	0.51	1.72	1.64	1.47	3.27	1.54	5.04	1.43	6.61	0.85	7.52	0.83																								
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<table><tr><th colspan="2">Vertical 11</th></tr><tr><td colspan="2">Total depth = 8.30</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.70</td><td>0.52</td></tr><tr><td>2.32</td><td>0.55</td></tr><tr><td>3.32</td><td>0.50</td></tr></table>	Vertical 11		Total depth = 8.30		Depth	Velocity	[m]	[m/s]	0.70	0.52	2.32	0.55	3.32	0.50	<table><tr><th colspan="2">Vertical 12</th></tr><tr><td colspan="2">Total depth = 10.40</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.50</td><td>1.64</td></tr><tr><td>1.80</td><td>1.81</td></tr><tr><td>3.80</td><td>1.63</td></tr><tr><td>5.70</td><td>1.74</td></tr><tr><td>7.50</td><td>1.38</td></tr><tr><td>9.80</td><td>0.40</td></tr></table>	Vertical 12		Total depth = 10.40		Depth	Velocity	[m]	[m/s]	0.50	1.64	1.80	1.81	3.80	1.63	5.70	1.74	7.50	1.38	9.80	0.40	<table><tr><th colspan="2">Vertical 13</th></tr><tr><td colspan="2">Total depth = 8.00</td></tr><tr><th>Depth</th><th>Velocity</th></tr><tr><th>[m]</th><th>[m/s]</th></tr><tr><td>0.44</td><td>1.35</td></tr><tr><td>1.67</td><td>1.34</td></tr><tr><td>2.65</td><td>1.41</td></tr><tr><td>4.30</td><td>1.06</td></tr><tr><td>6.35</td><td>0.97</td></tr><tr><td>7.85</td><td>0.74</td></tr></table>	Vertical 13		Total depth = 8.00		Depth	Velocity	[m]	[m/s]	0.44	1.35	1.67	1.34	2.65	1.41	4.30	1.06	6.35	0.97	7.85	0.74	Qw(L3)= 13844 m³/s																																																	
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Table 3.6 SUMMARY of RESULTS (S4 Current)

River : Brahmaputra-Jamuna

S4 velocity

Date of survey : 11 September 1993

Location : Jumuna River at Fulchari (L-4)

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 5.10		Total depth = 2.50		Total depth = 1.50		Total depth = 2.80	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
0.50	0.78	0.50	0.62	0.50	0.67	0.50	0.47
2.00	0.69	1.22	0.61	1.67	0.65	1.57	0.40
3.00	0.53	1.92	0.56			2.14	0.33
4.46	0.54						

$$Q_w(L4) = 700 \text{ m}^3/\text{s}$$

Table 3.7 SUMMARY of RESULTS (S4 Current)

River : Brahmaputra-Jamuna
Concentration

Date of survey : 06 - 08 September 1993

Location : Jumuna River at Bahadurabad (L-1)

Vertical 1 Total depth = 6.50 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>1019.55</td></tr><tr><td>1.10</td><td>997.22</td></tr><tr><td>2.40</td><td>1089.53</td></tr><tr><td>3.60</td><td>1102.96</td></tr><tr><td>4.70</td><td>1480.98</td></tr><tr><td>5.50</td><td>2328.48</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	1019.55	1.10	997.22	2.40	1089.53	3.60	1102.96	4.70	1480.98	5.50	2328.48	Vertical 2 Total depth = 9.80 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>650.63</td></tr><tr><td>2.00</td><td>715.72</td></tr><tr><td>3.90</td><td>942.31</td></tr><tr><td>5.90</td><td>1090.14</td></tr><tr><td>8.00</td><td>1352.00</td></tr><tr><td>9.40</td><td>1685.71</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	650.63	2.00	715.72	3.90	942.31	5.90	1090.14	8.00	1352.00	9.40	1685.71	Vertical 3 Total depth = 11.60 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>2.40</td><td>726.71</td></tr><tr><td>4.60</td><td>695.24</td></tr><tr><td>6.80</td><td>775.68</td></tr><tr><td>9.20</td><td>974.57</td></tr></table>	Depth	Conc.	[m]	[mg/l]	2.40	726.71	4.60	695.24	6.80	775.68	9.20	974.57	Vertical 4 Total depth = 12.50 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>431.95</td></tr><tr><td>2.50</td><td>567.23</td></tr><tr><td>5.00</td><td>582.50</td></tr><tr><td>7.50</td><td>786.21</td></tr><tr><td>10.00</td><td>859.21</td></tr><tr><td>11.80</td><td>1550.77</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	431.95	2.50	567.23	5.00	582.50	7.50	786.21	10.00	859.21	11.80	1550.77	Vertical 5 Total depth = 9.90 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>534.10</td></tr><tr><td>2.00</td><td>554.02</td></tr><tr><td>4.00</td><td>576.47</td></tr><tr><td>5.80</td><td>657.83</td></tr><tr><td>8.00</td><td>690.40</td></tr><tr><td>9.20</td><td>826.03</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	534.10	2.00	554.02	4.00	576.47	5.80	657.83	8.00	690.40	9.20	826.03				
Depth	Conc.																																																																																			
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Vertical 6 Total depth = 8.60 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>603.80</td></tr><tr><td>1.70</td><td>867.53</td></tr><tr><td>3.40</td><td>1075.86</td></tr><tr><td>5.10</td><td>1118.06</td></tr><tr><td>6.80</td><td>1397.06</td></tr><tr><td>7.30</td><td>1414.80</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	603.80	1.70	867.53	3.40	1075.86	5.10	1118.06	6.80	1397.06	7.30	1414.80	Vertical 7 Total depth = 9.40 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>500.00</td></tr><tr><td>1.80</td><td>582.50</td></tr><tr><td>3.80</td><td>612.74</td></tr><tr><td>5.70</td><td>689.04</td></tr><tr><td>7.70</td><td>807.89</td></tr><tr><td>8.90</td><td>1277.78</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	500.00	1.80	582.50	3.80	612.74	5.70	689.04	7.70	807.89	8.90	1277.78	Vertical 8 Total depth = 6.80 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>489.62</td></tr><tr><td>1.40</td><td>487.65</td></tr><tr><td>2.70</td><td>505.48</td></tr><tr><td>4.10</td><td>598.90</td></tr><tr><td>5.50</td><td>594.56</td></tr><tr><td>6.50</td><td>828.29</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	489.62	1.40	487.65	2.70	505.48	4.10	598.90	5.50	594.56	6.50	828.29	Vertical 9 Total depth = 12.50 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>326.38</td></tr><tr><td>2.52</td><td>590.60</td></tr><tr><td>5.02</td><td>693.83</td></tr><tr><td>7.50</td><td>735.00</td></tr><tr><td>9.90</td><td>800.00</td></tr><tr><td>12.40</td><td>1135.90</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	326.38	2.52	590.60	5.02	693.83	7.50	735.00	9.90	800.00	12.40	1135.90	Vertical 10 Total depth = 11.90 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.51</td><td>312.33</td></tr><tr><td>2.32</td><td>396.34</td></tr><tr><td>4.72</td><td>547.30</td></tr><tr><td>7.06</td><td>618.07</td></tr><tr><td>9.42</td><td>726.67</td></tr><tr><td>10.92</td><td>888.40</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.51	312.33	2.32	396.34	4.72	547.30	7.06	618.07	9.42	726.67	10.92	888.40
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Vertical 11 Total depth = 8.30 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>377.38</td></tr><tr><td>1.67</td><td>449.12</td></tr><tr><td>3.34</td><td>520.00</td></tr><tr><td>4.97</td><td>605.84</td></tr><tr><td>6.60</td><td>702.47</td></tr><tr><td>7.58</td><td>806.45</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	377.38	1.67	449.12	3.34	520.00	4.97	605.84	6.60	702.47	7.58	806.45	Vertical 12 Total depth = 6.40 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.53</td><td>349.30</td></tr><tr><td>1.31</td><td>404.26</td></tr><tr><td>2.60</td><td>556.79</td></tr><tr><td>3.90</td><td>636.25</td></tr><tr><td>5.24</td><td>603.75</td></tr><tr><td>5.78</td><td>740.28</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.53	349.30	1.31	404.26	2.60	556.79	3.90	636.25	5.24	603.75	5.78	740.28	Vertical 13 Total depth = 7.00 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.56</td><td>308.88</td></tr><tr><td>1.30</td><td>409.36</td></tr><tr><td>2.61</td><td>495.29</td></tr><tr><td>3.94</td><td>525.33</td></tr><tr><td>5.20</td><td>618.63</td></tr><tr><td>6.44</td><td>992.94</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.56	308.88	1.30	409.36	2.61	495.29	3.94	525.33	5.20	618.63	6.44	992.94	Vertical 14 Total depth = 8.10 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>359.29</td></tr><tr><td>1.60</td><td>482.93</td></tr><tr><td>3.22</td><td>579.88</td></tr><tr><td>4.80</td><td>657.32</td></tr><tr><td>6.43</td><td>764.29</td></tr><tr><td>7.52</td><td>739.47</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	359.29	1.60	482.93	3.22	579.88	4.80	657.32	6.43	764.29	7.52	739.47	Vertical 15 Total depth = 5.20 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>570.11</td></tr><tr><td>1.07</td><td>595.09</td></tr><tr><td>2.05</td><td>633.75</td></tr><tr><td>3.16</td><td>614.86</td></tr><tr><td>4.01</td><td>654.22</td></tr><tr><td>4.64</td><td>712.43</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	570.11	1.07	595.09	2.05	633.75	3.16	614.86	4.01	654.22	4.64	712.43
Depth	Conc.																																																																																			
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Vertical 16 Total depth = 5.10 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.56</td><td>568.05</td></tr><tr><td>1.00</td><td>554.86</td></tr><tr><td>2.02</td><td>626.32</td></tr><tr><td>3.00</td><td>726.74</td></tr><tr><td>4.60</td><td>829.73</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.56	568.05	1.00	554.86	2.02	626.32	3.00	726.74	4.60	829.73	Vertical 17 Total depth = 4.90 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>538.75</td></tr><tr><td>1.00</td><td>602.33</td></tr><tr><td>2.01</td><td>691.39</td></tr><tr><td>3.08</td><td>693.86</td></tr><tr><td>4.08</td><td>812.42</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	538.75	1.00	602.33	2.01	691.39	3.08	693.86	4.08	812.42	Vertical 18 Total depth = 7.00 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>352.17</td></tr><tr><td>1.35</td><td>406.02</td></tr><tr><td>2.70</td><td>437.66</td></tr><tr><td>4.10</td><td>434.73</td></tr><tr><td>5.65</td><td>451.50</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	352.17	1.35	406.02	2.70	437.66	4.10	434.73	5.65	451.50	Ss(L1)= 20931 Kg/s																																							
Depth	Conc.																																																																																			
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Table 3.8 SUMMARY of RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Concentration

Date of survey : 11 September 1993

Location : Jumuna River at Bahadurabad (L -2)

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 3.70		Total depth = 4.10		Total depth = 4.30		Total depth = 3.20	
Depth	Conc.	Depth	Conc.	Depth	Conc.	Depth	Conc.
[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]	[m]	[mg/l]
0.50	401.43	0.50	604.92	0.50	532.85	0.50	765.72
1.00	391.18	1.00	690.23	1.52	631.52	1.20	713.33
1.90	425.17	1.60	658.90	2.75	685.21	1.80	770.71
2.70	491.89	2.40	757.58	3.44	735.21	2.40	891.86
3.50	600.00	3.20	833.13	3.97	897.74	2.90	917.37
		3.70	895.52				

Ss(L2)= 711 Kg/s

Table 3.9 SUMMARY of RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Concentration

Date of survey : 09 - 10 September 1993

Location : Jumuna River at Fulchari (L-3)

Vertical 1 Total depth = 22.00 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>403.73</td></tr><tr><td>4.10</td><td>549.35</td></tr><tr><td>8.40</td><td>693.51</td></tr><tr><td>12.70</td><td>635.38</td></tr><tr><td>16.70</td><td>740.00</td></tr><tr><td>21.50</td><td>1067.69</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	403.73	4.10	549.35	8.40	693.51	12.70	635.38	16.70	740.00	21.50	1067.69	Vertical 2 Total depth = 7.20 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>494.96</td></tr><tr><td>1.30</td><td>396.00</td></tr><tr><td>2.80</td><td>453.33</td></tr><tr><td>4.20</td><td>461.11</td></tr><tr><td>5.60</td><td>530.95</td></tr><tr><td>7.00</td><td>688.05</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	494.96	1.30	396.00	2.80	453.33	4.20	461.11	5.60	530.95	7.00	688.05	Vertical 3 Total depth = 11.00 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>374.03</td></tr><tr><td>2.20</td><td>426.03</td></tr><tr><td>4.40</td><td>404.71</td></tr><tr><td>6.60</td><td>505.26</td></tr><tr><td>8.80</td><td>528.57</td></tr><tr><td>10.70</td><td>549.67</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	374.03	2.20	426.03	4.40	404.71	6.60	505.26	8.80	528.57	10.70	549.67	Vertical 4 Total depth = 10.80 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>545.95</td></tr><tr><td>2.20</td><td>418.06</td></tr><tr><td>4.40</td><td>486.09</td></tr><tr><td>6.60</td><td>524.55</td></tr><tr><td>8.80</td><td>625.33</td></tr><tr><td>10.50</td><td>717.91</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	545.95	2.20	418.06	4.40	486.09	6.60	524.55	8.80	625.33	10.50	717.91	Vertical 5 Total depth = 8.00 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.51</td><td>554.91</td></tr><tr><td>1.62</td><td>594.37</td></tr><tr><td>3.17</td><td>667.46</td></tr><tr><td>4.81</td><td>834.64</td></tr><tr><td>6.22</td><td>900.00</td></tr><tr><td>8.00</td><td>1870.59</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.51	554.91	1.62	594.37	3.17	667.46	4.81	834.64	6.22	900.00	8.00	1870.59
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Vertical 6 Total depth = 3.60 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>403.73</td></tr><tr><td>0.76</td><td>549.35</td></tr><tr><td>1.49</td><td>693.51</td></tr><tr><td>2.87</td><td>635.38</td></tr><tr><td>3.26</td><td>740.00</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	403.73	0.76	549.35	1.49	693.51	2.87	635.38	3.26	740.00	Vertical 7 Total depth = 2.70 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>719.25</td></tr><tr><td>1.09</td><td>760.00</td></tr><tr><td>2.91</td><td>815.17</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	719.25	1.09	760.00	2.91	815.17	Vertical 8 Total depth = 3.30 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>723.81</td></tr><tr><td>0.66</td><td>719.15</td></tr><tr><td>1.32</td><td>878.82</td></tr><tr><td>2.08</td><td>1013.92</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	723.81	0.66	719.15	1.32	878.82	2.08	1013.92	Vertical 9 Total depth = 1.80 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.51</td><td>811.36</td></tr><tr><td>0.92</td><td>963.33</td></tr><tr><td>1.35</td><td>1839.46</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.51	811.36	0.92	963.33	1.35	1839.46	Vertical 10 Total depth = 4.60 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.49</td><td>554.91</td></tr><tr><td>1.02</td><td>594.37</td></tr><tr><td>2.30</td><td>667.46</td></tr><tr><td>3.90</td><td>834.64</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.49	554.91	1.02	594.37	2.30	667.46	3.90	834.64																						
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Vertical 11 Total depth = 8.30 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.52</td><td>663.38</td></tr><tr><td>1.63</td><td>692.90</td></tr><tr><td>3.34</td><td>908.38</td></tr><tr><td>5.03</td><td>949.59</td></tr><tr><td>6.63</td><td>1515.34</td></tr><tr><td>7.48</td><td>1640.54</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.52	663.38	1.63	692.90	3.34	908.38	5.03	949.59	6.63	1515.34	7.48	1640.54	Vertical 12 Total depth = 9.80 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.50</td><td>370.29</td></tr><tr><td>1.80</td><td>478.98</td></tr><tr><td>3.80</td><td>574.27</td></tr><tr><td>5.70</td><td>550.63</td></tr><tr><td>7.50</td><td>823.95</td></tr><tr><td>9.30</td><td>850.67</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.50	370.29	1.80	478.98	3.80	574.27	5.70	550.63	7.50	823.95	9.30	850.67	Vertical 13 Total depth = 8.00 <table><tr><th>Depth</th><th>Conc.</th></tr><tr><th>[m]</th><th>[mg/l]</th></tr><tr><td>0.44</td><td>571.43</td></tr><tr><td>1.66</td><td>595.00</td></tr><tr><td>2.69</td><td>676.60</td></tr><tr><td>4.30</td><td>773.56</td></tr><tr><td>6.40</td><td>840.48</td></tr><tr><td>7.90</td><td>1098.82</td></tr></table>	Depth	Conc.	[m]	[mg/l]	0.44	571.43	1.66	595.00	2.69	676.60	4.30	773.56	6.40	840.48	7.90	1098.82	Ss(L3)= 9711 Kg/s																																	
Depth	Conc.																																																																																			
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Table 3.10 SUMMARY of RESULTS (Suspended Sediment Concentration)

22

River : Brahmaputra-Jamuna
Concentration

Date of survey : 11 September 1993

Location : Jumuna River at Fulchari (L-4)

Vertical 1	
Total depth = 5.10	
Depth	Conc.
[m]	[mg/l]
0.50	382.46
2.00	413.25
3.00	425.56
4.46	462.86

Vertical 2	
Total depth = 2.50	
Depth	Conc.
[m]	[mg/l]
0.50	497.08
1.22	522.73
1.92	600.00

Vertical 3	
Total depth = 1.50	
Depth	Conc.
[m]	[mg/l]
0.50	563.84
1.07	593.89

Vertical 4	
Total depth = 2.80	
Depth	Conc.
[m]	[mg/l]
0.50	480.30
1.57	576.97
2.14	646.77

Ss(L4)= 368 Kg/s

Table 3.11 SUMMARY of RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna

Bed load

Date of survey : 06-08 September 1993

Location : Jumuna River at Bahadurabad (L-1)

Station No. 1

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
2	0.192050	0.105153
4	0.420614	0.299342
7	0.150165	0.057127
9	0.000274	0.000306
11	0.006259	0.002138
13	0.000875	0.010088
15	0.129824	0.103893
17	0.005318	0.099424

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
2	0.008525	0.101425
4	0.042708	0.041941

Date of survey : 11 September 1993

Location : Jumuna River at Bahadurabad (L-2)

Table 3.12 SUMMARY of RESULTS (sediment transport, bed load)

River : Brahmaputra-Jamuna

Bed load

Date of survey : 09-10 September 1993

Location : Jumuna River at Bahadurabad (L-3)

Station No. 1

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.000109	0.000497
3	0.022862	0.000628
5	0.003015	0.001755
7	0.040406	0.048465
9	0.036787	0.054002
11	0.002906	0.013355
13	0.176645	0.216009

Date of survey : 11 September 1993

Location : Jumuna River at Fulchari (L-4)

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.003963	--
3	0.030099	0.086239

Table 3.13 SUMMARY of RESULTS (sediment transport, bed load)

River : Brahmaputra-Jamuna
Grain size fo Suspended Sediment

Date of survey : 06-08 September 1993

Location : Jumuna River at Bahadurabad (L-1)

Station No. 1

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A24	07/09/93	12:44	0.023	0.073	0.104	0.222	3.218
A28	07/09/93	16:47	0.026	0.101	0.142	0.241	3.512
A1	08/09/93	10:42	0.022	0.116	0.149	0.245	4.227
A27	06/09/93	17:17	0.009	0.028	0.051	0.185	4.203
A23	06/09/93	15:03	0.007	0.019	0.030	0.080	3.324
A332	07/09/93	16:28	0.005	0.014	0.023	0.082	3.430
A30	07/09/93	14:42	0.006	0.020	0.033	0.110	4.239
A26	07/09/93	12:14	0.007	0.022	0.040	0.329	6.086
A25	07/09/93	10:20	0.006	0.018	0.031	0.124	4.145

Date of survey : 11 September 1993

Location : Jumuna River at Bahadurabad (L-2)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A13	11/09/93	11:45	0.010	0.021	0.030	0.216	4.332
A16	11/09/93	13:50	0.010	0.023	0.033	0.091	2.608

Table 3.14 SUMMARY OF RESULTS (grain size suspended sediment)

River : Brahmaputra-Jamuna
Grain size fo Suspended Sediment

Date of survey : 09-10 September 1993

Location : Jumuna River at Fulchari (L-3)

Station No. 1

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A2	09/09/93	13:45	0.009	0.024	0.038	0.123	3.514
A452	10/09/93	12:05	0.003	0.009	0.014	0.061	3.655
A7	10/09/93	14:40	0.012	0.036	0.069	0.189	3.991
A5	09/09/93	16:00	0.009	0.027	0.067	0.202	5.028
A454	10/09/93	17:30	0.019	0.065	0.082	0.185	3.091
A8	10/09/93	16:10	0.014	0.054	0.077	0.157	3.644
A6	10/09/93	12:05	0.010	0.029	0.091	0.233	5.839

Date of survey : 09-10 September 1993

Location : Jumuna River at Fulchari (Right channel -4)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A4	11/09/93	10:00	0.004	0.009	0.014	0.045	3.092
A29	11/09/93	11:05	0.006	0.013	0.023	0.101	3.460

Table 3.15 SUMMARY OF RESULTS (grain size suspended sediment)

River : Brahmaputra-Jamuna

Grain size fo bed material

Date of survey : 06-08 September 1993

Location : Jumuna River at Bahadurabad (L-1)

Station No. 1

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
DHA-1	07/09/93	12:50	0.131	0.153	0.174	0.241	1.333
DHA-2	07/09/93	16:47	0.134	0.162	0.187	0.361	1.460
DHA-1	08/09/93	10:50	0.132	0.152	0.172	0.237	1.321
DHA-2	06/09/93	17:20	0.141	0.160	0.183	0.311	1.353
DHA-1	06/09/93	15:10	0.052	0.068	0.081	0.129	1.507

Date of survey : 11 September 1993

Location : Jumuna River at Bahadurabad (L-2)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
DHA-1	11/09/93	11:50	0.150	0.195	0.240	0.432	1.625
DHA-2	11/09/93	13:48	0.135	0.166	0.196	0.3911	1.583

Table 3.16 SUMMARY of RESULTS (grain size bed material)

River : Brahmaputra-Jamuna
Grain size fo bed material

Date of survey : 09-10 Septemba 1993
Location : Jumuna River at Fulchari (L-3)
Station No. 1

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
DHA-1	09/09/93	13:45	0.082	0.141	0.174	0.380	1.969
DHA-1	10/09/93	12:10	0.179	0.263	0.306	0.455	1.556
P-9	10/09/93	17:30	0.070	0.086	0.100	0.197	1.569
P-11	10/09/93	16:15	0.074	0.096	0.116	0.219	1.650

Date of survey : 11 September 1993
Location : Jumuna River at Fulchari (L-4)

Sample No	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
DHC-1	11/09/93	09:50	0.078	0.110	0.139	0.240	1.686

Table 3.17 SUMMARY of RESULTS (grain size bed material)

River : Brahmaputra-Jamuna

Grain size fo bed load

Date of survey : 06-08 September 1993

Location : Jumuna River at Bahadurabad (L-1)

Station No. 1

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A367	07/09/93	12:44	0.162	0.187	0.216	1.457
A370	07/09/93	12:54	0.147	0.166	0.189	1.330
A336	07/09/93	16:35	0.168	0.196	0.228	1.547
A337	07/09/93	16:45	0.164	0.191	0.223	1.532
A360	06/09/93	17:10	0.161	0.186	0.214	1.444
A361	06/09/93	17:17	0.157	0.182	0.212	1.455
A357	06/09/93	15:15	0.261	0.304	0.355	1.612
A362	06/09/93	15:20	0.235	0.287	0.341	1.664
II-1	07/09/93	16:15	0.308	0.346	0.388	1.298
II-2	07/09/93	16:25	0.286	0.326	0.372	1.419
A358	07/09/93	14:35	0.277	0.317	0.364	1.517
A368	07/09/93	14:42	0.302	0.340	0.383	1.312
A365	07/09/93	12:08	0.302	0.340	0.383	1.312
A366	07/09/93	12:14	0.304	0.341	0.383	1.302
A359	07/09/93	10:10	0.306	0.344	0.386	1.301
A364	07/09/93	10:20	0.288	0.327	0.373	1.401

Date of survey : 11 September 1993

Location : Jumuna River at Bahadurabad (L-2)

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A341	11/09/93	11:45	0.253	0.298	0.351	1.601
A340	11/09/93	11:55	0.206	0.258	0.317	1.629
A70	11/09/93	13:45	0.175	0.210	0.253	1.626
A71	11/09/93	13:55	0.173	0.209	0.254	1.643

Table 3.18 SUMMARY of RESULTS (grain size bed load)

River : Brahmaputra-Jamuna

Grain size fo bed load

Date of survey : 09-10 September 1993

Location : Jumuna River at Fulchari (L-3)

Station No. 1

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A343	09/09/93	13:35	0.182	0.226	0.286	1.693
A344	09/09/93	13:45	0.274	0.316	0.365	1.529
A338	10/09/93	12:05	0.314	0.352	0.395	1.296
A339	10/09/93	12:15	0.290	0.330	0.376	1.390
A105	10/09/93	14:35	0.276	0.322	0.375	1.577
A106	10/09/93	14:40	0.271	0.316	0.367	1.579
A109	09/09/93	15:50	0.157	0.181	0.208	1.379
A110	09/09/93	16:00	0.155	0.178	0.205	1.370
A117	10/09/93	17:25	0.116	0.144	0.173	1.657
A118	10/09/93	17:30	0.121	0.147	0.177	1.644
A121	10/09/93	16:15	0.208	0.268	0.326	1.698
A120	10/09/93	16:20	0.095	0.118	0.157	1.791
A103	10/09/93	11:55	0.193	0.238	0.298	1.633
A104	10/09/93	12:05	0.180	0.214	0.257	1.610

Date of survey : 11 September 1993

Location : Jumuna River at Fulchari (L-4)

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A67	11/09/93	10:00	0.303	0.340	0.383	1.304
A335	11/09/93	11:10	0.242	0.290	0.343	1.599
A373	11/09/93	11:15	0.235	0.286	0.339	1.610

Table 3.19 SUMMARY of RESULTS (grain size bed load)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andraesen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	11:55:41	12:18:19	B3961T02*				T	T	T	T						
Transect	12:22:48	12:48:00	B3961T03				T	T	T	T						
Transect	18:12:17	18:29:59	B3961T06				T	T	T	T						
Profile	14:35:04	15:22:38	B3961P01	9	469453	777501	P	P	P	P		6	1	2	-	1
Profile	16:57:24	17:21:05	B3961P02	7	469644	777503	P	P	P	P		6	1	2	-	1

* transect in PSD 24 data base

Date of Survey : 6 September 1993

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andraesen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	08:57:53	09:25:04	B3971T02				T	T	T	T						
Transect	09:28:31	09:49:57	B3971T03				T	T	T	T						
Transect	18:07:04	18:28:13	B3971T04				T	T	T	T						
Profile	08:45:30	09:19:06	B3972P01	18	467725	777500	P	P	P	P		5	-	-	-	-
Profile	09:35:38	10:26:44	B3972P02	17	468212	777497	P	P	P	P		5	1	2	-	-
Profile	11:07:31	11:37:18	B3971P01	1	470478	777509	P	P	P	P		6	-	-	-	-
Profile	11:06:02	11:32:59	B3972P03	16	468410	777500	P		P	P		5	-	-	-	-
Profile	11:46:00	12:14:00	B3972P04	15	468562	777502	P		P	P		6	1	2	-	-
Profile	12:26:35	12:57:52	B3971P02	2	470301	777495	P	P	P	P		6	1	2	-	1
Profile	12:55:00	13:26:11	B3972P05	14	468903	777503	P	P	P	P		6	-	-	-	-
Profile	14:16:25	14:47:57	B3972P06	13	468998	777501	P	P	P	P		6	1	2	-	-
Profile	14:58:27	15:34:15	B3971P03	3	470145	777492	P	P	P	P		5	-	-	-	-
Profile	15:17:17	15:47:55	B3972P07	12	469195	777508	P	P	P	P		6	-	-	-	-
Profile	15:59:26	16:30:59	B3972P08	11	469271	777496	P	P	P	P		6	1	2	-	-
Profile	16:05:46	16:24:04	B3971P04	4	470050	777510	P	P	P	P		6	1	2	-	1
Profile	17:13:18	14:43:34	B3972P09	10	469402	777498	P	P	P	P		6	-	-	-	-

Date of Survey : 7 September 1993

Location : Jamuna River at Bahadurabad (Left channel)

Station No. 1

Table 2.1 SURVEY PROGRAMME AS MADE

226

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	08:46:33	09:09:02	B3981T02				T	T	T	T						
Transect	09:13:02	09:39:48	B3981T03				T	T	T	T						
Transect	15:48:49	16:05:29	B3981T06				T	T	T	T						
Transect	16:09:52	16:33:52	B3981T07				T	T	T	T						
Profile	10:23:56	10:53:57	B3981P03	5	469954	777508	P	P	P	P		6	1	-	-	1
Profile	11:57:47	12:25:33	B3981P04	6	469764	777504	P	P	P	P		6	-	-	-	-
Profile	13:10:33	13:35:55	B3981P05	8	469565	777500	P	P	P	P		6	-	-	-	-

Date of Survey : 8 September 1993

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	15:53:30	16:16:38	B3981T06*				T	T	T	T						
Transect	16:28:41	16:49:26	B3981T08				T	T	T	T						

* transect in PSD 24 data base

Date of Survey : 11 September 1993
 Location : Jamuna River at Bahadurabad (Left channel)
 Station No. 1

Table 2.2 SURVEY PROGRAMME AS MADE

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreassen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	10:28:47	10:54:59	B3991T01*				T	T	T	T						
Transect	11:02:14	11:22:06	B3991T02				T	T	T	T						
Transect	16:33:03	16:52:39	B3991T03				T	T	T	T						
Transect	17:28:03	17:44:57	B3991T06				T	T	T	T						
Profile	13:11:52	13:50:26	B3991P01	1	462378	783177	P	P	P	P		6	1	2	-	1
Profile	15:42:41	16:08:35	B3991P02	2	462280	783145	P	P	P	P		6				
Profile	15:22:48	15:42:07	B3992P01	6	461935	783019	P	P	P	P		5	-	-	-	-
Profile	15:53:34	16:03:35	B3992P02	7	461762	782966	P	P	P	P		3	1	2	-	-
Profile	16:47:30	17:00:10	B3992P03	8	461558	782894	P		P	P		4	-	-	-	-

* transect in PSD 24 data base

Date of Survey : 9 September 1993

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreassen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	09:30:36	09:35:10	B39A1T01				T	T	T	T						
Transect	09:46:00	09:52:45	B39A1T02				T	T	T	T						
Transect	10:40:14	10:52:32	B39A1T03				T	T	T	T						
Transect	10:55:01	11:06:18	B39A1T04				T	T	T	T						
Transect	15:22:24	15:34:33	B39A1T05				T	T	T	T						
Transect	15:36:21	15:48:56	B39A1T06				T	T	T	T						
Transect	17:40:09	17:45:01	B39A1T07				T	T	T	T						
Transect	17:46:49	17:52:14	B39A1T08				T	T	T	T						
Profile	10:26:39	10:44:50	B39A2P01	10	460519	782526	P	P	P	P		4	-	-	-	-
Profile	11:39:46	12:11:42	B39A2P02	13	460513	782547	P	P	P	P		6	1	2	-	-
Profile	11:54:21	12:21:20	B39A1P01	3	462191	783071	P	P	P	P		6	1	2	-	1
Profile	14:39:34	15:05:52	B39A1P02	4	462113	783080	P	P	P	P		6	-	-	-	-
Profile	14:21:34	14:49:32	B39A2P03	5	462050	783061	P	P	P	P		6	1	2	-	-
Profile	16:53:52	17:23:48	B39A1P03	12	460569	782531	P		P	P		6	-	-	-	-
Profile	16:01:15	16:28:07	B39A2P04	11	460711	782564	P	P	P	P		6	1	2	-	1
Profile	15:26:12	17:48:25	B39A2P05	9	461299	782803	P	P	P	P		3	1	2	-	1

Date of Survey : 10 September 1993

Location : Jamuna River at Fulchhari (Right Channel)

Station No. 1

222

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples	
Profile	10:12:05	10:14:14	B39B2P01	1	463952	781363		P				4	1	1	-	1	
Profile	10:58:20	10:59:36	B39B2P02	2	463884	781496		P				3	-	-	-	-	
Profile	11:21:05	11:21:49	B39B2P03	3	463854	781581		P				2	1	2	-	-	
Profile	12:04:44	12:06:32	B39B2P04	4	463746	781777		P				3	-	-	-	-	

Date of Survey : 11 September 1993

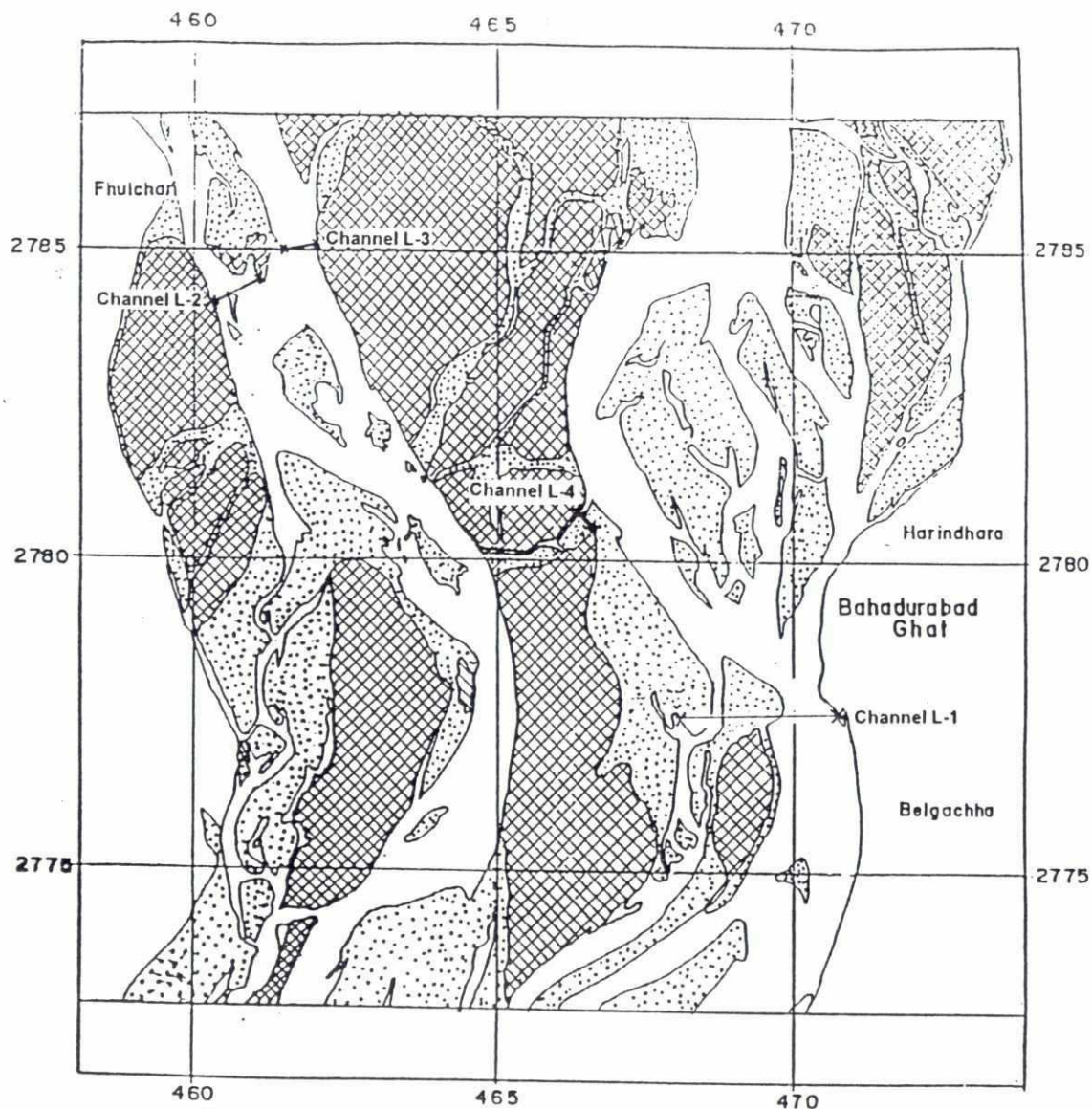
Location : Jamuna River at Fulchari (Right Channel)

Station No. 1

Table 2.4 SURVEY PROGRAMME AS MADE

Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B3961T02 .ase
ADCP/S4/EMF	2	QUATTRO	B39B1T06 .ase
ADCP/S4/EMF	3	QUATTRO	B3991T01 .ase
Echosounder	1	QUATTRO	B3961T02 .ech
Echosounder	2	QUATTRO	B39B1T06 .ech
Echosounder	3	QUATTRO	B3991T01 .ech
Sediment transport data	1	QUATTRO	B3961T02 .sed
Sediment transport data	2	QUATTRO	B39B1T06 .sed
Sediment transport data	3	QUATTRO	B3991T01 .sed
Bed load sediment analysis	1	QUATTRO	B3961T02 .bdl
Bed load sediment analysis	2	QUATTRO	B39B1T06 .bdl
Bed load sediment analysis	2	QUATTRO	B3991T01 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B3961T02 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B39B1T06 .ssc
Suspended sed. conc. analysis	3	QUATTRO	B3991T01 .ssc
Transect plot data	1	QUATTRO	B3961T02 .trs
Transect plot data	2	QUATTRO	B39B1T06 .trs
Transect plot data	3	QUATTRO	B3991T01 .trs
Iso-velocity plot data	1	MIKE 21	B3961T02 .ct2
Iso-velocity plot data	1	MIKE 21	B3961T02 .dt2
Iso-velocity plot data	2	MIKE 21	B39B1T06 .ct2
Iso-velocity plot data	2	MIKE 21	B39B1T06 .dt2
Iso-velocity plot data	3	MIKE 21	B3991T01 .ct2
Iso-velocity plot data	3	MIKE 21	B3991T01 .dt2

Table 5.1 PSD 24 Database file description



LEGEND:-

- X—X Measurement cross section
- High land
- Unstable/low char
- BWDB Embankment

Map is based on most recent satellite images of March, 1993.



RIVER SURVEY PROJECT

Delft Hydraulics/Danish Hydraulic Institute
in association with Osiris/Approtech/Hydroland

Survey Bulletin No.24 - Oct-Nov, 1993

Location No.1 : Jamuna River at Bahadurabad

File:

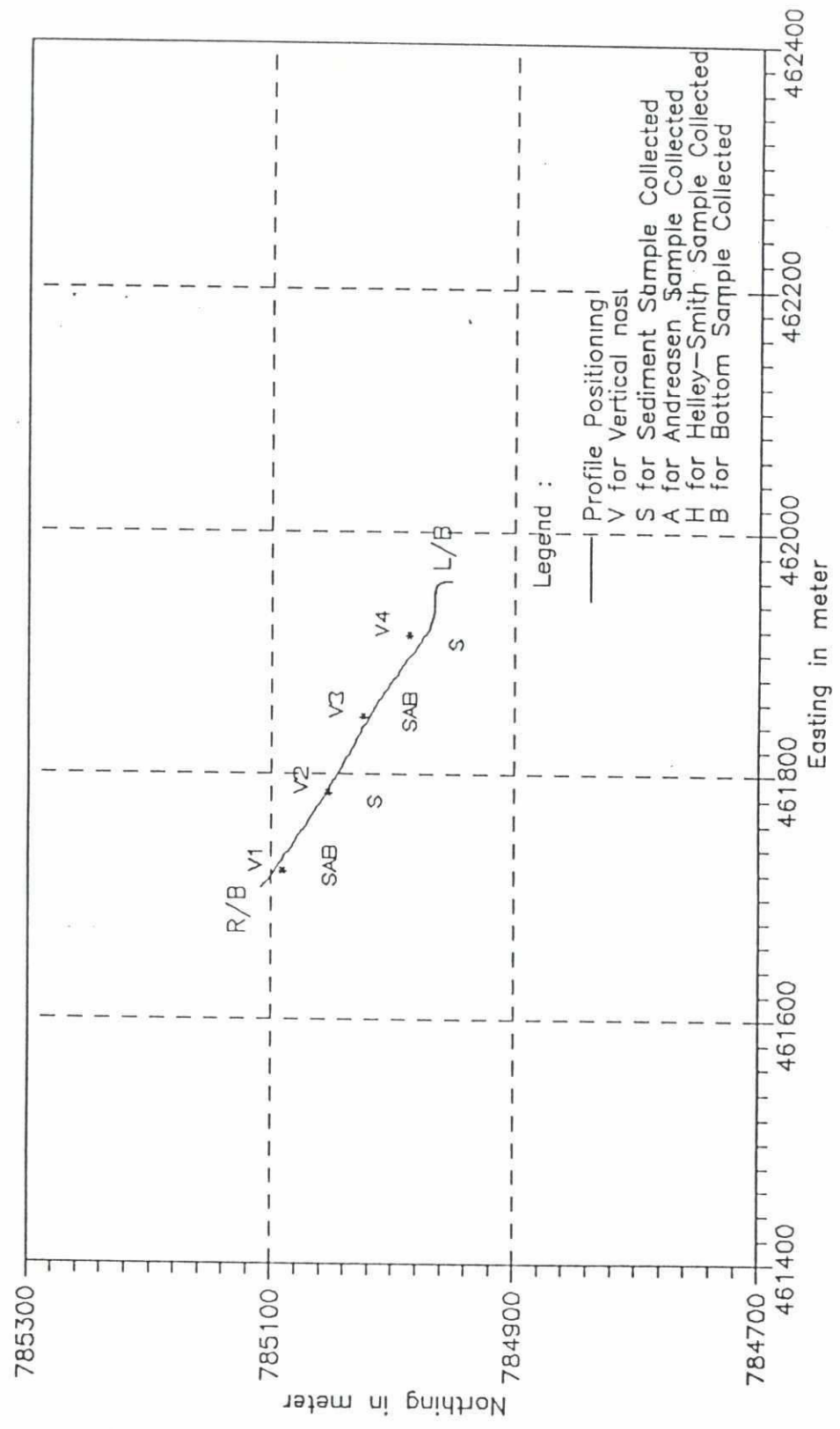
Date:

Scale:

Init:

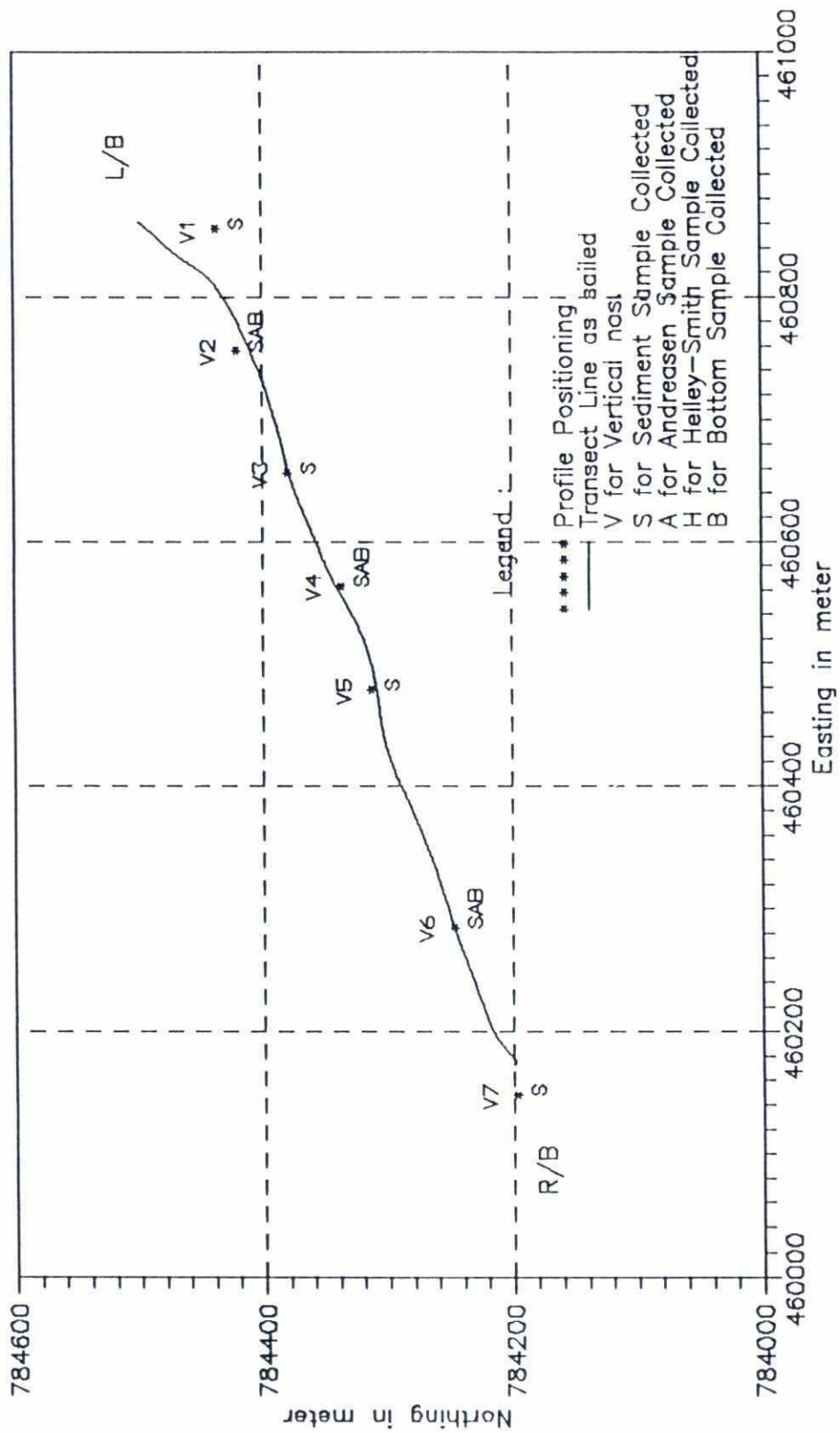
KEY PLAN

Fig.



FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 24 : Oct - Nov, 1993	
		Location 1 : Jumuna River, Fulchari (Channel L-2)	
	Date :	Location of Measurements	
	Init :		

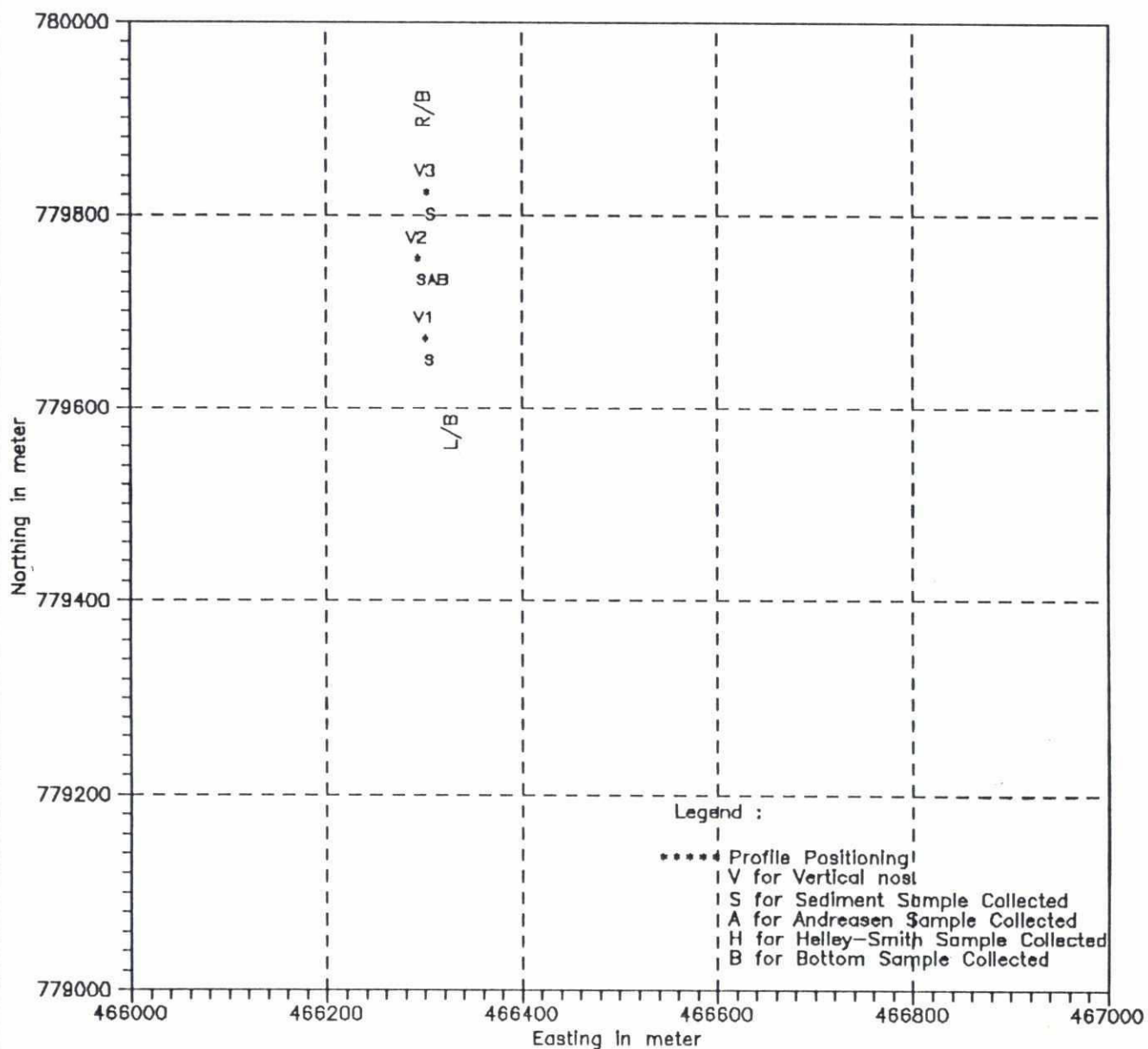
23



Date : _____

Init : _____

Location of Measurements



FAP 24  DELFT - DHI		Survey Bulletin 24 : Oct - Nov, 1993	
		Location 1 : Jumuna River, Bahadurabad (Channel L- 4)	
	Date :	Location of Measurements	
	Init :		

River : Brahmaputra-Jamuna

ADCP/EMF Discharge

Date of Survey : 31 Oct - 03 Nov, 1993

Location : Jumuna River at Bahadurabad (Channel L-1)

Station No. 1

Date	Transect	Bank		Level	Width	Area	Discharge
		From	To	(m+PWD)	(m)	(sq.m)	(cumec)
31/10/93	B3AV1T01	Left	Right	16.43	2592	12511	10417
31/10/93	B3AV1T02	Right	Left	16.42	2618	12486	9951
31/10/93	B3AV1T03	Left	Right	16.39	2556	12328	10686
31/10/93	B3AV1T04	Right	Left	16.39	2570	12359	9884
01/11/93	B3B11T01	Left	Right	16.34	2607	12184	10511
01/11/93	B3B11T02	Right	Left	16.34	2361	12180	10058
01/11/93	B3B11T03	Left	Right	16.32	2609	12048	9988
01/11/93	B3B11T04	Right	Left	16.32	2579	12103	9612
03/11/93	B3B31T05	Right	Left	16.23	2514	11764	9697
03/11/93	B3B31T06	Left	Right	16.23	2151	11775	9437

Table 3.1 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna
ADCP/EMF Discharge

Date of Survey : 02 - 03 November 1993

Location : Jumuna River at Fulchari (Channel L-2)

Station No. 1

Date	Transect	Bank		Level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
02/11/93	B3B21T03	Left	Right	13.49	365	1056	759
02/11/93	B3B21T04	Right	Left	13.49	356	1080	779
02/11/93	B3B21T07	Left	Right	13.47	362	1011	695
02/11/93	B3B21T08	Right	Left	13.47	378	1084	759
03/11/93	B3B31T03	Left	Right	13.42	364	1038	699
03/11/93	B3B31T04	Right	Left	13.42	343	1015	715

Table 3.2 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna
ADCP/EMF Discharge

Date of Survey : 01 - 03 November 1993

Location : Jumuna River at Fulchari (Channel L-3)

Station No. 1

Date	Transect	Bank		Level	Width	Area	Discharge
		From	To	(m+PWD)	(m)	(sq.m)	(cumec)
01/11/93	B3B11T05	Right	Left	13.57	871	3378	2329
01/11/93	B3B11T06	Left	Right	13.57	923	3515	2670
02/11/93	B3B21T01	Right	Left	13.50	912	3300	2673
02/11/93	B3B21T02	Left	Right	13.50	916	3289	2904
02/11/93	B3B21T05	Left	Right	13.47	942	3278	2737
02/11/93	B3B21T06	Right	Left	13.47	837	3275	2626
03/11/93	B3B31T01	Left	Right	13.42	913	3105	2802
03/11/93	B3B31T02	Right	Left	13.42	876	3051	2737

Table 3.3 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna
S4 velocity

Date of Survey : 31 Oct - 01 Nov, 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Vertical 1 Total depth = 3.80 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.28</td></tr><tr><td>0.80</td><td>0.80</td></tr><tr><td>2.30</td><td>1.19</td></tr><tr><td>3.00</td><td>1.02</td></tr><tr><td>3.30</td><td>0.87</td></tr></table>	Depth	Velocity	(m)	(m/s)	0.50	1.28	0.80	0.80	2.30	1.19	3.00	1.02	3.30	0.87	Vertical 2 Total depth = 9.60 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.78</td></tr><tr><td>1.86</td><td>1.92</td></tr><tr><td>3.81</td><td>1.93</td></tr><tr><td>5.78</td><td>1.67</td></tr><tr><td>7.71</td><td>1.49</td></tr></table>	Depth	Velocity	(m)	(m/s)	0.50	1.78	1.86	1.92	3.81	1.93	5.78	1.67	7.71	1.49	Vertical 3 Total depth = 16.20 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.77</td></tr><tr><td>3.20</td><td>1.77</td></tr><tr><td>6.42</td><td>1.62</td></tr><tr><td>9.69</td><td>1.36</td></tr><tr><td>13.39</td><td>1.13</td></tr><tr><td>14.93</td><td>1.00</td></tr></table>	Depth	Velocity	(m)	(m/s)	0.50	1.77	3.20	1.77	6.42	1.62	9.69	1.36	13.39	1.13	14.93	1.00	Vertical 4 Total depth = 12.30 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.28</td></tr><tr><td>2.50</td><td>1.38</td></tr><tr><td>4.90</td><td>1.33</td></tr><tr><td>7.42</td><td>1.20</td></tr><tr><td>9.74</td><td>0.95</td></tr><tr><td>12.02</td><td>0.66</td></tr></table>	Depth	Velocity	(m)	(m/s)	0.50	1.28	2.50	1.38	4.90	1.33	7.42	1.20	9.74	0.95	12.02	0.66	Vertical 5 Total depth = 9.60 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>0.91</td></tr><tr><td>1.90</td><td>1.08</td></tr><tr><td>3.80</td><td>1.01</td></tr><tr><td>5.60</td><td>0.94</td></tr><tr><td>7.50</td><td>0.87</td></tr><tr><td>9.50</td><td>0.59</td></tr></table>	Depth	Velocity	(m)	(m/s)	0.50	0.91	1.90	1.08	3.80	1.01	5.60	0.94	7.50	0.87	9.50	0.59
Depth	Velocity																																																																															
(m)	(m/s)																																																																															
0.50	1.28																																																																															
0.80	0.80																																																																															
2.30	1.19																																																																															
3.00	1.02																																																																															
3.30	0.87																																																																															
Depth	Velocity																																																																															
(m)	(m/s)																																																																															
0.50	1.78																																																																															
1.86	1.92																																																																															
3.81	1.93																																																																															
5.78	1.67																																																																															
7.71	1.49																																																																															
Depth	Velocity																																																																															
(m)	(m/s)																																																																															
0.50	1.77																																																																															
3.20	1.77																																																																															
6.42	1.62																																																																															
9.69	1.36																																																																															
13.39	1.13																																																																															
14.93	1.00																																																																															
Depth	Velocity																																																																															
(m)	(m/s)																																																																															
0.50	1.28																																																																															
2.50	1.38																																																																															
4.90	1.33																																																																															
7.42	1.20																																																																															
9.74	0.95																																																																															
12.02	0.66																																																																															
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1.90	1.08																																																																															
3.80	1.01																																																																															
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7.50	0.87																																																																															
9.50	0.59																																																																															
Vertical 6 Total depth = 6.70 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.50</td><td>1.09</td></tr><tr><td>1.28</td><td>1.09</td></tr><tr><td>2.61</td><td>1.13</td></tr><tr><td>3.80</td><td>1.03</td></tr><tr><td>5.10</td><td>1.00</td></tr><tr><td>6.46</td><td>0.72</td></tr></table>	Depth	Velocity	(m)	(m/s)	0.50	1.09	1.28	1.09	2.61	1.13	3.80	1.03	5.10	1.00	6.46	0.72	Vertical 7 Total depth = 5.30 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>1.06</td><td>1.17</td></tr><tr><td>2.24</td><td>1.20</td></tr><tr><td>3.39</td><td>1.10</td></tr><tr><td>4.79</td><td>0.85</td></tr></table>	Depth	Velocity	(m)	(m/s)	1.06	1.17	2.24	1.20	3.39	1.10	4.79	0.85	Vertical 8 Total depth = 3.90 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.99</td><td>1.12</td></tr><tr><td>2.17</td><td>0.86</td></tr><tr><td>2.88</td><td>0.87</td></tr></table>	Depth	Velocity	(m)	(m/s)	0.99	1.12	2.17	0.86	2.88	0.87	Vertical 9 Total depth = 3.40 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>1.00</td><td>1.04</td></tr><tr><td>2.04</td><td>1.14</td></tr><tr><td>2.55</td><td>1.05</td></tr></table>	Depth	Velocity	(m)	(m/s)	1.00	1.04	2.04	1.14	2.55	1.05	Vertical 10 Total depth = 2.10 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>1.00</td><td>1.12</td></tr><tr><td>1.31</td><td>0.81</td></tr><tr><td>1.68</td><td>1.05</td></tr></table>	Depth	Velocity	(m)	(m/s)	1.00	1.12	1.31	0.81	1.68	1.05																		
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1.68	1.05																																																																															
Vertical 11 Total depth = 5.60 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>1.08</td><td>0.54</td></tr><tr><td>2.24</td><td>0.51</td></tr><tr><td>3.38</td><td>0.48</td></tr><tr><td>4.46</td><td>0.46</td></tr><tr><td>5.29</td><td>0.36</td></tr></table>	Depth	Velocity	(m)	(m/s)	1.08	0.54	2.24	0.51	3.38	0.48	4.46	0.46	5.29	0.36	Vertical 12 Total depth = 4.50 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>2.70</td><td>0.08</td></tr></table>	Depth	Velocity	(m)	(m/s)	2.70	0.08	Vertical 13 Total depth = 2.80 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>1.98</td><td>0.38</td></tr></table>	Depth	Velocity	(m)	(m/s)	1.98	0.38	Vertical 14 Total depth = 3.30 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>1.98</td><td>0.38</td></tr></table>	Depth	Velocity	(m)	(m/s)	1.98	0.38	Vertical 15 Total depth = 4.80 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.96</td><td>0.54</td></tr><tr><td>3.44</td><td>0.43</td></tr></table>	Depth	Velocity	(m)	(m/s)	0.96	0.54	3.44	0.43																																				
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Vertical 16 Total depth = 5.40 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>1.04</td><td>0.76</td></tr><tr><td>2.17</td><td>0.74</td></tr><tr><td>3.25</td><td>0.62</td></tr><tr><td>4.33</td><td>0.56</td></tr><tr><td>5.27</td><td>0.42</td></tr></table>	Depth	Velocity	(m)	(m/s)	1.04	0.76	2.17	0.74	3.25	0.62	4.33	0.56	5.27	0.42	Vertical 17 Total depth = 4.80 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>0.99</td><td>0.88</td></tr><tr><td>3.92</td><td>0.71</td></tr></table>	Depth	Velocity	(m)	(m/s)	0.99	0.88	3.92	0.71	Vertical 18 Total depth = 3.30 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>1.98</td><td>0.74</td></tr></table>	Depth	Velocity	(m)	(m/s)	1.98	0.74	Vertical 19 Total depth = 2.60 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>1.57</td><td>0.66</td></tr></table>	Depth	Velocity	(m)	(m/s)	1.57	0.66	Vertical 20 Total depth = 1.90 m <table><tr><th>Depth</th><th>Velocity</th></tr><tr><th>(m)</th><th>(m/s)</th></tr><tr><td>1.16</td><td>0.48</td></tr></table>	Depth	Velocity	(m)	(m/s)	1.16	0.48																																				
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(m)	(m/s)																																																																															
1.16	0.48																																																																															

Qw(L1)= 11094 m³/s

$Q_w(L1) = 11094 \text{ m}^3/\text{s}$

Table 3.4 SUMMARY of RESULTS (S4 Current)

River : Brahmaputra-Jamuna
S4 velocity

Date of Survey : 02 November 1993

Location : Jumuna River at Fulchari (Channel L-2)

Station No. 1

Vertical 1		Vertical 2		Vertical 3		Vertical 4	
Total depth = 1.80 m		Total depth = 5.30 m		Total depth = 4.40 m		Total depth = 4.20 m	
Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity
[m]	[m/s]	[m]	[m/s]	[m]	[m/s]	[m]	[m/s]
1.08	0.34	1.01	0.74	0.50	1.15	0.99	0.94
1.44	0.30	2.23	0.73	0.90	0.88	2.41	0.86
		2.97	0.64	2.60	1.01	3.31	0.77
		4.82	0.02	3.50	0.95		
				4.00	0.75		

$Q_w(L2) = 480 \text{ m}^3/\text{s}$

Table 3.5 SUMMARY of RESULTS (S4 Current)

River : Brahmaputra-Jamuna
S4 velocity

Date of Survey : 02 November 1993

Location : Jumuna River at Fulchari (Channel L-3)

Station No. 1

Vertical 1	
Total depth = 3.33 m	
Depth	Velocity
[m]	[m/s]
1.00	0.34
1.56	0.31
2.08	0.33
2.67	0.24

Vertical 2	
Total depth = 5.40 m	
Depth	Velocity
[m]	[m/s]
0.50	0.64
1.08	0.79
2.19	0.85
3.28	0.89
4.40	0.80
5.28	0.71

Vertical 3	
Total depth = 6.70 m	
Depth	Velocity
[m]	[m/s]
0.50	0.49
1.27	0.81
2.64	0.91
3.78	0.83
5.12	0.68
6.26	0.55

Vertical 4	
Total depth = 6.3 m	
Depth	Velocity
[m]	[m/s]
0.50	0.97
1.30	1.01
2.60	0.99
4.01	0.94
5.44	0.75

Vertical 5	
Total depth = 4.75 m	
Depth	Velocity
[m]	[m/s]
0.98	0.83
2.88	0.82
4.06	0.65

Vertical 6	
Total depth = 3.60 m	
Depth	Velocity
[m]	[m/s]
1.01	0.44
2.15	0.31
3.01	0.23

Vertical 7	
Total depth = 2.40 m	
Depth	Velocity
[m]	[m/s]
1.00	0.39
1.45	0.28
1.91	0.30

Qw (L3) = 2988 m³/s

Table 3.6 SUMMARY of RESULTS (S4 Current)

River : Brahmaputra-Jamuna

S4 velocity

Date of Survey : 02 November 1993

Location : Jumuna River at Bahadurabad (Channel L-4)

Station No. 1

Vertical 1	
Total depth = 2.80 m	
Depth	Velocity
[m]	[m/s]
0.99	0.86
1.62	0.75
2.16	0.65

Vertical 2	
Total depth = 2.90 m	
Depth	Velocity
[m]	[m/s]
0.50	0.83
1.68	0.92
2.43	0.71

Vertical 3	
Total depth = 2.90 m	
Depth	Velocity
[m]	[m/s]
1.00	0.85
1.68	0.75
2.25	0.66

$Q_w(L4) = 619 \text{ m}^3/\text{s}$

Table 3.7 SUMMARY of RESULTS (S4 Current)

River : Brahmaputra-Jamuna
Concentration

Date of Survey : 31 Oct - 01 Nov, 1993

Location : Jumuna River at Bahadurabad (Channel L-1)

Station No. 1

<table><tr><td colspan="2">Vertical 1</td></tr><tr><td colspan="2">Total depth = 3.80 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>430.03</td></tr><tr><td>0.80</td><td>267.15</td></tr><tr><td>2.30</td><td>321.31</td></tr><tr><td>3.00</td><td>387.91</td></tr><tr><td>3.30</td><td>529.05</td></tr></table>	Vertical 1		Total depth = 3.80 m		Depth	Conc.	[m]	[mg/l]	0.50	430.03	0.80	267.15	2.30	321.31	3.00	387.91	3.30	529.05	<table><tr><td colspan="2">Vertical 2</td></tr><tr><td colspan="2">Total depth = 9.60 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>426.04</td></tr><tr><td>1.90</td><td>240.38</td></tr><tr><td>3.80</td><td>299.41</td></tr><tr><td>5.80</td><td>284.52</td></tr><tr><td>7.70</td><td>340.39</td></tr></table>	Vertical 2		Total depth = 9.60 m		Depth	Conc.	[m]	[mg/l]	0.50	426.04	1.90	240.38	3.80	299.41	5.80	284.52	7.70	340.39	<table><tr><td colspan="2">Vertical 3</td></tr><tr><td colspan="2">Total depth = 16.20 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>3.20</td><td>265.84</td></tr><tr><td>6.50</td><td>299.19</td></tr><tr><td>9.70</td><td>272.34</td></tr><tr><td>13.00</td><td>366.61</td></tr><tr><td>14.90</td><td>543.12</td></tr></table>	Vertical 3		Total depth = 16.20 m		Depth	Conc.	[m]	[mg/l]	3.20	265.84	6.50	299.19	9.70	272.34	13.00	366.61	14.90	543.12	<table><tr><td colspan="2">Vertical 4</td></tr><tr><td colspan="2">Total depth = 12.30 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>165.74</td></tr><tr><td>2.50</td><td>193.50</td></tr><tr><td>4.90</td><td>240.52</td></tr><tr><td>7.40</td><td>337.22</td></tr><tr><td>9.80</td><td>407.16</td></tr><tr><td>12.20</td><td>893.11</td></tr></table>	Vertical 4		Total depth = 12.30 m		Depth	Conc.	[m]	[mg/l]	0.50	165.74	2.50	193.50	4.90	240.52	7.40	337.22	9.80	407.16	12.20	893.11	<table><tr><td colspan="2">Vertical 5</td></tr><tr><td colspan="2">Total depth = 9.90 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>197.76</td></tr><tr><td>1.90</td><td>242.16</td></tr><tr><td>3.80</td><td>201.38</td></tr><tr><td>5.60</td><td>198.54</td></tr><tr><td>7.50</td><td>207.39</td></tr><tr><td>9.50</td><td>185.82</td></tr></table>	Vertical 5		Total depth = 9.90 m		Depth	Conc.	[m]	[mg/l]	0.50	197.76	1.90	242.16	3.80	201.38	5.60	198.54	7.50	207.39	9.50	185.82
Vertical 1																																																																																																		
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<table><tr><td colspan="2">Vertical 6</td></tr><tr><td colspan="2">Total depth = 7.20 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>225.39</td></tr><tr><td>1.30</td><td>310.04</td></tr><tr><td>2.60</td><td>217.50</td></tr><tr><td>3.80</td><td>229.64</td></tr><tr><td>5.10</td><td>229.52</td></tr><tr><td>6.70</td><td>273.47</td></tr></table>	Vertical 6		Total depth = 7.20 m		Depth	Conc.	[m]	[mg/l]	0.50	225.39	1.30	310.04	2.60	217.50	3.80	229.64	5.10	229.52	6.70	273.47	<table><tr><td colspan="2">Vertical 7</td></tr><tr><td colspan="2">Total depth = 5.60 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>305.32</td></tr><tr><td>1.12</td><td>334.39</td></tr><tr><td>2.24</td><td>299.90</td></tr><tr><td>3.36</td><td>310.69</td></tr><tr><td>4.50</td><td>451.43</td></tr><tr><td>5.04</td><td>616.07</td></tr></table>	Vertical 7		Total depth = 5.60 m		Depth	Conc.	[m]	[mg/l]	0.50	305.32	1.12	334.39	2.24	299.90	3.36	310.69	4.50	451.43	5.04	616.07	<table><tr><td colspan="2">Vertical 8</td></tr><tr><td colspan="2">Total depth = 3.60 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>307.38</td></tr><tr><td>0.72</td><td>367.36</td></tr><tr><td>2.17</td><td>498.04</td></tr><tr><td>2.89</td><td>635.31</td></tr></table>	Vertical 8		Total depth = 3.60 m		Depth	Conc.	[m]	[mg/l]	0.50	307.38	0.72	367.36	2.17	498.04	2.89	635.31	<table><tr><td colspan="2">Vertical 9</td></tr><tr><td colspan="2">Total depth = 3.40 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>517.28</td></tr><tr><td>0.68</td><td>426.15</td></tr><tr><td>2.04</td><td>539.25</td></tr><tr><td>2.55</td><td>651.51</td></tr></table>	Vertical 9		Total depth = 3.40 m		Depth	Conc.	[m]	[mg/l]	0.50	517.28	0.68	426.15	2.04	539.25	2.55	651.51	<table><tr><td colspan="2">Vertical 10</td></tr><tr><td colspan="2">Total depth = 2.10 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>619.87</td></tr><tr><td>1.26</td><td>1093.45</td></tr><tr><td>1.68</td><td>1015.37</td></tr></table>	Vertical 10		Total depth = 2.10 m		Depth	Conc.	[m]	[mg/l]	0.50	619.87	1.26	1093.45	1.68	1015.37								
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<table><tr><td colspan="2">Vertical 11</td></tr><tr><td colspan="2">Total depth = 5.60 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>278.92</td></tr><tr><td>1.15</td><td>301.45</td></tr><tr><td>2.24</td><td>331.25</td></tr><tr><td>3.38</td><td>327.80</td></tr><tr><td>4.46</td><td>341.01</td></tr><tr><td>5.30</td><td>490.35</td></tr></table>	Vertical 11		Total depth = 5.60 m		Depth	Conc.	[m]	[mg/l]	0.50	278.92	1.15	301.45	2.24	331.25	3.38	327.80	4.46	341.01	5.30	490.35	<table><tr><td colspan="2">Vertical 12</td></tr><tr><td colspan="2">Total depth = 4.50 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.92</td><td>159.82</td></tr><tr><td>2.70</td><td>203.13</td></tr><tr><td>3.59</td><td>426.62</td></tr></table>	Vertical 12		Total depth = 4.50 m		Depth	Conc.	[m]	[mg/l]	0.92	159.82	2.70	203.13	3.59	426.62	<table><tr><td colspan="2">Vertical 13</td></tr><tr><td colspan="2">Total depth = 2.80 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.56</td><td>77.30</td></tr><tr><td>1.68</td><td>135.91</td></tr><tr><td>2.23</td><td>176.36</td></tr><tr><td>2.51</td><td>166.01</td></tr></table>	Vertical 13		Total depth = 2.80 m		Depth	Conc.	[m]	[mg/l]	0.56	77.30	1.68	135.91	2.23	176.36	2.51	166.01	<table><tr><td colspan="2">Vertical 14</td></tr><tr><td colspan="2">Total depth = 3.30 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.65</td><td>119.13</td></tr><tr><td>1.98</td><td>191.89</td></tr><tr><td>2.64</td><td>201.84</td></tr></table>	Vertical 14		Total depth = 3.30 m		Depth	Conc.	[m]	[mg/l]	0.65	119.13	1.98	191.89	2.64	201.84	<table><tr><td colspan="2">Vertical 15</td></tr><tr><td colspan="2">Total depth = 4.80 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.96</td><td>215.04</td></tr><tr><td>3.44</td><td>311.46</td></tr><tr><td>4.47</td><td>342.63</td></tr></table>	Vertical 15		Total depth = 4.80 m		Depth	Conc.	[m]	[mg/l]	0.96	215.04	3.44	311.46	4.47	342.63																
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<table><tr><td colspan="2">Vertical 16</td></tr><tr><td colspan="2">Total depth = 5.40 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>178.59</td></tr><tr><td>1.08</td><td>248.40</td></tr><tr><td>2.17</td><td>260.43</td></tr><tr><td>3.24</td><td>307.80</td></tr><tr><td>4.31</td><td>394.58</td></tr><tr><td>5.26</td><td>773.33</td></tr></table>	Vertical 16		Total depth = 5.40 m		Depth	Conc.	[m]	[mg/l]	0.50	178.59	1.08	248.40	2.17	260.43	3.24	307.80	4.31	394.58	5.26	773.33	<table><tr><td colspan="2">Vertical 17</td></tr><tr><td colspan="2">Total depth = 4.90 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.99</td><td>197.26</td></tr><tr><td>3.92</td><td>292.62</td></tr><tr><td>4.50</td><td>373.02</td></tr></table>	Vertical 17		Total depth = 4.90 m		Depth	Conc.	[m]	[mg/l]	0.99	197.26	3.92	292.62	4.50	373.02	<table><tr><td colspan="2">Vertical 18</td></tr><tr><td colspan="2">Total depth = 3.30 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.66</td><td>301.22</td></tr><tr><td>1.98</td><td>203.34</td></tr><tr><td>2.64</td><td>266.81</td></tr></table>	Vertical 18		Total depth = 3.30 m		Depth	Conc.	[m]	[mg/l]	0.66	301.22	1.98	203.34	2.64	266.81	<table><tr><td colspan="2">Vertical 19</td></tr><tr><td colspan="2">Total depth = 2.60 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>191.49</td></tr><tr><td>1.56</td><td>281.27</td></tr><tr><td>2.10</td><td>268.08</td></tr></table>	Vertical 19		Total depth = 2.60 m		Depth	Conc.	[m]	[mg/l]	0.50	191.49	1.56	281.27	2.10	268.08	<table><tr><td colspan="2">Vertical 20</td></tr><tr><td colspan="2">Total depth = 1.90 m</td></tr><tr><td>Depth</td><td>Conc.</td></tr><tr><td>[m]</td><td>[mg/l]</td></tr><tr><td>0.50</td><td>128.68</td></tr><tr><td>1.16</td><td>1226.81</td></tr></table>	Vertical 20		Total depth = 1.90 m		Depth	Conc.	[m]	[mg/l]	0.50	128.68	1.16	1226.81																				
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Ss(L1) = 3281 Ka/s

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Table 3.8 SUMMARY of RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Concentration

Date of Survey : 02 November 1993

Location : Jumuna River at Fulchari (Channel L-2)

Station No. 1

Vertical 1	
Total depth = 1.80 m	
Depth	Conc.
[m]	[mg/l]
0.50	347.89
1.08	253.26
1.44	225.75

Vertical 2	
Total depth = 5.30 m	
Depth	Conc.
[m]	[mg/l]
0.50	440.70
0.74	378.24
2.23	443.58
2.97	484.64
4.82	1242.09

Vertical 3	
Total depth = 4.40 m	
Depth	Conc.
[m]	[mg/l]
0.50	195.02
0.90	207.04
2.60	222.85
3.50	246.49
4.00	330.55

Vertical 4	
Total depth = 4.20	
Depth	Conc.
[m]	[mg/l]
0.50	520.87
2.41	983.83
3.21	1211.14
3.45	1851.74

Ss(L2)=483 Kg/s

Table 3.9 SUMMARY of RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Concentration

Date of Survey : 02 November 1993

Location : Jumuna River at Fulchari (Channel L-3)

Station No. 1

Vertical 1	
Total depth = 3.33 m	
Depth	Conc.
[m]	[mg/l]
0.50	223.48
1.56	291.41
2.08	282.37
2.67	282.19

Vertical 2	
Total depth = 5.40 m	
Depth	Conc.
[m]	[mg/l]
0.50	494.15
1.08	327.59
2.19	363.42
3.28	345.65
4.40	308.03
5.28	305.16

Vertical 3	
Total depth = 6.70 m	
Depth	Conc.
[m]	[mg/l]
0.50	227.70
1.27	238.05
2.64	372.44
3.78	243.46
5.12	332.91
6.26	306.51

Vertical 4	
Total depth = 6.30 m	
Depth	Conc.
[m]	[mg/l]
0.50	317.21
1.30	271.23
2.60	349.39
4.01	357.95
5.30	557.65
5.60	419.53

Vertical 5	
Total depth = 4.75 m	
Depth	Conc.
[m]	[mg/l]
0.50	288.45
0.98	391.27
2.88	541.57
3.84	825.14
4.06	1016.23

Vertical 6	
Total depth = 3.60 m	
Depth	Conc.
[m]	[mg/l]
0.50	414.74
1.01	413.46
2.15	814.14
2.88	841.07
3.01	1089.18

Vertical 7	
Total depth = 2.40 m	
Depth	Conc.
[m]	[mg/l]
0.50	252.38
1.45	353.97
1.91	412.10

Ss(L3)=1272 Kg/s

Table 3.10 SUMMARY of RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Concentration

Date of Survey : 02 November 1993
Location : Jumuna River at Bahadurabad (Channel L-4)
Station No. 1

Vertical 1	
Total depth = 2.80 m	
Depth	Conc.
[m]	[mg/l]
0.50	398.93
1.62	454.30
2.16	609.90

Vertical 2	
Total depth = 2.90 m	
Depth	Conc.
[m]	[mg/l]
0.50	306.18
1.68	413.65
2.30	415.79
2.43	334.01

Vertical 3	
Total depth = 2.90 m	
Depth	Conc.
[m]	[mg/l]
1.68	372.11
2.25	490.94

Ss(L4)=245 Kg/s

Table 3.11 SUMMARY of RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Grain size of bed material

Date of Survey : 31 Oct - 01 Nov, 1993

Location : Jumuna River at Bahadurabad (Channel L-1)

Station No. 1

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
DHA-1	31/10/93	11:27	0.079	0.107	0.133	0.221	1.612
DHA-2	31/10/93	13:53	0.182	0.290	0.353	0.807	1.893
DHA-3	31/10/93	16:11	0.136	0.159	0.181	0.276	1.331
DHC-3	01/11/93	11:51	0.182	0.266	0.307	0.454	1.540
DHC-2	01/11/93	09:51	0.143	0.172	0.199	0.386	1.525
DHC-1	01/11/93	08:30	0.090	0.136	0.158	0.237	1.583
DHC-4	31/10/93	15:28	0.126	0.197	0.266	0.442	1.826
DHC-3	31/10/93	14:05	0.054	0.073	0.087	0.178	1.627
DHC-2	31/10/93	11:27	0.274	0.317	0.355	0.480	1.294
DHC-1	31/10/93	11:22	0.162	0.237	0.287	0.452	1.621

Date of Survey : 02 November 1993

Location : Jumuna River at Fulchari (Channel L-2)

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
DHC-1	02/11/93	10:29	0.087	0.129	0.151	0.227	1.576
DHA-1	02/11/93	09:33	0.137	0.167	0.196	0.392	1.567

Date of Survey : 02 November 1993

Location : Jumuna River at Fulchari (Channel L-3)

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
DHA-2	02/11/93	10:55	0.137	0.181	0.227	0.432	1.690
DHA-3	02/11/93	13:32	0.102	0.141	0.163	0.239	1.489
DHC-2	02/11/93	13:52	0.065	0.077	0.089	0.147	1.364

Date of Survey : 02 November 1993

Location : Jumuna River at Bahadurabad (Channel L-4)

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
DHA-4	02/11/93	16:28	0.139	0.163	0.186	0.320	1.338

Table 3.12 SUMMARY OF RESULTS (grain Size of bed material)

River : Brahmaputra-Jamuna
Grain size of suspended sediment

Date of Survey : 31 Oct - 01 Nov, 1993

Location : Jumuna River at Bahadurabad (Channel L-1)

Station No. 1

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A2	31/10/93	11:33	0.009	0.023	0.053	0.122	3.982
A1	31/10/93	13:58	0.015	0.068	0.135	0.403	5.648
A1067	31/10/93	15:18	0.007	0.013	0.018	0.041	2.202
A27	01/11/93	12:00	0.021	0.088	0.145	0.368	4.501
A29	01/11/93	10:00	0.018	0.069	0.113	0.235	4.077
A6	01/11/93	08:37	0.010	0.027	0.051	0.186	4.030
A26	31/10/93	15:32	0.004	0.008	0.012	0.027	2.458
A452	31/10/93	14:11	0.006	0.014	0.020	0.051	2.717
A4	31/10/93	12:32	0.009	0.019	0.025	0.117	3.429
A7	31/10/93	11:27	0.006	0.013	0.018	0.046	2.528

Date of Survey : 02 November 1993

Location : Jumuna River at Fulchari (Channel L-2)

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A5	02/11/93	10:34	0.006	0.015	0.023	0.117	3.960
A16	02/11/93	09:39	0.013	0.028	0.047	0.165	3.106

Date of Survey : 02 November 1993

Location : Jumuna River at Fulchari (Channel L-3)

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A8	02/11/93	11:07	0.012	0.064	0.124	0.242	6.050
A853	02/11/93	13:45	0.007	0.015	0.025	0.114	3.706
A454	02/11/93	13:19	0.014	0.030	0.046	0.120	2.806

Date of Survey : 02 November 1993

Location : Jumuna River at Bahadurabad (Channel L-4)

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A23	02/11/93	16:33	0.007	0.013	0.020	0.115	3.654

Table 3.13 SUMMARY OF RESULTS (grain size of suspended sediment)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	09:37:58	10:00:23	B3AV1T01*				T	T	T	T	T					
Transect	10:35:07	10:58:55	B3AV1T02				T	T	T	T	T					
Profile	11:31:13	11:42:09	B3AV1P01	1	470503	777504	P	P	P	P	P	5	1	-	-	1
Profile	12:18:03	12:59:09	B3AV1P02	2	470388	777499	P	P	P	P	P	5	-	-	-	-
Profile	13:28:18	14:07:00	B3AV1P03	3	470299	777506	P	P	P	P	P	6	1			1
Profile	14:36:37	15:31:00	B3AV1P04	4	470192	777504	P	P	P	P	P	6	-	-	-	-
Profile	15:46:10	16:25:33	B3AV1P05	5	470101	777509	P	P	P	P	P	6	1	-	-	1
Profile	16:33:50	16:45:20	B3AV2P09	12	469247	777507	P	P	P		P	3	-	-	-	-
Profile	15:24:52	15:50:47	B3AV2P08	13	469136	777596	P	P	P	P	P	4	1	-	-	1
Profile	14:41:51	14:48:04	B3AV2P07	14	469036	777496	P	P	P	P	P	3	-	-	-	-
Profile	14:01:48	14:21:57	B3AV2P06	15	468944	777501	P	P	P	P	P	3	1	-	-	1
Profile	13:14:57	13:48:09	B3AV2P05	16	468845	777499	P	P	P	P	P	6	-	-	-	-
Profile	12:22:23	12:34:40	B3AV2P04	17	468758	777505	P	P	P	P	P	3	1	-	-	1
Profile	11:57:03	12:16:38	B3AV2P03	18	468546	777503	P	P	P		P	3	-	-	-	-
Profile	11:22:37	11:40:19	B3AV2P02	19	468361	777502	P	P	P	P	P	3	1	-	-	1
Profile	10:57:41	12:15:25	B3AV2P01	20	468136	777498	P	P	P	P	P	2	-	-	-	-
Transect	16:51:16	17:12:06	B3AV1T03				T	T	T	T	T					
Transect	17:13:33	17:35:12	B3AV1T04				T	T	T	T	T					

* transect in FAP 24 data base

Date of Survey : 31 October 1993
Location : Jumuna River at Bahadurabad (Channel L-1)
Station No. 1

Table 2.1 SURVEY PROGRAMME AS MADE

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	08:21:43	08:53:50	B3B11T01				T	T	T	T	T					
Transect	08:45:34	09:07:25	B3B11T02				T	T	T	T	T					
Profile	10:23:47	11:18:35	B3B11P02	6	469993	777506	P	P	P	P	P	6	-	-	-	-
Profile	11:36:41	12:21:29	B3B12P06	7	469898	777500	P	P	P	P	P	6	1	-	-	1
Profile	10:43:56	11:01:11	B3B12P04	8	469791	777502	P	P	P	P	P	4	-	-	-	-
Profile	09:47:19	10:09:10	B3B12P03	9	469615	777497	P	P	P	P	P	4	1	-	-	1
Profile	09:12:24	09:31:43	B3B12P02	10	469444	777498	P	P	P	P	P	3	-	-	-	-
Profile	08:10:50	08:48:23	B3B12P01	11	469339	777503	P	P	P	P	P	6	1	-	-	1
Transect	11:30:45	11:51:48	B3B11T03				T	T	T	T	T					
Transect	11:53:39	12:15:04	B3B11T04				T	T	T	T	T					

Date of Survey : 1 November 1993

Location : Jumuna River at Bahadurabad (Channel L-1)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	11:34:00	11:54:44	B3B31T05				T	T	T	T	T					
Transect	11:59:29	12:18:47	B3B31T06				T	T	T	T	T					

Date of Survey : 3 November 1993

Location : Jumuna River at Bahadurabad (Channel L-1)

Station No. 1

Table 2.2 SURVEY PROGRAMME AS MADE

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
	Transect	16:13:54	16:17:49	B3B11T07				T	T	T	T					
Transect	16:20:30	16:24:23	B3B11T08				T	T	T	T						

Date of Survey : 1 November 1993
Location : Jumuna River at Fulchari (Channel L-2)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	08:48:19	08:52:04	B3B21T03				T	T	T	T	T					
Transect	08:57:32	09:00:48	B3B21T04				T	T	T	T	T					
Transect	14:53:39	14:58:02	B3B21T07				T	T	T	T	T					
Transect	14:59:42	15:03:43	B3B21T08				T	T	T	T	T					
Profile	10:25:51	10:43:31	B3B22P04	1	461722	785091	P	P	P	P	P	3	1	-	-	1
Profile	09:49:31	10:09:10	B3B22P03	2	461785	785054	P	P	P	P	P	5	-	-	-	-
Profile	09:14:30	09:47:38	B3B21P01	3	461848	785025	P	P	P	P	P	5	1	-	-	1
Profile	14:44:09	15:02:33	B3B22P09	4	461915	784987	P	P	P	P	P	5	-	-	-	-

Date of Survey : 2 November 1993
Location : Jumuna River at Fulchari (Channel L-2)

Table 2.3 SURVEY PROGRAMME AS MADE

28A

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	10:25:18	10:29:00	B3B31T03*				T	T	T	T	T					
Transect	10:30:51	10:33:39	B3B31T04				T	T	T	T	T					
* transect in FAP 24 data base																

Date of Survey : 3 November 1993
Location : Jumuna River at Fulchari (Channel L-2)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	15:33:08	15:40:45	B3B11T05*				T	T	T	T	T					
Transect	15:44:31	15:52:39	B3B11T06				T	T	T	T	T					
* transect in FAP 24 data base																

Date of Survey : 1 November 1993
Location : Jumuna River at Fulchari (Channel L-3)
Station No. 1

Table 2.4 SURVEY PROGRAMME AS MADE

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreassen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples	
Transect	08:02:01	08:09:08	B3B21T01				T	T	T	T	T						
Transect	08:10:40	08:17:44	B3B21T02				T	T	T	T	T						
Profile	11:24:09	11:42:03	B3B22P05	1	460855	784437	P	P	P	P	P	4	-	-	-	-	
Profile	10:31:37	11:15:34	B3B21P02	2	460756	784421	P	P	P	P	P	6	1	-	-	1	
Profile	11:48:35	12:30:29	B3B21P03	3	460656	784380	P	P	P	P	P	6	-	-	-	-	
Profile	13:15:28	13:54:08	B3B21P04	4	460563	784337	P	P	P	P	P	6	1	-	-	1	
Profile	12:12:35	12:32:57	B3B22P06	5	460478	780313	P	P	P	P	P	5	-	-	-	-	
Profile	13:07:30	13:27:54	B3B22P07	6	460285	784247	P	P	P	P	P	5	1	-	-	1	
Profile	13:48:03	14:09:56	B3B22P08	7	460148	784197	P	P	P	P	P	3	-	-	-	-	
Transect	14:19:08	14:26:29	B3B21T05				T	T	T	T	T						
Transect	14:28:41	14:36:13	B3B21T06				T	T	T	T	T						

Date of Survey : 2 November 1993
Location : Jumuna River at Fulchari (Channel L-3)
Station No. 1

Table 2.5 SURVEY PROGRAMME AS MADE

289

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	09:53:11	10:00:33	B3B31T01				T	T	T	T	T					
Transect	10:02:03	10:08:32	B3B31T02				T	T	T	T	T					

Date of Survey : 3 November 1993
Location : **Jumuna** River at Fulchhari (Channel L-3)
Station No. 1

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Profile	08:12:12	08:21:41	B3B32P01	1	466301	779672	P	P	P	P	P	-	-	-	-	-
Profile	08:30:06	08:39:00	B3B32P02	2	466293	779755	P	P	P	P	P	-	-	-	-	-
Profile	08:47:20	08:58:36	B3B32P03	3	466302	779823	P	P	P	P	P	-	-	-	-	-

Date of Survey : 3 November 1993
Location : **Jumuna** River at Bahadurabad (Channel L-4)
Station No. 1

Table 2.6 SURVEY PROGRAMME AS MADE

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Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A612,A620,A648,A611,A610	5	1
	A666,A628,A636,A622,A667	5	2
	A613,A687,A633,A607,A605,A606	6	3
	A827,A635,A617,A643,A834,A803	6	4
	A416,A405,A848,A417,A411,A415	6	5
	A1062,A835,A822,A799,A825,A820	6	6
	A131,A150,A176,A157,A169,A156	6	7
	A158,A148,A184,A173	4	8
	A154,A146,A177,A170	4	9
	A149,A166,A183	3	10
	A171,A167,A151,A192,A152,A147	6	11
	A1100,A1106,A1094	3	12
	A1103,A1089,A1088,A1081	4	13
	A1078,A1091,A1097	3	14
	A1090,A1102,A1108	3	15
	A1125,A1118,A1121,A1120,A1096,A1084	6	16
	A1119,A1128,A1124	3	17
	A1122,A1123,A1124	3	18
	A1126,A1123,A1130	3	19
	A1129,A1131	2	20
Andreasen Tube Samples	A2	1	1
	A1	1	3
	A1067	1	5
	A27	1	7
	A29	1	9
	A6	1	11
	A26	1	13
	A452	1	15
	A4	1	17
Vanveen Samples	A7	1	19
	DHA-1	1	1
	DHA-2	1	3
	DHA-3	1	5
	DHC-3	1	7
	DHC-2	1	9
	DHC-1	1	11
	DHC-4	1	13
	DHC-3	1	15
	DHC-2	1	17
	DHC-1	1	19

Date of Survey : 31 Oct - 01 Nov, 1993

Location : Jumuna River at Bahadurabad (Channel L-1)

Station No. 1

Table 2.7 List of Sediment Samples

Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A775,A762,A777	3	1
	A760,A778,A776,A764,A768	5	2
	A823,A849,A830,A818,A821	5	3
	A676,A766,A750,A765,A773	5	4
Andreasen Tube Samples	A5	1	1
	A16	1	3
Vanveen Samples	DHC-1	1	1
	DHA-1	1	3

Date of Survey : 02 November 1993

Location : Jumuna River at Fulchari (Channel L-2)

Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A779,A772,A769,A752	4	1
	A824,A814,A831,A833,A832,A413	6	2
	2,3,5,6,7,8	6	3
	9,10,11,12,13,4	6	4
	A143,A770,A771,A761,A774	5	5
	A780,A132,A135,A153,A1117	5	6
	A1095,A1083,A1082	3	7
Andreasen Tube Samples	A8	1	2
	A853	1	4
	A454	1	6
Vanveen Samples	DHA-2	1	2
	DHA-3	1	4
	DHC-2	1	6

Date of Survey : 02 November, 1993

Location : Jumuna River at Fulchari (Channel L-3)

Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A1113,A1112,A1093	3	1
	15,16,18,17	4	2
	A1116,A1104,A1115	3	3
Andreasen Tube Samples	A23	1	2
Vanveen Samples	DHC-4	1	2

Date of Survey : 02 November 1993

Location : Jumuna River at Bahadurabad (Channel L-4)

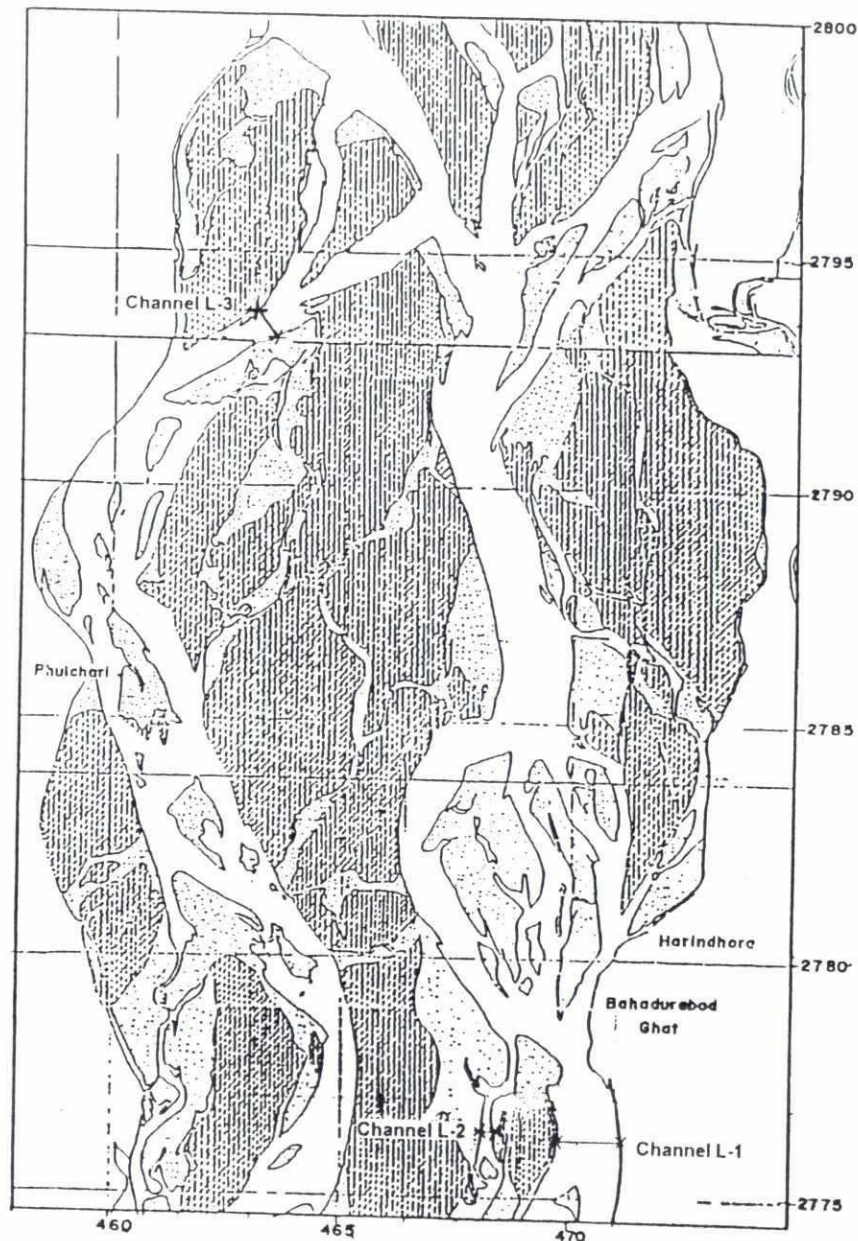
Station No. 1

Table 2.8 List of Sediment Samples

202

Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B3AV1T01 .ase
ADCP/S4/EMF	2	QUATTRO	B3B31T03 .ase
ADCP/S4/EMF	3	QUATTRO	B3B11T05 .ase
Echosounder	1	QUATTRO	B3AV1T01 .ech
Echosounder	2	QUATTRO	B3B31T03 .ech
Echosounder	3	QUATTRO	B3B11T05 .ech
Sediment transport data	1	QUATTRO	B3AV1T01 .sed
Sediment transport data	2	QUATTRO	B3B31T03 .sed
Sediment transport data	3	QUATTRO	B3B11T05 .sed
Bed load sediment analysis	1	QUATTRO	B3AV1T01 .bdl
Bed load sediment analysis	2	QUATTRO	B3B31T03 .bdl
Bed load sediment analysis	3	QUATTRO	B3B11T05 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B3AV1T01 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B3B31T03 .ssc
Suspended sed. conc. analysis	3	QUATTRO	B3B11T05 .ssc
Transect plot data	1	QUATTRO	B3AV1T01 .trs
Transect plot data	2	QUATTRO	B3B31T03 .trs
Transect plot data	3	QUATTRO	B3B11T05 .trs
Iso-velocity plot data	1	MIKE 21	B3AV1T01 .ct2
Iso-velocity plot data	2	MIKE 21	B3AV1T01 .dt2
Iso-velocity plot data	3		
Iso-velocity plot data	1	MIKE 21	B3B31T03 .ct2
Iso-velocity plot data	2	MIKE 21	B3B31T03 .dt2
Iso-velocity plot data	3		
Iso-velocity plot data	1	MIKE 21	B3B11T05 .ct2
Iso-velocity plot data	2	MIKE 21	B3B11T05 .dt2
Iso-velocity plot data	3		

Table 5.1 PSD 24 Database file description



LEGEND:-

- X—X Measurement cross section
- High land
- Unstable/low char
- BWDB Embankment



500m 250m 0

Map is based on satellite images of March, 1993



RIVER SURVEY PROJECT

Delft Hydraulics/Danish Hydraulic Institute
in association with Orling/Approach/Hydroland

Survey Bulletin No.27 - Dec, 1993

Location No.1 : Jamuna River at Bahadurabad

File:

Date:

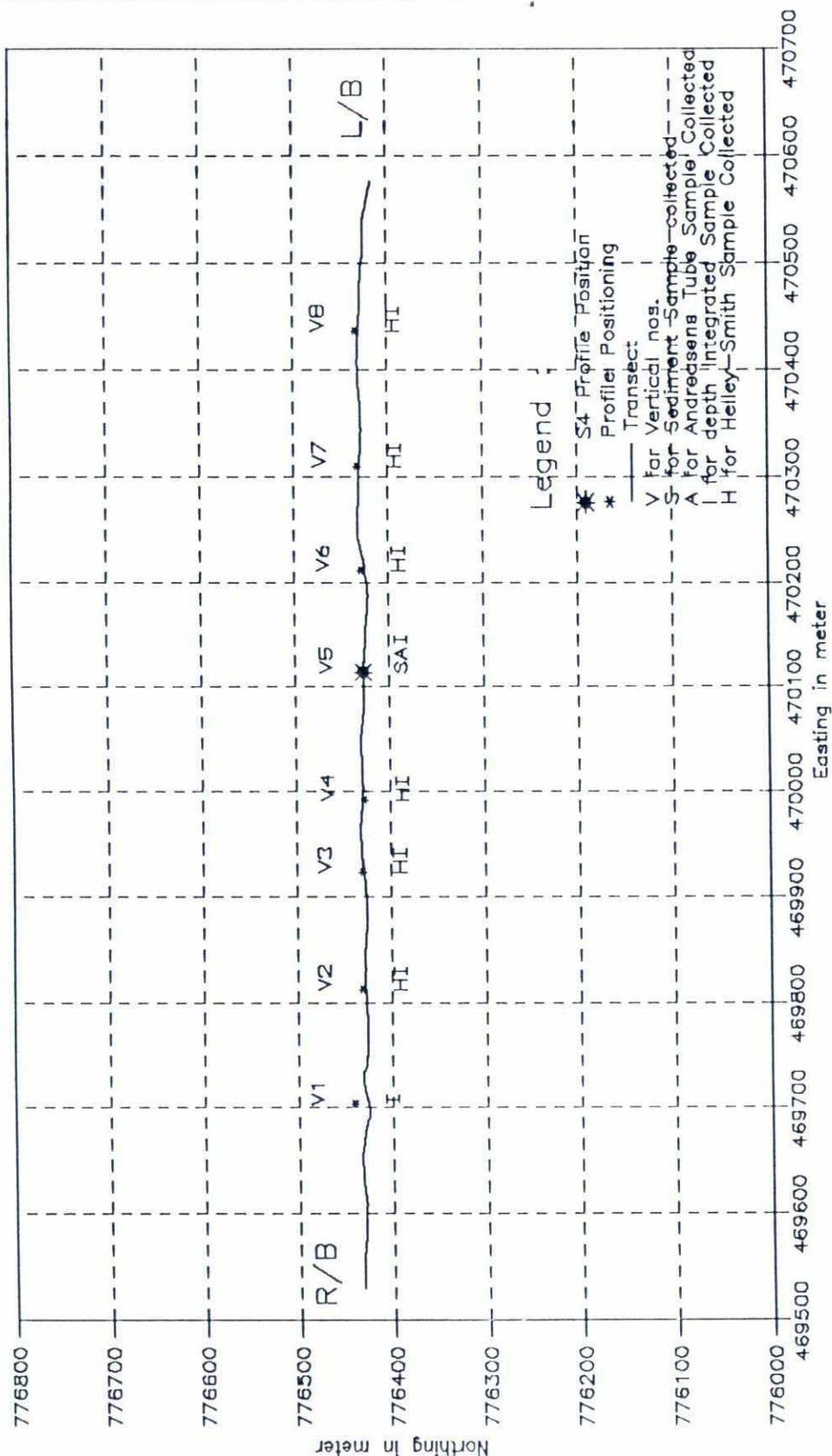
Scale:

Init:

KEY PLAN

Fig.

206



FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

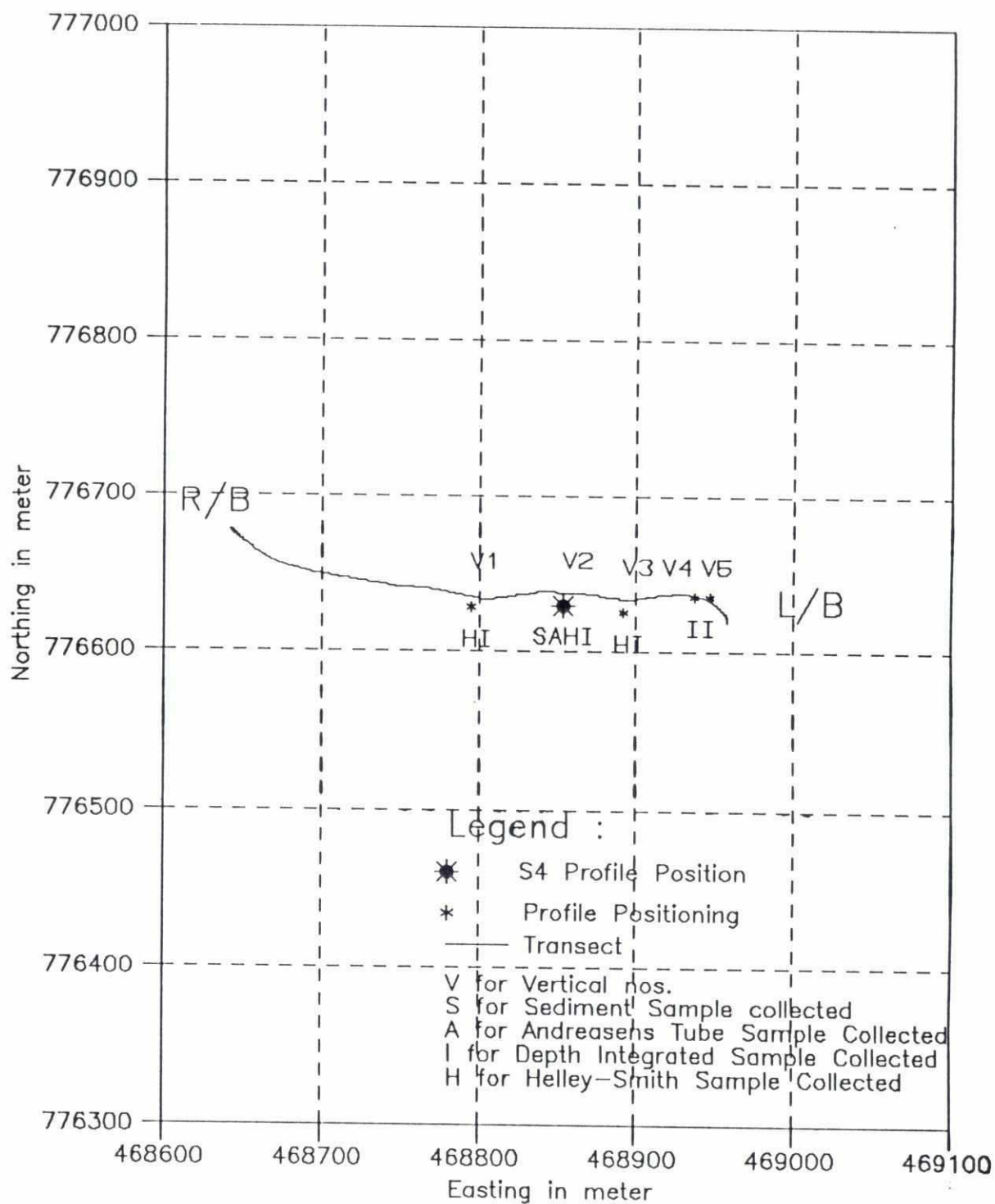
Survey Bulletin 27 : December 1993

Location 1 : Jumuna River, Bahadurabad (channel L-1)

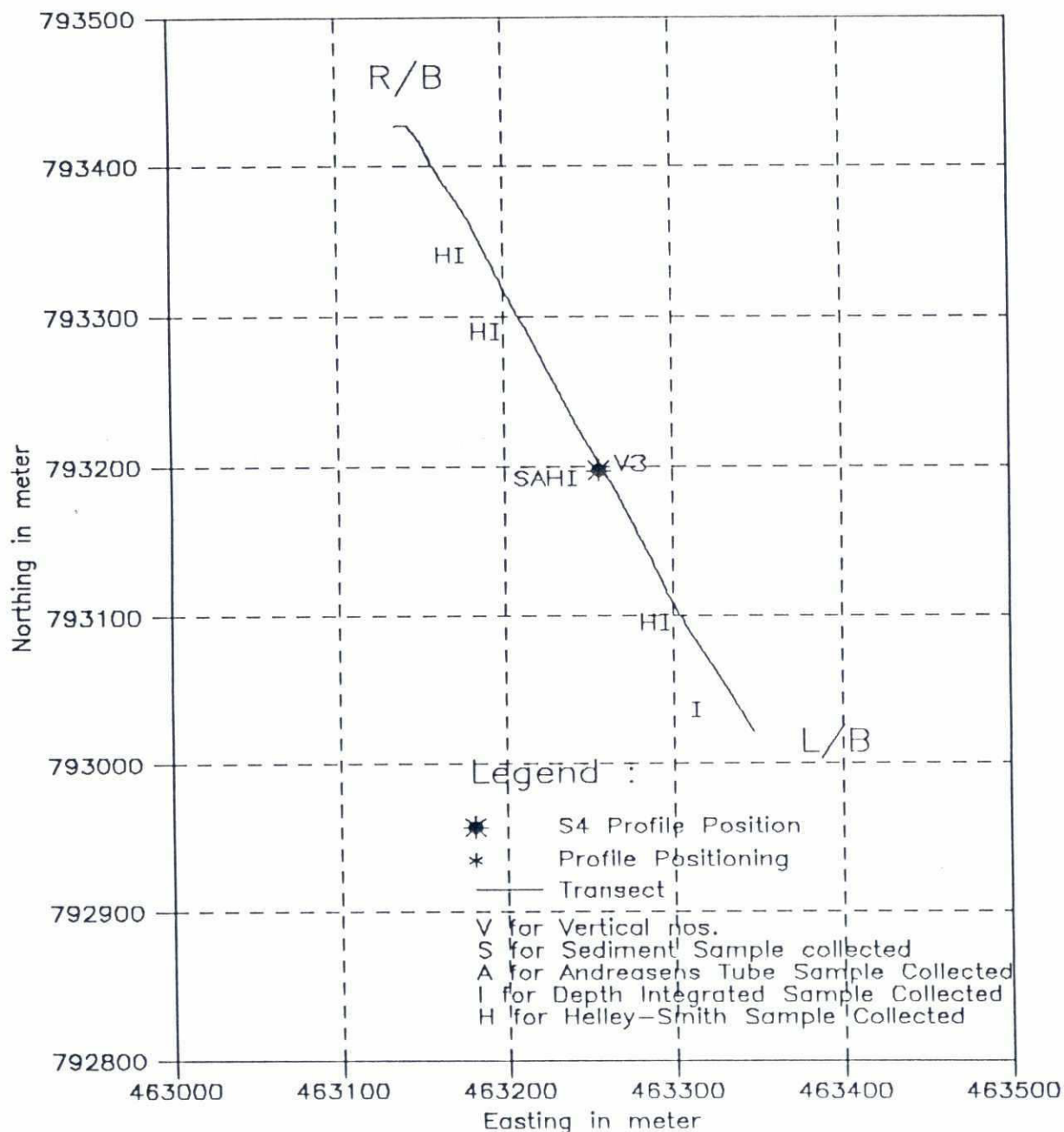
Date

Init

Location of Measurements



FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 27 : December 1993	
		Location 1 : Jumuna River, Bahadurabad (channel L-2)	
	Date	Location of Measurements	
	Init		



River : Brahmaputra-Jamuna
ADCP/EMF Discharge

Date of Survey : 10 December 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Date	Transect	Bank		Level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
10-12-93	B3CA1T04	Left	Right	14.45	1084	6548	4749
10-12-93	B3CA1T06	Right	Left	14.45	1174	6537	5071
10-12-93	B3CA1T07	Left	Right	14.45	1164	6595	4546
10-12-93	B3CA1T08	Right	Left	14.45	1153	6648	4862

Date of Survey : 11 December 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Date	Transect	Bank		Level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
11-12-93	B3CBT01	Right	Left	14.42	361	1450	1010
11-12-93	B3CBT02	Left	Right	14.42	335	1552	1075
11-12-93	B3CBT03	Left	Right	14.42	338	1521	933
11-12-93	B3CBT04	Right	Left	14.42	369	1534	1040

Date of Survey : 12 December 1993

Location : Jamuna River at Fulchari (Channel L-3)

Date	Transect	Bank		Level (m+PWD)	Width (m)	Area (sq.m)	Discharge (cumec)
		From	To				
12-12-93	B3CC1T01	Right	Left	13.19	493	1717	957
12-12-93	B3CC1T02	Left	Right	13.19	467	1669	971
12-12-93	B3CC1T03	Left	Right	13.19	510	1681	1066
12-12-93	B3CC1T04	Right	Left	13.19	501	1724	968

Table 3.1 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Brahmaputra-Jamuna

S4 Velocity

Date of Survey : 10 December 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Vertical 5	
Total depth = 9.10 m	
Depth	Velocity.
[m]	[m/s]
0.50	1.25
1.80	1.27
3.60	1.26
5.50	1.12
7.30	1.04
8.60	0.89

Location : Jamuna River at Bahadurabad (Channel L-2)

Vertical 2	
Total depth = 6.90 m	
Depth	Velocity.
[m]	[m/s]
0.50	0.76
1.40	0.82
2.80	0.83
4.10	0.82
5.50	0.78
6.40	0.62

Location : Jamuna River at Fulchari (Channel L-3)

Vertical 3	
Total depth = 4.80 m	
Depth	Velocity.
[m]	[m/s]
0.50	0.62
1.00	0.50
1.90	0.67
2.90	0.58
3.80	0.52
4.30	0.51

Table 3.2 SUMMARY OF RESULTS (S4 Current)

River : Brahmaputra-Jamuna
Concentration

Date of Survey : 10 December 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Vertical 5	
Total depth = 9.10 m	
Depth	Velocity.
[m]	[m/s]
0.50	63.51
1.80	91.80
3.60	95.07
5.50	109.91
7.30	111.33
8.60	164.59

Location : Jamuna River at Bahadurabad (Channel L-2)

Vertical 2	
Total depth = 6.90 m	
Depth	Velocity.
[m]	[m/s]
0.50	92.45
1.40	115.09
2.80	114.00
4.10	134.55
5.50	138.87
6.40	146.52

Location : Jamuna River at Fulchari (Channel L-3)

Vertical 3	
Total depth = 4.80 m	
Depth	Velocity.
[m]	[m/s]
0.50	137.39
1.00	131.01
1.90	143.27
2.90	157.06
3.80	154.52
4.30	161.16

Table 3.3 SUMMARY OF RESULTS (Suspended Sediment Concentration)

River : Brahmaputra-Jamuna
Depth integrated concentration

Date of Survey : 10 December 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Sample No.	Vertical No.	Date	Time	Total Depth (m)	Concentration (mg/l)
A49	1	10/12/93	13:45	10.00	207.30
A339	2	10/12/93	13:59	3.70	282.09
A723	3	10/12/93	14:17	6.10	146.51
A342	4	10/12/93	14:37	7.80	125.98
A918	5	10/12/93	12:15	9.10	185.09
E108	6	10/12/93	15:13	7.70	82.27
E110	7	10/12/93	15:44	5.10	180.68
E104	8	10/12/93	16:05	3.20	70.27

Date of Survey : 11 December 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

* : Data invalid

Sample No.	Vertical No.	Date	Time	Total Depth (m)	Concentration (mg/l)
A717	1	11/12/93	09:52	7.40	1030.78*
A913	2	11/12/93	10:12	6.90	137.86
A907	3	11/12/93	11:32	5.20	247.48
A876	4	11/12/93	11:53	2.40	202.05
A886	5	11/12/93	12:08	2.60	441.73

Date of Survey : 12 December 1993

Location : Jamuna River at Fulchari (Channel L-3)

Sample No.	Vertical No.	Date	Time	Total Depth (m)	Concentration (mg/l)
A920	1	12/12/93	10:21	3.80	101.12
A343	2	12/12/93	11:00	4.10	119.96
A354	3	12/12/93	11:25	4.80	107.70
A358	4	12/12/93	12:35	3.90	97.32
A334	5	12/12/93	12:55	2.50	91.68

Table 3.4 SUMMARY OF RESULTS (depth integrated concentration)

River : Brahmaputra-Jamuna
Bed load

Date of Survey : 10 December 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
2	0.006414	0.028344
3	0.007654	0.008498
4	0.003535	0.004606
5	0.009814	0.013980
6	0.010526	0.003785
7	0.005222	0.009265
8	0.014254	0.000746

Date of Survey : 11 December 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.012884	0.006086
2	0.000881	0.000756
3	0.000757	0.001811

Date of Survey : 12 December 1993

Location : Jamuna River at Fulchari (Channel L-3)

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.001487	0.000497
2	0.000145	0.000523
3	0.000760	0.002315
4	0.000465	0.008333

Table 3.5 SUMMARY of RESULTS (sediment transport, bed load)

River : Brahmaputra-Jamuna

Grain size of suspended sediment

Date of Survey : 10 December 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A15	10/12/93	12:28	0.007	0.013	0.024	0.107	3.568

Date of Survey : 11 December 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A1074	11/12/93	10:42	0.007	0.015	0.027	0.120	3.780

Date of Survey : 12 December 1993

Location : Jamuna River at Fulchari (Channel L-3)

Sample No.	Date	Time	D16 (mm)	D35 (mm)	D50 (mm)	D90 (mm)	Standard Deviation
A729	12/12/93	11:59	0.009	0.012	0.017	0.100	2.297

Table 3.6 SUMMARY OF RESULTS (grain size of suspended sediment)

River : Brahmaputra-Jamuna
Grain size of bed load

Date of Survey : 10 December 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A32	10/12/93	14:07	0.228	0.280	0.334	1.605
A335	10/12/93	14:24	0.215	0.269	0.324	1.621
A900	10/12/93	14:17	0.237	0.287	0.340	1.593
A333	10/12/93	10:22	0.246	0.292	0.344	1.588
A711	10/12/93	14:37	0.262	0.305	0.354	1.560
A355	10/12/93	14:40	0.131	0.153	0.177	1.553
A31	10/12/93	11:57	0.282	0.323	0.369	1.449
A36	10/12/93	12:16	0.302	0.340	0.382	1.307
E106	10/12/93	15:13	0.228	0.281	0.335	1.608
E107	10/12/93	15:23	0.241	0.289	0.342	1.599
E111	10/12/93	15:44	0.233	0.284	0.337	1.604
E109	10/12/93	15:50	0.207	0.258	0.316	1.616
A904	10/12/93	16:02	0.170	0.203	0.242	1.628
A924	10/12/93	16:08	0.189	0.229	0.288	1.636

Date of Survey : 11 December 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A47	11/12/93	10:00	0.304	0.345	0.388	1.306
A336	11/12/93	09:55	0.298	0.337	0.382	1.327
A915	11/12/93	10:23	0.273	0.315	0.364	1.529
A916	11/12/93	10:36	0.222	0.277	0.334	1.635
A881	11/12/93	11:30	0.194	0.241	0.303	1.666
A887	11/12/93	11:35	0.189	0.229	0.285	1.620

Date of Survey : 12 December 1993

Location : Jamuna River at Fulchari (Channel L-3)

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A359	12/12/93	10:25	0.287	0.328	0.374	1.424
A917	12/12/93	10:32	0.294	0.334	0.379	1.341
A337	12/12/93	10:56	0.258	0.303	0.355	1.584
A338	12/12/93	11:05	0.290	0.330	0.375	1.378
A903	12/12/93	11:42	0.304	0.342	0.384	1.302
A921	12/12/93	11:56	0.308	0.346	0.388	1.297
A365	12/12/93	12:30	0.287	0.326	0.371	1.406
A366	12/12/93	12:35	0.299	0.337	0.381	1.317

Table 3.7 SUMMARY of RESULTS (grain size bed load)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples	
Transect	10:41:10	10:49:47	B3CA1T04*				T	T	T								
Transect	10:59:59	11:09:34	B3CA1T06				T	T	T								
Transect	16:20:15	16:28:41	B3CA1T07				T	T	T								
Transect	16:30:39	16:40:25	B3CA1T08				T	T	T								
Profile	13:41:50	13:47:20	B3CA1P02	1	469703	776441	P	P	P								
Profile	13:59:38	14:07:00	B3CA1P03	2	469812	776432	P	P	P						-	1	
Profile	14:17:18	14:24:24	B3CA1P04	3	469923	776431	P	P	P						2	1	
Profile	14:35:38	14:37:15	B3CA1P05	4	469991	776428	P	P	P						2	1	
Profile	11:57:28	12:46:00	B3CA1P01	5	470114	776428	P	P	P	P	P		6		2	1	
Profile	15:13:17	15:26:32	B3CA1P07	6	470212	776430	P	P	P						2	1	
Profile	15:44:07	15:53:45	B3CA1P08	7	470309	779433	P	P	P						2	1	
Profile	16:02:46	16:10:24	B3CA1P09	8	470436	776434	P	P	P						2	1	

* transect in PSD 24 data base

* transect in PSD 24 data base

Date of Survey : 10 December 1993
Location : Jamuna River at Bahadurabad (Channel L-1)
Station No. 1

Table 2.1 SURVEY PROGRAMME AS MADE

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Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING								
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples				
Transect	09:07:31	09:10:42	B3CB1T01*					T	T	T										
Transect	09:12:32	09:16:14	B3CB1T02					T	T	T										
Transect	12:23:32	12:27:22	B3CB1T03					T	T	T										
Transect	12:31:06	12:35:16	B3CB1T04					T	T	T										
Profile	09:52:23	10:00:48	B3CB1P01	1	468795	776628		P	P	P								2		1
Profile	10:12:09	10:57:07	B3CB1P02	2	468854	776629		P	P	P								2		1
Profile	11:30:22	11:36:13	B3CB1P03	3	468892	776625		P	P	P								2		1
Profile	11:53:38	12:00:00	B3CB1P04	4	468937	776635		P	P	P								-		1
Profile	12:08:18	12:16:42	B3CB1P05	5	468947	776635		P	P	P								-		1

transect in PSD 24 data base

* transect in PSD 24 data base

Date of Survey : 11 December 1993
 Location : Jamuna River at Bahadurabad (Channel L-2)
 Station No. 1

Table 2.2 SURVEY PROGRAMME AS MADE

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING				SEDIMENT TRANSPORT GAUGING						
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreassen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples	
Transect	09:16:57	09:21:31	B3CC1T01*					T	T	T							
Transect	09:25:55	09:31:18	B3CC1T02					T	T	T							
Transect	13:27:18	13:32:06	B3CC1T03					T	T	T							
Transect	13:34:13	13:38:30	B3CC1T04					T	T	T							
Profile	10:22:51	10:32:00	B3CC1P01	1	463187	793342		P	P	P					2	1	
Profile	10:56:25	11:06:13	B3CC1P02	2	463208	793292		P	P	P					2	1	
Profile	11:31:20	12:08:09	B3CC1P03	3	463256	793197		P	P	P	P		5		2	1	
Profile	12:30:08	12:42:15	B3CC1P04	4	463308	793098		P	P	P					2	1	
Profile	12:52:13	13:00:28	B3CC1P05	5	463336	793039		P	P	P					-	1	
* transect in PSD 24 data base																	

* transect in PSD 24 data base

Date of Survey : 12 December 1993
Location : Jamuna River at Fulchari (Channel L-3)
Station No. 1

Table 2.3 SURVEY PROGRAMME AS MADE

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Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A962,A96,A978,A964,A968,A971	6	5
Depth Integrated samples	A49	1	1
	A339	1	2
	A723	1	3
	A342	1	4
	A918	1	5
	E108	1	6
	E110	1	7
	E104	1	8
Andreasen Tube Sample	A15	1	5
Helley-Smith Samples	A32,A335	2	2
	A900,A333	2	3
	A711,A355	2	4
	A31,A36	2	5
	E106,E107	2	6
	E111,E109	2	7
	A904,A924	2	8

Date of Survey : 10 December 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A988,A976,A990,A979,A980,A961	6	2
Depth Integrated samples	A714	1	1
	A913	1	2
	A907	1	3
	A876	1	4
	A886	1	5
Andreasen Tube Sample	A1076	1	2
Helley-Smith Samples	A47,A336	2	1
	A915,A916	2	2
	A881,A887	2	3
	A31,A36	2	4

Date of Survey : 11 December 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Station No. 1

Table 2.4 List of Sediment Samples

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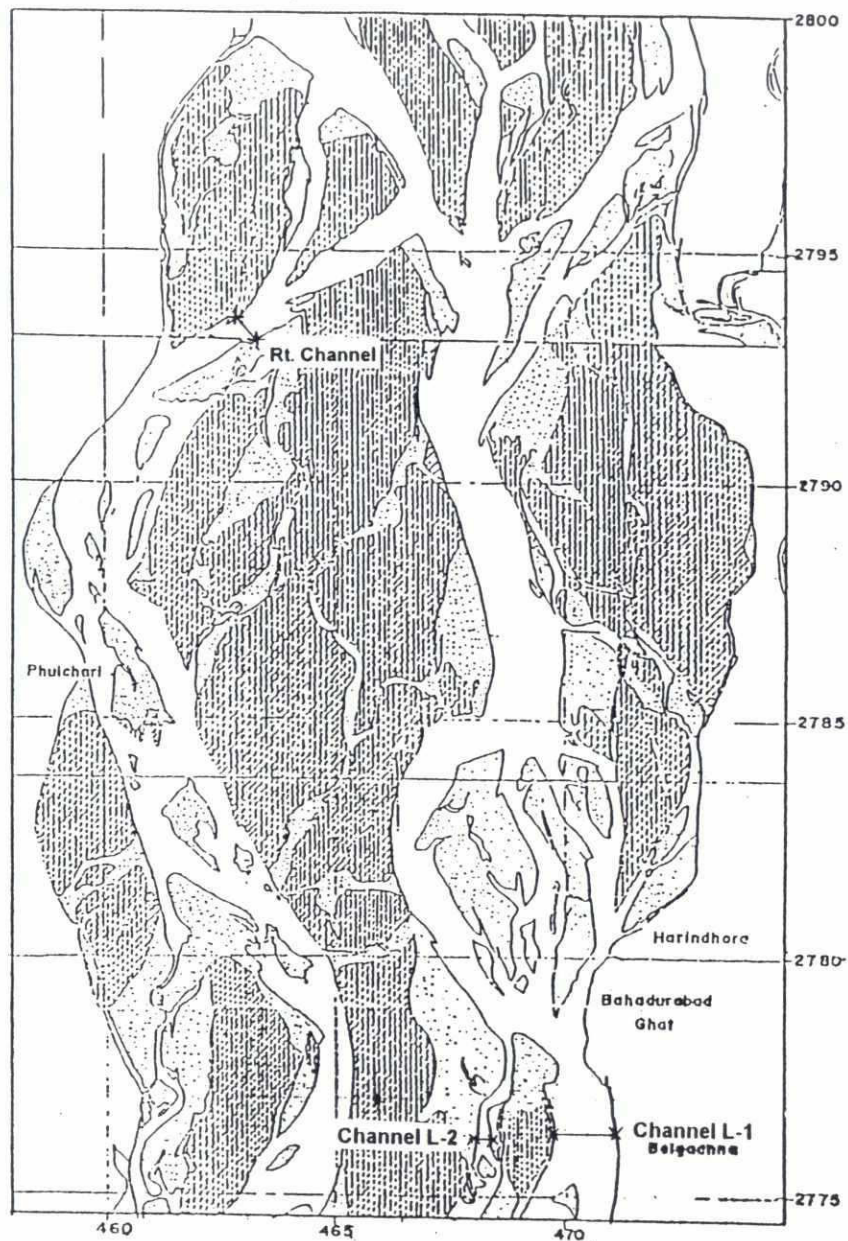
Type Of Samples	Sample	Total	Vertical
	Nos.	Sample Nos.	No.
Point Integrated Samples	A1013,A991,A957,A958,A1002,A963	6	3
Depth Integrated samples	A920	1	1
	A343	1	2
	A354	1	3
	A358	1	4
	A334	1	5
Andreasen Tube Sample	A728	1	3
Helley-Smith Samples	A359,A917	2	1
	A337,A338	2	2
	A903,A921	2	3
	A365,A366	2	4

Date of Survey : 12 December 1993
 Location : Jamuna River at Fulchari (Channel L-3)
 Station No. 1

Table 2.5 List of Sediment Samples

Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B3CA1T04 .ase
ADCP/S4/EMF	2	QUATTRO	B3CB1T01 .ase
ADCP/S4/EMF	3	QUATTRO	B3CC1T01 .ase
Echosounder	1	QUATTRO	B3CA1T04 .ech
Echosounder	2	QUATTRO	B3CB1T01 .ech
Echosounder	3	QUATTRO	B3CC1T01 .ech
Sediment transport data	1	QUATTRO	B3CA1T04 .sed
Sediment transport data	2	QUATTRO	B3CB1T01 .sed
Sediment transport data	3	QUATTRO	B3CC1T01 .sed
Bed load sediment analysis	1	QUATTRO	B3CA1T04 .bdl
Bed load sediment analysis	2	QUATTRO	B3CB1T01 .bdl
Bed load sediment analysis	3	QUATTRO	B3CC1T01 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B3CA1T04 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B3CB1T01 .ssc
Suspended sed. conc. analysis	3	QUATTRO	B3CC1T01 .ssc
Transect plot data	1	QUATTRO	B3CA1T04 .trs
Transect plot data	2	QUATTRO	B3CB1T01 .trs
Transect plot data	3	QUATTRO	B3CC1T01 .trs
Iso-velocity plot data	1	MIKE 21	B3CA1T04 .ct2
Iso-velocity plot data	1	MIKE 21	B3CA1T04 .dt2
Iso-velocity plot data	1		
Iso-velocity plot data	2	MIKE 21	B3CB1T01 .ct2
Iso-velocity plot data	2	MIKE 21	B3CB1T01 .dt2
Iso-velocity plot data	2		
Iso-velocity plot data	3	MIKE 21	B3CC1T01 .ct2
Iso-velocity plot data	3	MIKE 21	B3CC1T01 .dt2
Iso-velocity plot data	3		

Table 5.1 PSD 24 Database file description



LEGEND:-

- Measurement cross section
- High land
- Unstable/low char
- BWDB Embankment

Map is based on most recent satellite images of March, 1993.



RIVER SURVEY PROJECT

Delft Hydraulics/Danish Hydraulic Institute
in association with Osiris/Approtech/Hydroland

Survey Bulletin No.28 - Jan, 1994

Location No.1 : Jamuna River at Bahadurabad

File:

Date:

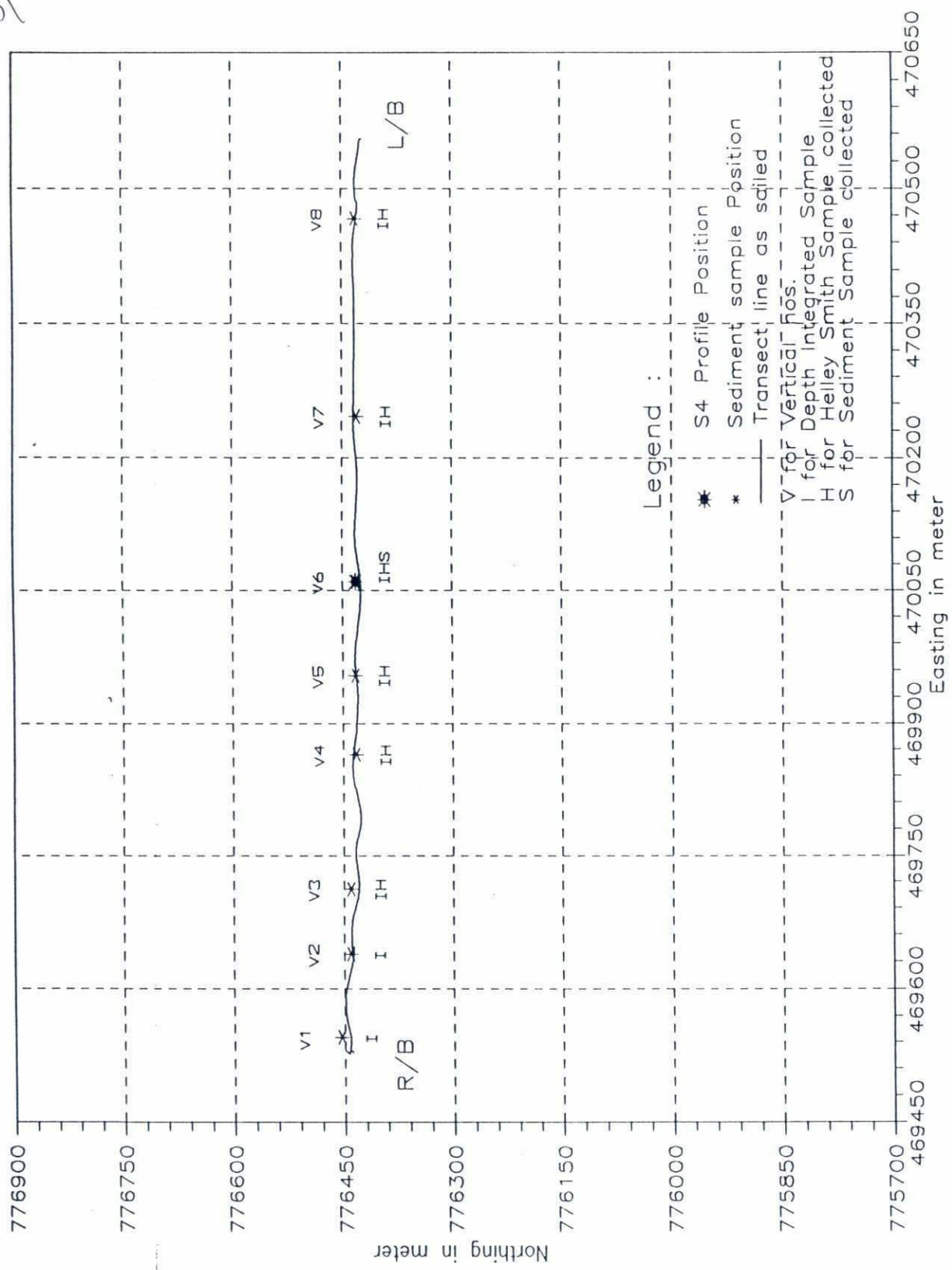
Scale:

Init:

KEY PLAN

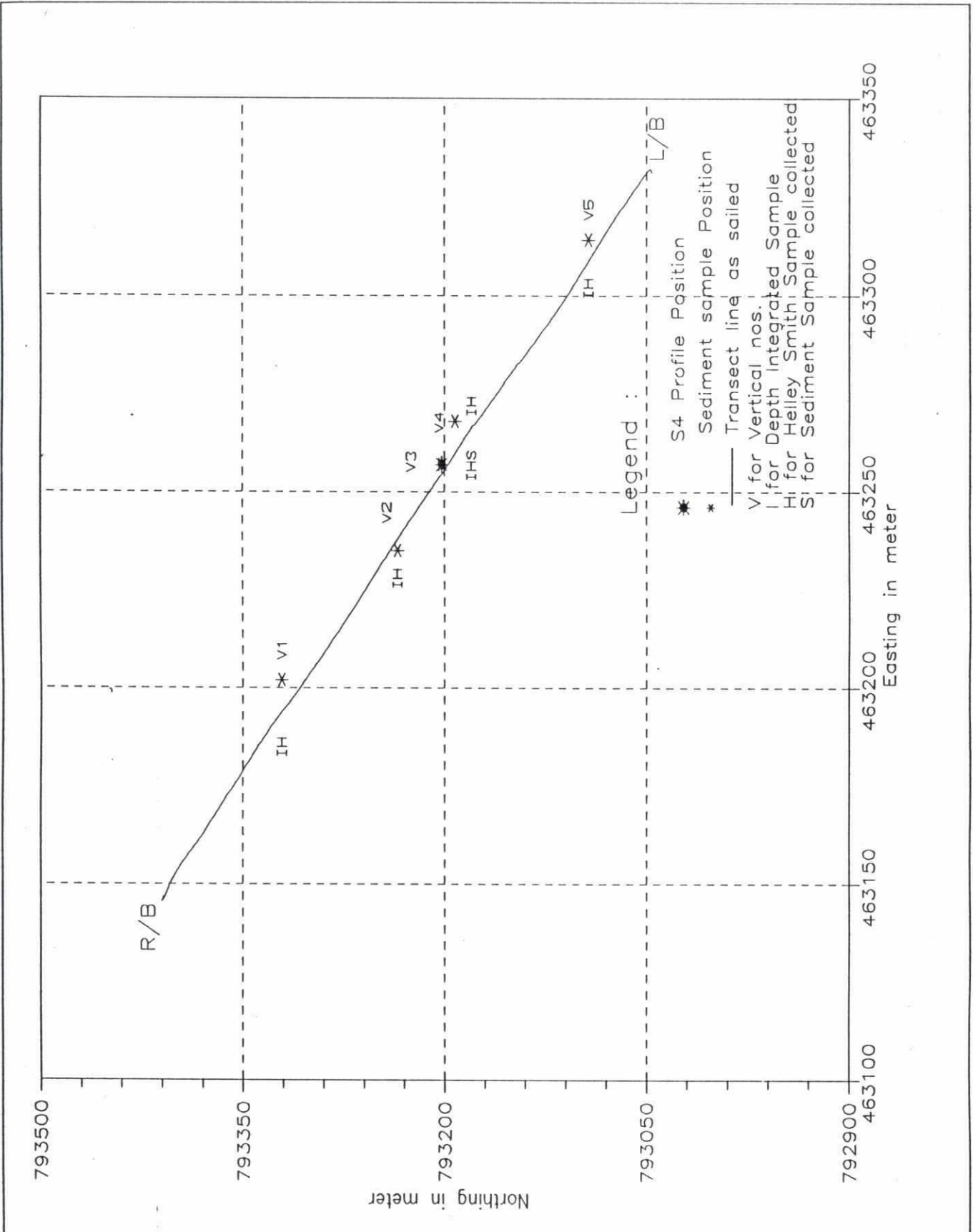
Fig.

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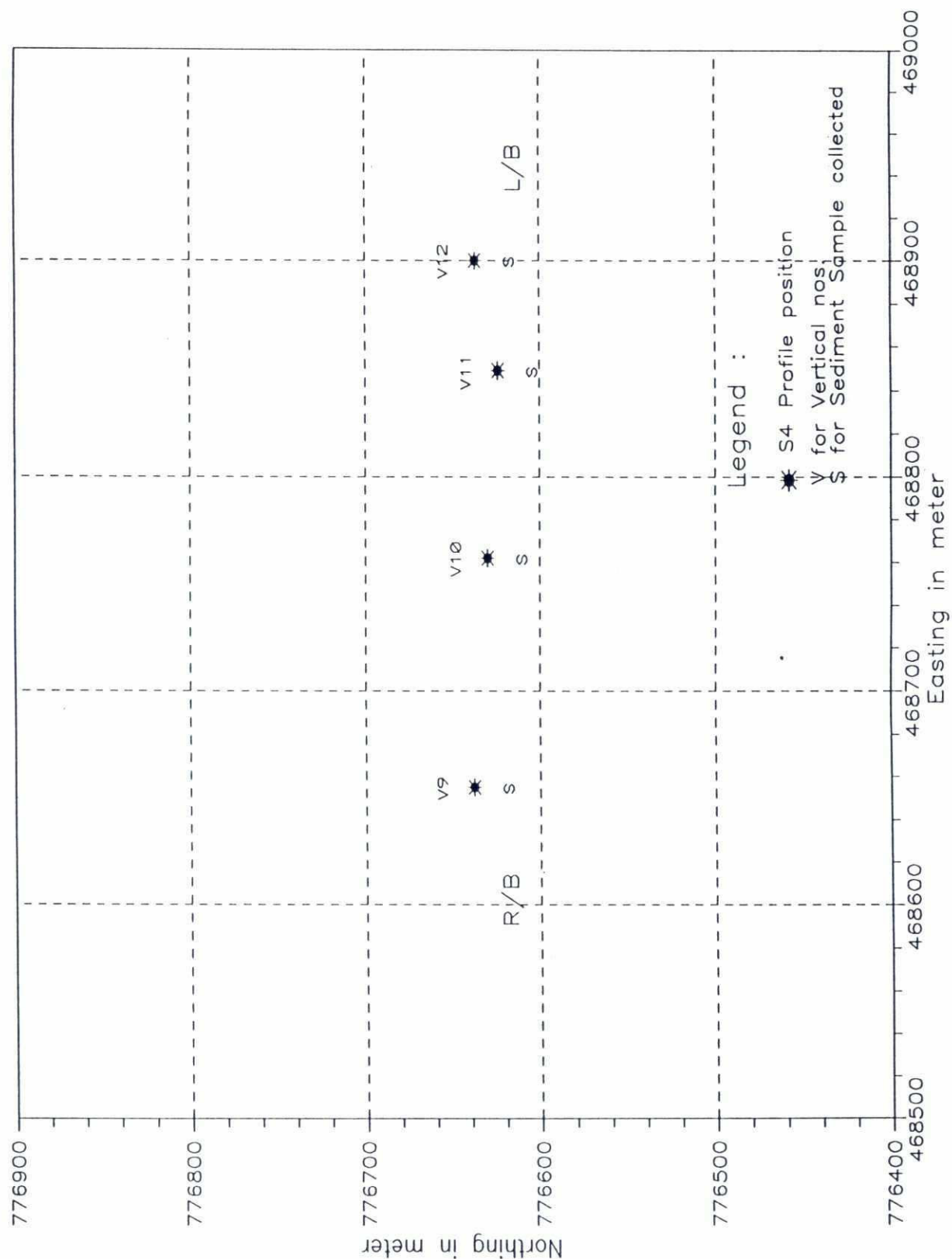
RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 28 : January 1994	
Location 1 : Jumuna River, Bahadurabad (Channel L-1)	
Location of Measurments	
Date :	
Init :	



FAP 24 DELFT - DHI		Survey Bulletin 28 : January 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jumuna River, Fulchari (Right channel)	
	Date :	Location of Measurments	
	Init :		

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FAP 24

 DELFT - DHI

RIVER SURVEY PROJECT
 Flood Plan Coordination Organization
 Commission of the European Communities

Survey Bulletin 28 : January 1994

Location 1 : Jumuna River, Bahadurabad (Channel L-2)

Date :

Init :

Location of Measurments

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River : Jamuna
ADCP/EMF Discharge

Date of Survey : 31 January 1994

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Date	Transect	Bank		Water Level	Total Width	Area	Discharge	Sediment Discharge
		From	To	(m+PWD)	(m)	(sq.m)	(cumec)	(cumec)
31-01-94	B41V1T03	Left	Right	13.51	1126	5523	3179	446
31-01-94	B41V1T05	Right	Left	13.51	1123	5570	3192	431
31-01-94	B41V1T06	Right	Left	13.51	1133	5582	3017	366
31-01-94	B41V1T08	Left	Right	13.51	1120	5456	3231	464

Table 3.1 SUMMARY OF RESULTS(ADCP/EMF-discharge)

River : Jamuna
S4 Discharge

Date of Survey : 31 January 1994

Location : Jamuna River at Bahadurabad (Channel L-2)

Station No. 1

Date	Profile File	Bathy File	Water Level	Total Width	Area	Discharge	Sediment Discharge
			(m+PWD)	(m)	(sq.m)	(cumec)	(cumec)
31-01-94	B41V2P01	B41V2B02	13.51	300	970	472	29.37
31-01-94	B41V2P02						
31-01-94	B41V2P03						
31-01-94	B41V2P04						

Table 3.2 SUMMARY OF RESULTS(S4-discharge)

River : Jamuna
ADCP/EMF Discharge

Date of Survey : 30 January 1994

Location : Right Channel at Fulchari

Station No. 1

Date	Transect	Bank		Water Level	Total Width	Area	Discharge	Sediment Discharge
		From	To	(m+PWD)	(m)	(sq.m)	(cumec)	(cumec)
30-01-94	B41U1T01	Left	Right	13.33	450	1222	496	71
30-01-94	B41U1T02	Right	Left	13.33	463	1273	547	16
30-01-94	B41U1T03	Right	Left	13.33	453	1273	521	44
30-01-94	B41U1T08	Right	Left	13.33	533	1517	444	54

Table 3.3 SUMMARY OF RESULTS(ADCP/EMF-discharge)

River : Jamuna
S4 Velocity

Date of Survey : 30 - 31 January 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Vertical 6	
Total depth = 8.20 m	
Depth	Velocity
[m]	[m/s]
0.50	1.17
1.60	1.13
3.20	1.09
4.80	1.01
6.40	0.85
7.90	0.66

Location : Jamuna River at Bahadurabad (Channel L-2)

Vertical 9	
Total depth = 2.20 m	
Depth	Velocity
[m]	[m/s]
0.40	0.06
1.30	0.05

Vertical 10	
Total depth = 3.70 m	
Depth	Velocity
[m]	[m/s]
0.70	0.79
2.20	0.67
3.00	0.61

Vertical 11	
Total depth = 4.80 m	
Depth	Velocity
[m]	[m/s]
1.00	0.70
2.90	0.65
3.80	0.59

Vertical 12	
Total depth = 2.40 m	
Depth	Velocity
[m]	[m/s]
0.50	0.34
1.40	0.37
1.90	0.32

Location : Jamuna River at Fulchari (Right channel)

Vertical 3	
Total depth = 4.00 m	
Depth	Velocity
[m]	[m/s]
0.50	0.51
0.80	0.55
1.60	0.43
2.40	0.41
3.20	0.40
3.40	0.35

Table 3.4 SUMMARY OF RESULTS (S4 Current)



River : Jamuna
Concentration

Date of Survey : 30 - 31 January 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Vertical 6	
Total depth = 8.20 m	
Depth	Conc.
[m]	[mg/l]
0.50	41.59
1.60	41.41
3.20	44.03
4.80	67.45
6.40	78.34
7.90	82.99

Location : Jamuna River at Bahadurabad (Channel L-2)

Vertical 9	
Total depth = 2.20 m	
Depth	Conc.
[m]	[mg/l]
0.40	137.39
1.30	131.01

Vertical 10	
Total depth = 3.70 m	
Depth	Conc.
[m]	[mg/l]
0.70	44.51
2.20	45.85
3.00	83.51

Vertical 11	
Total depth = 4.80 m	
Depth	Conc.
[m]	[mg/l]
1.00	71.12
2.90	78.40
3.80	81.87

Vertical 12	
Total depth = 2.40 m	
Depth	Conc.
[m]	[mg/l]
0.50	60.8
1.40	63.7
1.90	78.2

Location : Jamuna River at Fulchari (Right channel)

Vertical 3	
Total depth = 4.00 m	
Depth	Velocity
[m]	[mg/l]
0.50	39.72
0.80	40.04
1.60	47.84
2.40	78.53
3.20	49.13
3.40	49.07

Table 3.5 SUMMARY OF RESULTS (Suspended Sediment Concentration)

River : Jamuna

Depth integrated concentration

Date of Survey : 31 January 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Sample No.	Vertical No.	Date	Time	Total Depth (m)	Concentration (mg/l)
A896	1	31/01/94	16:42	5.40	50.39
A911	2	31/01/94	16:24	6.70	1280.25*
A860	3	31/01/94	15:40	8.90	121.15
A360	4	31/01/94	14:58	4.70	168.48
A337	5	31/01/94	14:20	6.20	130.92
A67	6	31/01/94	12:45	8.20	90.49
A893	7	31/01/94	11:55	5.50	128.21
A117	8	31/01/94	11:32	3.30	87.78

* Data invalid

Date of Survey : 30 January 1993

Location : Jamuna River at Fulchari (Right channel)

Sample No.	Vertical No.	Date	Time	Total Depth (m)	Concentration (mg/l)
A694	1	30/01/94	10:40	2.80	753.73*
A699	2	30/01/94	11:32	3.40	36.50
A51	3	30/01/94	12:48	4.00	46.96
A39	4	30/01/94	11:56	3.80	61.35
A910	5	30/01/94	14:00	2.90	48.27

* Data invalid

Table 3.6 SUMMARY OF RESULTS (depth integrated concentration)

River : Jamuna
Bed load

Date of Survey : 31 January 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
3	0.013268	0.018366
4	0.009759	0.009211
5	0.009375	0.001714
6	0.002728	0.008772
7	0.006776	0.007708
8	0.000175	0.000584

Date of Survey : 30 January 1993

Location : Jamuna River at Fulchari (Right channel)

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.002004	0.000039
2	0.000753	0.000379
3	0.000172	0.000112
4	0.004804	0.000493
5	0.000074	0.000139

Table 3.7 SUMMARY of RESULTS (sediment transport, bed load)

River : Jamuna
Grain size of bed load

16

Date of Survey : 31 January 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A891	31/01/94	15:40	0.101	0.129	0.162	1.713
A870	31/01/94	15:45	0.095	0.119	0.151	1.704
A110	31/01/94	14:58	0.218	0.270	0.326	1.601
A885	31/01/94	15:05	0.259	0.302	0.352	1.562
A865	31/01/94	14:19	0.277	0.319	0.366	1.492
A875	31/01/94	14:30	0.210	0.261	0.319	1.617
A897	31/01/94	12:43	0.297	0.336	0.380	1.320
A898	31/01/94	13:02	0.299	0.338	0.381	1.314
A866	31/01/94	11:55	0.274	0.318	0.369	1.529
A78	31/01/94	12:00	0.201	0.248	0.308	1.624
A104	31/01/94	11:31	0.176	0.231	0.295	1.789
A105	31/01/94	11:35	0.208	0.262	0.319	1.639

Date of Survey : 30 January 1993

Location : Jamuna River at Fulchari (Right channel)

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A348	30/01/94	10:37	0.296	0.335	0.380	1.329
A697	30/01/94	10:45	0.223	0.278	0.333	1.632
A746	30/01/94	11:30	0.284	0.324	0.369	1.425
A689	30/01/94	11:35	0.287	0.326	0.371	1.404
A33	30/01/94	12:43	0.295	0.333	0.377	1.321
A901	30/01/94	13:00	0.277	0.319	0.366	1.497
A902	30/01/94	11:56	0.308	0.346	0.389	1.301
A892	30/01/94	12:00	0.300	0.339	0.383	1.319
A882	30/01/94	14:00	0.232	0.284	0.338	1.618
A77	30/01/94	14:05	0.251	0.295	0.346	1.604

Table 3.8 SUMMARY OF RESULTS (grain size bed load)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples	
Transect	09:00:45	09:09:13	B41V1T03					T	T	T							
Transect	09:19:30	09:29:34	B41V1T05*					T	T	T							
Transect	17:03:09	17:13:07	B41V1T06					T	T	T							
Transect	17:24:51	17:33:07	B41V1T08					T	T	T							
Profile	16:42	16:45	B41V1P09	1	469545	776454		P	P	P			-	-	-	1	-
Profile	16:24	16:28	B41V1P08	2	469638	776441		P	P	P			-	-	-	1	-
Profile	15:40	15:51	B41V1P06	3	469711	776440		P	P	P			-	-	2	1	-
Profile	14:58	15:17	B41V1P05	4	469864	776432		P	P	P			-	-	2	1	-
Profile	14:19	14:37	B41V1P04	5	469954	776433		P	P	P			-	-	2	1	-
Profile	12:43	13:20	B41V1P03	6	470060	776432		P	P	P	P		6	-	2	1	-
Profile	11:55	12:07	B41V1P02	7	470245	776430		P	P	P			-	-	2	1	-
Profile	11:31	11:38	B41V1P01	8	470466	776432		P	P	P			-	-	2	1	-

• transect in FAP 24 data base

* transect in FAP 24 data base

Date of Survey : 31 January 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Table 2.1 SURVEY PROGRAMME AS MADE

2/2

DISCHARGE GAUGING										SEDIMENT TRANSPORT GAUGING						
Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
	From	To														
Echo-sounding Profile	10:58	11:02	B41V2B02*					B								
	11:34	12:01	B41V2P01	9	468655	776638	P	P	P	P		2	-	-	-	-
	12:02	12:25	B41V2P02	10	468762	776630	P	P	P	P		3	-	-	-	-
	12:36	12:51	B41V2P03	11	468849	776624	P	P	P	P		3	-	-	-	-
	12:59	13:15	B41V2P04	12	468900	776637	P	P	P	P		3	-	-	-	-
*echo-sounding in PSD 24 data base																

*echo-sounding in PSD 24 data base

Date of Survey : 31 January 1993
 Location : Jamuna River at Bahadurabad (Channel L-2)
 Station No. 1

Table 2.2 SURVEY PROGRAMME AS MADE

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING				SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	09:10:12	09:14:19	B41U1T01*				T	T	T							
Transect	09:17:23	09:21:38	B41U1T02				T	T	T							
Transect	10:05:44	10:09:22	B41U1T03				T	T	T							
Transect	14:40:23	14:44:10	B41U1T08													
Profile	10:37	10:56	B41U1P01	1	463202	793321	P	P	P			-	-	2	1	-
Profile	11:30	11:38	B41U1P02	2	463235	793235	P	P	P			-	-	2	1	-
Profile	12:43	13:17	B41U1P05	3	463257	793202	P	P	P	P		6	-	2	1	-
Profile	11:56	12:04	B41U1P03	4	463268	793192	P	P	P			-	-	2	1	-
Profile	14:00	14:07	B41U1P06	5	463314	793093	P	P	P			-	-	2	1	-

• transect in FAP 24 data base

* transect in FAP 24 data base

Date of Survey : 30 January 1993

Location : Jamuna River at Fulchari (Right channel)

Station No. 1

Table 2.3 SURVEY PROGRAMME AS MADE

22

Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A189,A844,A185,A389,A388,A447	6	6
Depth Integrated samples	A896	1	1
	A911	1	2
	A860	1	3
	A360	1	4
	A337	1	5
	A67	1	6
	A893	1	7
	A117	1	8
Helley-Smith Samples	A891,A870	2	3
	A1101,A885	2	4
	A865,A875	2	5
	A897,A898	2	6
	A866,A78	2	7
	A104,A105	2	8

Date of Survey : 31 January 1993

Location : Jamuna River at Bahadurabad (Channel L-1)

Station No. 1

Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A685,A674	2	9
	A663,A668,A657	3	10
	A680,A627,A632	3	11
	A618,A839,A669	3	12

Date of Survey : 31 January 1993

Location : Jamuna River at Bahadurabad (Channel L-2)

Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A386,A436,A239,A390,A381,A398	6	3
Depth Integrated Samples	A694	1	1
	A699	1	2
	A51	1	3
	A39	1	4
	A910	1	5
Helley-Smith Samples	A348,A697	2	1
	A746,A689	2	2
	A33,A901	2	3
	A902,A892	2	4
	A882,A77	2	5

Date of Survey : 30 January 1993

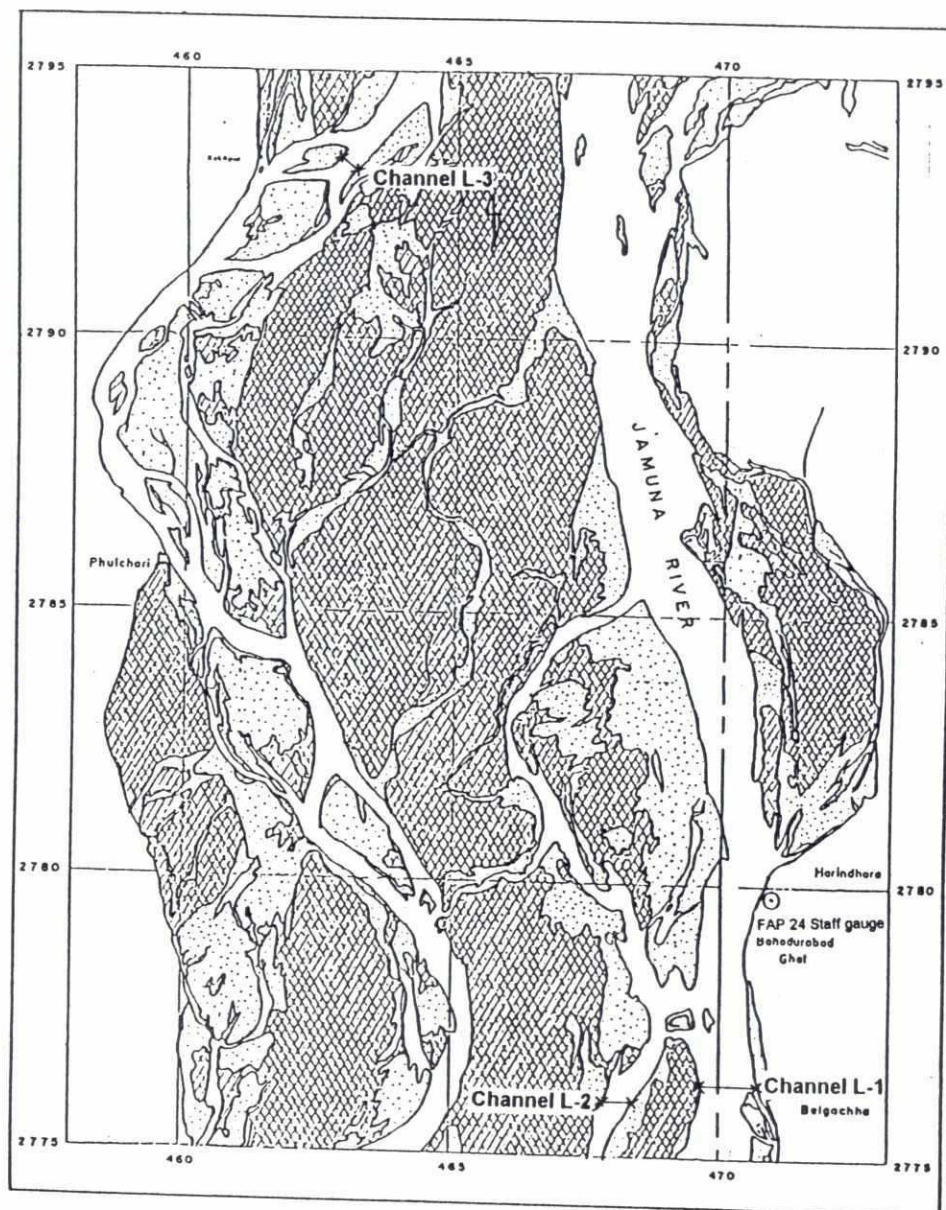
Location : Jamuna River at Fulchari (Right channel)

Table 2.4 List of Sediment Samples

27

Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B41V1T05 .ase
ADCP/S4/EMF	2	QUATTRO	B41V2B02 .ase
ADCP/S4/EMF	3	QUATTRO	B41U1T01 .ase
Echosounder	1	QUATTRO	B41V1T05 .ech
Echosounder	2	QUATTRO	B41V2B02 .ech
Echosounder	3	QUATTRO	B41U1T01 .ech
Sediment transport data	1	QUATTRO	B41V1T05 .sed
Sediment transport data	2	QUATTRO	B41V2B02 .sed
Sediment transport data	3	QUATTRO	B41U1T01 .sed
Bed load sediment analysis	1	QUATTRO	B41V1T05 .bdl
Bed load sediment analysis	2	QUATTRO	B41V2B02 .bdl
Bed load sediment analysis	3	QUATTRO	B41U1T01 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B41V1T05 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B41V2B02 .ssc
Suspended sed. conc. analysis	3	QUATTRO	B41U1T01 .ssc
Transect plot data	1	QUATTRO	B41V1T05 .trs
Transect plot data	2	QUATTRO	B41V2B02 .trs
Transect plot data	3	QUATTRO	B41U1T01 .trs
Iso-velocity plot data	1	MIKE 21	B41V1T05 .ct2
Iso-velocity plot data	1	MIKE 21	B41V1T05 .dt2
Iso-velocity plot data	1		
Iso-velocity plot data	2	MIKE 21	B41V2B02 .ct2
Iso-velocity plot data	2	MIKE 21	B41V2B02 .dt2
Iso-velocity plot data	2		
Iso-velocity plot data	3	MIKE 21	B41U1T01 .ct2
Iso-velocity plot data	3	MIKE 21	B41U1T01 .dt2
Iso-velocity plot data	3		

Table 5.1 PSD 24 Database file description



LEGEND:-

- X—X Measurement cross section
- [Hatched pattern] High land
- [Dotted pattern] Unstable/low char
- [Line with cross-ticks] BWDB Embankment
- ⊙ FAP 24 Staff gauge

5000 m 2500 m 0

Map is based on satellite images of March 1994



RIVER SURVEY PROJECT

Delft Hydraulics/Danish Hydraulic Institute
in association with Osiris/Approtech/Hydroland

Survey Bulletin No.40 - March, 1994

Location No.1 : Jamuna River at Bahadurabad

File:

Date:

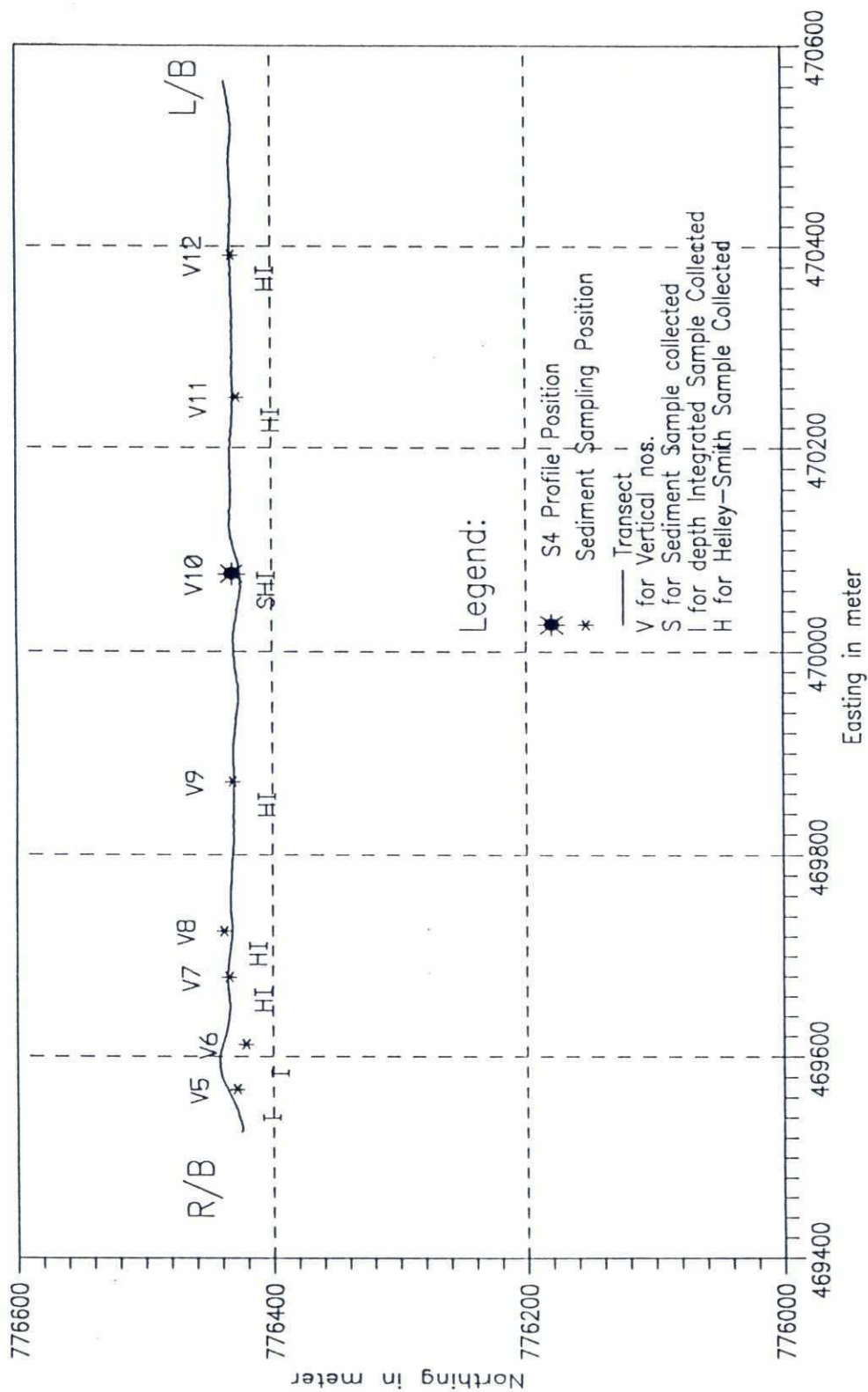
Scale:

Init:

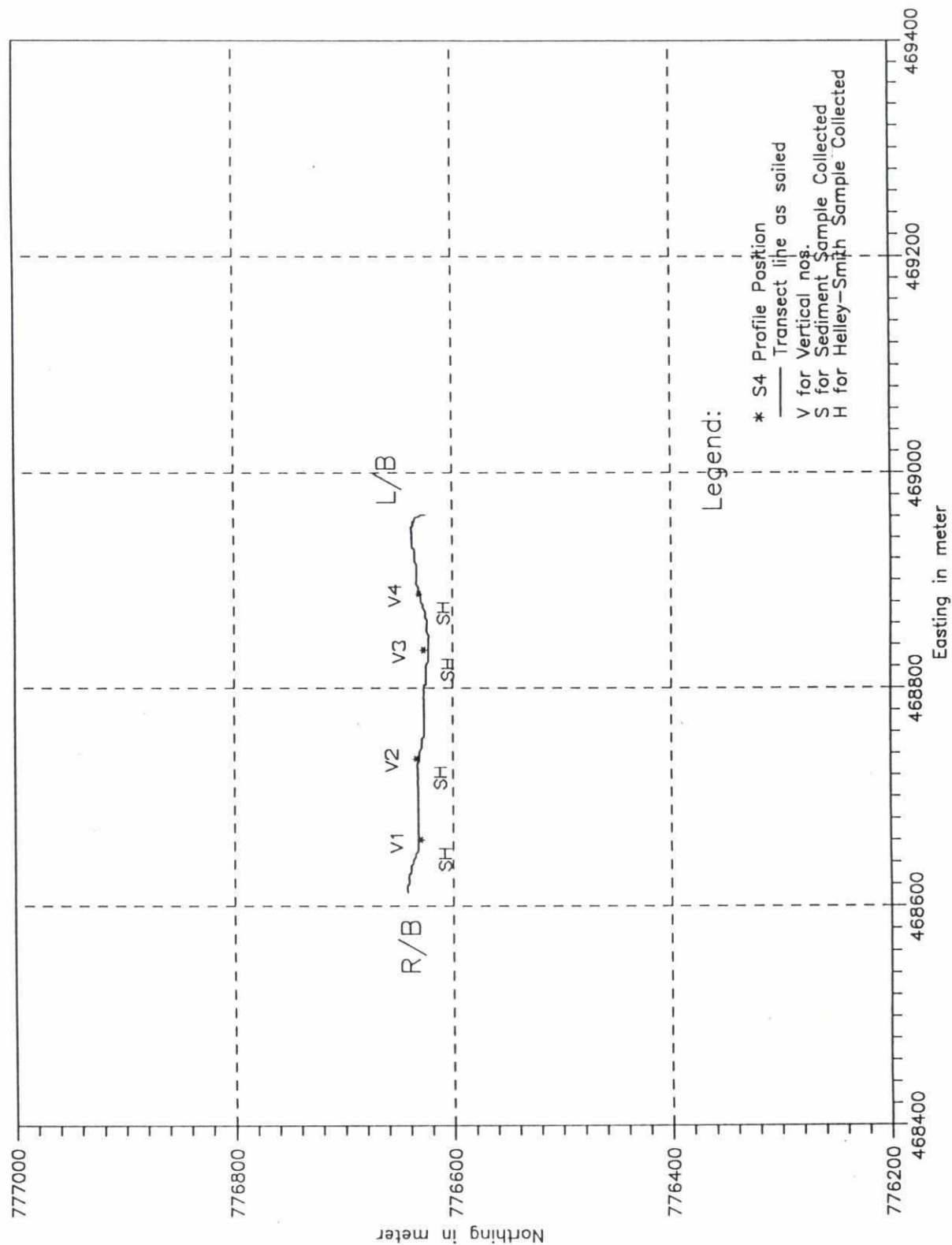
KEY PLAN

Fig.

27



FAP 24  DELFT - DHI		Survey Bulletin 40 : March 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jumuna River, Bahadurabad (L-1)	
Date _____ Init. _____		Location of Measurments	



FAP 24

 DELFT - DHI

RIVER SURVEY PROJECT
 Flood Plan Coordination Organization
 Commission of the European Communities

Survey Bulletin 40 : March 1994

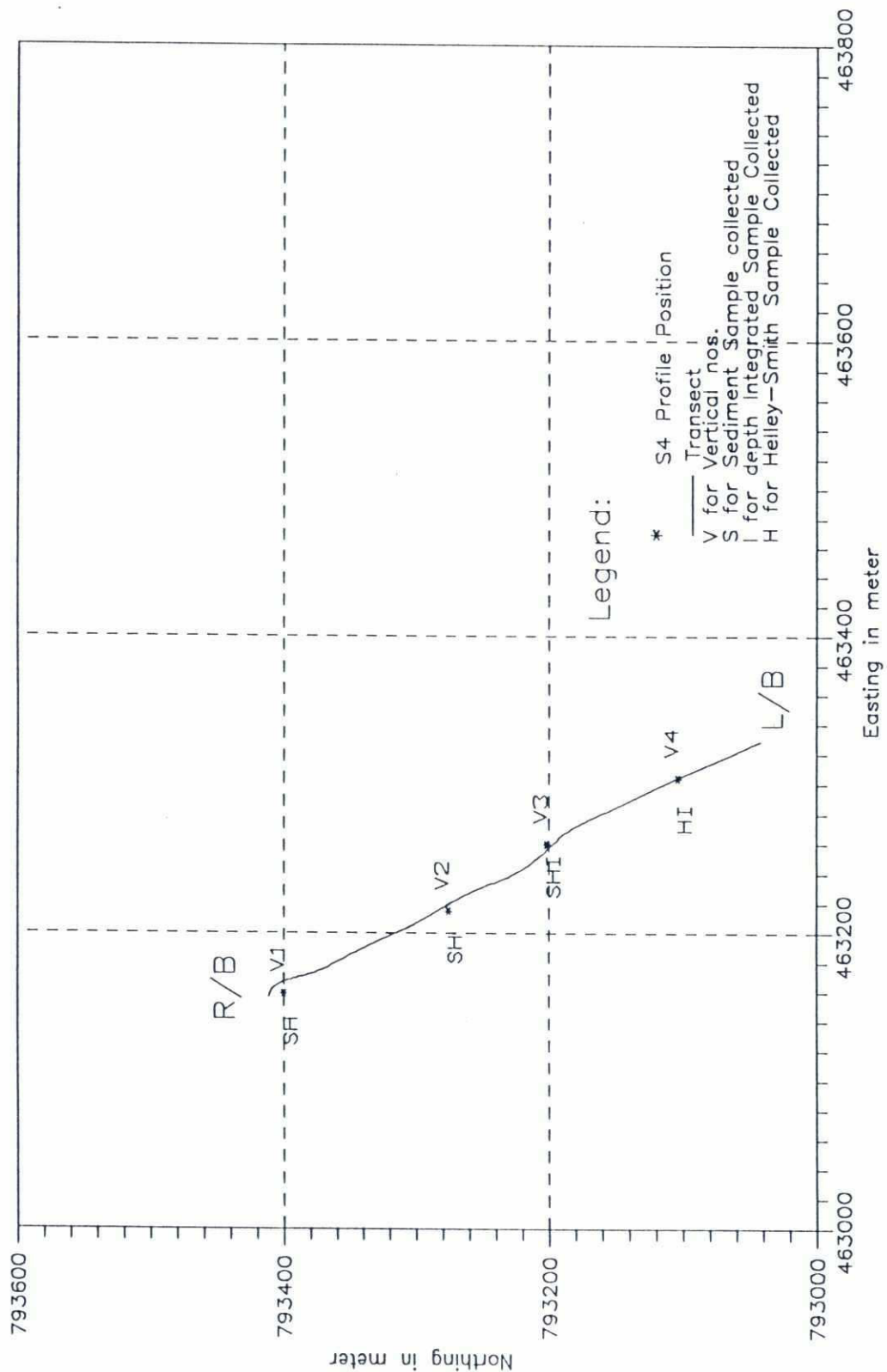
Location 1 : Jumuna River, Bahadurabad (L-2)

Date

Init

Location of Measurments

289



087

River : Brahmaputra-Jamuna
ADCP/EMF Discharge

Date of Survey : 17 March 1994
Location : Jumuna River at Bahadurabad (Channel L-1)
Station No. 1

Date	Transect	Bank		Level	Width	Area	Discharge	Sediment
		From	To	(m+PWD)	(m)	(sq.m)	(cumec)	Transport (Kg/s)
17-03-94	B43H1T02	Left	Right	13.38	1078	5317	3022	468
17-03-94	B43H1T03	Right	Left	13.38	1174	6537	5071	385
17-03-94	B43H1T04	Right	Left	13.39	1164	6595	4546	423
17-03-94	B43H1T06	Left	Right	13.39	1153	6648	4862	482

Table 3.1 SUMMARY OF RESULTS (ADCP/EMF-discharge)

River : Jamuna
S4 Discharge

Date of Survey : 17 March 1994

Location : Jumuna River at Bahadurabad (Channel L-2)

Station No. 1

Date	Profile	Bathy File	Level	Width	Area	Discharge	Sediment
			(m+PWD)	(m)	(sq.m)	(cumec)	Transport (Kg/s)
17-03-94	B43H2P02	B43H2B01	13.37	378	1222	629	33
17-03-94	B43H2P03	B43H2B02	13.37	390	1104	588	32
17-03-94	B43H2P04						
17-03-94	B43H2P06						

Table 3.2 SUMMARY OF RESULTS (S4-discharge)

YD

River : Jamuna
S4 Discharge

Date of Survey : 16 March 1994

Location : Jumuna River at Fulchari (Channel L-3)

Station No. 1

Date	Profile	Transect	Level	Width	Area	Discharge	Sediment
			(m+PWD)	(m)	(sq.m)	(cumec)	Transport (Kg/s)
16-03-94	B43G1P01	B43G1T02	13.21	532	1319	501	20
16-03-94	B43G1P02	B43G1T03	13.21	518	1323	499	20
16-03-94	B43G2P01	B43G1T04	13.20	514	1283	480	19
16-03-94	B43G2P02	B43G1T05	13.20	519	1328	500	20
16-03-94		B43G1T07	13.20	529	1311	494	20

Table 3.3 SUMMARY OF RESULTS (S4-discharge)

River : Jamuna
S4 Velocity

Date of Survey : 16 - 17 March 1994

Location : Jumuna River at Bahadurabad (Channel L-1)

Station No. 1

Vertical 10	
Total depth = 7.70 m	
Depth	Velocity
[m]	[m/s]
0.50	1.16
1.54	1.05
3.08	1.12
4.62	1.07
6.16	0.95
7.30	0.71

Location : Jumuna River at Bahadurabad (Channel L-2)

Vertical 1	
Total depth = 3.10 m	
Depth	Velocity
[m]	[m/s]
0.60	0.33
1.90	0.37
2.50	0.34

Vertical 2	
Total depth = 2.70 m	
Depth	Velocity
[m]	[m/s]
0.50	0.68
1.60	0.67
2.20	0.65

Vertical 3	
Total depth = 4.60 m	
Depth	Velocity
[m]	[m/s]
0.90	0.81
2.80	0.72
3.70	0.68

Vertical 4	
Total depth = 1.00 m	
Depth	Velocity
[m]	[m/s]
0.60	0.65

Location : Jumuna River at Fulchari (Channel L-3)

Vertical 1	
Total depth = 2.40 m	
Depth	Velocity
[m]	[m/s]
0.50	0.50
1.40	0.44
1.54	0.46

Vertical 2	
Total depth = 3.00 m	
Depth	Velocity
[m]	[m/s]
1.80	0.49
2.40	0.42

Vertical 3	
Total depth = 3.90 m	
Depth	Velocity
[m]	[m/s]
0.78	0.45
2.34	0.27
3.12	0.23

Table 3.4 SUMMARY OF RESULTS (S4 Current)

River : Jamuna
Concentration

Date of Survey : 16 - 17 March 1994

Location : Jumuna River at Bahadurabad (Channel L-1)

Station No. 1

Vertical 10	
Total depth = 7.70 m	
Depth	Conc.
[m]	[mg/l]
0.50	53.76
1.54	68.97
3.08	81.94
4.62	85.13
6.16	95.79
7.30	108.01

Location : Jumuna River at Bahadurabad (Channel L-2)

Vertical 1	
Total depth = 3.10 m	
Depth	Conc.
[m]	[mg/l]
0.60	21.65
1.90	24.08
2.50	27.44

Vertical 2	
Total depth = 2.70 m	
Depth	Conc.
[m]	[mg/l]
0.50	38.74
1.60	37.64
2.20	46.37

Vertical 3	
Total depth = 4.60 m	
Depth	Conc.
[m]	[mg/l]
0.90	54.59
2.80	75.34
3.70	83.31

Vertical 4	
Total depth = 1.00 m	
Depth	Conc.
[m]	[mg/l]
0.60	72.08

Location : Jumuna River at Fulchari (Channel L-3)

Vertical 1	
Total depth = 2.40 m	
Depth	Conc.
[m]	[mg/l]
0.50	41.10
1.40	38.68
1.54	43.58

Vertical 2	
Total depth = 3.00 m	
Depth	Conc.
[m]	[mg/l]
0.60	32.28
2.40	41.92

Vertical 3	
Total depth = 3.90 m	
Depth	Conc.
[m]	[mg/l]
0.78	33.60
2.34	35.10
3.12	37.75

Table 3.5 SUMMARY OF RESULTS (Suspended Sediment Concentration)

River : Jamuna
Depth integrated concentration

Date of Survey : 17 March 1994

Location : Jumuna River at Bahadurabad (Left Channel)

Station No. 1

Sample No.	Vertical No.	Date	Time	Total Depth (m)	Concentration (mg/l)
A40	5	17/03/94	16:30	5.20	46.15
A1376	6	17/03/94	16:05	6.40	34.82
A463	7	17/03/94	15:07	7.70	112.49
A124	8	17/03/94	14:30	7.00	97.91
A50	9	17/03/94	13:13	4.70	467.82 *
A702	10	17/03/94	11:45	7.70	75.65
A900	11	17/03/94	10:55	5.20	48.63
A122	12	17/03/94	10:20	3.00	62.98

* Invalid data

Table 3.6 SUMMARY OF RESULTS (depth integrated concentration)

River : Jamuna
Depth integrated concentration

Date of Survey : 16 March 1994

Location : Jumuna River at Fulchari (Right Channel)

Station No. 1

Sample No.	Vertical No.	Date	Time	Total Depth (m)	Concentration (mg/l)
A1378	2	16/03/94	11:45	3.90	39.46
A466	4	16/03/94	10:17	3.30	47.05

Table 3.7 SUMMARY OF RESULTS (depth integrated concentration)

River : Jamuna
Bed load

Date of Survey : 17 March 1994

Location : Jumuna River at Bahadurabad (Left Channel)

Station No. 1

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.001169	0.000202
2	0.000400	0.009032
3	0.029605	0.018969
4	0.004703	0.001084
7	0.000067	0.000032
8	0.000657	0.001257
9	0.000431	0.001837
10	0.010349	0.003637
11	0.003957	0.003009
12	0.004344	0.008972

Table 3.8 Summary of results(sediment transport, bed load)

River : Jamuna

Bed load

Date of Survey : 16 March 1994

Location : Jumuna River at Fulchari (Right Channel)

Station No. 1

Helley-Smith samples		
Vertical no.	Bed load sb in Kg/ms	
	1	2
1	0.000116	0.002086
2	0.000240	0.000050
3	0.000112	0.000066
4	0.000020	0.000068

Table 3.9 Summary of results(sediment transport, bed load)

River : Jamuna

Grain size of bed load

Date of Survey : 17 March 1994

Location : Jumuna River at Bahadurabad (Channel L-1)

Station No. 1

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A890	17/03/94	14:00	0.102	0.155	0.207	0.000
A351	17/03/94	14:05	0.102	0.148	0.190	0.000
A880	17/03/94	14:25	0.194	0.241	0.302	1.648
A899	17/03/94	14:35	0.184	0.225	0.282	1.659
A748	17/03/94	13:20	0.181	0.216	0.262	1.623
A347	17/03/94	13:13	0.214	0.267	0.323	1.615
A52	17/03/94	11:50	0.307	0.346	0.389	1.305
A45	17/03/94	11:36	0.305	0.346	0.394	1.336
A1160	17/03/94	11:00	0.251	0.295	0.348	1.590
A745	17/03/94	10:55	0.271	0.315	0.365	1.532
A47	17/03/94	10:30	0.194	0.230	0.298	1.636
A123	17/03/94	10:20	0.252	0.296	0.349	1.600

Table 3.10 SUMMARY OF RESULTS (grain size bed load)

River : Jamuna
Grain size of bed load

Date of Survey : 17 March 1994

Location : Jumuna River at Bahadurabad (Channel L-2)

Station No. 1

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A49	17/03/94	11:35	0.182	0.215	0.256	1.587
A1358	17/03/94	11:40	0.181	0.213	0.253	1.588
A462	17/03/94	12:20	0.301	0.339	0.382	1.312
A1364	17/03/94	12:14	0.296	0.334	0.378	1.316
A1138	17/03/94	12:57	0.194	0.235	0.293	1.609
A1145	17/03/94	13:10	0.204	0.252	0.310	1.614
A901	17/03/94	14:05	0.078	0.094	0.114	0.000
A701	17/03/94	13:57	0.186	0.225	0.281	1.635

Table 3.11 SUMMARY OF RESULTS (grain size bed load)

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River : Jamuna
Grain size of bed load

Date of Survey : 16 March 1994
Location : Jumuna River at Fulchari (Channel L-3)
Station No. 1

Sample No	Date	Time	D35 (mm)	D50 (mm)	D65 (mm)	Standard Deviation
A918	16/03/94	14:28	0.201	0.250	0.311	1.637
A338	16/03/94	14:40	0.285	0.327	0.375	1.448
A1360	16/03/94	13:29	0.260	0.302	0.352	1.651
A39	16/03/94	13:30	0.215	0.272	0.327	1.658
A366	16/03/94	11:45	0.263	0.307	0.358	1.571
A1367	16/03/94	11:30	0.287	0.327	0.373	1.433
A917	16/03/94	10:07	0.252	0.299	0.354	1.679
A359	16/03/94	10:12	0.261	0.305	0.356	1.683

Table 3.12 SUMMARY OF RESULTS (grain size bed load)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING				SEDIMENT TRANSPORT GAUGING					
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	08:16:27	08:25:45	B43H1T02				T	T	T							
Transect	08:30:18	08:40:48	B43H1T03*				T	T	T							
Transect	16:45:27	16:55:02	B43H1T04				T	T	T							
Transect	17:13:34	17:22:04	B43H1T06				T	T	T							
Profile	10:20:00	10:40:00	B43H1P01	12	470391	776431	P	P	P							
Profile	10:55:00	11:10:00	B43H1P02	11	470250	776427	P	P	P			-	-	2	1	-
Profile	11:35:00	12:15:00	B43H1P03	10	470076	776431	P	P	P			-	-	2	1	-
Profile	13:10:00	13:18:00	B43H1P04	9	469872	776431	P	P	P	P	P	6	-	2	1	-
Profile	14:25:00	14:45:00	B43H1P05	8	469725	776438	P	P	P			-	-	2	1	-
Profile	15:02:00	15:10:00	B43H1P06	7	469679	776434	P	P	P			-	-	2	1	-
Profile	16:02:00	16:12:00	B43H1P07	6	469612	776421	P	P	P			-	-	2	1	-
Profile	16:25:00	16:45:00	B43H1P08	5	469568	776428	P	P	P			-	-	-	1	-

* transect in PSD 24 data base

* transect in PSD 24 data base

Date of Survey : 17 March 1994
Location : Jumuna River at Bahadurabad (Channel L-1)
Station No. 1

Table 2.1 (SURVEY PROGRAMME AS MADE)



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DISCHARGE GAUGING							SEDIMENT TRANSPORT GAUGING									
Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
	From	To														
Transect	10:22:38	10:26:28	B43H2B01*					B								
Transect	10:28:14	10:31:25	B43H2B02					B								
Profile	11:35:00	11:47:00	B43H2P02	1	468660	776630	P	P	P	P		3	-	2	-	-
Profile	12:14:00	12:33:00	B43H2P03	2	468735	776634	P	P	P	P		3	-	2	-	-
Profile	12:57:00	13:15:00	B43H2P04	3	468835	776627	P	P	P	P		1	-	2	-	-
Profile	13:55:00	14:05:00	B43H2P06	4	468887	776631	P	P	P	P			-			

transect in PSD 24 data base

* transect in PSD 24 data base

Date of Survey : 17 March 1994
Location : Jumuna River at Bahadurabad (Channel L-2)
Station No. 1

Table 2.2 (SURVEY PROGRAMME AS MADE)

Type	Time		File Name	Ver. No.	Easting (meter)	Northing (meter)	DISCHARGE GAUGING					SEDIMENT TRANSPORT GAUGING				
	From	To					ADCP	HYDRO	EMF	S4	MEX	Suspended Sediment Samples	Andreasen Tube Samples	Helley Smith Samples	Integrated Sediment Samples	Bottom Samples
Transect	08:39:18	08:43:23	B43G1T02*				T	T	T							
Transect	08:48:47	08:52:40	B43G1T03				T	T	T							
Transect	15:19:15	15:23:30	B43G1T04				T	T	T							
Transect	15:26:26	15:30:26	B43G1T05				T	T	T							
Transect	15:44:36	15:48:36	B43G1T07				T	T	T							
Profile	10:12:00	10:23:00	B43G1P01	4	463304	793104	P	P	P	P						
Profile	11:30:00	12:11:00	B43G1P02	3	463260	793202	P	P	P	P	P	-	-	2	1	-
Profile	13:29:00	13:43:00	B43G2P01	2	463215	793276	P	P	P	P	P	3	-	2	1	-
Profile	14:28:00	14:42:00	B43G2P02	1	463159	793400	P	P	P	P	P	3	-	2	-	-
* transect in PSD 24 data base																

Date of Survey : 16 March 1994
Location : Jumuna River at Fulchari (Channel L-3)
Station No. 1

Table 2.3 (SURVEY PROGRAMME AS MADE)

Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A1231,A1226,A1223,A1232,A1227,A1224	6	10
Depth Integrated samples	A40	1	5
	A1376	1	6
	A463	1	7
	A124	1	8
	A50	1	9
	A702	1	10
	A900	1	11
	A122	1	12
Helley-Smith Samples	A890,A351	2	7
	A880,A899	2	8
	A347,A748	2	9
	A45,A52	2	10
	A745,A1160	2	11
	A123,A47	2	12

Date of Survey : 17 March 1994

Location : Jumuna River at Bahadurabad (Channel L-1)

Station No. 1

Table 2.4 List of Sediment Samples

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Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A1347,A1348,A1349	3	1
	A1354,A1355,A1356	3	2
	A1319,A1351,A1352	3	3
	A1304	1	4
Helley-Smith Samples	A49,A1358	2	1
	A1364,A462	2	2
	A1138,A1145	2	3
	A701,A901	2	4

Date of Survey : 17 March 1994

Location : Jumuna River at Bahadurabad (Channel L-2)

Station No. 1

Table 2.5 List of Sediment Samples

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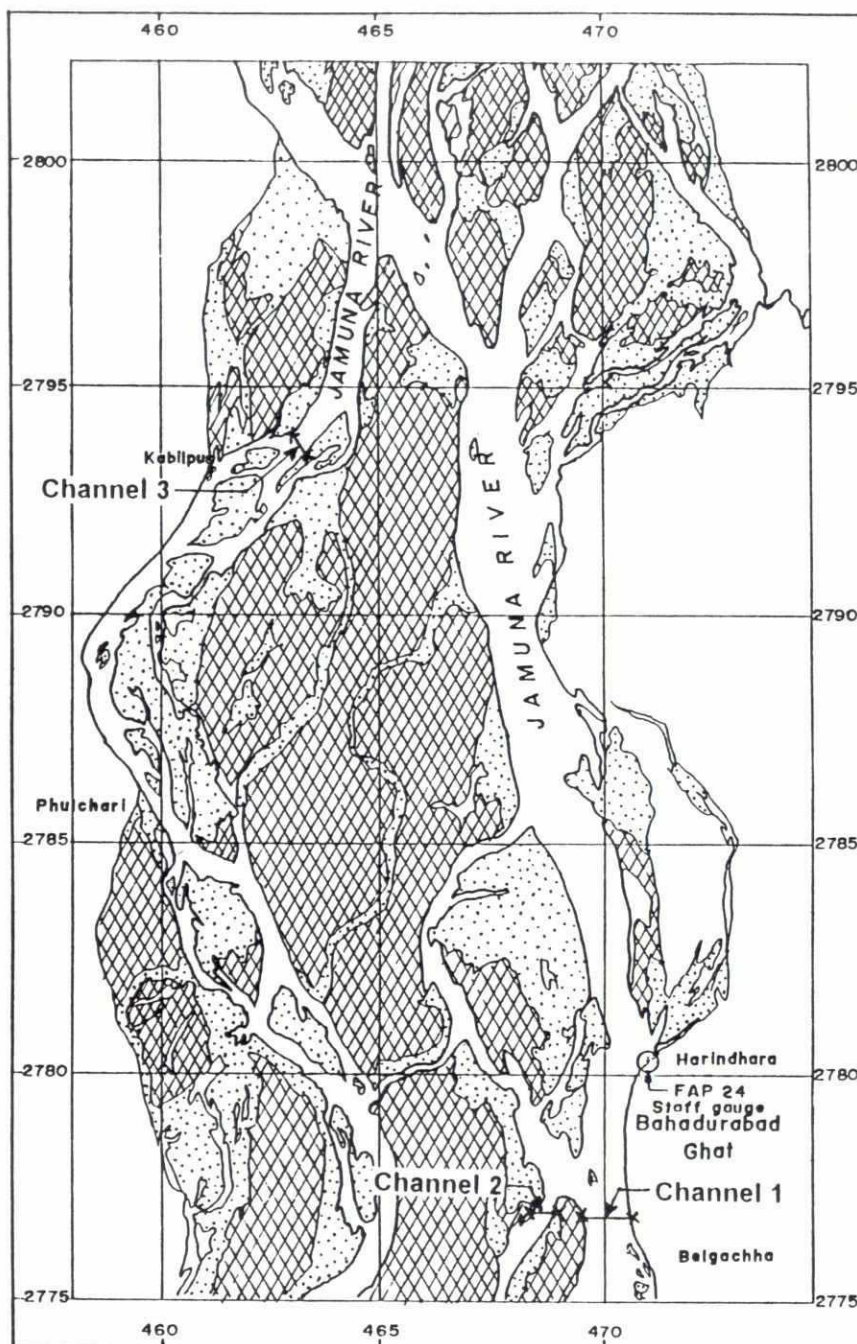
Type Of Samples	Sample Nos.	Total Sample Nos.	Vertical No.
Point Integrated Samples	A1237,A1240,A1255	3	1
	A1194,A1196,A1198	3	2
	A1235,A1236,A1229	3	3
Depth Integrated Samples	A1378	1	3
	A466	1	4
Helley-Smith Samples	A918,A338	2	1
	A1360,A39	2	2
	A1367,A366	2	3
	A359,A917	2	4

Date of Survey : 16 March 1994
 Location : Jumuna River at Fulchari (Channel L-3)
 Station No. 1

Table 2.6 List of Sediment Samples

Types of Data	Channel	Format	Filename
ADCP/S4/EMF	1	QUATTRO	B43H1T03 .ase
ADCP/S4/EMF	2	QUATTRO	B43H2B01 .ase
ADCP/S4/EMF	3	QUATTRO	B43G1T02 .ase
Echosounder	1	QUATTRO	B43H1T03 .ech
Echosounder	2	QUATTRO	B43H2B01 .ech
Echosounder	3	QUATTRO	B43G1T02 .ech
Sediment transport data	1	QUATTRO	B43H1T03 .sed
Sediment transport data	2	QUATTRO	B43H2B01 .sed
Sediment transport data	3	QUATTRO	B43G1T02 .sed
Bed load sediment analysis	1	QUATTRO	B43H1T03 .bdl
Bed load sediment analysis	2	QUATTRO	B43H2B01 .bdl
Bed load sediment analysis	3	QUATTRO	B43G1T02 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B43H1T03 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B43H2B01 .ssc
Suspended sed. conc. analysis	3	QUATTRO	B43G1T02 .ssc
Transect plot data	1	QUATTRO	B43H1T03 .trs
Transect plot data	2	QUATTRO	B43H2B01 .trs
Transect plot data	3	QUATTRO	B43G1T02 .trs
Iso-velocity plot data	1	MIKE 21	B43H1T03 .ct2
Iso-velocity plot data	1	MIKE 21	B43H1T03 .dt2
Iso-velocity plot data	1		
Iso-velocity plot data	2	MIKE 21	B43H2B01 .ct2
Iso-velocity plot data	2	MIKE 21	B43H2B01 .dt2
Iso-velocity plot data	2		
Iso-velocity plot data	3	MIKE 21	B43G1T02 .ct2
Iso-velocity plot data	3	MIKE 21	B43G1T02 .dt2
Iso-velocity plot data	3		

Table 5.1 PSD 24 Database file description



LEGEND:

- *-* Cross section
- High land
- Unstable/low char
- FAP 24 Staff gauge

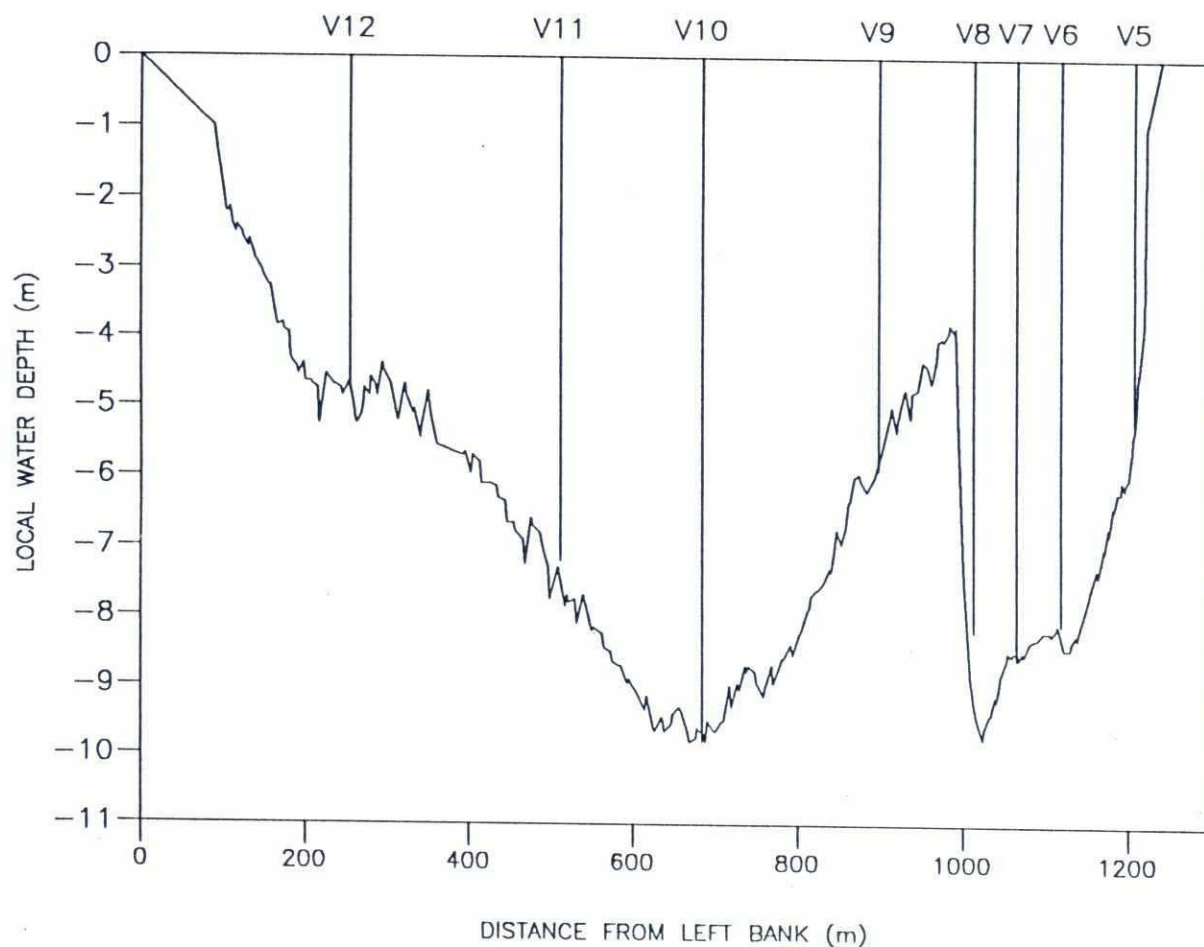


5000 m 2500 m 0

Map is based on satellite images of March 1994

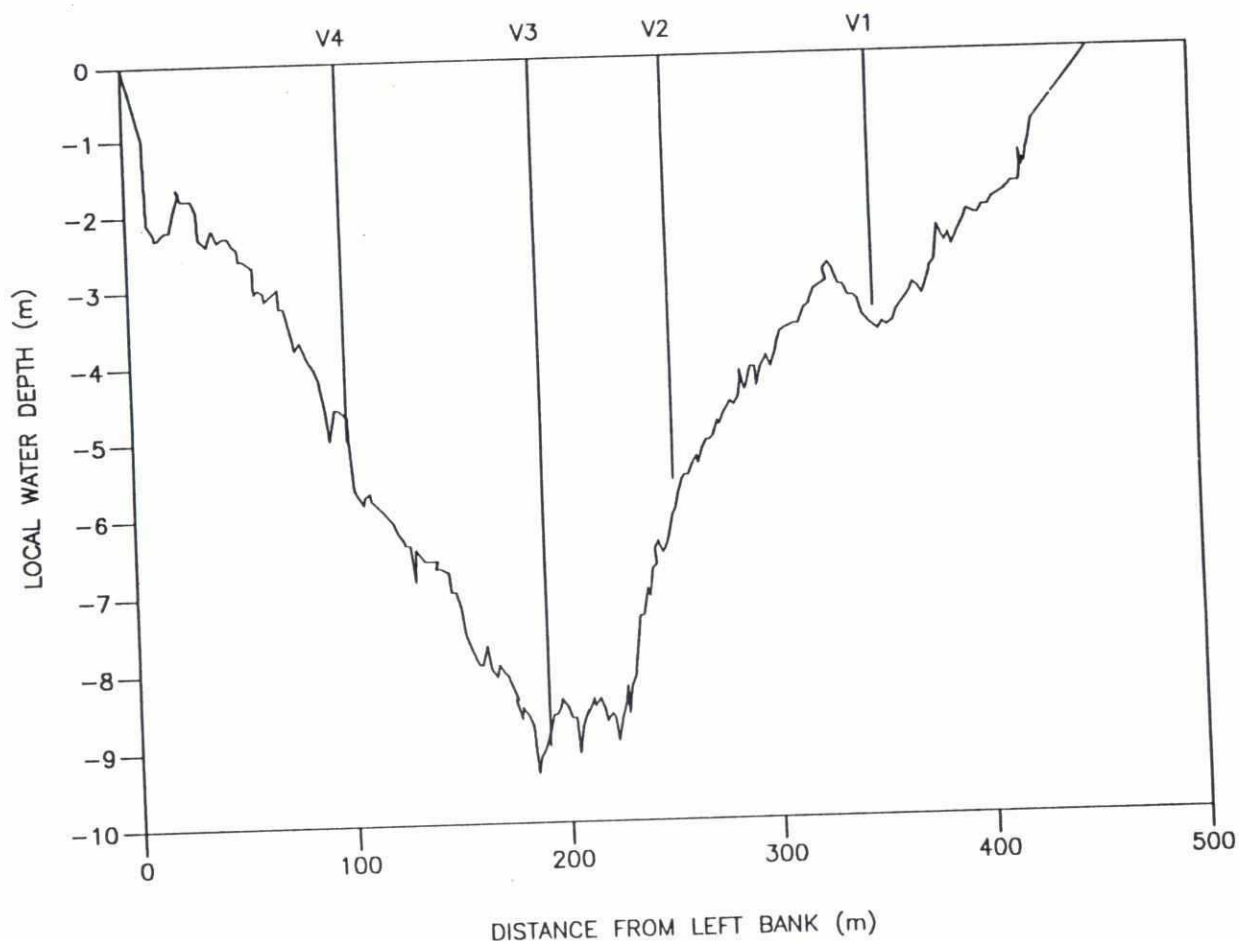
FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 48 : 02 - 04 April, 1994		
	Location 1 : Jamuna River, Bahadurabad		
	Date : 07 Aug 1994	Location map	
	Init : mua		
		page 1.1	

202



Water-level : 15.29 m + PWD measured at the station indicated on page 1.1

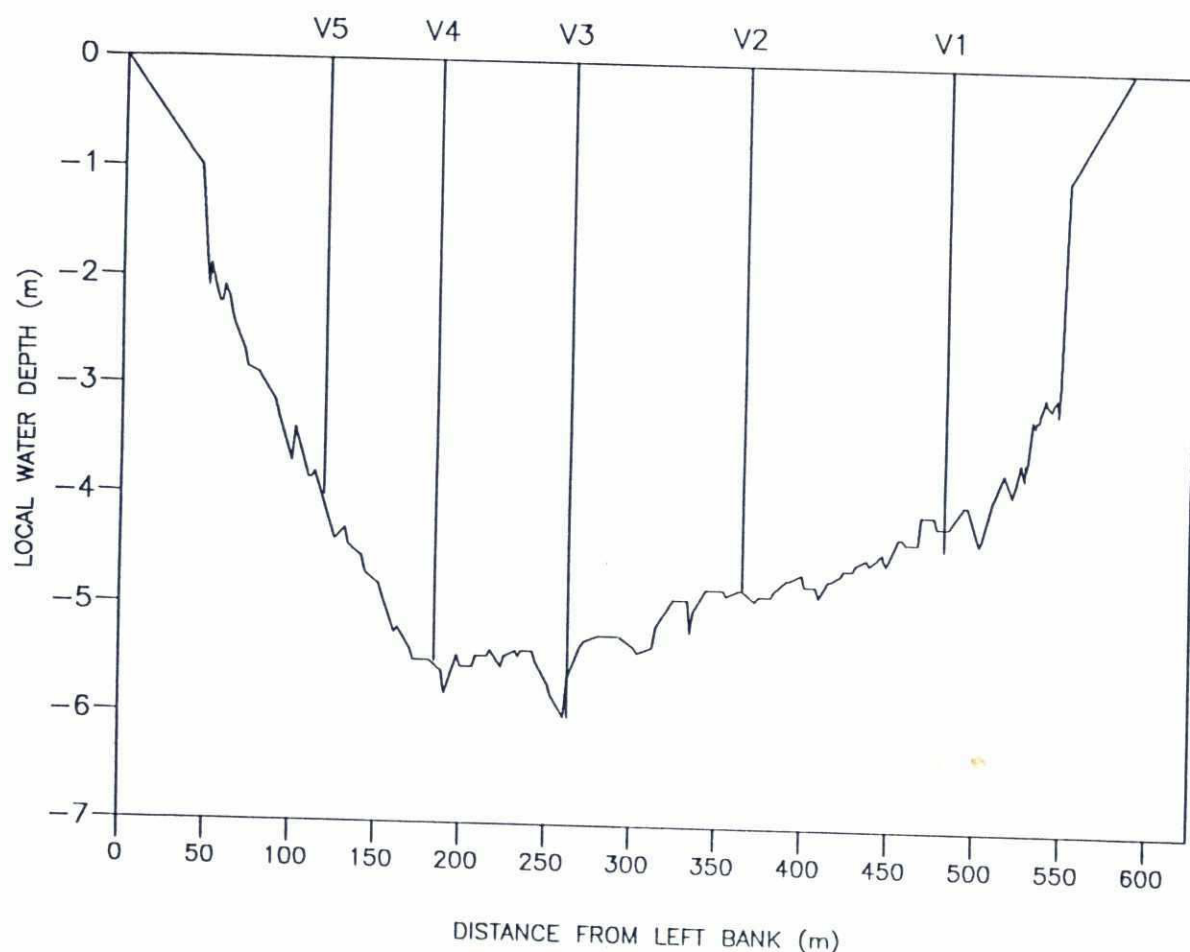
FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 48 : 02 - 04 April, 1994	
		Location 1 : Jamuna River, Bahadurabad			
File : B4431T02	Date : 07 Aug 1994	Cross-sections and measured verticals Channel 1			page
	Init : mk				1.2



Water-level : 15.21 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 48 : 02 - 04 April, 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
File : B4422B01	Date : 06 Sep 1994	Cross-sections and measured verticals Channel 2	page
	Init : mk		1.3

201



Water-level : 15.21 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 48 : 02 - 04 April, 1994	
File : B4441T01		Date : 07 Aug 1994		Location 1 : Jamuna River, Bahadurabad	
		Init : mk			
		Cross-sections and measured verticals		Channel 3	
				page	
				1.4	

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Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	4	-	4	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	2	-	-
Vertical current profile	No. of verticals in channel	8	4	5	-
	ADCP	8	-	5	-
	S4 current meter	1	4	5	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	18	6	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	1	-	1	-
	Integrated bottle sampling	8	-	5	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	12	8	10	-
	Delft Bottle	-	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1: Survey programme as made

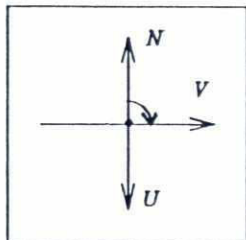
Channel	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended sediment transport Ss total (kg/s)
Channel 1	1239	7577	15.29	6309	24	3259
Channel 2	453	2022	15.21	1800	8	948
Channel 3	588	2333	15.21	1843	4	682

Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	03 Apr 94	15.29	FAP 24
	Channel 2	02 Apr 94	15.21	FAP 24
	Channel 3	04 Apr 94	15.21	FAP 24

Table 2.3: Water-levels

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 48 : 02-04 April , 1994	
				Location 1 : Jamuna river, Bahadurabad	
File : B4431T02 B4422B01 B4441T01		Date : 07 Aug 1994 Init : mua/mk		Survey programme as made and key figures	page 2.1

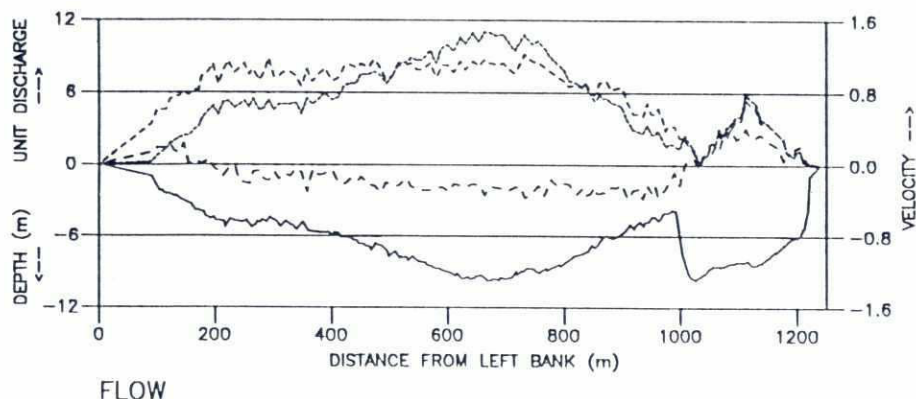


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STAGE)

..... UNIT DISCHARGE (m³/s.m)

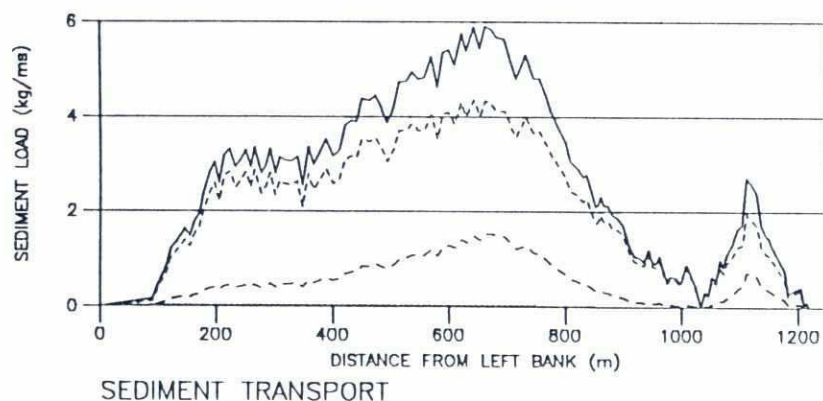
--- U - (m/s)

-.- V - (m/s)

STAGE = 15.29 (m+P.W.D.)

A = 7577 (m²)

Q = 6309 (m³/s)



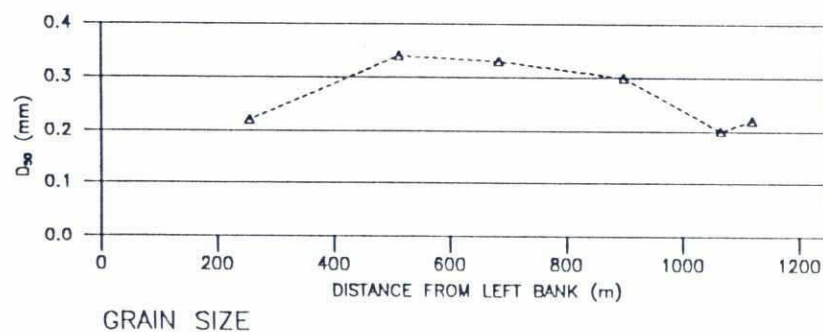
LEGEND :

— S_{TOTAL} 3283 (kg/s)

--- S_{WASH LOAD} 2603 (kg/s)

-.- S_{SUSP. RED} 656 (kg/s)

..... S_{RED LOAD} 24 (kg/s)

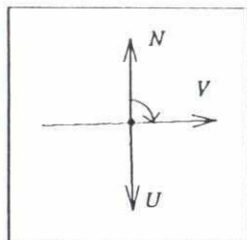


LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ RED LOAD (mm)

□□□□□ D₅₀ RED MAT. (mm)

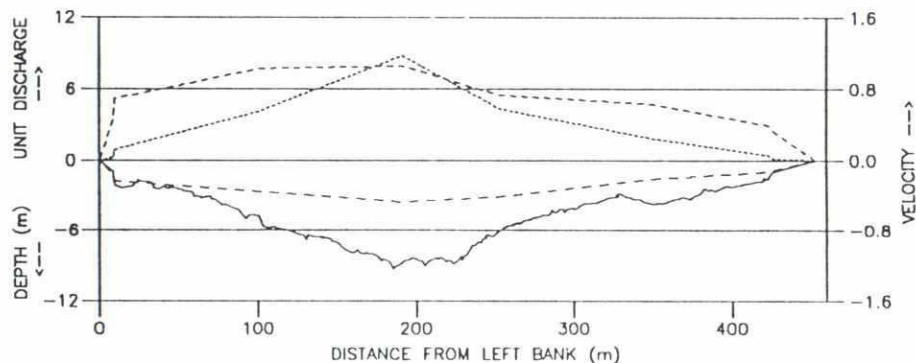


TRANSECT AZIMUTH = 88°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STAGE)

..... UNIT DISCHARGE (m³/s.m)

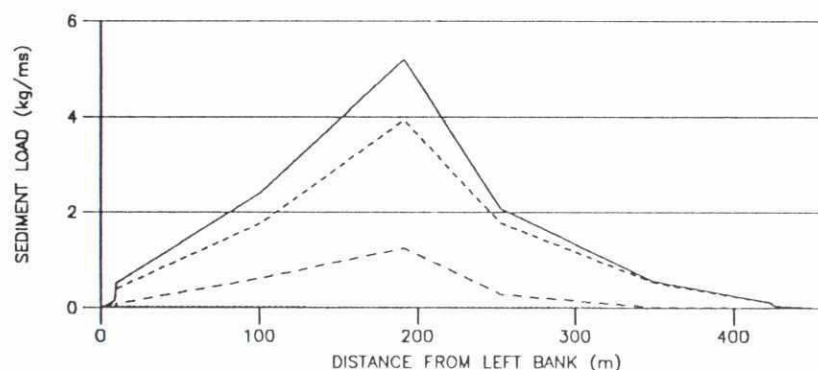
--- U - (m/s)

-.- V - (m/s)

STAGE = 15.21 (m+PND)

A = 2022 (m³)

Q = 1800 (m³/s)



SEDIMENT TRANSPORT

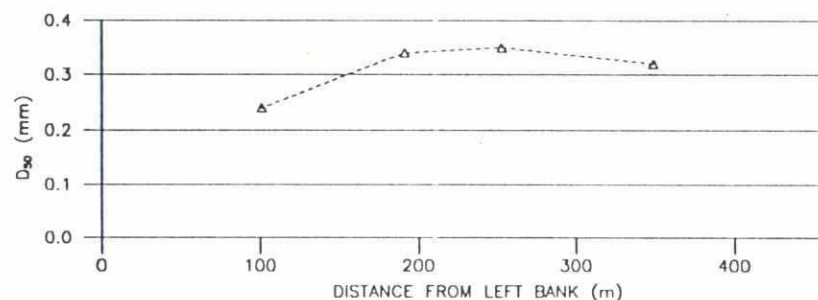
LEGEND :

— S_{TOTAL} 956 (kg/s)

--- S_{WASH LOAD} 745 (kg/s)

-.- S_{SUSP. BED} 203 (kg/s)

..... S_{BED LOAD} 8 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)



RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 48 : 02-04 April, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4422B01

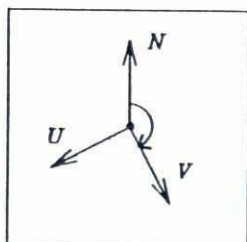
Date : 07 Aug 1994

Init : mk

Horizontal distribution of flow and sediments
Channel 2

page

3.2

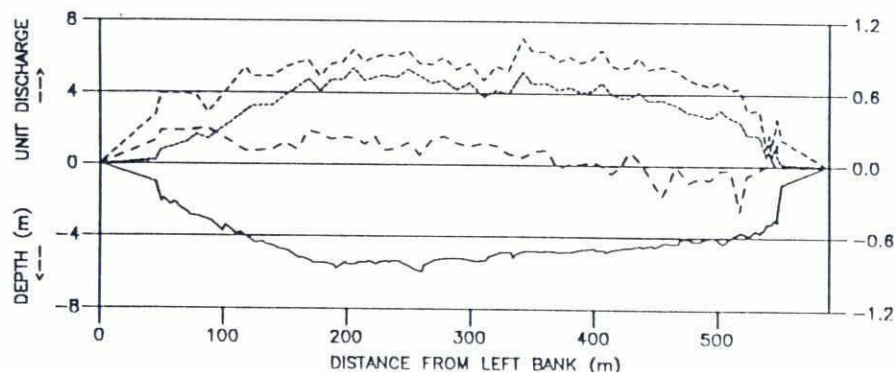


TRANSECT AZIMUTH = 152°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STAGE)

..... UNIT DISCHARGE ($m^3/s.m$)

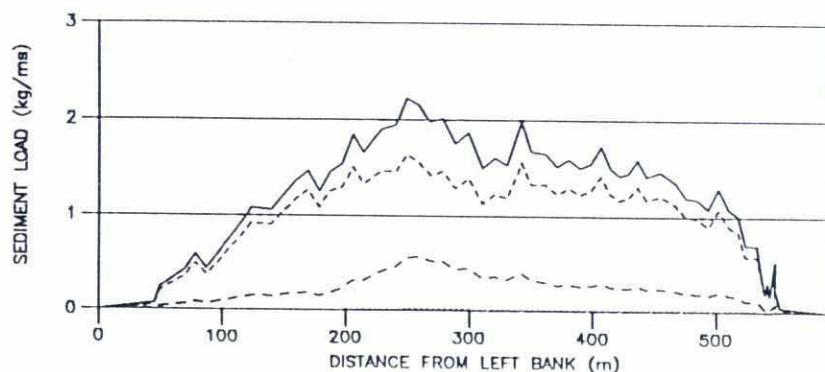
--- U - (m/s)

-.- V - (m/s)

STAGE = $15.21 (m + PWD)$

A = $2333 (m^2)$

Q = $1843 (m^3/s)$



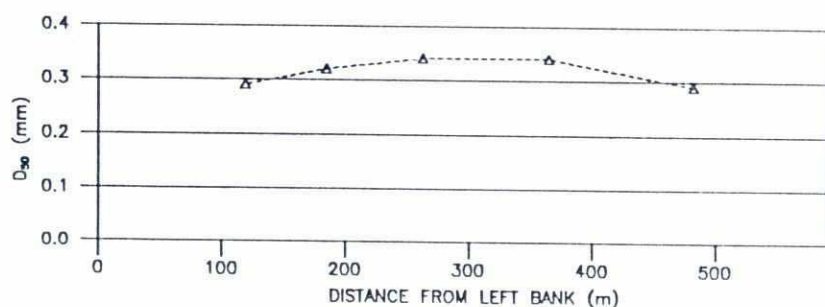
LEGEND :

— S_{TOTAL} 686 (kg/s)

--- $S_{WASH LOAD}$ 551 (kg/s)

-.- $S_{SUSP. BED}$ 131 (kg/s)

..... $S_{BED LOAD}$ 4 (kg/s)



LEGEND :

◇◇◇◇◇ $D_{50 SUSP.}$ (mm)

△△△△△ $D_{50 BED LOAD}$ (mm)

□□□□□ $D_{50 BED MAT.}$ (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 48 : 02 - 04 April, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4441T01

Date : 07 Aug 1994

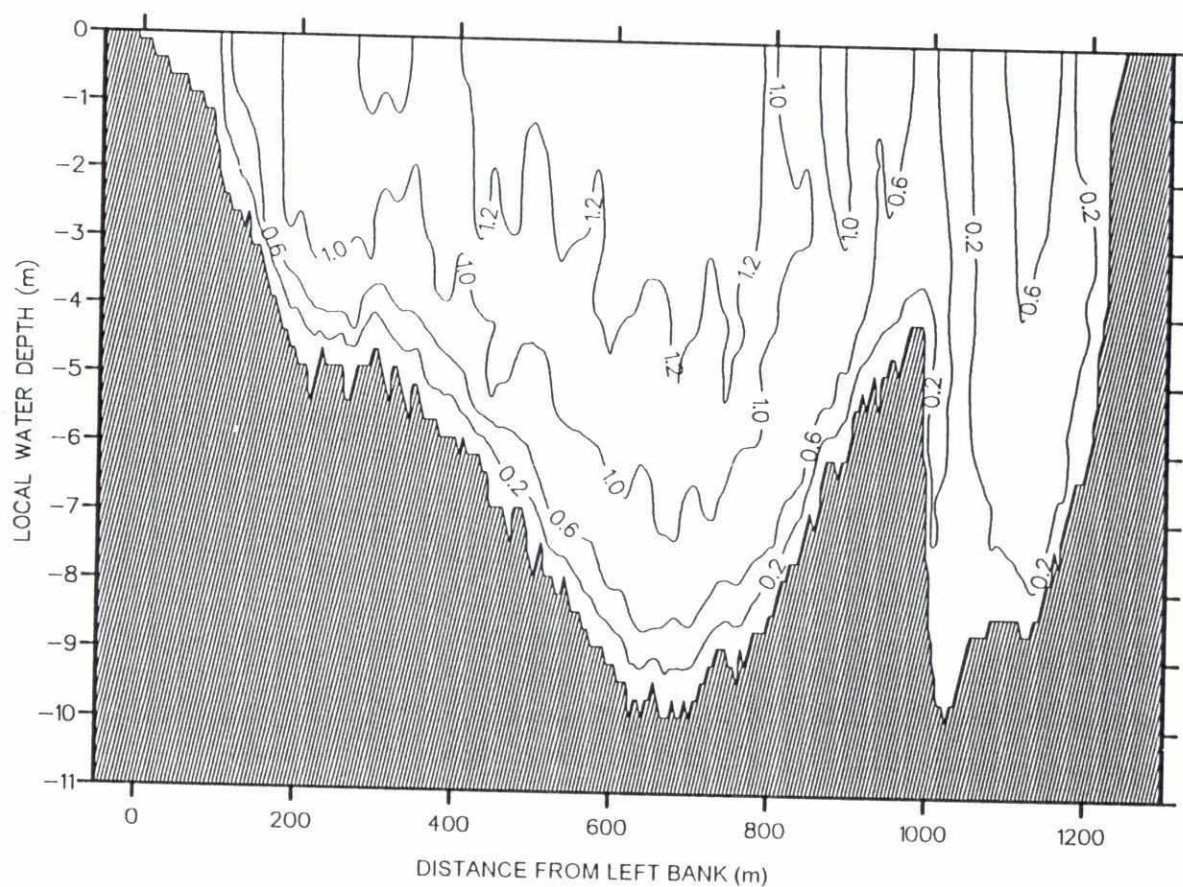
Init : mk

Horizontal distribution of flow and sediments

Channel 3

page

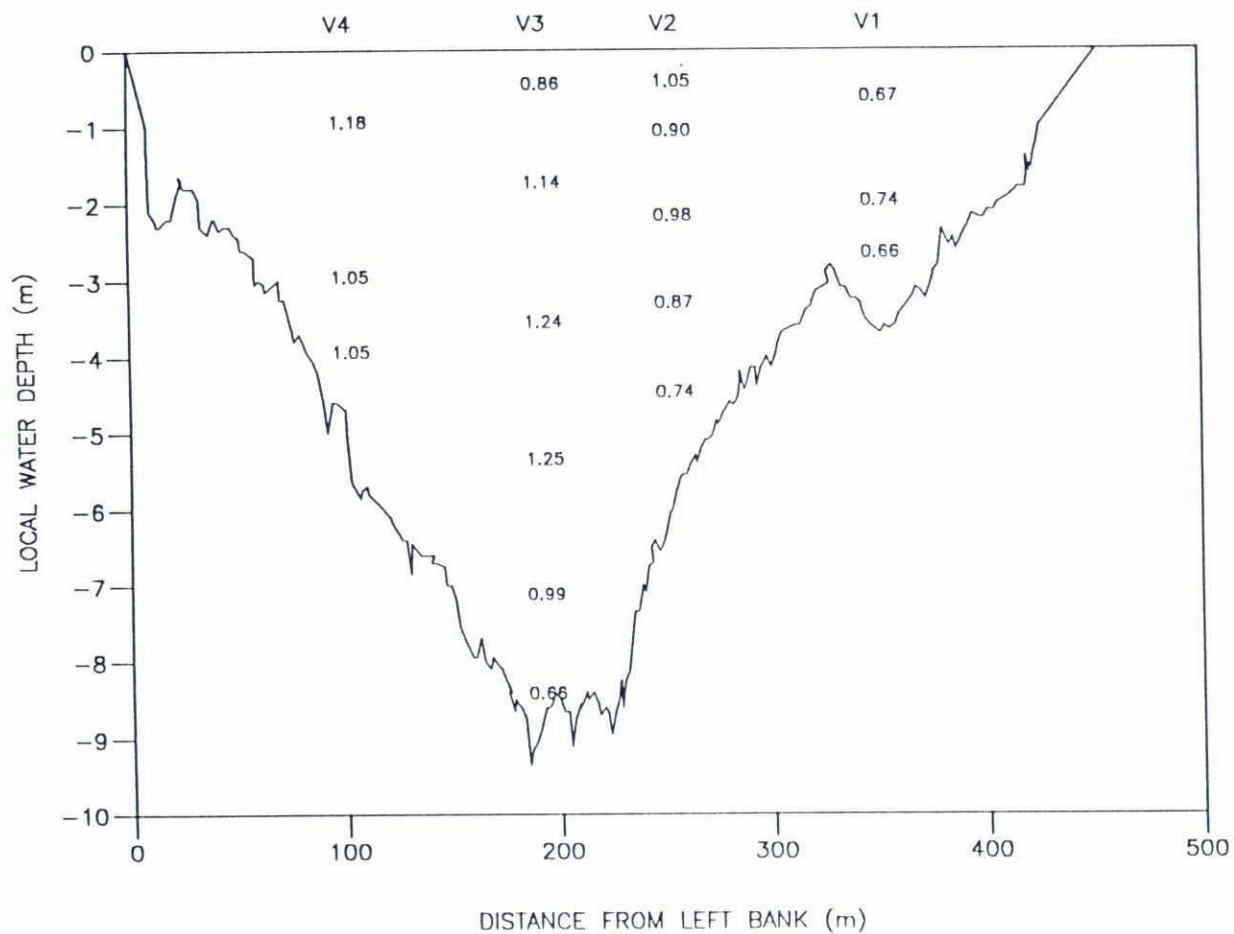
3.3



Iso-velocity contours (m/s)

Water-level : 15.29 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 48 : 02 - 04 April, 1994	
			Location 1 : Jamuna River, Bahadurabad	
File : B4431T02	Date : 07 Aug 1994		Cross-sectional distribution of flow velocity Channel 1	page 4.1
	Init : mk			



Water-level : 15.21 m + PWD measured at the station indicated on page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 48 : 02 - 04 April, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4422B01

Date : 06 Sep 1994

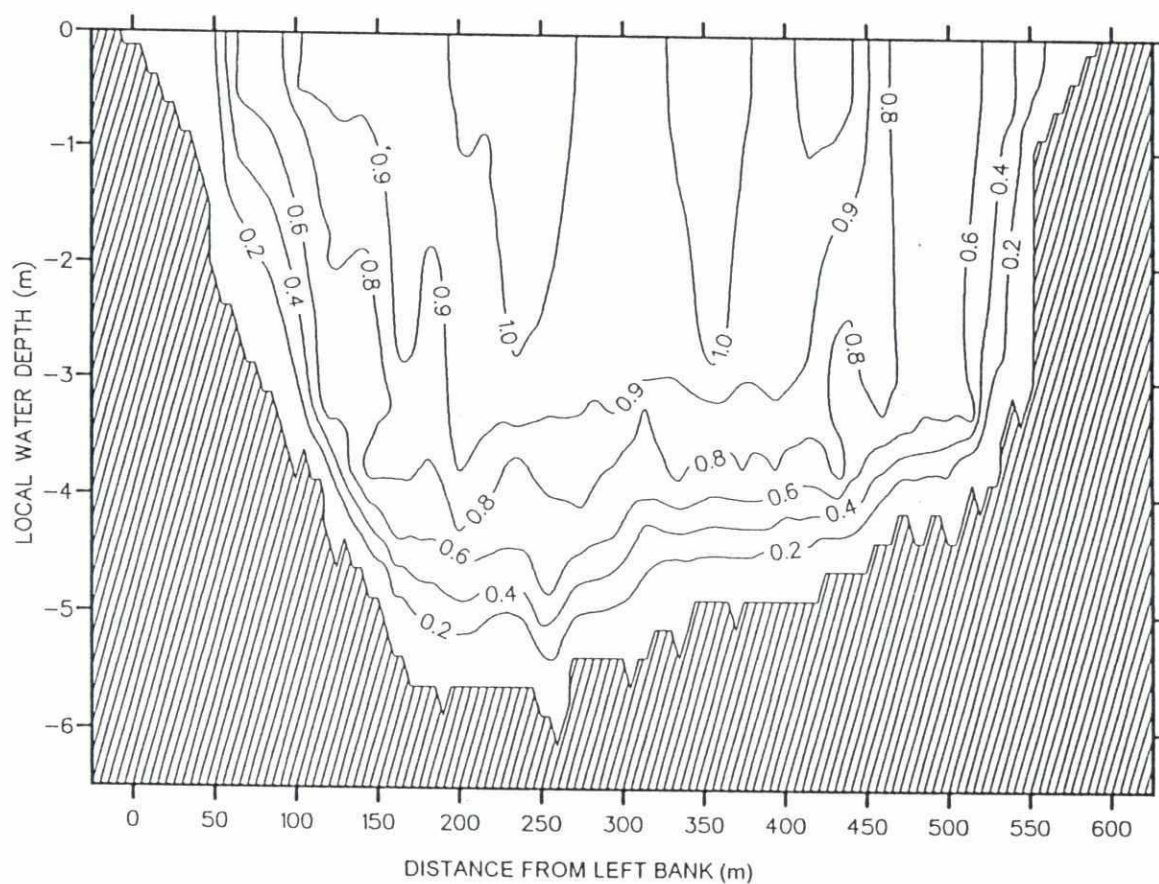
Init : mk

Cross-sectional distribution of flow velocity

Channel 2

page

4.2



Iso-velocity contours (m/s)

Water-level : 15.21 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 48 : 02 - 04 April, 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
File : B4441T01	Date : 07 Aug 1994	Cross-sectional distribution of flow velocity Channel 3	page
	Init : mk		4.3

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Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9404030756-0808	B4431T02*
		9404030812-0822	B4431T03
		9404031808-1817	B4431T05
		9404031830-1840	B4431T07
	2	9404020741-0745	B4422B01*
		9404020747-0751	B4422B02
	3	9404040907-0912	B4441T01*
		9404040915-0919	B4441T02
		9404041503-1507	B4441T03
		9404041509-1514	B4441T04

Table 6.1: ADCP & EMF transects *: transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	5	9404031740-1747	469531	776430	5.20	B4431P09*
		6	9404031621-1632	469619	776435	8.10	B4431P08*
		7	9404031504-1513	469673	776427	8.60	B4431P07*
		8	9404031422-1432	469725	776431	8.20	B4431P06*
		9	9404031234-1248	469840	776429	5.90	B4431P04*
		10	9404031121-1222	470054	776430	9.80	B4431P03
		11	9404031038-1052	470226	776430	7.20	B4431P02*
		12	9404031016-1028	470483	776429	4.80	B4431P01*
	2	1	9404020914-0933	468637	776631	3.40	B4422P01**
		2	9404020958-1035	468722	776635	5.60	B4422P02**
		3	9404021110-1149	468795	776632	9.00	B4422P03**
		4	9404021214-1432	468882	776623	5.00	B4422P04**
	3	1	9404041019-1042	463165	793381	4.40	B4441P01*
		2	9404041106-1127	463215	793275	4.80	B4441P02*
		3	9404041148-1248	463259	793183	6.00	B4441P03
		4	9404041359-1421	463294	793113	5.50	B4441P04*
		5	9404041439-1455	463323	793054	4.00	B4441P05*

Table 6.2: Vertical profiles * S4 & MEX not available *** ADCP & MEX not available

 FAP 24 RIVER SURVEY PROJE Flood Plan Coordination Organizatio Commission of the European Commu	Survey Bulletin 48 : 02-04 April , 1994		
	Location 1 : Jamuna River , Bahadurabad		
	Date : 07 Aug 1994	Collected data and their storage (1)	page 6.1
	Init : mua/mk		

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1	6	9404031121-1222	470054	776430	9.80
	2	1	3	9404020914-0933	468637	776631	3.40
		2	6	9404020958-1035	468722	776635	5.60
		3	6	9404021110-1149	468795	776632	9.00
		4	3	9404021214-1432	468882	776623	5.00
	3	3	6	9404041148-1248	463259	793183	6.00

Table 6.3: Suspended sediment - point sampled

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	1	5	1	9404031740-1747	469531	776430	5.20
		6	1	9404031621-1632	469619	776435	8.10
		7	1	9404031504-1513	469673	776427	8.60
		8	1	9404031422-1432	469725	776431	8.20
		9	1	9404031234-1248	469840	776429	5.90
		10	1	9404031121-1222	470054	776430	9.80
		11	1	9404031038-1052	470226	776430	7.20
		12	1	9404031016-1028	470483	776429	4.80
	3	1	1	9404041019-1042	463165	793381	4.40
		2	1	9404041106-1127	463215	793275	4.80
		3	1	9404041148-1248	463259	793183	6.00
		4	1	9404041359-1421	463294	793113	5.50
		5	1	9404041439-1455	463323	793054	4.50

Table 6.4: Suspended sediment - depth integrated

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 48 : 02 - 04 April , 1994	
		Location 1 : Jamuna River , Bahadurabad	
	Date: 07 Aug 1994	Collected data and their storage (2)	page 6.2
	Init : mua/mk		

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Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	6	9404031617	469619	776435	8.10	A1163
		6	9404031619	469619	776435	8.10	A356
		7	9404031500	469673	776427	8.60	A44
		7	9404031502	469673	776427	8.60	A700
		9	9404031230	469840	776429	5.90	A57
		9	9404031232	469840	776429	5.90	A59
		10	9404031117	470054	776430	9.80	A129
		10	9404031119	470054	776430	9.80	A55
		11	9404031034	470226	776430	7.20	A61
		11	9404031036	470226	776430	7.20	A63
		12	9404031012	470483	776429	4.80	A60
		12	9404031014	470483	776429	4.80	A62
	2	1	9404020910	468637	776631	3.40	A94
		1	9404020912	468637	776631	3.40	A121
		2	9404020954	468722	776635	5.60	A1133
		2	9404020956	468722	776635	5.60	A1151
		3	9404021106	468795	776632	9.00	A96
		3	9404021108	468795	776632	9.00	A102
		4	9404021210	468882	776623	5.00	A1137
		4	9404021212	468882	776623	5.00	A1153
	3	1	9404041015	463165	793381	4.40	A1154
		1	9404041017	463165	793381	4.40	A1369
		2	9404041102	463215	793275	4.80	A880
		2	9404041104	463215	793275	4.80	A893
		3	9404041144	463259	793183	6.00	A80
		3	9404041146	463259	793183	6.00	A82
		4	9404041355	463294	793113	5.50	A83
		4	9404041357	463294	793113	5.50	A85
		5	9404041435	463323	793054	4.50	A112
		5	9404041437	463323	793054	4.50	A113

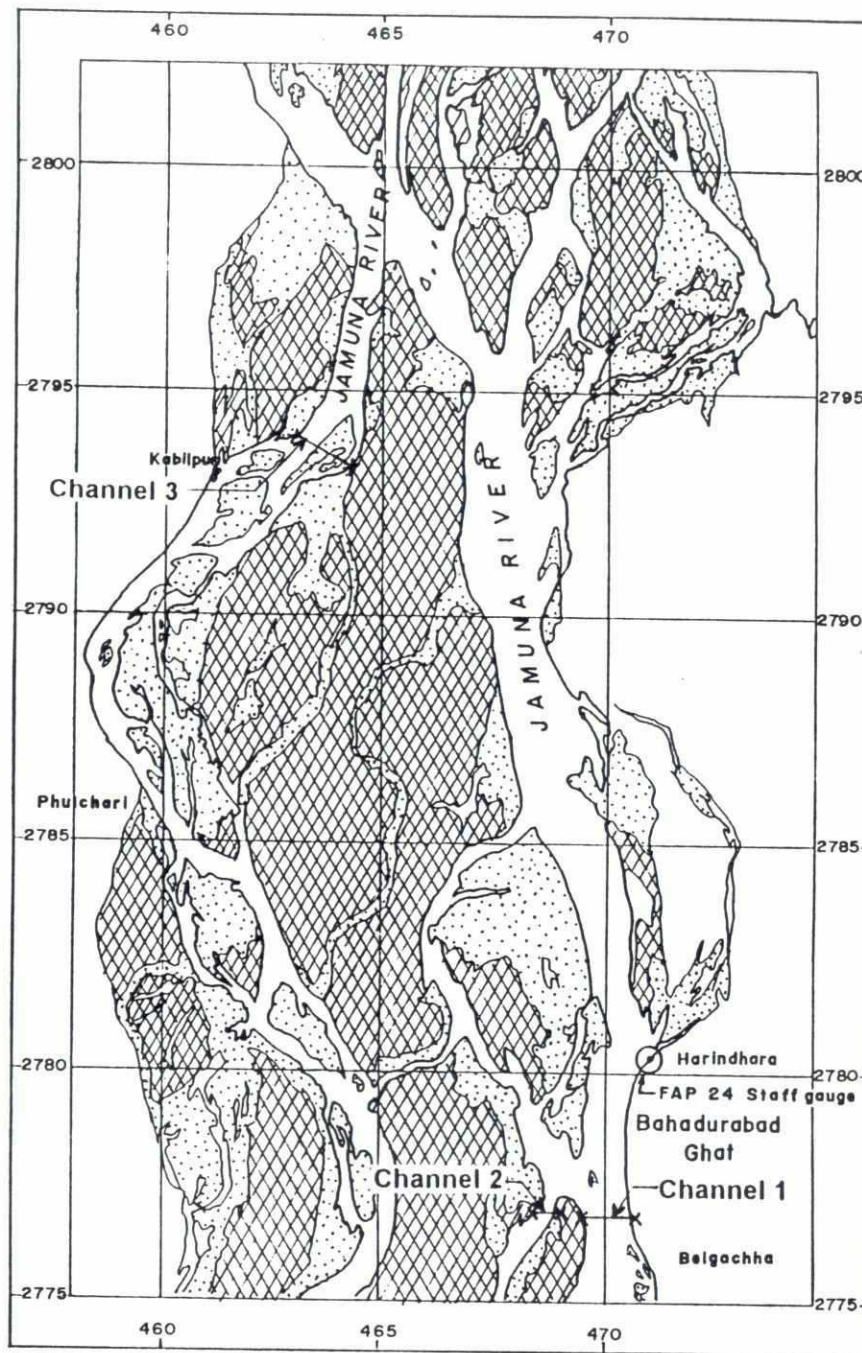
Table 6.5: Bed load

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 48 : 02 - 04 April , 1994			
		Location 1 : Jamuna River , Bahadurabad					
		Date: 07 Aug 1994		Collected data and their storage (3)			
		Init : mua/mk					
		page 6.3					

Types of Data	Channel	Format	File Name
ADCP /S4/ EMF data	1	QUATTRO	B4431T02.ase
ADCP /S4/ EMF data	2	QUATTRO	B4422B01.ase
ADCP /S4/ EMF data	3	QUATTRO	B4441T01.ase
Echosounder data	1	QUATTRO	B4431T02.ech
Echosounder data	2	QUATTRO	B4422B01.ech
Echosounder data	3	QUATTRO	B4441T01.ech
Sediment transport data	1	QUATTRO	B4431T02.sed
Sediment transport data	2	QUATTRO	B4422B01.sed
Sediment transport data	3	QUATTRO	B4441T01.sed
Bed load sediment analysis	1	QUATTRO	B4431T02.bdl
Bed load sediment analysis	2	QUATTRO	B4422B01.bdl
Bed load sediment analysis	3	QUATTRO	B4441T01.bdl
Suspended sediment conc.	1	QUATTRO	B4431T02.ssc
Suspended sediment conc.	2	QUATTRO	B4422T01.ssc
Suspended sediment conc.	3	QUATTRO	B4441T01.ssc
Transect plot data	1	QUATTRO	B4431T02.trs
Transect plot data	2	QUATTRO	B4422B01.trs
Transect plot data	3	QUATTRO	B4441T01.trs
Iso-velocity plot data	1	MIKE 21	B4431T02.ct2
			B4431T02.dt2
Iso-velocity plot data	3	MIKE 21	B4441T01.ct2
			B4441T01.dt2

Table 7.1: PSD24 Database File Description

FAP 24  DELFT - DHI		Survey Bulletin 48 : 02-04 April , 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River , Bahadurabad	
	Date : 07 Aug 1994	PSD24 Database file description	page
	Init : mua/mk		7.1



LEGEND :

- * — * Cross section
- High land
- Unstable / low char
- FAP 24 Staff gauge

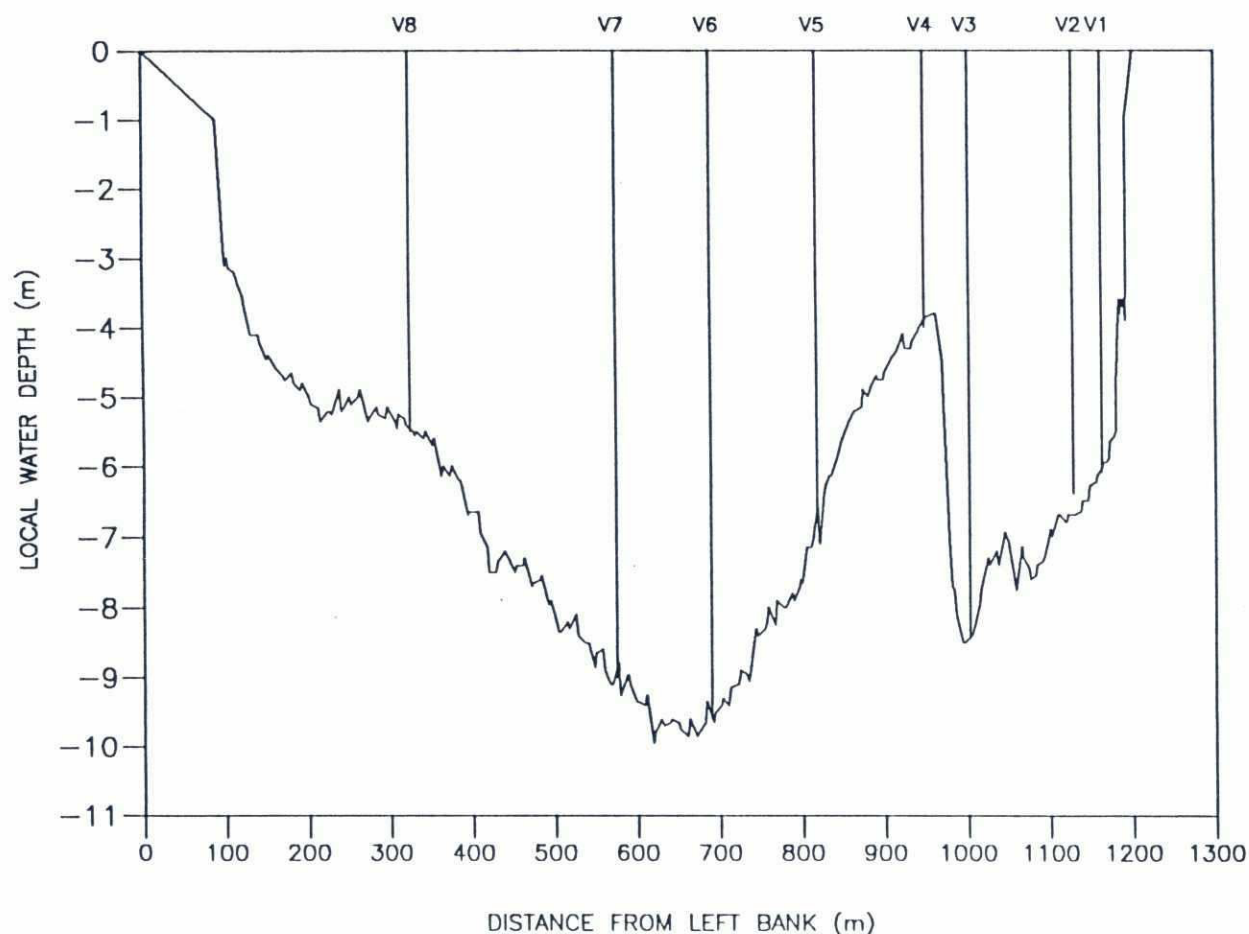


5000 m 2500 m 0

Map is based on satellite images of March 1994

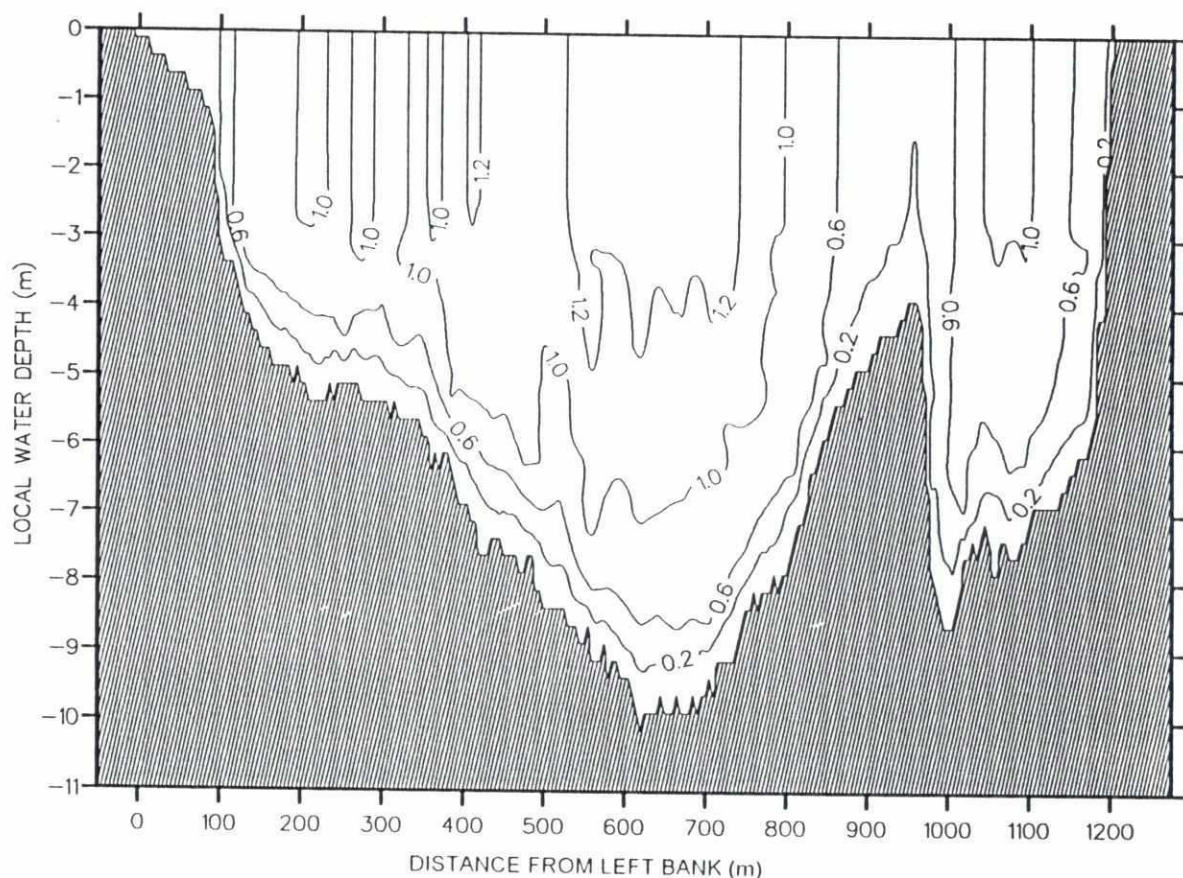
FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 54 : 26 - 28 April, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 18 Aug 1994	Location map	page 1.1
	Init : mua		

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Water-level : 15.52 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 54 : 26 - 28 April, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B44Q1T02	Date : 18 Aug 1994	Cross-sections and measured verticals Channel 1	page
	Init : mk		1.2

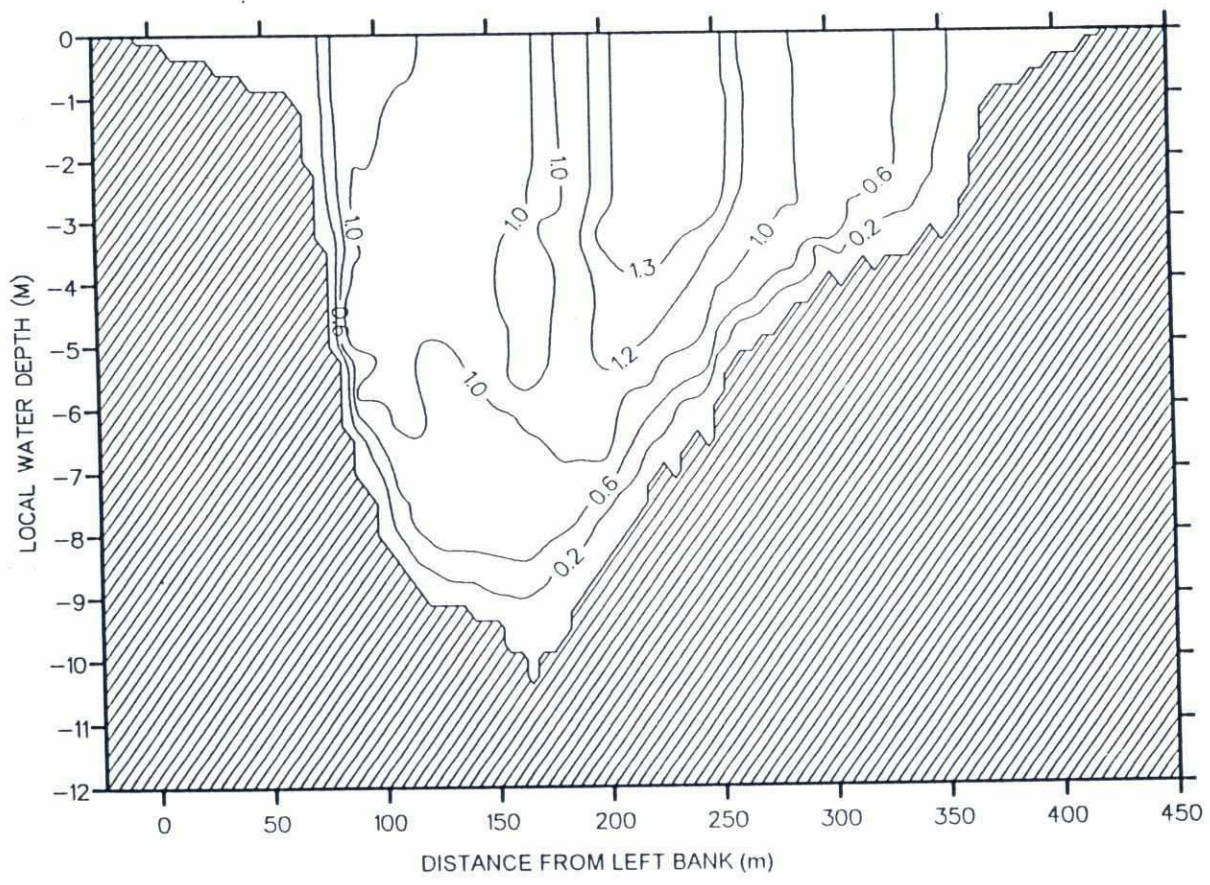


Iso-velocity contours (m/s)

Water-level : 15.52 m + PWD measured at the station indicated on page 1.1

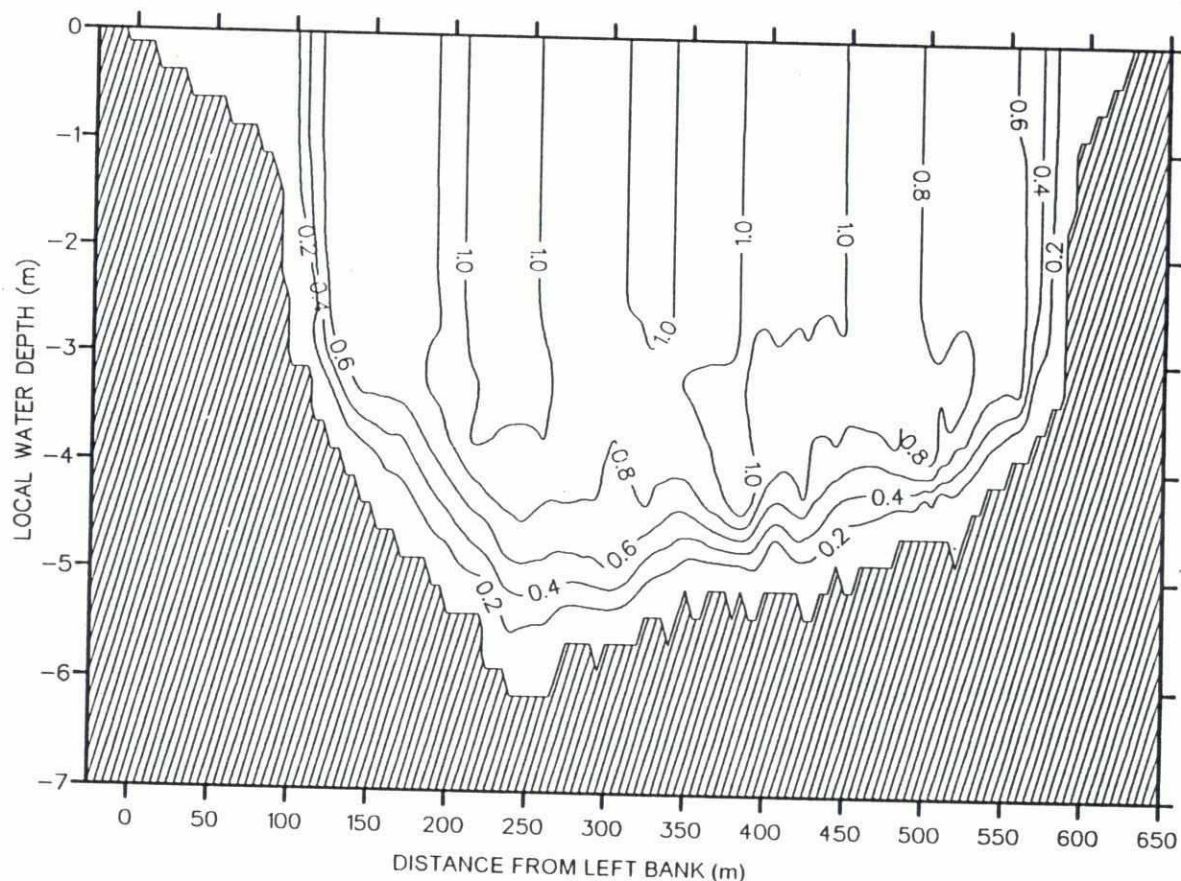
FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 54 : 26 - 28 April, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B44Q1T02	Date : 18 Aug 1994	Cross-sectional distribution of flow velocity Channel 1	page 4.1
	Init : mk/mua		

PPG



Iso-velocity contours (m/s)
Water-level : 15.61 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 54 : 26 - 28 April, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B44R1T06	Date : 18 Aug 1994	Cross-sectional distribution of flow velocity Channel 2	page 4.2
	Init : mk/mua		



Iso-velocity contours (m/s)

Water-level : 15.58 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 54 : 26 - 28 April, 1994	
				Location 1 : Jamuna River, Bahadurabad	
File : B44S1T01	Date : 18 Aug 1994		Cross-sectional distribution of flow velocity		page
	Init : mk/mua				
			Channel 3		4.3

Helley-Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06	> 0.06 mm			
1	1	199404261112-1122	6.1	0.0	100.0	0.172	0.222	0.286
	1	199404261112-1122	6.1	0.0	100.0	0.149	0.190	0.242
	2	199404261136-1145	6.4	0.0	100.0	0.196	0.247	0.309
	2	199404261136-1145	6.4	0.0	100.0	0.197	0.254	0.318
	3	199404261200-1210	8.4	0.0	100.0	0.176	0.223	0.286
	3	199404261200-1210	8.4	0.0	100.0	0.196	0.253	0.315
	4	199404261245-1258	4.0	0.0	100.0	0.068	0.113	0.163
	4	199404261245-1258	4.0	0.0	100.0	0.176	0.206	0.242
	5	199404261337-1349	6.7	0.0	100.0	0.186	0.230	0.289
	5	199404261337-1349	6.7	0.0	100.0	0.188	0.236	0.297
	6	199404261500-1620	9.6	0.0	100.0	0.279	0.320	0.367
	6	199404261500-1620	9.6	0.0	100.0	0.293	0.332	0.377
	7	199404270842-0859	9.0	0.0	100.0	0.278	0.320	0.368
	7	199404270842-0859	9.0	0.0	100.0	0.291	0.331	0.376
	8	199404270917-0930	5.5	0.0	100.0	0.207	0.260	0.319
	8	199404270917-0930	5.5	0.0	100.0	0.228	0.282	0.336
2	1	199404271347-1358	2.9	0.0	100.0	0.293	0.332	0.376
	1	199404271347-1358	2.9	0.0	100.0	0.294	0.333	0.377
	2	199404271411-1422	6.1	0.0	100.0	0.287	0.327	0.372
	2	199404271411-1422	6.1	0.0	100.0	0.299	0.338	0.381
	3	199404271500-1602	9.4	0.0	100.0	0.307	0.346	0.390
	3	199404271500-1602	9.4	0.0	100.0	0.307	0.344	0.386
	4	199404271622-1632	7.4	0.0	100.0	0.235	0.286	0.340
	4	199404271622-1632	7.4	0.0	100.0	0.270	0.313	0.362
3	1	199404281156-1204	4.7	0.0	100.0	0.263	0.307	0.358
	1	199404281156-1204	4.7	0.0	100.0	0.266	0.310	0.360
	2	199404281213-1225	5.2	0.0	100.0	0.293	0.332	0.377
	2	199404281213-1225	5.2	0.0	100.0	0.293	0.332	0.376
	3	199404281231-1240	5.5	0.0	100.0	0.302	0.340	0.383
	3	199404281231-1240	5.5	0.0	100.0	0.160	0.178	0.197
	4	199404281332-1437	4.9	0.0	100.0	0.282	0.323	0.370
	4	199404281332-1437	4.9	0.0	100.0	0.268	0.311	0.361
	5	199404281447-1454	4.0	0.0	100.0	0.257	0.301	0.351
	5	199404281447-1454	4.0	0.0	100.0	0.266	0.309	0.358
Table 5.3 : Grain sizes of bed load								

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 54 : 26 - 28 April , 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 26 Aug 1994	Grain size distributions	page
	init : mua/mk		

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Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	199404260919-0927	B44Q1T01
		199404260930-0940	B44Q1T02*
		199404261638-1646	B44Q1T03
		199404261648-1658	B44Q1T04
		199404270750-0758	B44R1T01
		199404270802-0813	B44R1T02
		199404270946-0956	B44R1T03
		199404271004-1013	B44R1T04
	2	199404271134-1137	B44R1T05
		199404271142-1147	B44R1T06*
		199404271644-1647	B44R1T07
		199404271650-1654	B44R1T08
	3	199404280940-0945	B44S1T01*
		199404280953-0958	B44S1T02
		199404281502-1507	B44S1T03
		199404281510-1514	B44S1T04

Table 6.1: ADCP & EMF transects

* : transect in PSD 24 data base and presented in Sections 3 and

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	199404261112-1122	469551	776436	6.1	B44Q1P01*
		2	199404261136-1145	469588	776439	6.4	B44Q1P02*
		3	199404261200-1210	469710	776430	8.4	B44Q1P03*
		4	199404261245-1258	469765	776430	4.0	B44Q1P04*
		5	199404261337-1349	469890	776432	6.7	B44Q1P05*
		6	199404261500-1620	470018	776435	9.6	B44Q1P06
		7	199404270842-0859	470140	776433	9.0	B44R1P01*
		8	199404270917-0930	470383	776429	5.5	B44R1P02*
	2	1	199404271347-1358	468629	776633	2.9	B44R1P03*
		2	199404271411-1422	468725	776632	6.1	B44R1P04*
		3	199404271500-1602	468801	776631	9.4	B44R1P05
		4	199404271622-1632	468874	776639	7.4	B44R1P06*
	3	1	199404281156-1204	463173	793382	4.7	B44S1P01*
		2	199404281213-1225	463213	793281	5.2	B44S1P02*
		3	199404281231-1240	463265	793172	5.5	B44S1P03*
		4	199404281332-1437	463295	793105	4.9	B44S1P04
		5	199404281447-1454	463329	793051	4.0	B44S1P05*

Table 6.2: Vertical profiles

* S4 & MEX not available

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	6	6	199404261500-1620	470018	776435	9.6
	2	3	6	199404271500-1602	468801	776631	9.4
	3	4	6	199404281332-1437	463295	793105	4.9

Table 6.3: Suspended sediment - point sampled

 FAP 24 DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 54 : 26 - 28 April , 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date 26 Aug 1994	Collected data and their storage (1)	page 61
	init mua/mk		

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1	1	199404261112-1122	469551	776436	6.1
		2	1	199404261136-1145	469588	776439	6.4
		3	1	199404261200-1210	469710	776430	8.4
		4	1	199404261245-1258	469765	776430	4.0
		5	1	199404261337-1349	469890	776432	6.7
		6	1	199404261500-1620	470018	776435	9.6
		7	1	199404270842-0859	470140	776433	9.0
		8	1	199404270917-0930	470383	776429	5.5
	2	1	1	199404271347-1358	468629	776633	2.9
		2	1	199404271411-1422	468725	776632	6.1
		3	1	199404271500-1602	468801	776631	9.4
		4	1	199404271622-1632	468874	776639	7.4
	3	1	1	199404281156-1204	463173	793382	4.7
		2	1	199404281213-1225	463213	793281	5.2
		3	1	199404281231-1240	463265	796172	5.5
		4	1	199404281332-1437	463295	793105	4.9
		5	1	199404281447-1454	463329	793051	4.0

Table 6.4: Suspended sediment - depth integrated

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1	199404261112-1122	469551	776436	6.1	A693
		1	199404261112-1122	469551	776436	6.1	A1159
		2	199404261136-1145	469588	776439	6.4	A79
		2	199404261136-1145	469588	776439	6.4	A461
		3	199404261200-1210	469710	776430	8.4	A354
		3	199404261200-1210	469710	776430	8.4	A45
		4	199404261245-1258	469765	776430	4.0	A894
		4	199404261245-1258	469765	776430	4.0	A62
		5	199404261337-1349	469890	776432	6.7	A69
		5	199404261337-1349	469890	776432	6.7	A891
		6	199404261500-1620	470018	776435	9.6	A876
		6	199404261500-1620	470018	776435	9.6	A865
		7	199404270842-0859	470140	776433	9.0	A120
		7	199404270842-0859	470140	776433	9.0	A567
		8	199404270917-0930	470383	776429	5.5	A110
		8	199404270917-0930	470383	776429	5.5	A870
	2	1	199404271347-1358	468629	776633	2.9	A1366
		1	199404271347-1358	468629	776633	2.9	A1359
		2	199404271411-1422	468725	776632	6.1	A862
		2	199404271411-1422	468725	776632	6.1	A913
		3	199404271500-1602	468801	776631	9.4	A910
		3	199404271500-1602	468801	776631	9.4	A78
		4	199404271622-1632	468874	776639	7.4	A1368
		4	199404271622-1632	468874	776639	7.4	A83
	3	1	199404281156-1204	463173	793382	4.7	A92
		1	199404281156-1204	463173	793382	4.7	A85
		2	199404281213-1225	463213	793281	5.2	A116
		2	199404281213-1225	463213	793281	5.2	A569
		3	199404281231-1240	463265	796172	5.5	A875
		3	199404281231-1240	463265	796172	5.5	A888
		4	199404281332-1437	463295	793105	4.9	A464
		4	199404281332-1437	463295	793105	4.9	A568
		5	199404281447-1454	463329	793051	4.0	A102
		5	199404281447-1454	463329	793051	4.0	A860

Table 6.5: Bed load

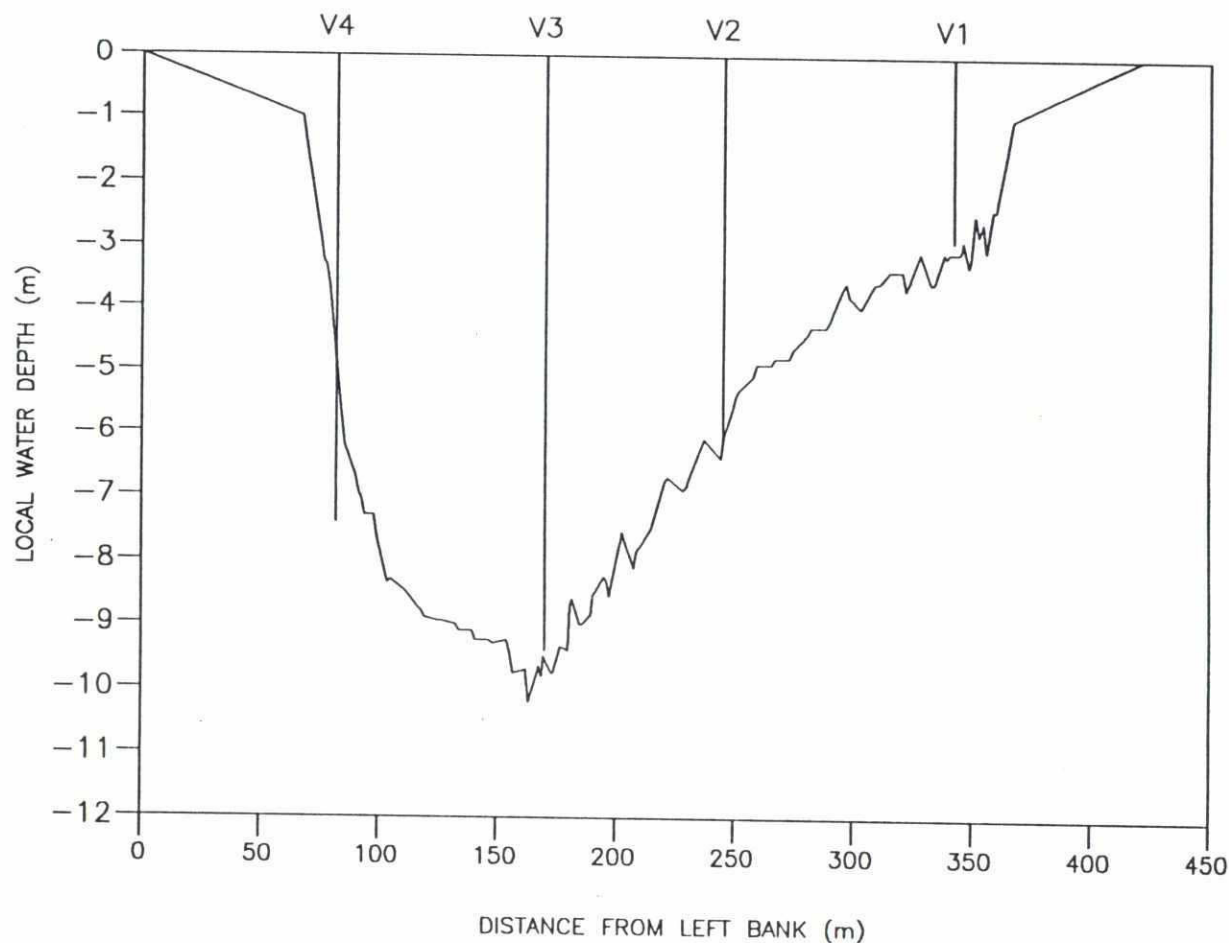
 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 54 : 26 - 28 April , 1994	
	Location 1 : Jamuna River, Bahadurabad	
	Date : 25 Aug 1994 init : mua/mk	Collected data and their storage (2) page 6.2

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Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	B44Q1T02 .ase
ADCP/S4/EMF data	2	QUATTRO	B44R1T06 .ase
ADCP/S4/EMF data	3	QUATTRO	B44S1T01 .ase
Echosounder data	1	QUATTRO	B44Q1T02 .ech
Echosounder data	2	QUATTRO	B44R1T06 .ech
Echosounder data	3	QUATTRO	B44S1T01 .ech
Sediment transport data	1	QUATTRO	B44Q1T02 .sed
Sediment transport data	2	QUATTRO	B44R1T06 .sed
Sediment transport data	3	QUATTRO	B44S1T01 .sed
Bed load sediment analysis	1	QUATTRO	B44Q1T02 .bdl
Bed load sediment analysis	2	QUATTRO	B44R1T06 .bdl
Bed load sediment analysis	3	QUATTRO	B44S1T01 .bdl
Susp. sed. conc. analysis	1	QUATTRO	B44Q1T02 .ssc
Susp. sed. conc. analysis	2	QUATTRO	B44R1T06 .ssc
Susp. sed. conc. analysis	3	QUATTRO	B44S1T01 .ssc
Transect plot data	1	QUATTRO	B44Q1T02 .trs
Transect plot data	2	QUATTRO	B44R1T06 .trs
Transect plot data	3	QUATTRO	B44S1T01 .trs
Iso-velocity plot data	1	MIKE 21	B44Q1T02 .ct2 B44Q1T02 .dt2
Iso-velocity plot data	2	MIKE 21	B44R1T06 .ct2 B44R1T06 .dt2
Iso-velocity plot data	3	MIKE 21	B44S1T01 .ct2 B44S1T01 .dt2

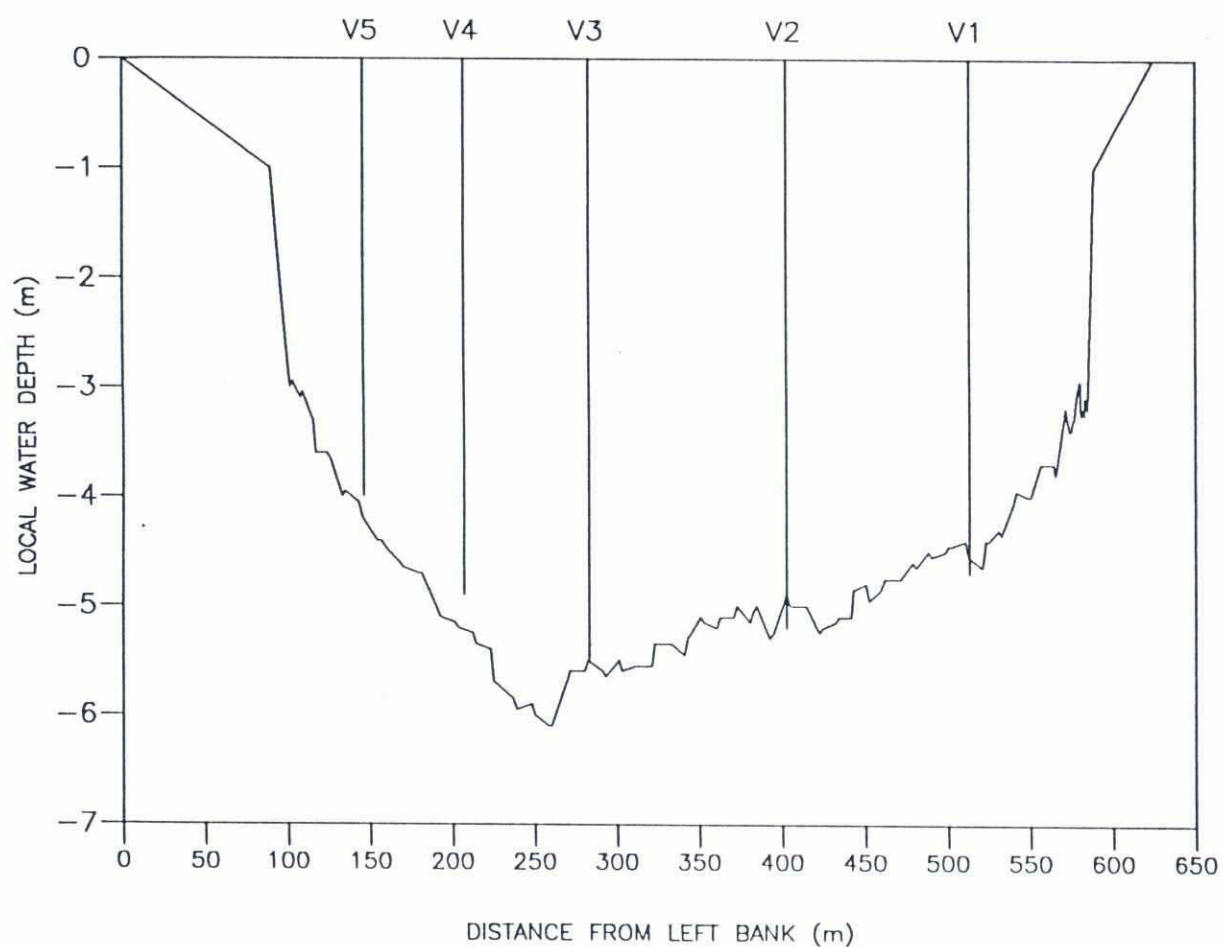
Table 7.1 PSD 24 Database file description

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 54 : 26 - 28 April , 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 26 Aug 1994	PSD 24 Database file description	page 7.1
	Init : mua/mk		



Water-level : 15.61 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 54 : 26 - 28 April, 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
File : B44R1T06	Date : 18 Aug 1994	Cross-sections and measured verticals Channel 2	page
	Init : mk/mua		1.3



Water-level : 15.58 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 54 : 26 - 28 April, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B44S1T01	Date : 18 Aug 1994	Cross-sections and measured verticals Channel 3	page 1.4
	Init : mk/mua		

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Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	4	4	4	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No. of verticals in channel	8	4	5	-
	ADCP	8	4	5	-
	S4 current meter	1	1	1	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	6	6	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	12	12	12	-
	Integrated bottle sampling	8	4	5	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	16	8	10	-
	Delft Bottle	-	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1: Survey programme as made

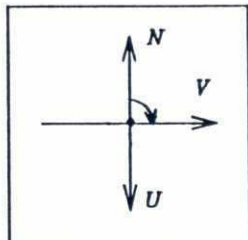
	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	1202	7421	15.52	6499	10	2038
Channel 2	420	1904	15.61	1890	16	780
Channel 3	626	2428	15.58	1971	5	680

Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	26 Apr 94	15.52	FAP 24
	Channel 2	27 Apr 94	15.61	FAP 24
	Channel 3	28 Apr 94	15.58	FAP 24

Table 2.3: Water-levels

 FAP 24 DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 54 : 26 - 28 April , 1994 Location 1 : Jamuna River, Bahadurabad	
B44Q1T02 B44R1T06 B44S1T01	Date : 26 Aug 1994	Survey programme as made and key figures	page 2.1
	init : mk/mua		

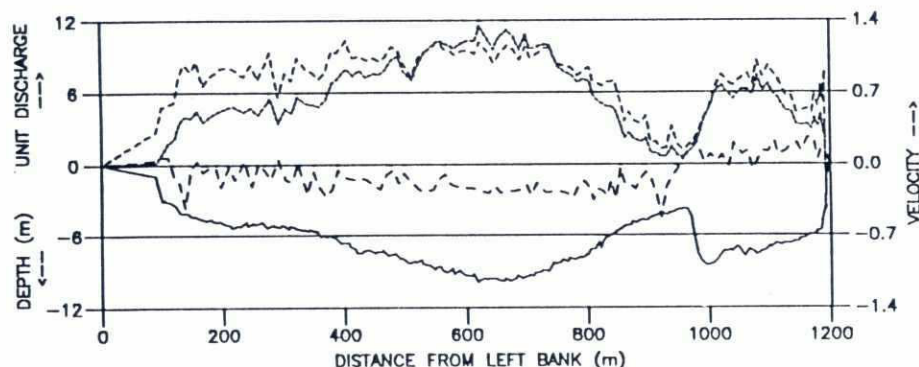


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STAGE)

..... UNIT DISCHARGE (m³/s.m)

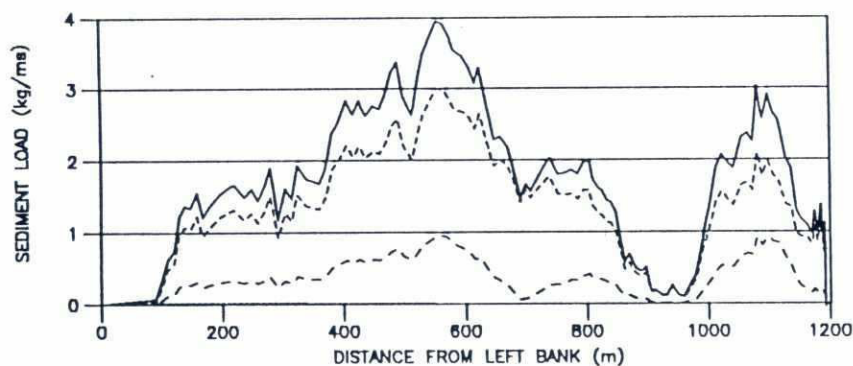
--- U - (m/s)

-.- V - (m/s)

STAGE = 15.52 (m+PWD)

A = 7421 (m²)

Q = 6499 (m³/s)



SEDIMENT TRANSPORT

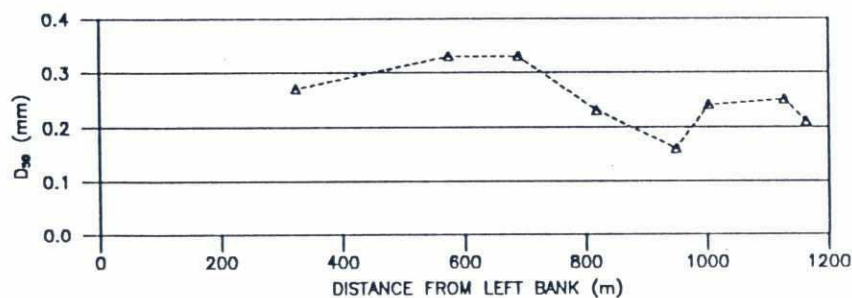
LEGEND :

— S_{TOTAL} 2048 (kg/s)

--- S_{WASH LOAD} 1605 (kg/s)

-.- S_{SUSP. RED} 433 (kg/s)

..... S_{RED LOAD} 10 (kg/s)



GRAIN SIZE

LEGEND :

◆◆◆◆ D₅₀ SUSP. (mm)

△△△△ D₅₀ RED LOAD (mm)

□□□□ D₅₀ RED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 54 : 26 - 28 April, 1994

Location 1 : Jamuna River, Bahadurabad

File : B44Q1T02

Date : 18 Aug 1994

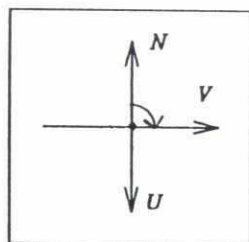
Init : mk

Horizontal distribution of flow and sediments

Channel 1

page

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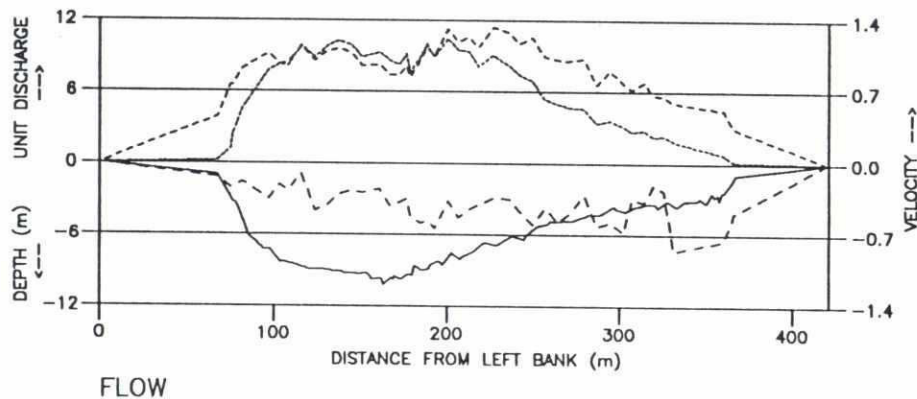


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



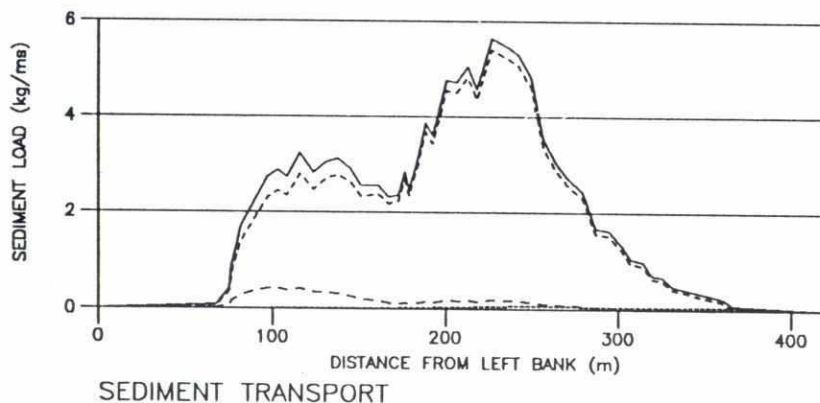
LEGEND :

— WATER DEPTH (m below STAGE)
 UNIT DISCHARGE (m³/s.m)
 -.-.- U - (m/s)
 V - (m/s)

STAGE = 15.61 (m+PWD)

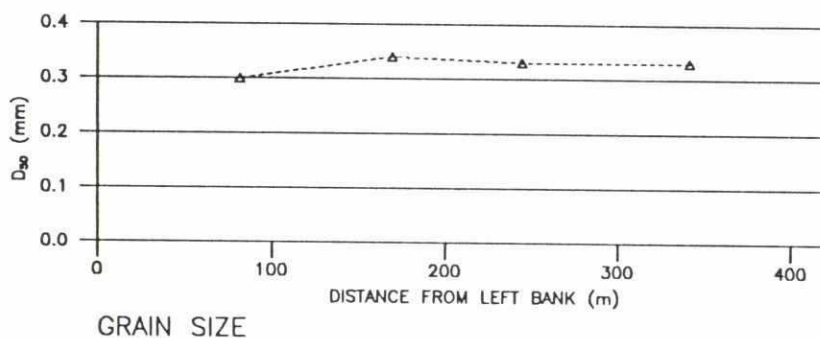
A = 1904 (m³)

Q = 1890 (m³/s)



LEGEND :

— S_{TOTAL} 796 (kg/s)
 S_{WASH LOAD} 732 (kg/s)
 -.-.- S_{SUSP. BED} 48 (kg/s)
 S_{BED LOAD} 16 (kg/s)



LEGEND :

◆◆◆◆ D₅₀ SUSP. (mm)
 ▲▲▲▲ D₅₀ BED LOAD (mm)
 ■■■■ D₅₀ BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
 Flood Plan Coordination Organization
 Commission of the European Communities

Survey Bulletin 54 : 26 - 28 April, 1994

Location 1 : Jamuna River, Bahadurabad

File : B44R1T06

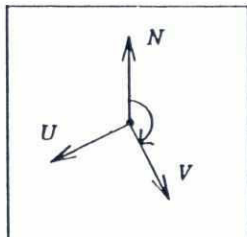
Date : 18 Aug 1994

Init : mk/mua

Horizontal distribution of flow and sediments
 Channel 2

page

3.2

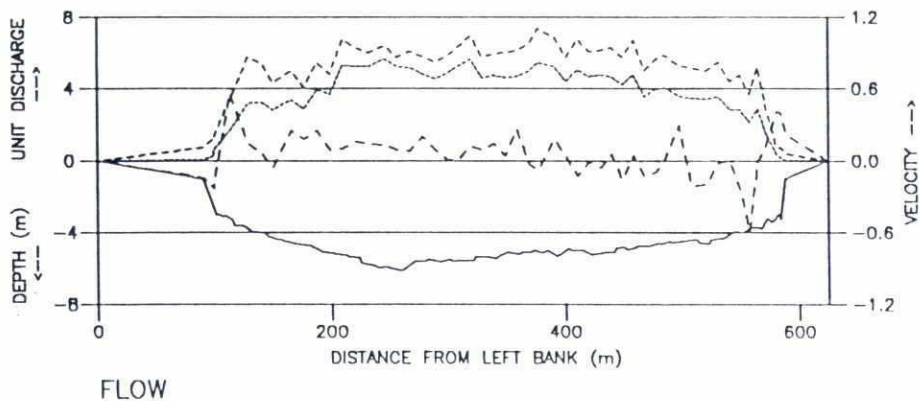


TRANSECT AZIMUTH = 153°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STAGE)

..... UNIT DISCHARGE (m³/s.m)

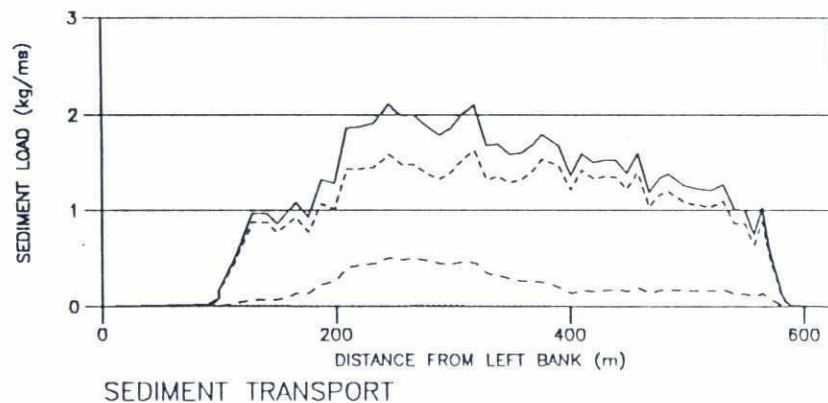
--- U - (m/s)

-.- V - (m/s)

STAGE = 15.58 (m+PWD)

A = 2428 (m²)

Q = 1971 (m³/s)



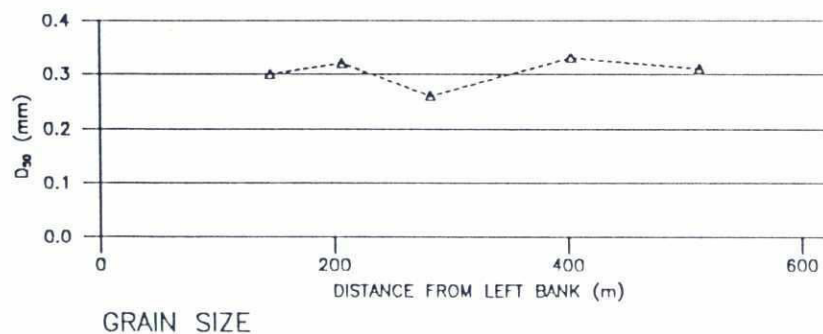
LEGEND :

— S_{TOTAL} 685 (kg/s)

--- S_{WASH LOAD} 562 (kg/s)

-.- S_{SUSP. BED} 118 (kg/s)

..... S_{BED LOAD} 5 (kg/s)



LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 54 : 26 - 28 April, 1994

Location 1 : Jamuna River, Bahadurabad

File : B44S1T01

Date : 18 Aug 1994

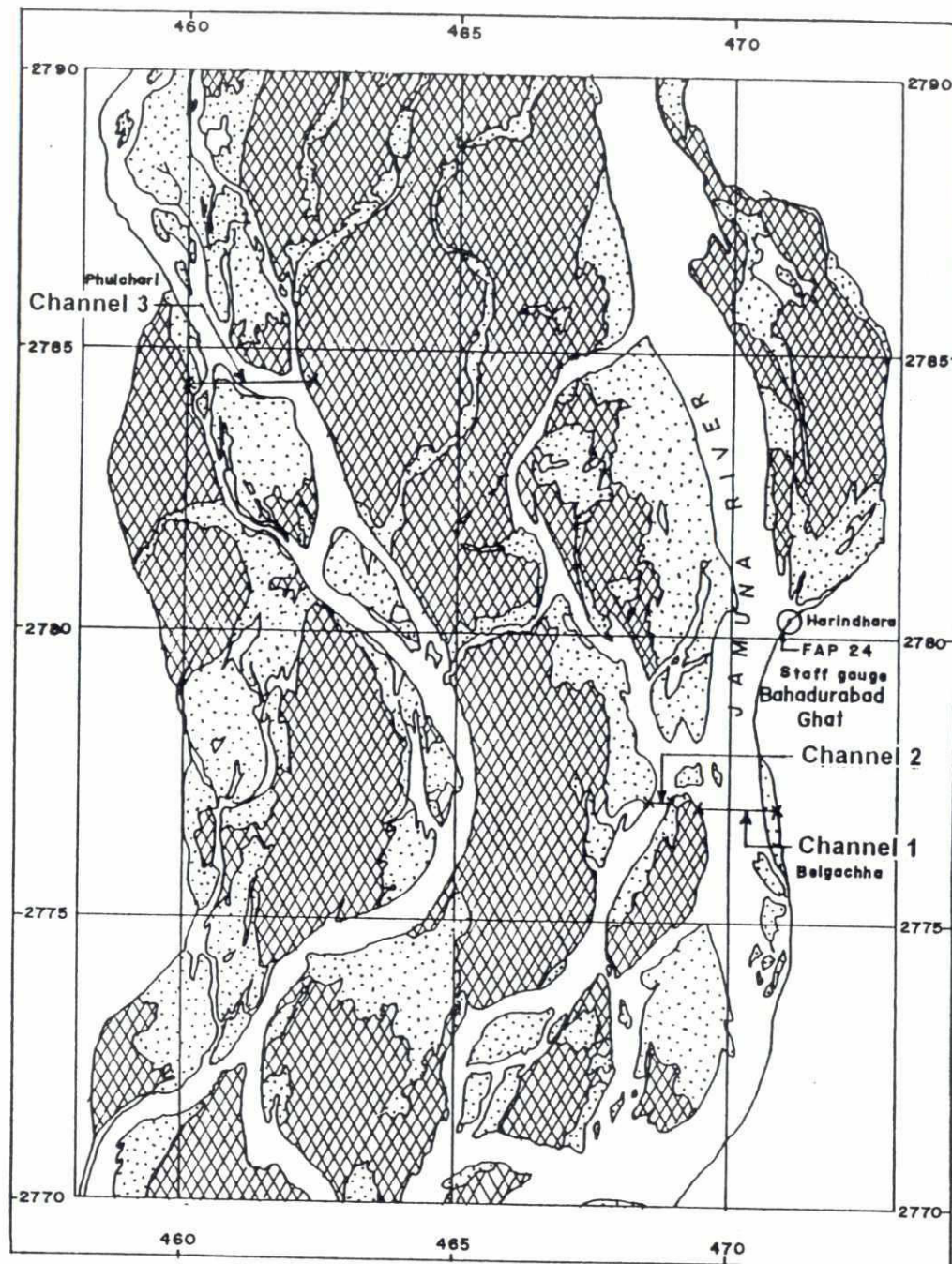
Init : mk/mua

Horizontal distribution of flow and sediments

Channel 3

page

3.3



LEGEND:

- *—* Cross section
- ▨ Highland
- ░ Unstable / low char
- FAP 24 Staff gauge



Map is based on satellite images of March 1994

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 60 : 02 - 08 June, 1994

Location 1 : Jamuna River, Bahadurabad

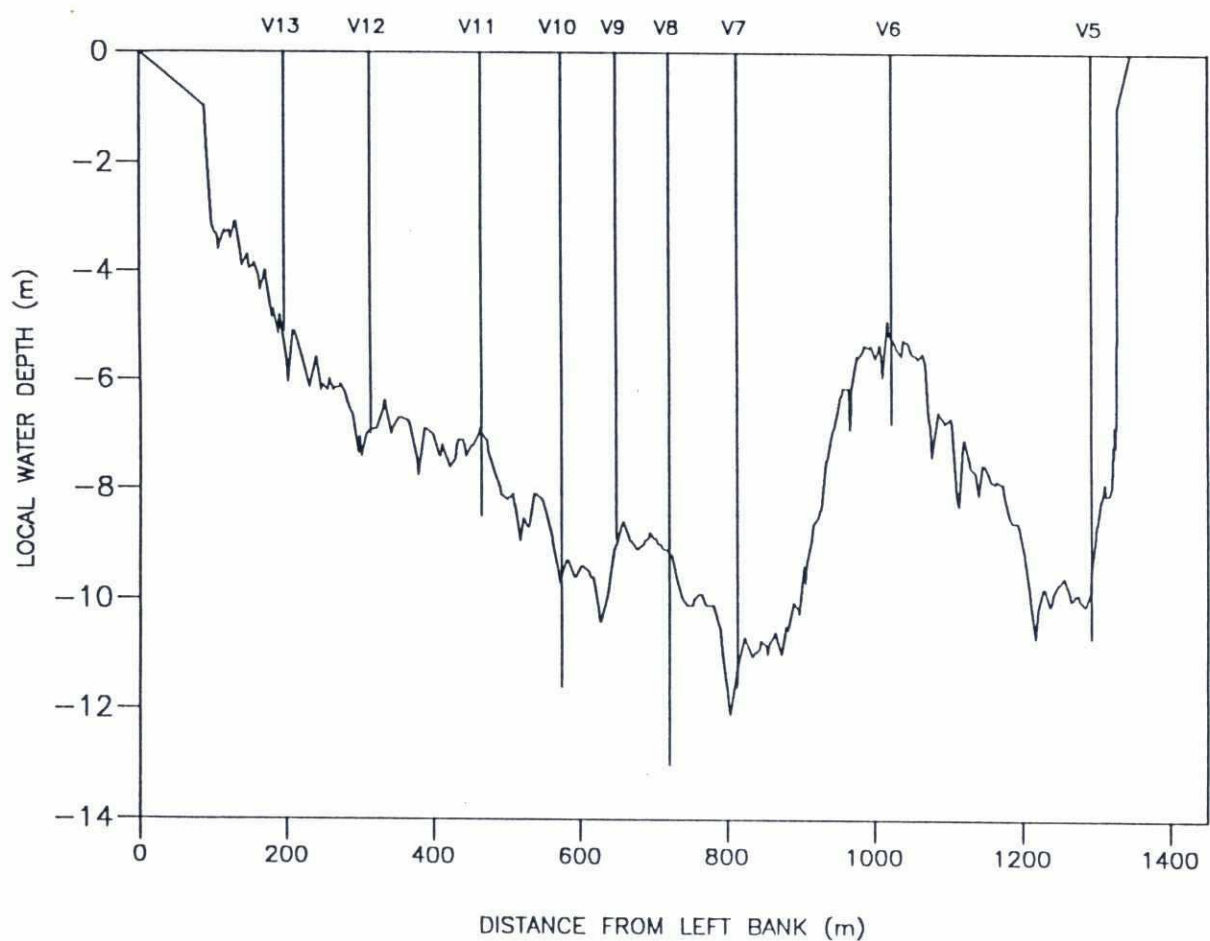
Date : 01 Sep 1994

Init : mk

Location map

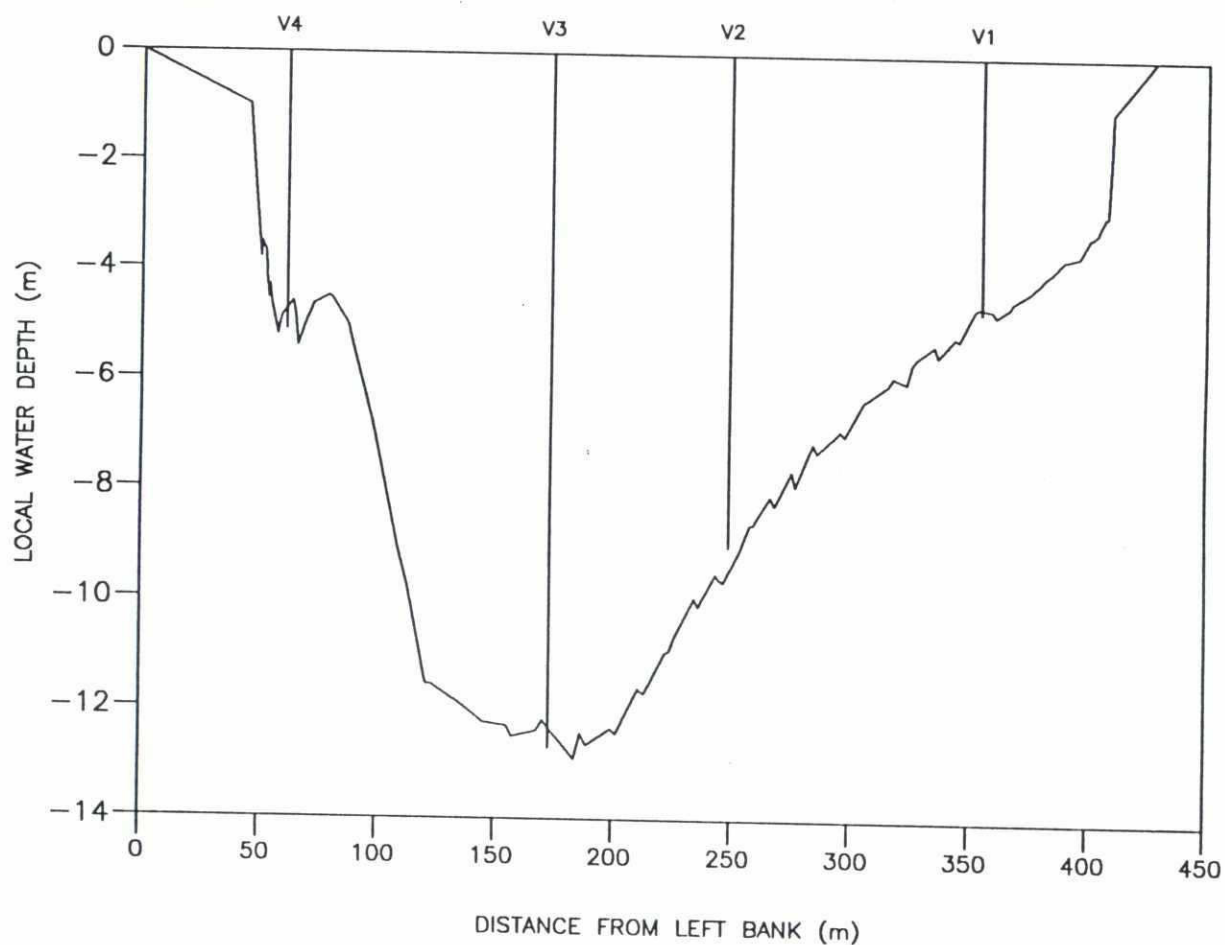
page

1.1



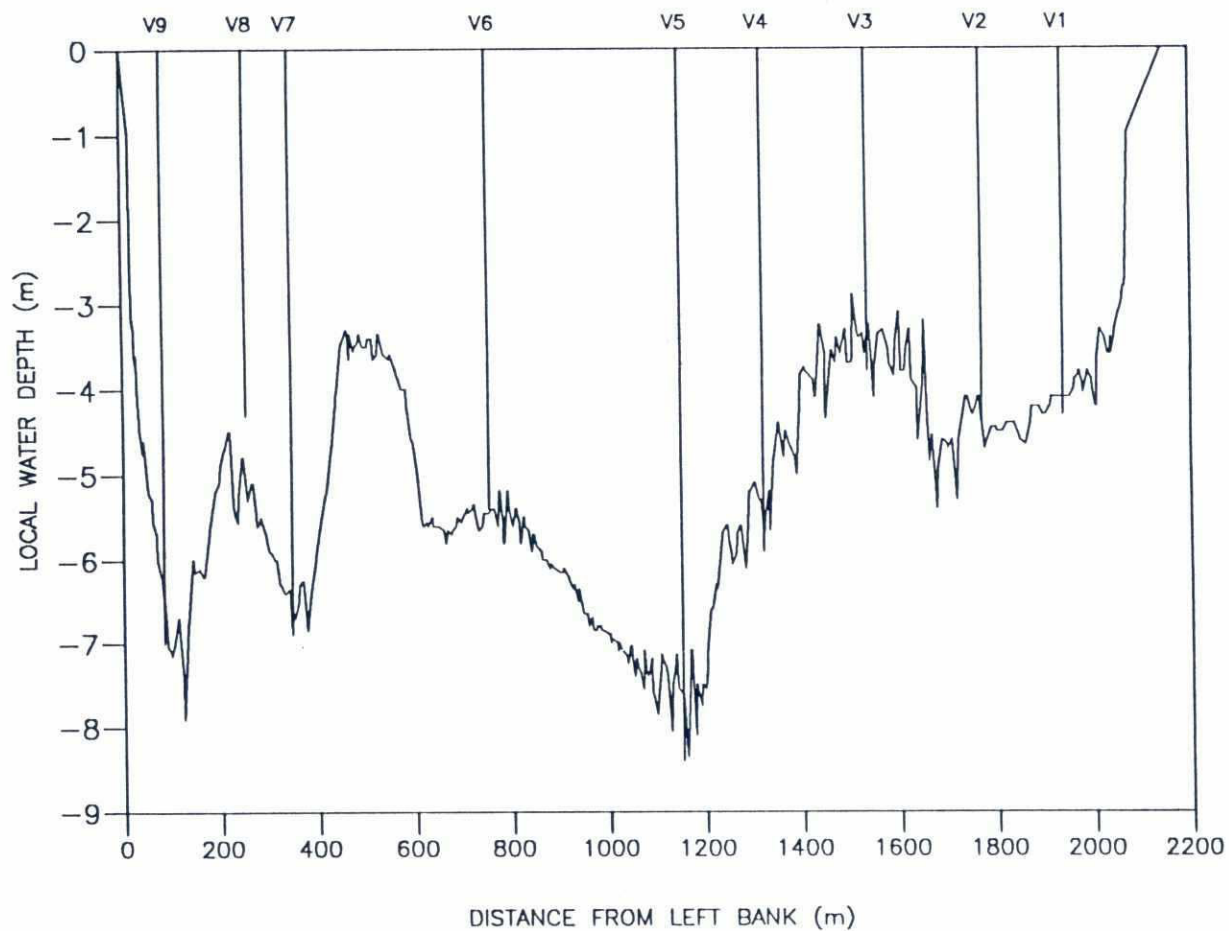
Water-level : 17.98 m+PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 60 : 02 - 08 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4631T03	Date : 01 Sep 1994	Cross-sections and measured verticals Channel 1	page
	Init : mk		1.2



Water-level : 17.43 m+PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 60 : 02 - 08 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4621T02	Date : 01 Sep 1994	Cross-sections and measured verticals Channel 2	page 1.3
	Init : mk		



Water-level : 18.49 m+PWD measured at the station indicated on page 1.1

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Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	6	6	6	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No. of verticals in channel	9	4	9	-
	ADCP	9	4	9	-
	S4 current meter	1	1	1	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	6	6	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	10	12	12	-
	Integrated bottle sampling	9	4	9	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	18	8	18	-
	Delft Bottle	-	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1: Survey programme as made

	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	1346	9685	17.98	15574	426	16210
Channel 2	429	2933	17.43	3192	15	1307
Channel 3	2145	10617	18.49	9563	48	5860

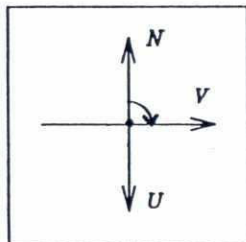
Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	03 Jun 94	17.98	FAP 24
		04 Jun 94	18.28	FAP 24
	Channel 2	02 Jun 94	17.43	FAP 24
		03 Jun 94	17.98	FAP 24
	Channel 3	05 Jun 94	18.49	FAP 24
		06 Jun 94	18.55	FAP 24
		07 Jun 94	18.54	FAP 24
		08 Jun 94	18.45	FAP 24

Table 2.3: Water-levels

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 60 : 02 - 08 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4631T03 B4621T02 B4651T02	Date : 01 Sep 1994	Survey programme as made and key figures	page
	init : mk		2.1

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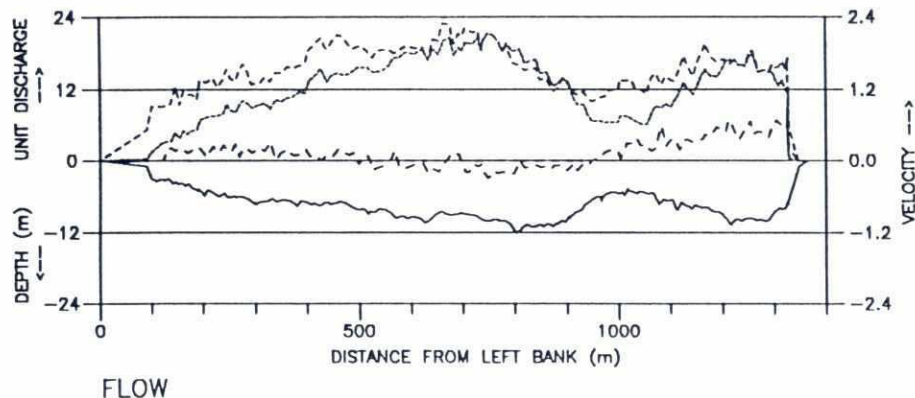


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



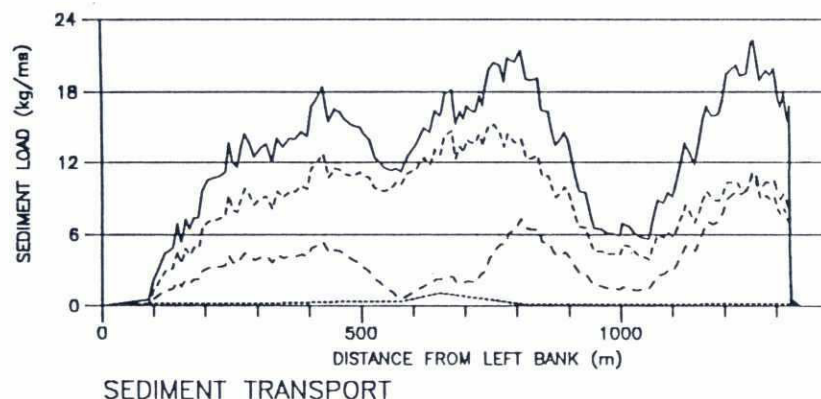
LEGEND :

- WATER DEPTH (m below STAGE)
- - - UNIT DISCHARGE ($m^3/s.m$)
- ... U - (m/s)
- ... V - (m/s)

STAGE = 17.98 (m+PWD)

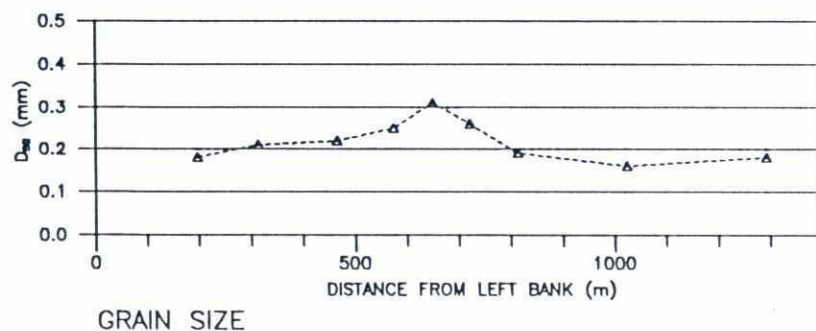
A = 9685 (m^2)

Q = 15574 (m^3/s)



LEGEND :

- S_{TOTAL} 16636 (kg/s)
- - - S_{WASH LOAD} 11241 (kg/s)
- ... S_{SUSP. RED} 4969 (kg/s)
- . - S_{RED LOAD} 426 (kg/s)



LEGEND :

- ◆◆◆◆ D₅₀ SUSP. (mm)
- △△△△ D₅₀ RED LOAD (mm)
- D₅₀ RED MAT. (mm)

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DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 60 : 02 - 08 June, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4631T03

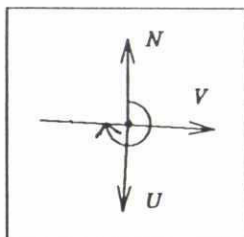
Date : 01 Sep 1994

Init : mk

Horizontal distribution of flow and sediments
Channel 1

page

3.1

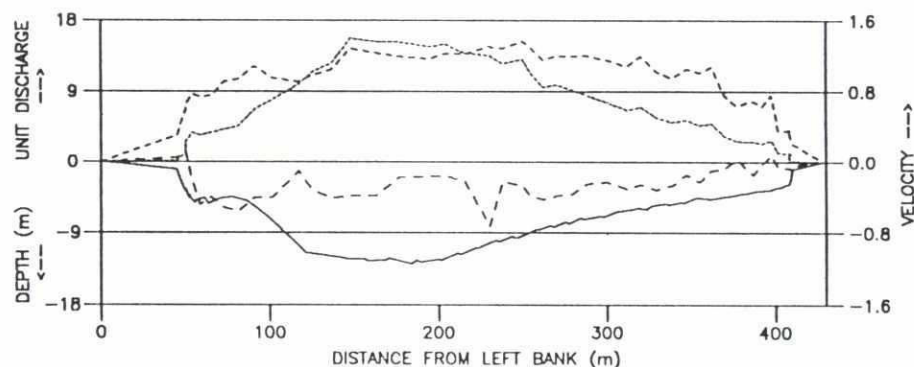


TRANSECT AZIMUTH = 273°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

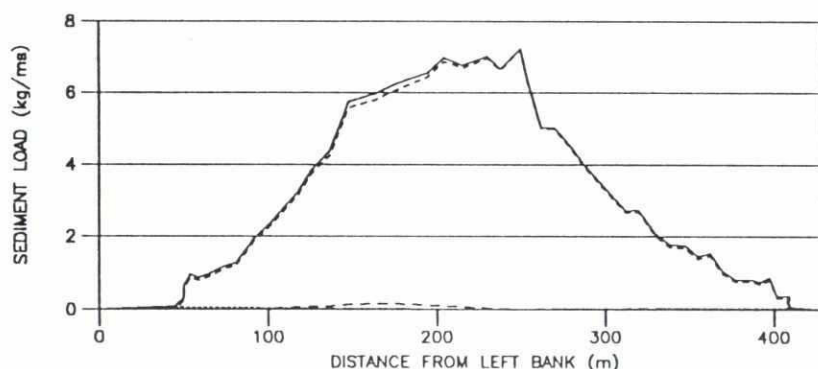
N - MAGNETIC NORTH



FLOW

LEGEND :

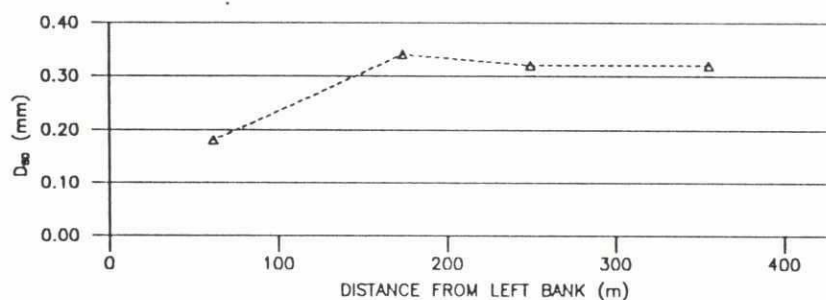
— WATER DEPTH (m below STAGE)
 UNIT DISCHARGE ($m^3/s.m$)
 --- U - (m/s)
 --- V - (m/s)
 STAGE = 17.43 (m+PWD)
 A = 2933 (m^3)
 Q = 3192 (m^3/s)



SEDIMENT TRANSPORT

LEGEND :

— S_{TOTAL} 1322 (kg/s)
 --- $S_{WASH\ LOAD}$ 1287 (kg/s)
 --- $S_{SUSP.\ BED}$ 20 (kg/s)
 $S_{BED\ LOAD}$ 15 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇◇ $D_{50\ SUSP.}$ (mm)
 △△△△△ $D_{50\ BED\ LOAD}$ (mm)
 □□□□□ $D_{50\ BED\ MAT.}$ (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 60 : 02 - 08 June, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4621T02

Date : 01 Sep 1994

Init : mk

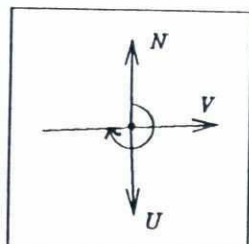
Horizontal distribution of flow and sediments

Channel 2

page

3.2

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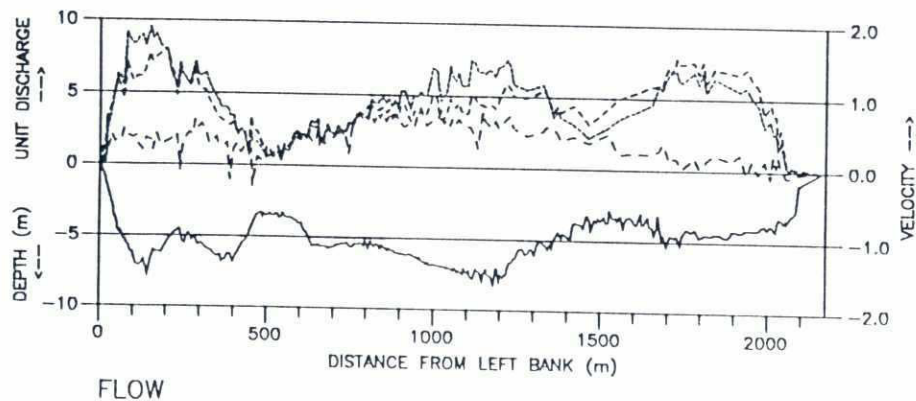


TRANSECT AZIMUTH = 267°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



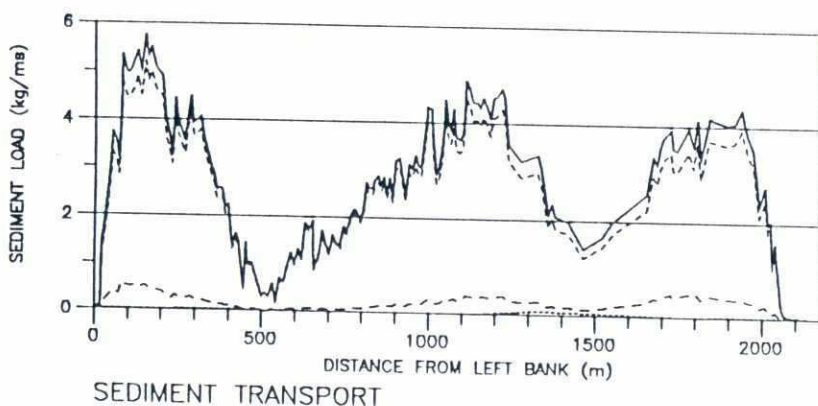
LEGEND :

- WATER DEPTH (m below STAGE)
- - - UNIT DISCHARGE (m³/s.m)
- ... U - (m/s)
- . - V - (m/s)

STAGE = 18.49 (m+PWD)

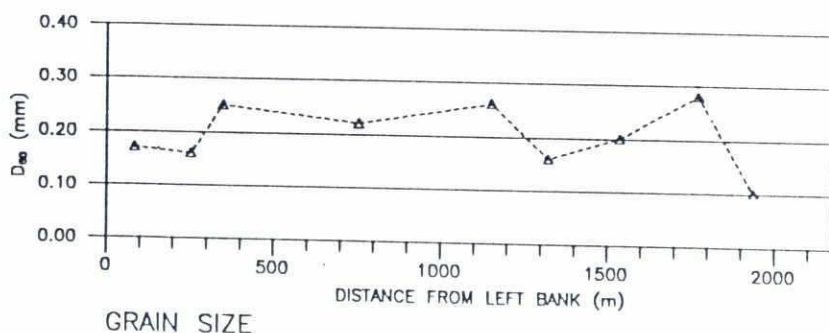
A = 10617 (m²)

Q = 9563 (m³/s)



LEGEND :

- S_{TOTAL} 5908 (kg/s)
- - - S_{WASH LOAD} 5369 (kg/s)
- ... S_{SUSP. BED} 491 (kg/s)
- . - S_{BED LOAD} 48 (kg/s)



LEGEND :

- ◇◇◇◇◇ D₅₀ SUSP. (mm)
- △△△△△ D₅₀ BED LOAD (mm)
- D₅₀ BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 60 : 02 - 08 June, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4651T02

Date : 01 Sep 1994

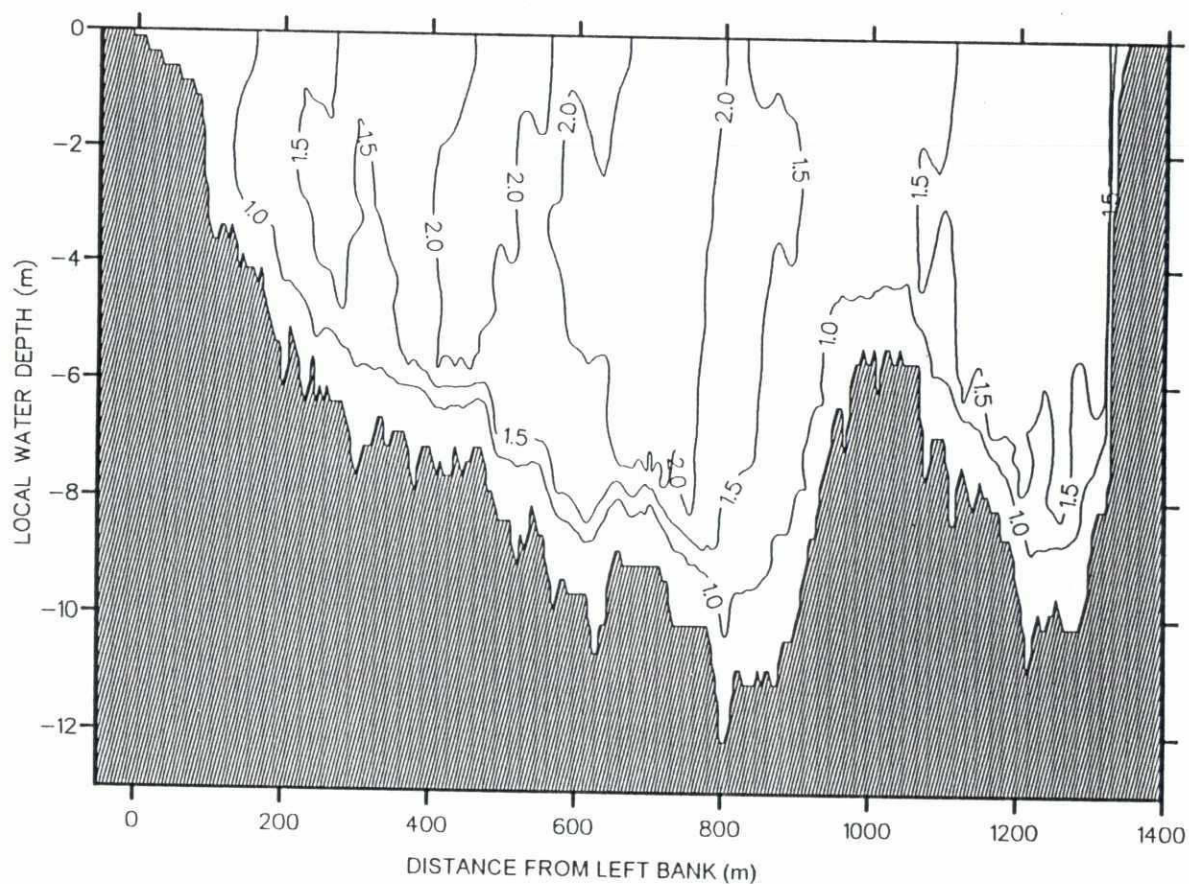
Init : mk

Horizontal distribution of flow and sediments

Channel 3

page

3.3

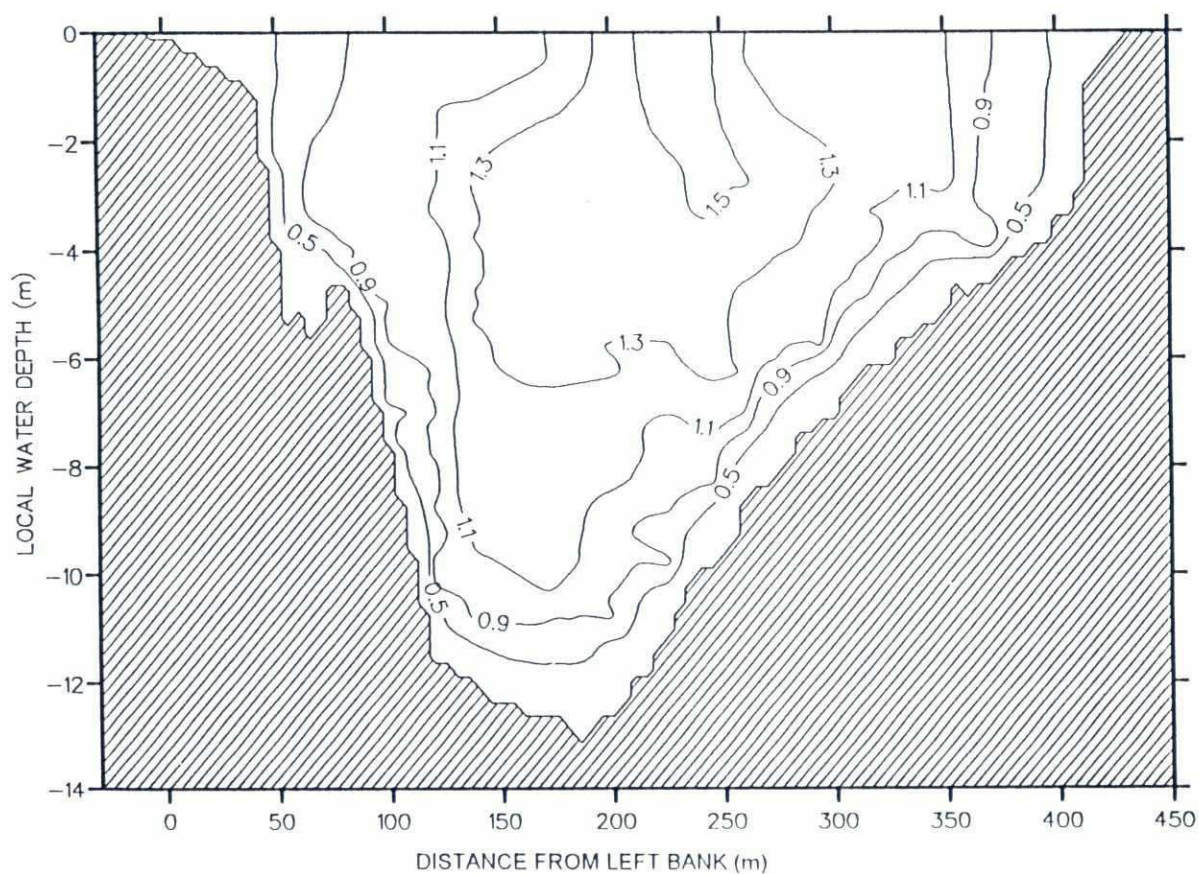


Iso-velocity contours (m/s)

Water-level : 17.98 m+PWD measured at the station indicated on page 1.1

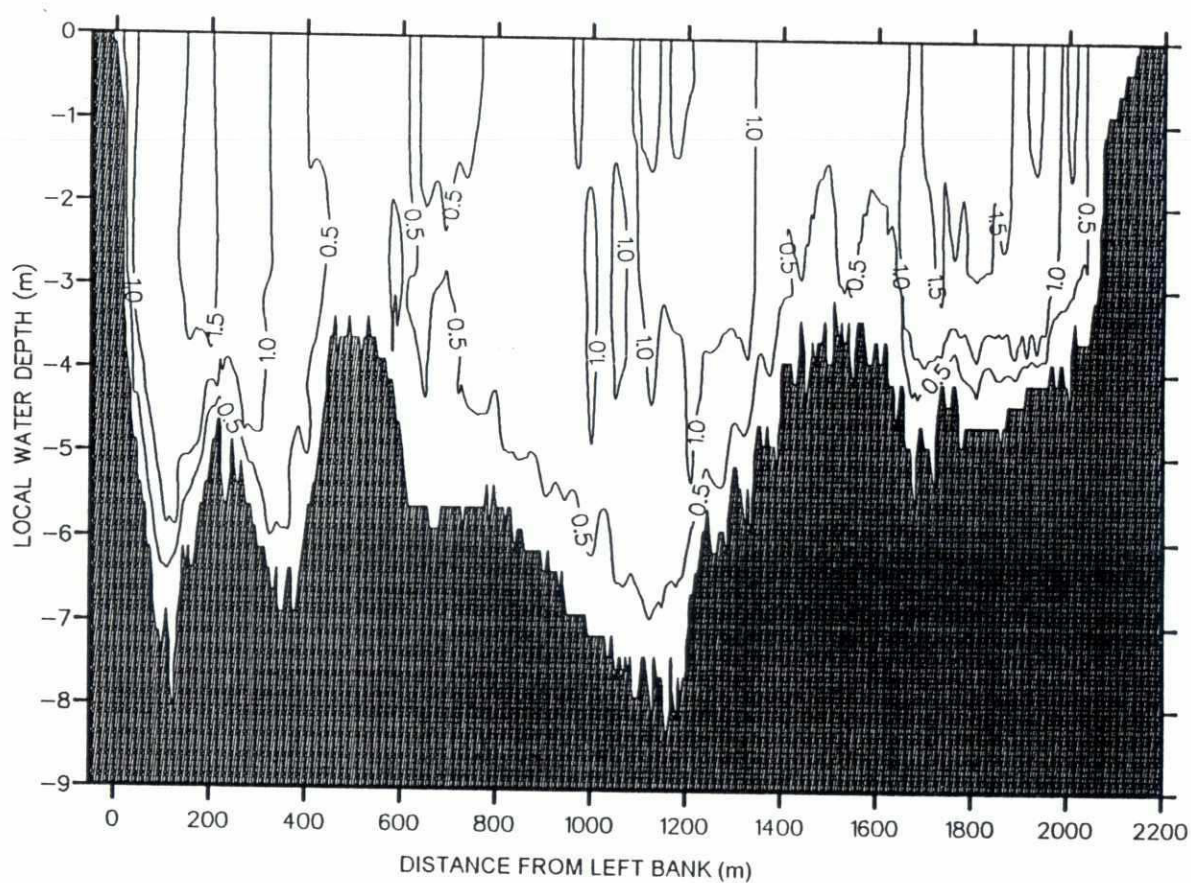
FAP 24  DELFT - DHI		Survey Bulletin 60 : 02 - 08 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4631T03	Date : 01 Sep 1994	Cross-sectional distribution of flow velocity Channel 1	page 4.1
	Init : mk		

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Iso-velocity contours (m/s)

Water-level : 17.43 m+PWD measured at the station indicated on page 1.1



Iso-velocity contours (m/s)

Water-level : 18.49 m+PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 60 : 02 - 08 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4651T02	Date : 01 Sep 1994	Cross-sectional distribution of flow velocity Channel 3	page 4.3
	Init : mk		

Melley-Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35	D50	D65
				< 0.06 mm	> 0.06 mm	(mm)	(mm)	(mm)
1	5	9406041601-1611	10.70	2.554	97.446	0.158	0.184	0.215
	5	9406041601-1611	10.70	2.660	97.340	0.151	0.172	0.197
	6	9406041533-1543	6.80	4.376	95.624	0.128	0.151	0.178
	6	9406041533-1543	6.80	3.263	96.737	0.146	0.172	0.203
	7	9406041506-1619	11.60	3.335	96.665	0.155	0.180	0.209
	7	9406041506-1619	11.60	2.262	97.738	0.167	0.196	0.229
	8	9406041343-1429	13.00	0.974	99.026	0.210	0.264	0.322
	8	9406041343-1429	13.00	1.236	98.764	0.201	0.252	0.311
	9	9406041226-1248	8.90	0.858	99.142	0.272	0.313	0.361
	9	9406041226-1248	8.90	0.532	99.468	0.254	0.298	0.349
	10	9406041112-1126	11.60	0.962	99.038	0.210	0.265	0.322
	10	9406041112-1126	11.60	1.694	98.306	0.194	0.240	0.300
	11	9406041039-1053	8.50	0.871	99.129	0.187	0.225	0.280
	11	9406041039-1053	8.50	0.878	99.122	0.179	0.212	0.252
	12	9406041013-1025	7.00	0.855	99.145	0.180	0.214	0.257
	12	9406041013-1025	7.00	1.075	98.925	0.179	0.213	0.254
13	9406040929-0947	5.10	1.113	98.887	0.159	0.182	0.209	
13	9406040929-0947	5.10	1.039	98.961	0.157	0.180	0.205	
2	1	9406021102-1124	4.70	0.566	99.434	0.274	0.315	0.362
	1	9406021102-1124	4.70	0.762	99.238	0.278	0.319	0.365
	2	9406021136-1156	9.00	4.264	95.736	0.306	0.344	0.387
	2	9406021136-1156	9.00	5.088	94.912	0.251	0.295	0.346
	3	9406021216-1327	12.70	0.244	99.756	0.306	0.345	0.388
	3	9406021216-1327	12.70	0.392	99.608	0.307	0.345	0.387
	4	9406021454-1520	5.10	0.682	99.318	0.160	0.180	0.203
	4	9406021454-1520	5.10	0.959	99.041	0.158	0.181	0.207
3	1	9406061527-1539	4.30	11.823	88.177	0.084	0.101	0.122
	1	9406061527-1539	4.30	14.284	85.716	0.082	0.099	0.120
	2	9406061455-1509	4.40	1.922	98.078	0.247	0.293	0.346
	2	9406061455-1509	4.40	1.478	98.522	0.202	0.258	0.317
	3	9406061435-1443	3.80	0.761	99.239	0.177	0.211	0.251
	3	9406061435-1443	3.80	0.976	99.024	0.164	0.191	0.223
	4	9406061406-1418	5.90	1.095	98.905	0.136	0.158	0.184
	4	9406061406-1418	5.90	1.592	98.408	0.143	0.168	0.197
	5	9406061213-1344	8.40	0.850	99.150	0.191	0.237	0.299
	5	9406061213-1344	8.40	0.253	99.747	0.220	0.274	0.329
	6	9406061130-1139	5.40	3.757	96.243	0.166	0.205	0.255
	6	9406061130-1139	5.40	2.600	97.400	0.183	0.233	0.297
	7	9406061054-1105	6.90	0.501	99.499	0.244	0.291	0.344
	7	9406061054-1105	6.90	1.131	98.869	0.174	0.208	0.249
	8	9406061021-1034	4.30	1.663	98.337	0.138	0.162	0.189
	8	9406061021-1034	4.30	1.940	98.060	0.135	0.158	0.183
	9	9406060953-1008	7.00	4.971	95.029	0.137	0.167	0.203
	9	9406060953-1008	7.00	5.103	94.897	0.131	0.162	0.200

Table 5.3 : Grain sizes of bed load

 FAP 24 DELFT - DHI		Survey Bulletin 60 : 02 - 08 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 01 Sep 1994	Grain size distributions	page 5.1
	Init : mk		

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Helley-Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
1	6	9404031621-1632	8.10	7.470	92.530	0.172	0.219	0.281
	6	9404031621-1632	8.10	8.980	91.020	0.170	0.219	0.283
	7	9404031504-1513	8.60	5.760	94.240	0.171	0.215	0.275
	7	9404031504-1513	8.60	6.580	93.420	0.157	0.195	0.242
	9	9404031234-1248	5.90	1.360	98.640	0.237	0.289	0.344
	9	9404031234-1248	5.90	0.602	99.398	0.279	0.319	0.366
	10	9404031121-1222	9.80	0.021	99.979	0.309	0.349	0.394
	10	9404031121-1222	9.80	0.338	99.662	0.313	0.352	0.397
	11	9404031038-1052	7.20	0.191	99.809	0.289	0.334	0.385
	11	9404031038-1052	7.20	0.199	99.801	0.305	0.352	0.407
	12	9404031016-1028	4.80	1.450	98.550	0.178	0.227	0.289
	12	9404031016-1028	4.80	1.712	98.288	0.176	0.221	0.281
2	1	9404020914-0933	3.40	0.075	99.925	0.282	0.323	0.368
	1	9404020914-0933	3.40	0.214	99.786	0.267	0.309	0.357
	2	9404020958-1035	5.60	0.085	99.915	0.311	0.347	0.388
	2	9404020958-1035	5.60	0.176	99.824	0.313	0.349	0.390
	3	9404021110-1149	9.00	0.223	99.777	0.306	0.343	0.386
	3	9404021110-1149	9.00	0.272	99.728	0.304	0.342	0.385
	4	9404021214-1432	5.00	0.254	99.746	0.184	0.218	0.265
	4	9404021214-1432	5.00	0.396	99.604	0.210	0.268	0.319
3	1	9404041019-1042	4.40	0.225	99.775	0.214	0.267	0.325
	1	9404041019-1042	4.40	0.343	99.657	0.267	0.311	0.363
	2	9404041106-1127	4.80	0.693	99.307	0.291	0.331	0.376
	2	9404041106-1127	4.80	0.182	99.818	0.303	0.342	0.385
	3	9404041148-1248	6.00	0.229	99.771	0.302	0.341	0.384
	3	9404041148-1248	6.00	0.194	99.806	0.296	0.335	0.379
	4	9404041359-1421	5.50	0.210	99.790	0.279	0.321	0.369
	4	9404041359-1421	5.50	0.465	99.535	0.280	0.322	0.370
	5	9404041439-1455	4.00	0.839	99.161	0.251	0.295	0.347
	5	9404041439-1455	4.00	0.813	99.187	0.236	0.286	0.339

Table 5.3 : Grain sizes of bed load

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 60 : 02 - 08 June, 1994	
				Location 1 : Jamuna River, Bahadurabad	
		Date : 01 Sep 1994		Grain size distributions	page 52
		init : mua/mk			

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Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9406031433-1444	B4631T02
		9506031447-1459	B4631T03 *
		9406040729-0739	B4641T01
		9406040742-0754	B4641T02
		9406041626-1638	B4641T03
		9406041701-1711	B4641T05
	2	9406020911-0916	B4621T01
		9406020922-0925	B4621T02 *
		9406021529-1533	B4621T03
		9406021535-1540	B4621T04
		9406031516-1521	B4631T04
		9406031525-1528	B4631T05
	3	9406051349-1406	B4651T01
		9406051410-1428	B4651T02 *
		9406060731-0749	B4661T01
		9406060753-0809	B4661T02
		9406061615-1632	B4661T04
		9406061634-1649	B4661T05

Table 6.1: ADCP & EMF transects * : transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	5	9406041601-1611	469542	776429	10.7	B4641P09 *
		6	9406041533-1543	469812	776443	6.80	B4641P08 *
		7	9406041506-1619	470022	776428	11.6	B4641P07 *
		8	9406041343-1429	470114	776428	13.0	B4641P06
		9	9406041226-1248	470186	776429	8.90	B4641P05 *
		10	9406041112-1126	470261	776430	11.6	B4641P04 *
		11	9406041039-1053	470370	776432	8.50	B4641P03 *
		12	9406041013-1025	470521	776430	7.00	B4641P02 *
		13	9406040929-0947	470638	776433	5.10	B4641P01 *
	2	1	9406021102-1124	468613	776631	4.70	B4621P01 *
		2	9406021136-1156	468719	776631	9.00	B4621P02 *
		3	9406021216-1327	468795	776634	12.7	B4621P03
		4	9406021454-1520	468907	776628	5.10	B4621P04 *
	3	1	9406061527-1539	460206	783875	4.30	B4661P10 *
		2	9406061455-1509	460372	783887	4.40	B4661P09 *
		3	9406061435-1443	460607	783894	3.80	B4661P08 *
		4	9406061406-1418	460821	783905	5.90	B4661P07 *
		5	9406061213-1344	460990	783914	8.40	B4661P06
		6	9406061130-1139	461387	783943	5.40	B4661P04 *
		7	9406061054-1105	461793	783959	6.90	B4661P03 *
		8	9406061021-1034	461887	783966	4.30	B4661P02 *
		9	9406060953-1008	462057	783976	7.00	B4661P01 *

Table 6.2: Vertical profiles * S4 and MEX not available

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 60 : 02 - 08 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date 01 Sep 1994	Collected data and their storage (1)	page
	init mk		6.1

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	8	6	9406041343-1444	470114	776428	13.00
	2	3	6	9406021216-1342	468907	776628	12.70
	3	5	6	9406061328-1344	460990	783914	8.40
Table 6.3: Suspended sediment - point sampled							

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	5	1	9406041601-1611	469542	776429	10.7
		6	1	9406041533-1543	469812	776443	6.80
		7	1	9406041506-1619	470022	776428	11.6
		8	1	9406041343-1429	470114	776428	13.0
		9	1	9406041226-1248	470186	776429	8.90
		10	1	9406041112-1126	470261	776430	11.6
		11	1	9406041039-1053	470370	776432	8.50
		12	1	9406041013-1025	470521	776430	7.00
		13	1	9406040929-0947	470638	776433	5.10
	2	1	1	9406021102-1124	468613	776631	4.70
		2	1	9406021136-1156	468719	776631	9.00
		3	1	9406021216-1327	468795	776634	12.7
		4	1	9406021454-1520	468907	776628	5.10
	3	1	1	9406061527-1539	460206	783875	4.30
		2	1	9406061455-1509	460372	783887	4.40
		3	1	9406061435-1443	460607	783894	3.80
		4	1	9406061406-1418	460821	783905	5.90
		5	1	9406061213-1344	460990	783914	8.40
		6	1	9406061130-1139	461387	783943	5.40
		7	1	9406061054-1105	461793	783959	6.90
		8	1	9406061021-1034	461887	783966	4.30
		9	1	9406060953-1008	462057	783976	7.00

Table 6.4: Suspended sediment - depth integrated							
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FAP 24  RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 60 : 02 - 08 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 01 Sep 1994	Collected data and their storage (2)	page 6.2
	init : mk		

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Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	5	9406041601-1611	469542	776429	10.7	A66
		5	9406041601-1611	469542	776429	10.7	A336
		6	9406041533-1543	469812	776443	6.80	A1367
		6	9406041533-1543	469812	776443	6.80	A1591
		7	9406041506-1619	470022	776428	11.6	A1636
		7	9406041506-1619	470022	776428	11.6	A1639
		8	9406041343-1429	470114	776428	13.0	A1654
		8	9406041343-1429	470114	776428	13.0	A1684
		9	9406041226-1248	470186	776429	8.90	A1688
		9	9406041226-1248	470186	776429	8.90	A1635
		10	9406041112-1126	470261	776430	11.6	A96
		10	9406041112-1126	470261	776430	11.6	A906
		11	9406041039-1053	470370	776432	8.50	A1634
		11	9406041039-1053	470370	776432	8.50	A1641
		12	9406041013-1025	470521	776430	7.00	A95
	2	12	9406041013-1025	470521	776430	7.00	A908
		13	9406040929-0947	470638	776433	5.10	A94
		13	9406040929-0947	470638	776433	5.10	A1601
		1	9406021102-1124	468613	776631	4.70	A355
		1	9406021102-1124	468613	776631	4.70	A1362
		2	9406021136-1156	468719	776631	9.00	A463
		2	9406021136-1156	468719	776631	9.00	A42
		3	9406021216-1327	468795	776634	12.7	A130
		3	9406021216-1327	468795	776634	12.7	A365
		4	9406021454-1520	468907	776628	5.10	A1134
		4	9406021454-1520	468907	776628	5.10	A688
	3	1	9406061527-1539	460206	783875	4.30	A126
		1	9406061527-1539	460206	783875	4.30	A128
		2	9406061455-1509	460372	783887	4.40	A701
		2	9406061455-1509	460372	783887	4.40	A699
		3	9406061435-1443	460607	783894	3.80	A59
		3	9406061435-1443	460607	783894	3.80	A60
		4	9406061406-1418	460821	783905	5.90	A1136
		4	9406061406-1418	460821	783905	5.90	A745
		5	9406061213-1344	460990	783914	8.40	A77
		5	9406061213-1344	460990	783914	8.40	A866
		6	9406061130-1139	461387	783943	5.40	A719
		6	9406061130-1139	461387	783943	5.40	A920
		7	9406061054-1105	461793	783959	6.90	A465
		7	9406061054-1105	461793	783959	6.90	A695
		8	9406061021-1034	461887	783966	4.30	A739
		8	9406061021-1034	461887	783966	4.30	A900
		9	9406060953-1008	462057	783976	7.00	A76
		9	9406060953-1008	462057	783976	7.00	A81

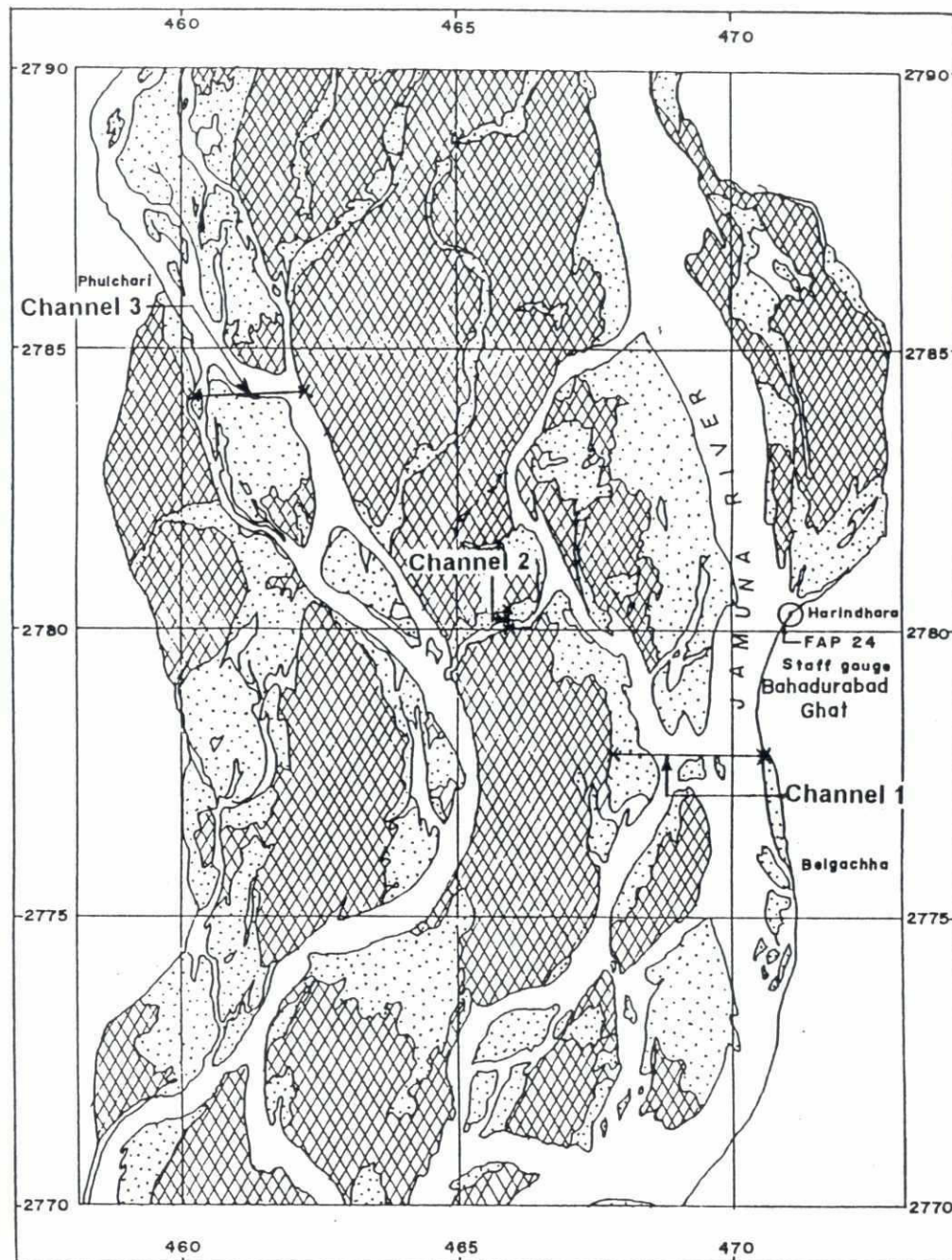
Table 6.5: Bed load

 FAP 24 DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 60 : 02 - 08 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 01 Sep 1994	Collected data and their storage (3)	page 63
	init : mk		

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	B4631T03 .ase
ADCP/S4/EMF data	2	QUATTRO	B4621T02 .ase
ADCP/S4/EMF data	3	QUATTRO	B4651T02 .ase
Echosounder data	1	QUATTRO	B4631T03 .ech
Echosounder data	2	QUATTRO	B4621T02 .ech
Echosounder data	3	QUATTRO	B4651T02 .ech
Sediment transport data	1	QUATTRO	B4631T03 .sed
Sediment transport data	2	QUATTRO	B4621T02 .sed
Sediment transport data	3	QUATTRO	B4651T02 .sed
Bed load sediment analysis	1	QUATTRO	B4631T03 .bdl
Bed load sediment analysis	2	QUATTRO	B4621T02 .bdl
Bed load sediment analysis	3	QUATTRO	B4651T02 .bdl
Susp. sed. conc. analysis	1	QUATTRO	B4631T03 .ssc
Susp. sed. conc. analysis	2	QUATTRO	B4621T02 .ssc
Susp. sed. conc. analysis	3	QUATTRO	B4651T02 .ssc
Transect plot data	1	QUATTRO	B4631T03 .trs
Transect plot data	2	QUATTRO	B4621T02 .trs
Transect plot data	3	QUATTRO	B4651T02 .trs
Iso-velocity plot data	1	MIKE 21	B4631T03 .ct2 B4631T02 .dt2
Iso-velocity plot data	2	MIKE 21	B4631T03 .ct2 B4621T02 .dt2
Iso-velocity plot data	3	MIKE 21	B4631T03 .ct2 B4651T02 .dt2

Table 7.1 PSD 24 Database file description

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities DELFT - DHI		Survey Bulletin 60 : 02 - 08 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 01 Sep 1994	PSD 24 Database file description	page
	Init : mk		7.1



LEGEND:

- *—* Cross section
- Highland
- Unstable / low char
- FAP 24 Staff gauge



5000m 2500m 0

Map is based on satellite images of March 1994

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 69 : 24 - 26 June, 1994

Location 1 : Jamuna River, Bahadurabad

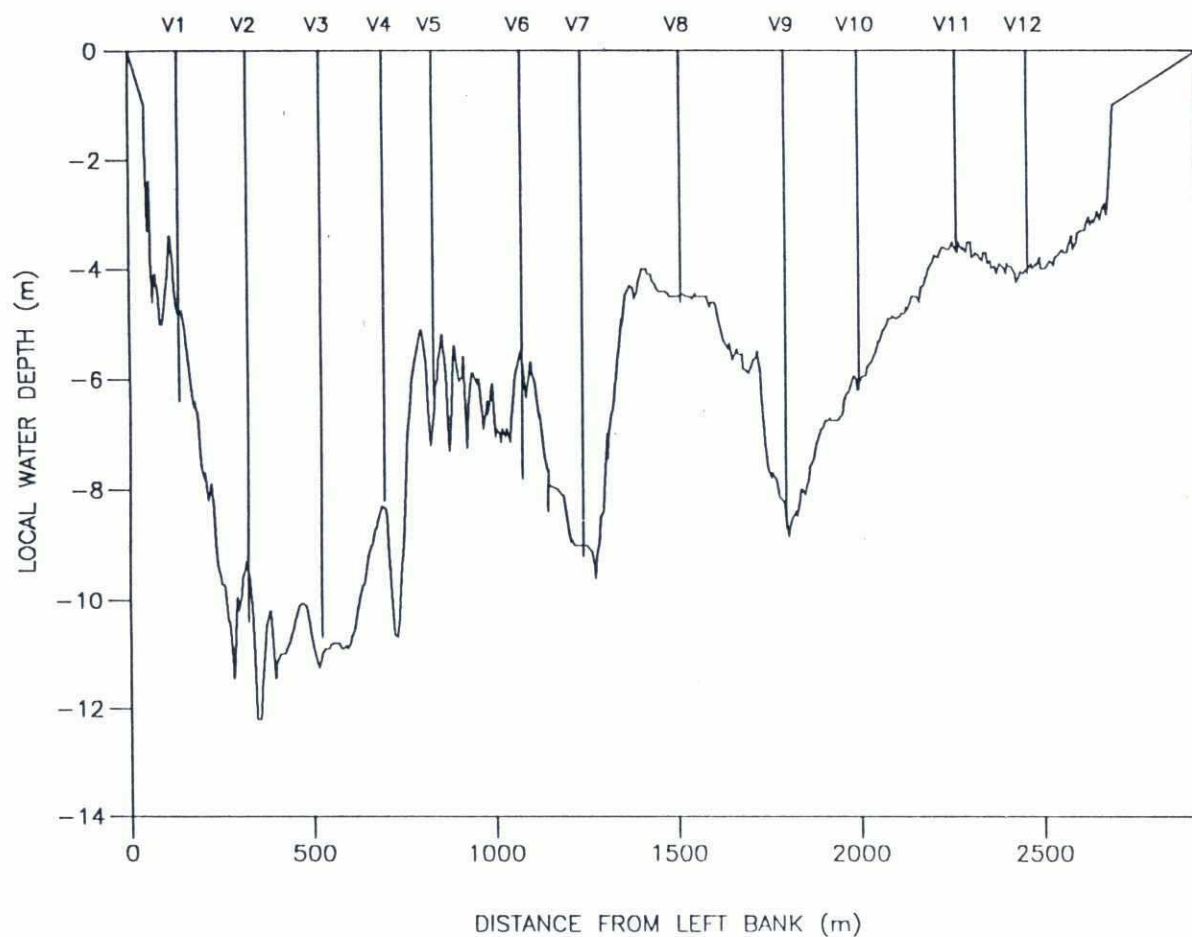
Date : 20 Sep 1994

Init : mk

Location map

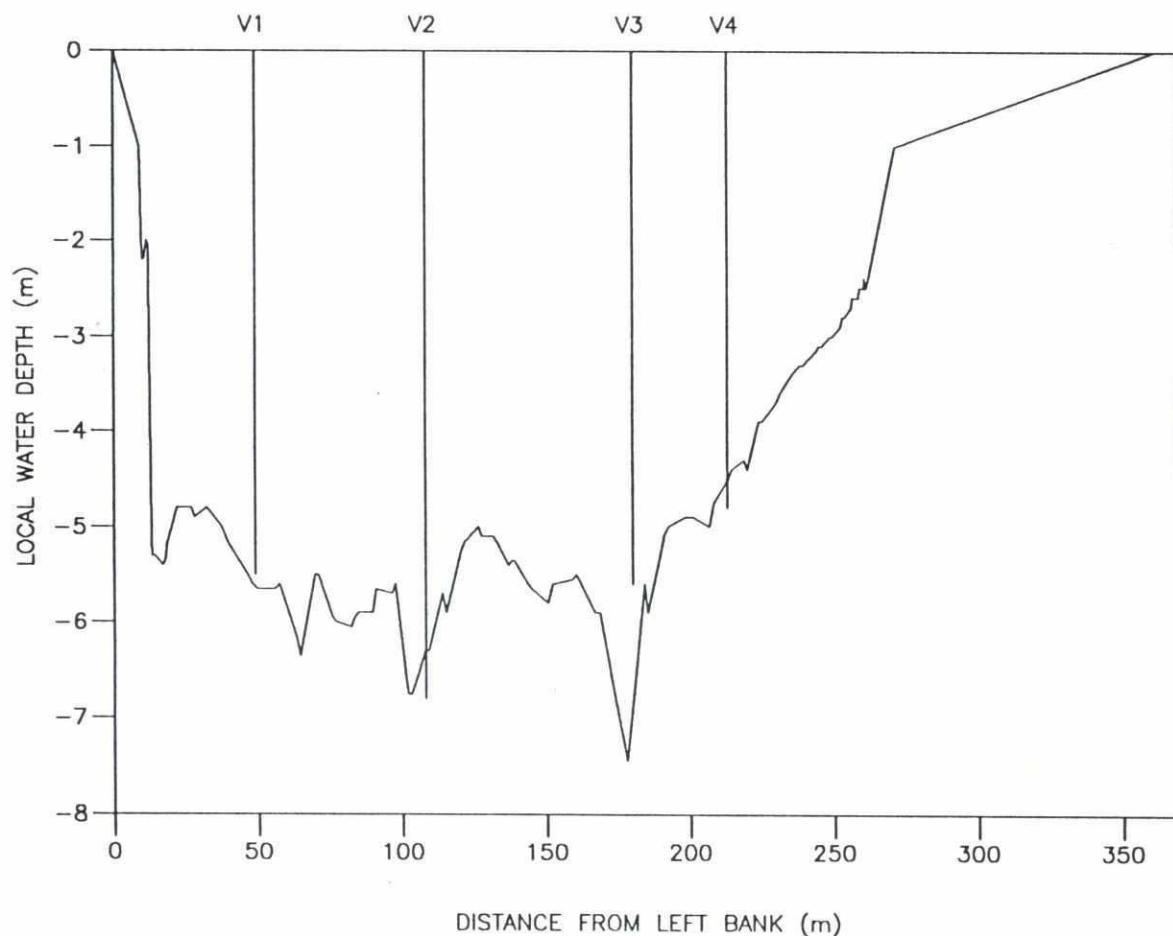
page

1.1



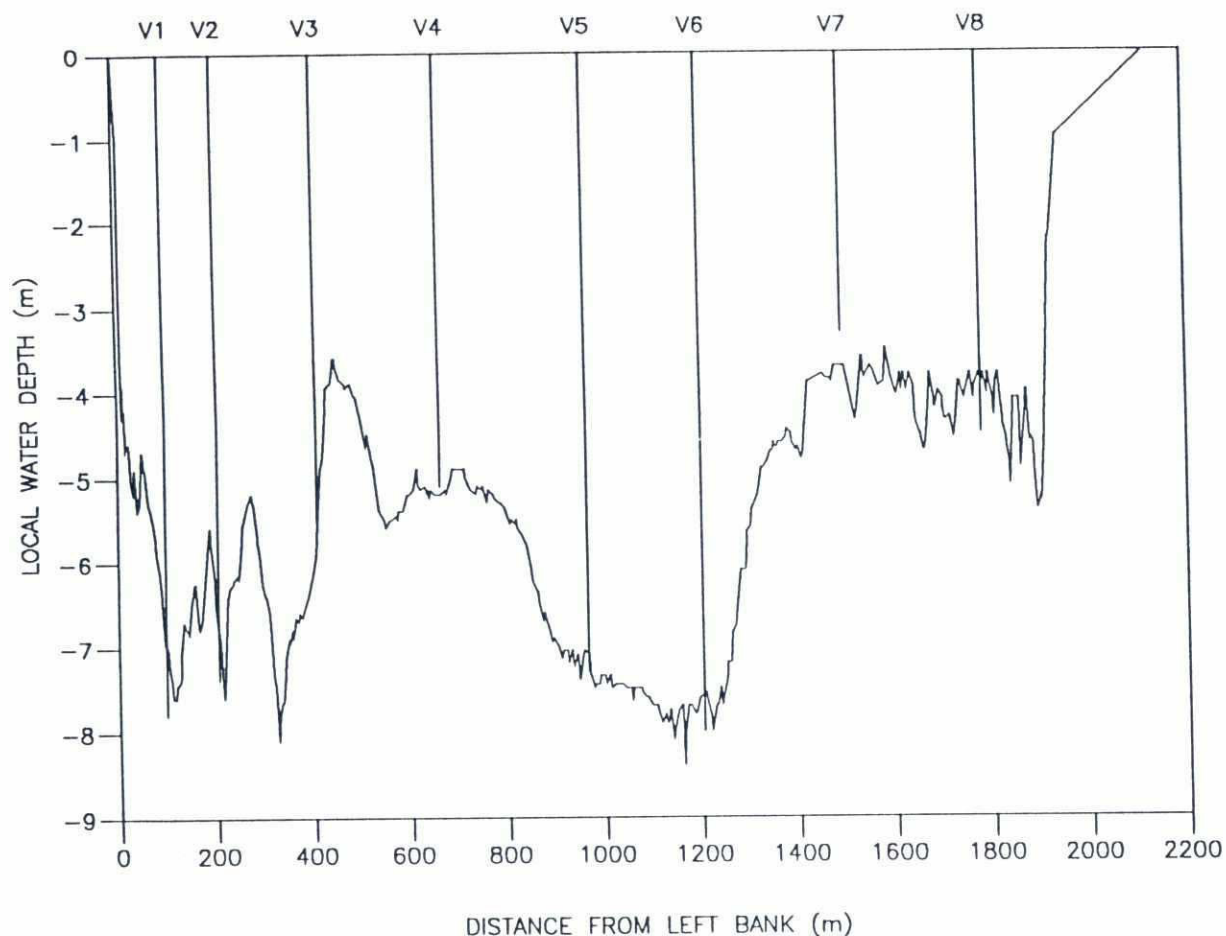
Water-level : 18.54 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 69 : 24 - 26 June, 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
B46O1T01	Date : 20 Sep 1994	Cross-sections and measured verticals Channel 1	page
	Init : mk		1.2



Water-level : 18.71 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 69 : 24 - 26 June, 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
B46Q1T02	Date : 20 Sep 1994	Cross-sections and measured verticals Channel 2	page
	Init : mk		1.3



Water-level : 18.62 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 69 : 24 - 26 June, 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
B46P1T01	Date : 20 Sep 1994	Cross-sections and measured verticals Channel 3	page
	Init : mk		1.4

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Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	8	4	4	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No. of verticals in channel	12	4	8	-
	ADCP	12	4	8	-
	S4 current meter	1	1	1	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	7	5	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	6	7	5	-
	Integrated bottle sampling	12	4	8	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	24	8	16	-
	Delft Bottle	-	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1: Survey programme as made

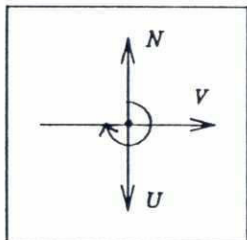
	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	2928	17194	18.54	23704	393	13185
Channel 2	361	1356	18.71	1607	43	1208
Channel 3	2124	10752	18.62	8889	51	4596

Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	24 Jun 94	18.54	FAP 24
		26 Jun 94	18.71	FAP 24
	Channel 2	26 Jun 94	18.71	FAP 24
	Channel 3	25 Jun 94	18.62	FAP 24

Table 2.3: Water-levels

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 69 : 24 - 26 June, 1994	
				Location 1 : Jamuna River, Bahadurabad	
File : B46O1T01 B46Q1T02 B46P1T01		Date : 21 Sep 1994 Init : mk		Survey programme as made and key figures	
				page	2.1

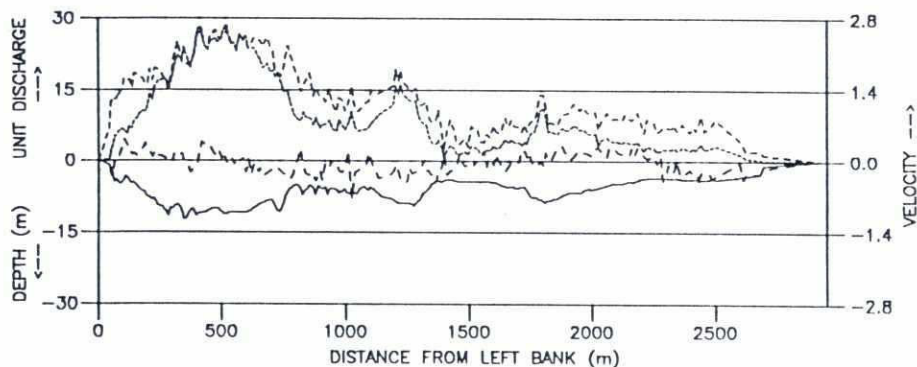


TRANSECT AZIMUTH = 270°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

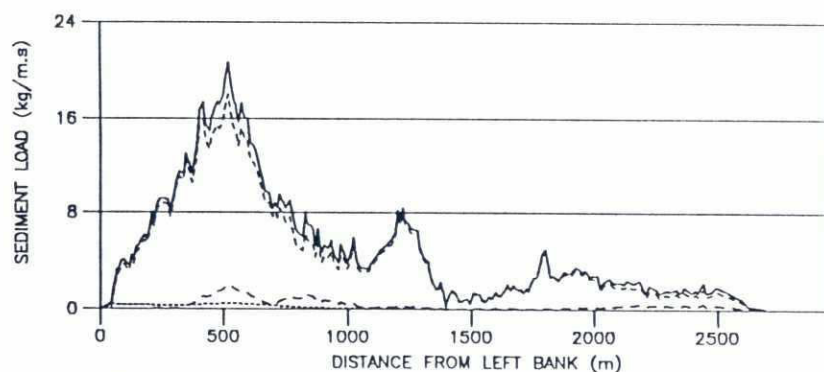
LEGEND :

— WATER DEPTH (m below STAGE)
 UNIT DISCHARGE (m³/s.m)
 U - (m/s)
 - - - V - (m/s)

STAGE = 18.54 (m+PWD)

A = 17194 (m³)

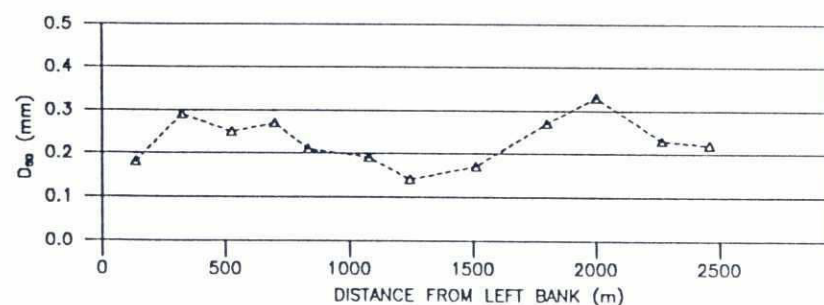
Q = 23704 (m³/s)



SEDIMENT TRANSPORT

LEGEND :

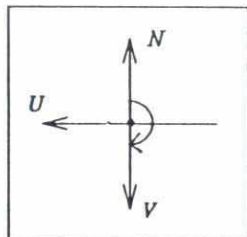
— S_{TOTAL} 13578 (kg/s)
 S_{WASH LOAD} 12162 (kg/s)
 S_{SUSP. BED} 1023 (kg/s)
 - - - S_{BED LOAD} 393 (kg/s)



GRAIN SIZE

LEGEND :

♦♦♦♦♦ D₅₀ SUSP. (mm)
 ▲▲▲▲▲ D₅₀ BED LOAD (mm)
 □□□□□ D₅₀ BED MAT. (mm)

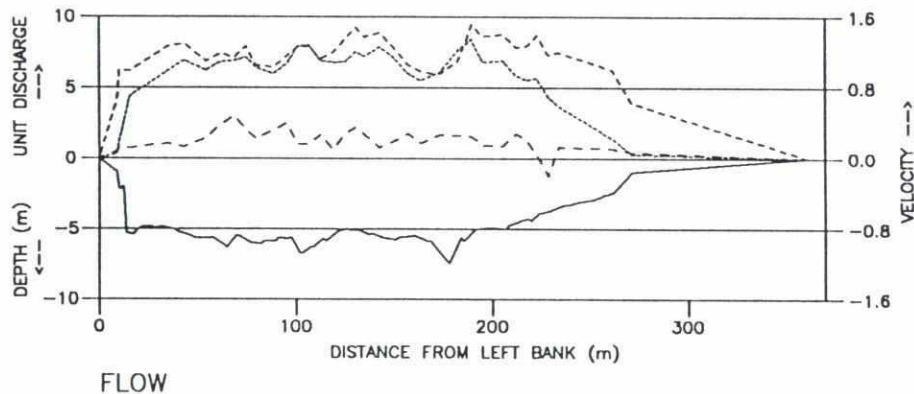


TRANSECT AZIMUTH = 180°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STAGE)

--- UNIT DISCHARGE ($m^3/s.m$)

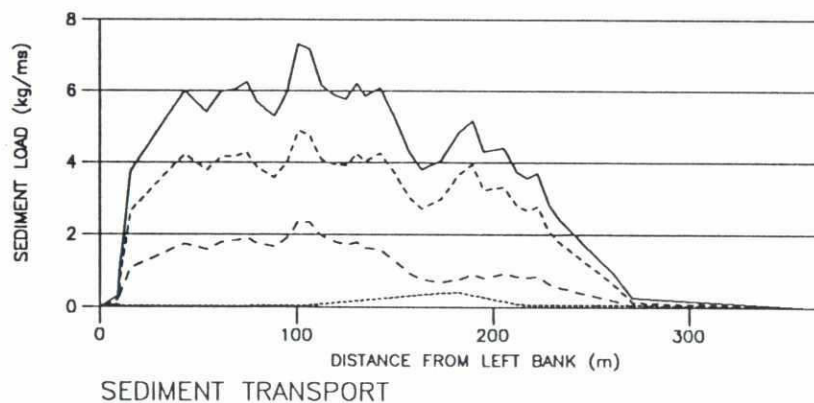
--- U - (m/s)

--- V - (m/s)

STAGE = 18.71 (m+PWD)

A = 1358 (m^2)

Q = 1607 (m^3/s)



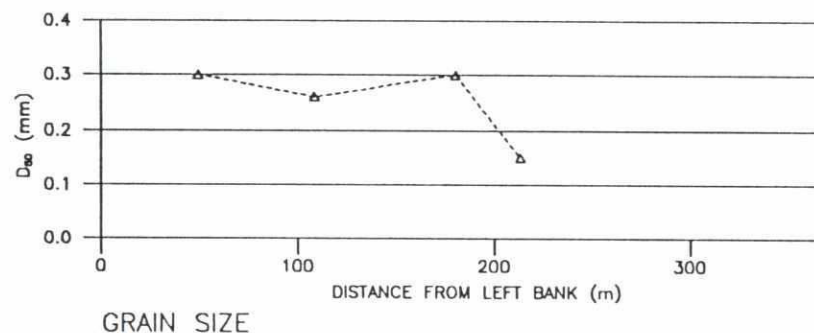
LEGEND :

— S_{TOTAL} 1251 (kg/s)

--- $S_{WASH\ LOAD}$ 878 (kg/s)

--- $S_{SUSP.\ RED}$ 330 (kg/s)

--- $S_{BED\ LOAD}$ 43 (kg/s)



LEGEND :

◇◇◇◇◇ $D_{50\ SUSP.}$ (mm)

△△△△△ $D_{50\ BED\ LOAD}$ (mm)

□□□□□ $D_{50\ BED\ MAT.}$ (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 69 : 24 - 26 June, 1994

Location 1 : Jamuna River, Bahadurabad

B46Q1T02

Date : 20 Sep 1994

Init : mk

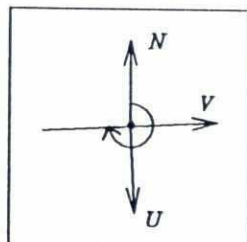
Horizontal distribution of flow and sediments

Channel 2

page

3.2

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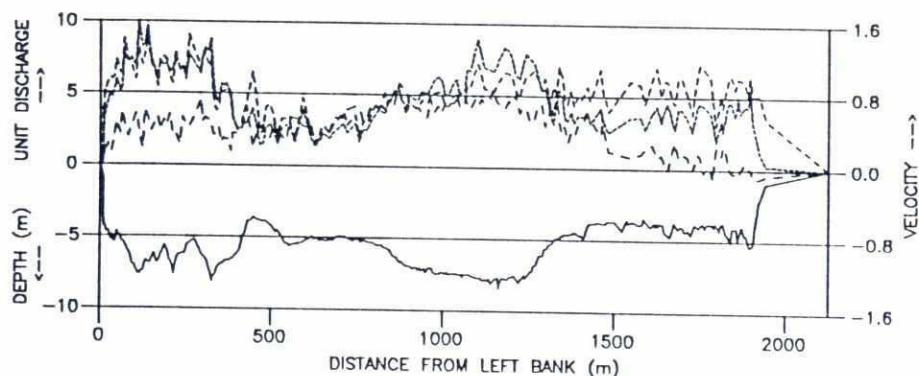


TRANSECT AZIMUTH = 267°

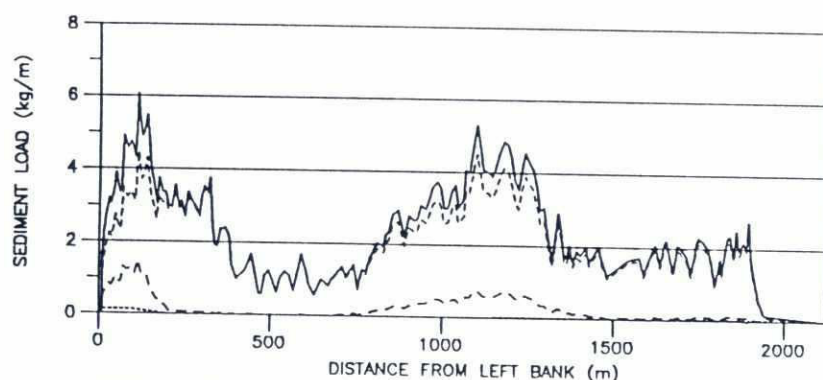
U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

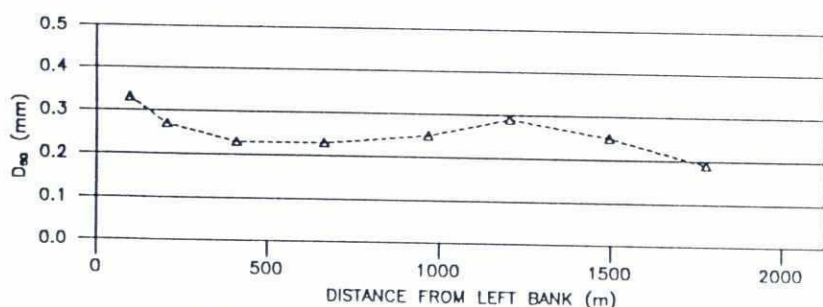
N - MAGNETIC NORTH



FLOW



SEDIMENT TRANSPORT



GRAIN SIZE

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 69 : 24 - 26 June, 1994

Location 1 : Jamuna River, Bahadurabad

B46P1T01

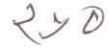
Date : 20 Sep 1994

Init : mk

Horizontal distribution of flow and sediments
Channel 3

page

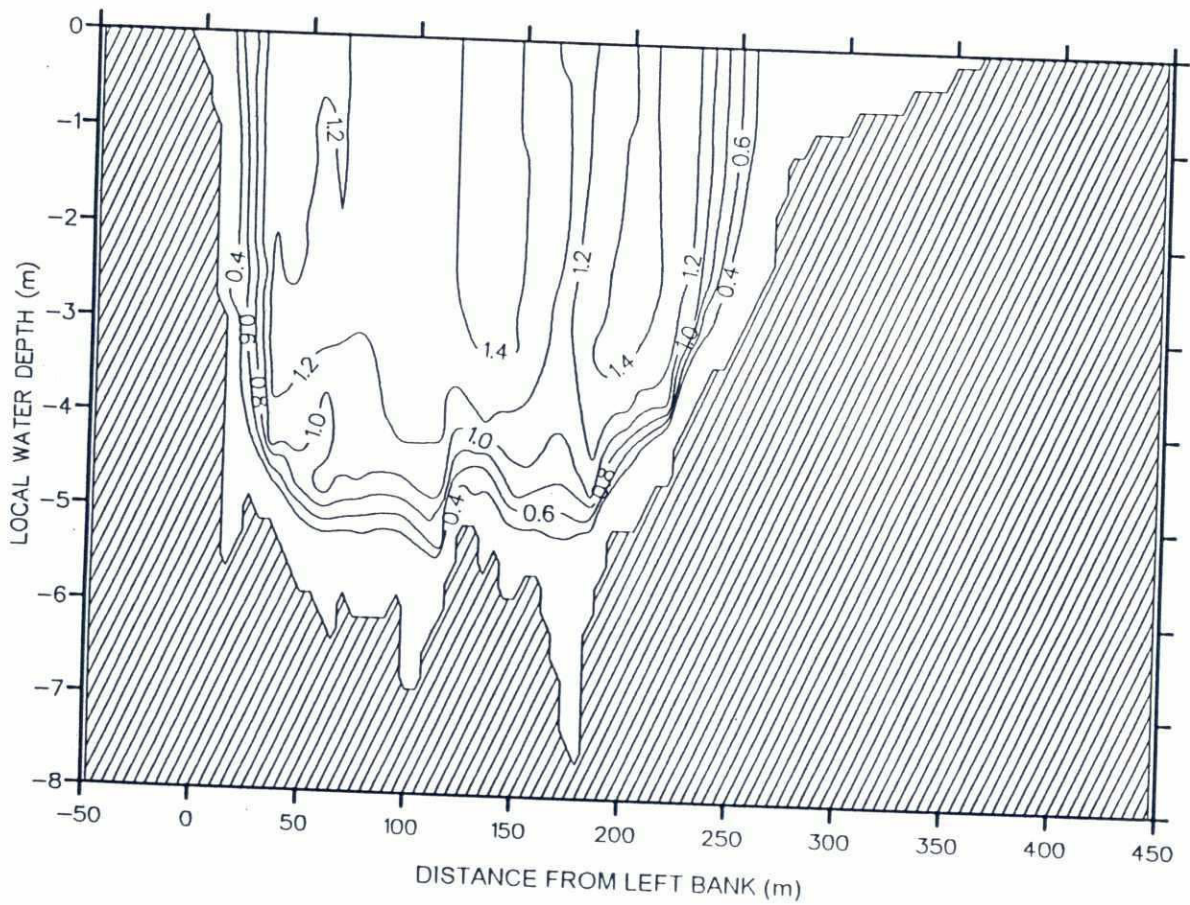
3.3



Water-level : 18.54 m + PWD measured at the station indicated on page 1.1

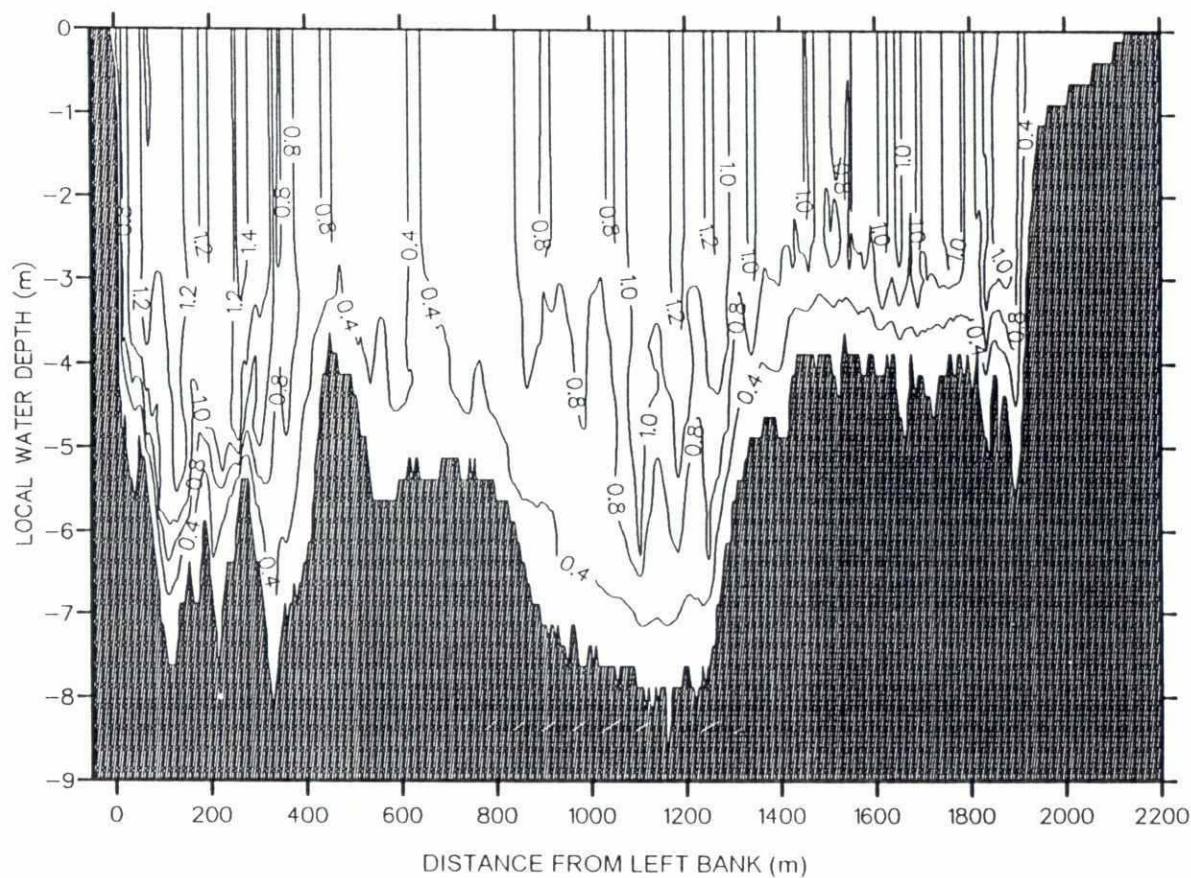
 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 69 : 24 - 26 June, 1994	
DELFT - DHI		Location 1 : Jamuna River, Bahadurabad	
B46O1T01	Date: 20 Sep 1994	Cross-sectional distribution of flow velocity Channel 1	page
	Init: mk		4.1

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Iso-velocity contours (m/s)
 Water-level : 18.71 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 69 : 24 - 26 June, 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
B46Q1T02	Date : 20 Sep 1994	Cross-sectional distribution of flow velocity Channel 2	page 4.2
	Init : mk		



Iso-velocity contours (m/s)
 Water-level : 18.62 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 69 : 24 - 26 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
B46P1T01	Date : 20 Sep 1994	Cross-sectional distribution of flow velocity Channel 3	page
	Init : mk		4.3

Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
1	1	9406241311-1349	6.40	1.522	98.478	0.150	0.181	0.206
	1	9406241311-1349	6.40	1.904	98.096	0.158	0.179	0.202
	2	9406241343-1350	10.4	0.330	99.670	0.209	0.262	0.319
	2	9406241343-1350	10.4	0.692	99.308	0.283	0.323	0.370
	3	9406241405-1534	10.7	1.231	98.769	0.205	0.260	0.317
	3	9406241405-1534	10.7	0.921	99.079	0.195	0.243	0.302
	4	9406241620-1625	8.20	2.074	97.926	0.211	0.272	0.328
	4	9406241620-1625	8.20	1.479	98.521	0.208	0.266	0.323
	5	9406241648-1654	6.30	0.153	99.847	0.294	0.332	0.376
	5	9406241648-1654	6.30	6.642	93.358	0.084	0.098	0.114
	6	9406241711-1718	7.80	1.067	98.933	0.163	0.186	0.213
	6	9406241711-1718	7.80	1.338	98.662	0.164	0.188	0.217
	7	9406261517-1526	9.20	4.846	95.154	0.107	0.136	0.170
	7	9406261517-1526	9.20	5.490	94.510	0.106	0.136	0.168
	8	9406261554-1601	4.60	14.329	85.671	0.126	0.166	0.219
	8	9406261554-1601	4.60	5.705	94.295	0.149	0.184	0.227
	9	9406261613-1621	8.70	2.172	97.828	0.200	0.259	0.319
	9	9406261613-1621	8.70	2.848	97.152	0.216	0.277	0.334
	10	9406261630-1639	6.20	0.237	99.763	0.291	0.331	0.375
	10	9406261630-1639	6.20	0.301	99.699	0.286	0.326	0.371
	11	9406261652-1701	3.70	0.242	99.758	0.201	0.249	0.308
	11	9406261652-1701	3.70	0.351	99.649	0.185	0.220	0.269
	12	9406261718-1720	4.10	2.597	97.403	0.136	0.178	0.233
	12	9406261718-1720	4.10	1.193	98.807	0.204	0.256	0.317
2	1	9406260827-0844	5.50	0.347	99.653	0.239	0.289	0.342
	1	9406260827-0844	5.50	0.381	99.619	0.275	0.317	0.366
	2	9406260859-0910	6.80	0.508	99.492	0.263	0.306	0.356
	2	9406260859-0910	6.80	2.373	97.627	0.177	0.215	0.267
	3	9406260951-1101	5.60	0.524	99.476	0.245	0.292	0.344
	3	9406260951-1101	5.60	0.472	99.528	0.256	0.299	0.350
	4	9406261121-1125	4.80	2.543	97.457	0.132	0.154	0.181
	4	9406261121-1125	4.80	2.995	97.005	0.126	0.152	0.183
3	1	9406251031-1044	7.80	0.174	99.826	0.296	0.335	0.379
	1	9406251031-1044	7.80	0.197	99.803	0.285	0.325	0.371
	2	9406251057-1219	7.40	1.226	98.774	0.193	0.244	0.306
	2	9406251057-1219	7.40	0.791	99.209	0.237	0.288	0.341
	3	9406251255-1301	5.50	0.777	99.223	0.171	0.201	0.236
	3	9406251255-1301	5.50	2.214	97.786	0.202	0.257	0.316
	4	9406251401-1406	5.10	2.626	97.374	0.179	0.236	0.300
	4	9406251401-1406	5.10	3.442	96.558	0.174	0.220	0.280
	5	9406251436-1443	7.30	2.003	97.997	0.176	0.236	0.300
	5	9406251436-1443	7.30	1.825	98.175	0.209	0.267	0.325
	6	9406251459-1512	8.00	0.358	99.642	0.216	0.270	0.326
	6	9406251459-1512	8.00	0.126	99.874	0.273	0.314	0.362
	7	9406251527-1535	3.30	0.416	99.584	0.226	0.280	0.338
	7	9406251527-1535	3.30	0.487	99.513	0.183	0.221	0.272
	8	9406251600-1614	4.50	0.461	99.539	0.163	0.190	0.221
	8	9406251600-1614	4.50	0.493	99.507	0.159	0.183	0.211

Table 5.3 : Grain sizes of bed load

 FAP 24 DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 69 : 24 - 26 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 24 Sep 1994	Grain size distributions	page
	init : mk		
			5.2

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Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9406240815-0834	B46O1T01 *
		9406240838-0904	B46O1T02
		9406241743-1804	B46O1T03
		9406241806-1830	B46O1T04
		9406261404-1424	B46Q1T05
		9406261427-1451	B46Q1T06
		9406261730-1753	B46Q1T07
		9406261757-1818	B46Q1T08
	2	9406260751-0755	B46Q1T01
		9406260758-0909	B46Q1T02 *
		9406260952-1136	B46Q1T03
		9406261138-1141	B46Q1T04
	3	9406250810-0826	B46P1T01 *
		9406250831-0849	B46P1T02
		9406251624-1641	B46P1T03
		9406251644-1701	B46P1T04

Table 6.1: ADCP & EMF transects

* : transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9406241311-1349	470505	777300	6.40	B46O1P01 *
		2	9406241343-1350	470318	777300	10.4	B46O1P02 *
		3	9406241405-1534	470116	777301	10.7	B46O1P03
		4	9406241620-1625	469944	777304	8.20	B46O1P04 *
		5	9406241648-1654	469808	777304	6.30	B46O1P05 *
		6	9406241711-1718	469564	777304	7.80	B46O1P06 *
		7	9406261517-1526	469398	777296	9.20	B46Q1P05 *
		8	9406261554-1601	469129	777303	4.60	B46Q1P06 *
		9	9406261613-1621	468841	777303	8.70	B46Q1P07 *
		10	9406261630-1639	468640	777303	6.20	B46Q1P08 *
		11	9406261652-1701	468373	777307	3.70	B46Q1P09 *
		12	9406261718-1720	468181	777303	4.10	B46Q1P10 *
	2	1	9406260827-0844	465900	779476	5.50	B46Q1P01 *
		2	9406260859-0910	465900	779535	6.80	B46Q1P02 *
		3	9406260951-1101	465904	779607	5.60	B46Q1P03
		4	9406261121-1125	465903	779640	4.80	B46Q1P04 *
	3	1	9406251031-1044	462095	783826	7.80	B46P1P01 *
		2	9406251057-1219	461987	783816	7.40	B46P1P02
		3	9406251255-1301	461783	783816	5.50	B46P1P03 *
		4	9406251401-1406	461529	783788	5.10	B46P1P04 *
		5	9406251436-1443	461226	783775	7.30	B46P1P05 *
		6	9406251459-1512	460989	783774	8.00	B46P1P06 *
		7	9406251527-1535	460698	783754	3.30	B46P1P07 *
		8	9406251600-1614	460415	783736	4.50	B46P1P08 *

Table 6.2: Vertical profiles

* S4 and MEX not available

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 69 : 24 - 26 June, 1994 Location 1 : Jamuna River, Bahadurabad	
	Date 24 Sep 1994 init : mk	Collected data and their storage (1)	page 61

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	3	6	9406241405-1534	470116	777301	10.7
	2	3	7	9406260951-1101	465904	779607	5.60
	3	2	5	9406251057-1219	461987	783816	7.40

Table 6.3: Suspended sediment - point sampled

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1	1	9406241311-1349	470505	777300	6.40
		2	1	9406241343-1350	470318	777300	10.4
		3	1	9406241405-1534	470116	777301	10.7
		4	1	9406241620-1625	469944	777304	8.20
		5	1	9406241648-1654	469808	777304	6.30
		6	1	9406241711-1718	469564	777304	7.80
		7	1	9406261517-1526	469398	777296	9.20
		8	1	9406261554-1601	469129	777303	4.60
		9	1	9406261613-1621	468841	777303	8.70
		10	1	9406261630-1639	468640	777303	6.20
		11	1	9406261652-1701	468373	777307	3.70
		12	1	9406261718-1720	468181	777303	4.10
	2	1	1	9406260827-0844	465900	779476	5.50
		2	1	9406260859-0910	465900	779535	6.80
		3	1	9406260951-1101	465904	779607	5.60
		4	1	9406261121-1125	465903	779640	4.80
	3	1	1	9406251031-1044	462095	783826	7.80
		2	1	9406251057-1219	461987	783816	7.40
		3	1	9406251255-1301	461783	783816	5.50
		4	1	9406251401-1406	461529	783788	5.10
		5	1	9406251436-1443	461226	783775	7.30
		6	1	9406251459-1512	460989	783774	8.00
		7	1	9406251527-1535	460698	783754	3.30
		8	1	9406251600-1614	460415	783736	4.50

Table 6.4: Suspended sediment - depth integrated

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Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1	9406241311-1349	470505	777300	6.40	A907
		1	9406241311-1349	470505	777300	6.40	A1630
		2	9406241343-1350	470318	777300	10.4	A923
		2	9406241343-1350	470318	777300	10.4	A1673
		3	9406241405-1534	470116	777301	10.7	A567
		3	9406241405-1534	470116	777301	10.7	A1366
		4	9406241620-1625	469944	777304	8.20	A360
		4	9406241620-1625	469944	777304	8.20	A370
		5	9406241648-1654	469808	777304	6.30	A1659
		5	9406241648-1654	469808	777304	6.30	A1383
		6	9406241711-1718	469564	777304	7.80	A112
		6	9406241711-1718	469564	777304	7.80	A1611
		7	9406261517-1526	469398	777296	9.20	A1622
		7	9406261517-1526	469398	777296	9.20	A1637
		8	9406261554-1601	469129	777303	4.60	A860
		8	9406261554-1601	469129	777303	4.60	A743
		9	9406261613-1621	468841	777303	8.70	A1679
		9	9406261613-1621	468841	777303	8.70	A1384
		10	9406261630-1639	468640	777303	6.20	A891
		10	9406261630-1639	468640	777303	6.20	A464
		11	9406261652-1701	468373	777307	3.70	A879
		11	9406261652-1701	468373	777307	3.70	A1379
		12	9406261718-1720	468181	777303	4.10	A1645
		12	9406261718-1720	468181	777303	4.10	A98
	2	1	9406260827-0844	465900	779476	5.50	A1148
		1	9406260827-0844	465900	779476	5.50	A713
		2	9406260859-0910	465900	779535	6.80	A86
		2	9406260859-0910	465900	779535	6.80	A712
		3	9406260951-1101	465904	779607	5.60	A880
		3	9406260951-1101	465904	779607	5.60	A102
		4	9406261121-1125	465903	779640	4.80	A876
		4	9406261121-1125	465903	779640	4.80	A84
	3	1	9406251031-1044	462095	783826	7.80	A1609
		1	9406251031-1044	462095	783826	7.80	A1674
		2	9406251057-1219	461987	783816	7.40	A116
		2	9406251057-1219	461987	783816	7.40	A1155
		3	9406251255-1301	461783	783816	5.50	A1607
		3	9406251255-1301	461783	783816	5.50	A1617
		4	9406251401-1406	461529	783788	5.10	A885
		4	9406251401-1406	461529	783788	5.10	A1648
		5	9406251436-1443	461226	783775	7.30	A1660
		5	9406251436-1443	461226	783775	7.30	A73
		6	9406251459-1512	460989	783774	8.00	A1649
		6	9406251459-1512	460989	783774	8.00	A882
		7	9406251527-1535	460698	783754	3.30	A1608
		7	9406251527-1535	460698	783754	3.30	A1133
		8	9406251600-1614	460415	783736	4.50	A1640
		8	9406251600-1614	460415	783736	4.50	A367

Table 6.5. Bed load

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization DELFT - DHI Commission of the European Communities		Survey Bulletin 69 : 24 - 26 June, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 25 Sep 1994	Collected data and their storage (3)	page 63
	init mk		

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	B46O1T01 .ase
ADCP/S4/EMF data	2	QUATTRO	B46Q1T01 .ase
ADCP/S4/EMF data	3	QUATTRO	B46P1T01 .ase
Echosounder data	1	QUATTRO	B46O1T01 .ech
Echosounder data	2	QUATTRO	B46Q1T01 .ech
Echosounder data	3	QUATTRO	B46P1T01 .ech
Sediment transport data	1	QUATTRO	B46O1T01 .sed
Sediment transport data	2	QUATTRO	B46Q1T01 .sed
Sediment transport data	3	QUATTRO	B46P1T01 .sed
Bed load sediment analysis	1	QUATTRO	B46O1T01 .bdl
Bed load sediment analysis	2	QUATTRO	B46Q1T01 .bdl
Bed load sediment analysis	3	QUATTRO	B46P1T01 .bdl
Susp. sed. conc. analysis	1	QUATTRO	B46O1T01 .ssc
Susp. sed. conc. analysis	2	QUATTRO	B46Q1T01 .ssc
Susp. sed. conc. analysis	3	QUATTRO	B46P1T01 .ssc
Transect plot data	1	QUATTRO	B46O1T01 .trs
Transect plot data	2	QUATTRO	B46Q1T01 .trs
Transect plot data	3	QUATTRO	B46P1T01 .trs
Iso-velocity plot data	1	MIKE 21	B46O1T01 .ct2 B46O1T01 .dt2
Iso-velocity plot data	2	MIKE 21	B46Q1T01 .ct2 B46Q1T01 .dt2
Iso-velocity plot data	3	MIKE 21	B46P1T01 .ct2 B46P1T01 .dt2
Table 7.1 PSD 24 Database file description			

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 69 : 24 - 26 June, 1994

Location 1 : Jamuna River, Bahadurabad

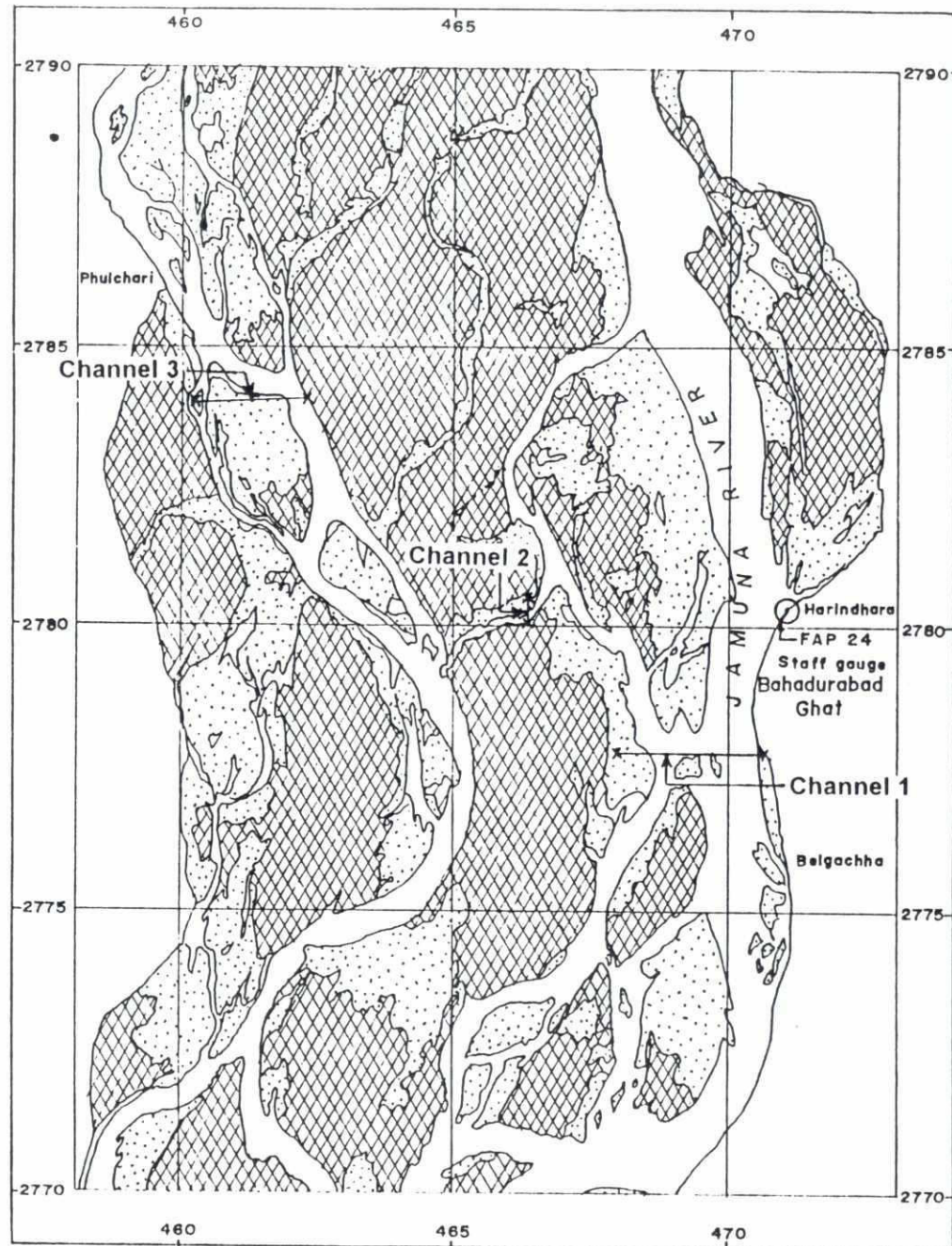
Date : 25 Sep 1994

Init : mk

PSD 24 Database file description

page

7.1



LEGEND:

- *—* Cross section
- Highland
- Unstable/low char
- FAP 24 Staff gauge



5000m 2500m 0

Map is based on satellite
images of March 1994

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 80 : 14 - 16 July , 1994

Location 1 : Jamuna River, Bahadurabad

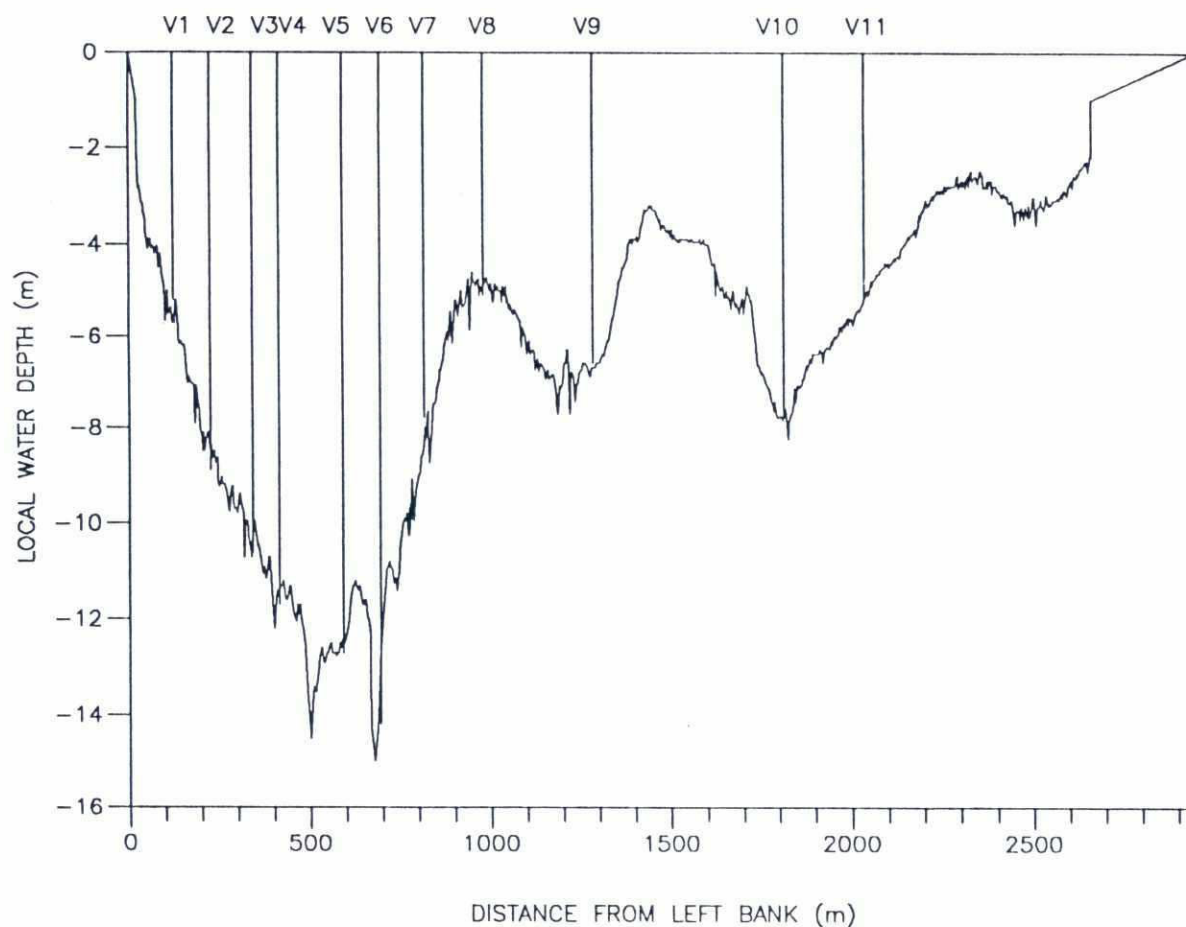
Date : 07 Sep 1994

Location map

Init : mzh/sjr

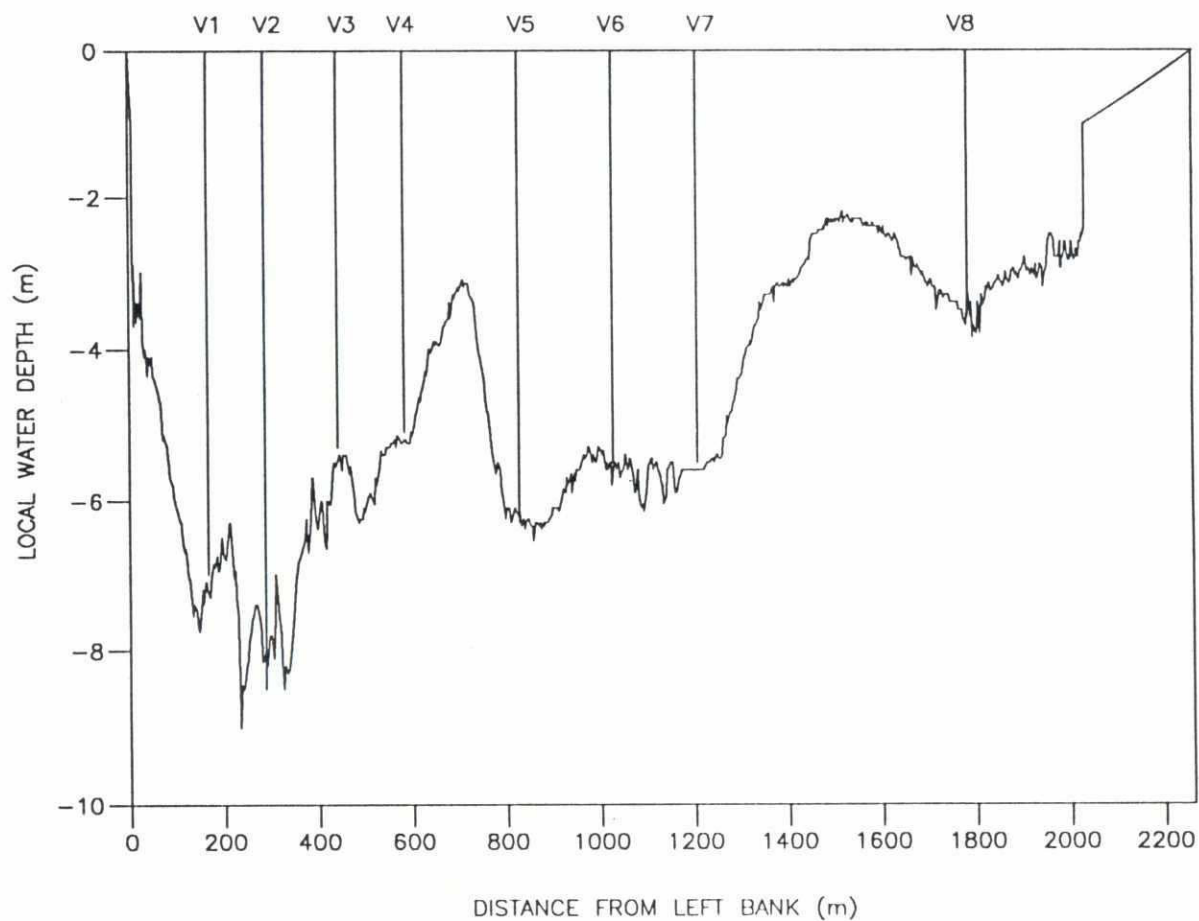
page

1.1



Water level : 17.98 m + PWD measured at the station indicated on page 1.1

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Water level : 18.09 m + PWD measured at the station indicated on page 1.1

FAP 24



RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 80 : 14 - 16 July , 1994

Location 1 : Jamuna River, Bahadurabad

File : B47E1T01

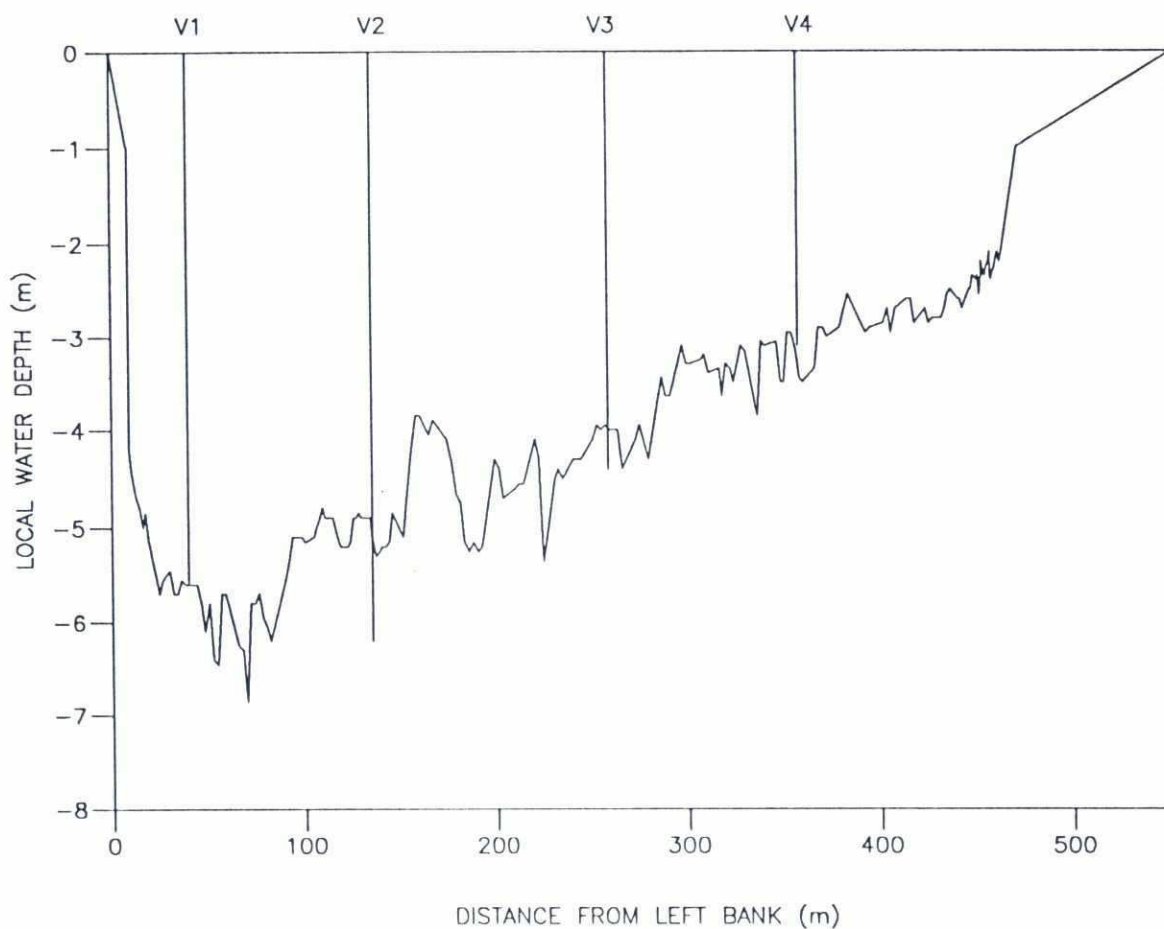
Date : 07 Sep 1994

Init : mzh/sjr

Cross-sections and measured verticals
Channel 3

page

1.4



Water level : 17.84 m + PWD measured at station indicated on page 1.1

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Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	4	4	4	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No. of verticals in channel	11	4	8	-
	ADCP	11	4	8	-
	S4 current meter	1	1	1	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	5	5	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	11	4	8	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	22	8	16	-
	Delft Bottle	-	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1: Survey programme as made

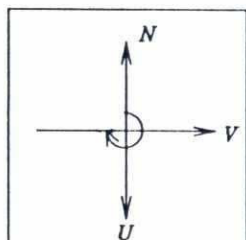
	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sedime transport Ss total (kg/s)
Channel 1	2963	16946	17.98	18738	221	10412
Channel 2	554	1956	17.84	1429	47	729
Channel 3	2282	9745	18.09	6571	22	2824

Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	15 Jul 94	17.98	FAP 24
	Channel 2	16 Jul 94	17.84	FAP 24
	Channel 3	14 Jul 94	18.09	FAP 24

Table 2.3: Water-levels

 FAP 24 DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 80 : 14 - 16 July , 1994	
				Location 1 : Jamuna River, Bahadurabad	
Files : B47F1T01 B47G1T07 B47E1T01		Date : 07 Sep 1994 Init : mzh/sjr		Survey programme as made and key figures	
				page 2.1	

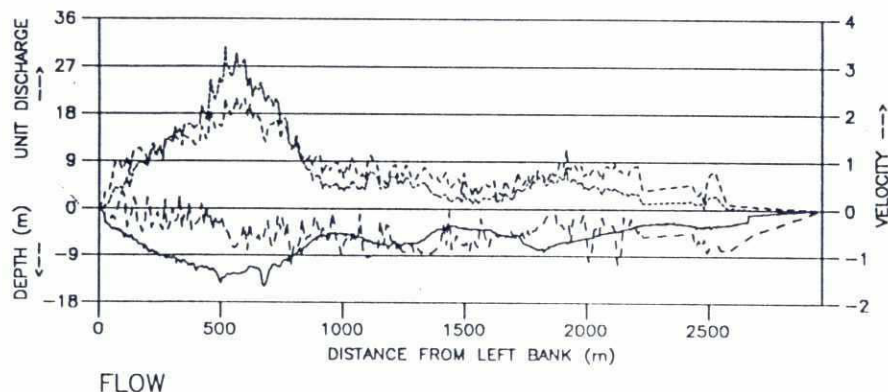


TRANSECT AZIMUTH = 270°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STAGE)

— UNIT DISCHARGE (m³/s.m)

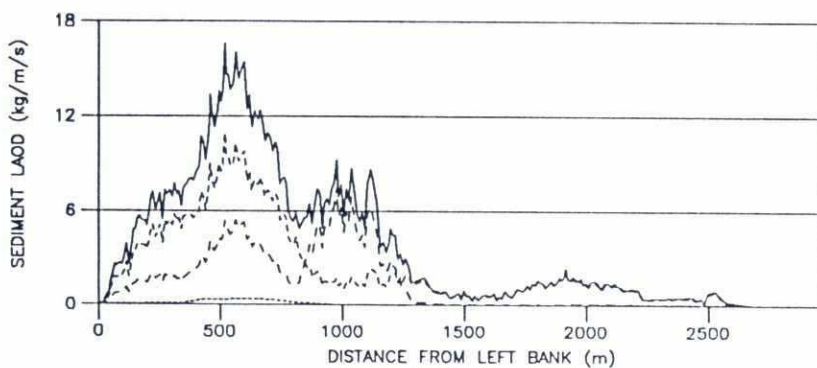
--- U (m/s)

--- V (m/s)

STAGE = 17.98 (m+PWD)

A = 16946 (m²)

Q = 18738 (m³/s)



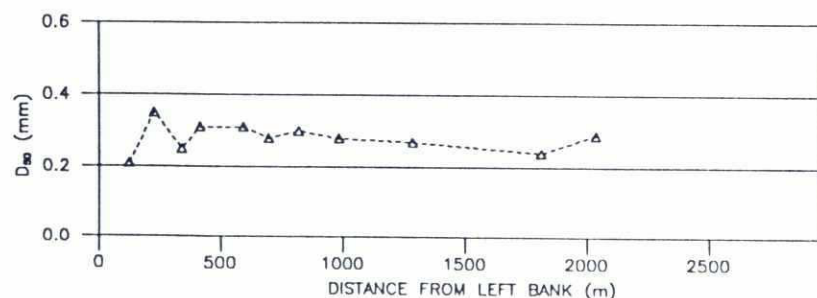
LEGEND :

— S_{TOTAL} 10633 (kg/s)

--- S_{WASH LOAD} 6519 (kg/s)

--- S_{SUSP. BED} 3893 (kg/s)

--- S_{BED LOAD} 221 (kg/s)

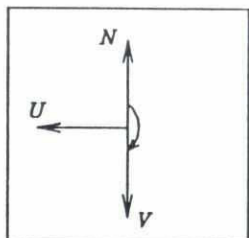


LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)

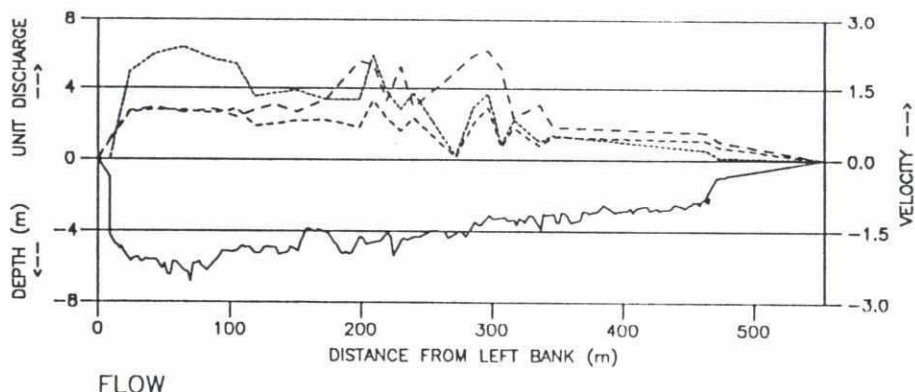


TRANSECT AZIMUTH = 180°

U - VELOCITY NORMAL TO TRANSECT (m/s)

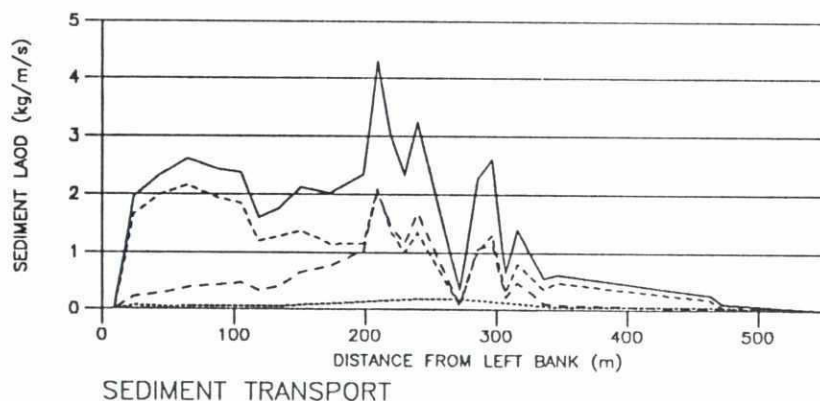
V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



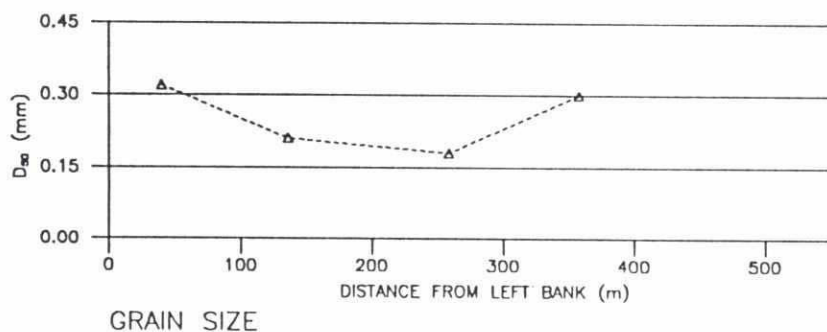
LEGEND :

— WATER DEPTH (m below STAGE)
 --- UNIT DISCHARGE ($m^3/s.m$)
 ... U (m/s)
 -.- V (m/s)
 STAGE = 17.84 (m+PWD)
 A = 1956 (m^2)
 Q = 1429 (m^3/s)



LEGEND :

— S_{TOTAL} 776 (kg/s)
 --- $S_{WASH LOAD}$ 498 (kg/s)
 ... $S_{SUSP. BED}$ 231 (kg/s)
 -.- $S_{BED LOAD}$ 47 (kg/s)



LEGEND :

◆◆◆◆ D₅₀ SUSP. (mm)
 ▲▲▲▲ D₅₀ BED LOAD (mm)
 □□□□ D₅₀ BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 80 : 14 - 16 July , 1994

Location 1 : Jamuna River, Bahadurabad

File : B47G1T07

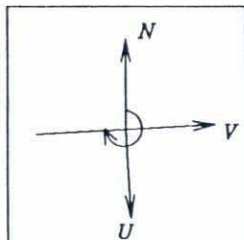
Date : 07 Sep 1994

Init : mzh/sjr

Horizontal distribution of flow and sediments
 Channel 2

page

3.2

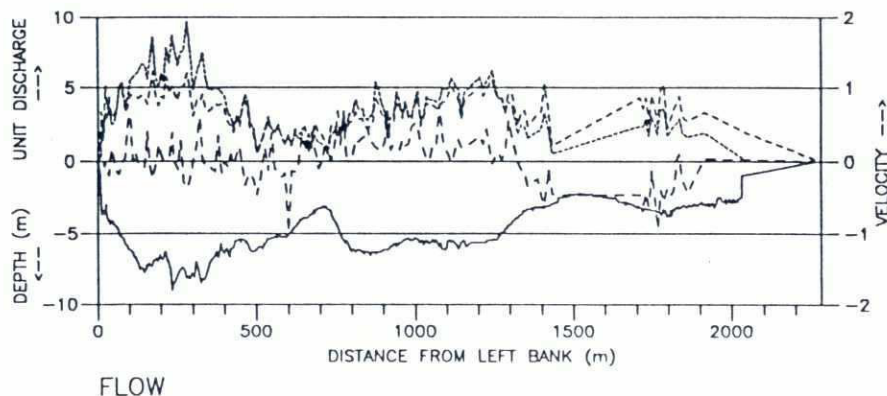


TRANSECT AZIMUTH = 267°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STAGE)

- - - UNIT DISCHARGE (m³/s.m)

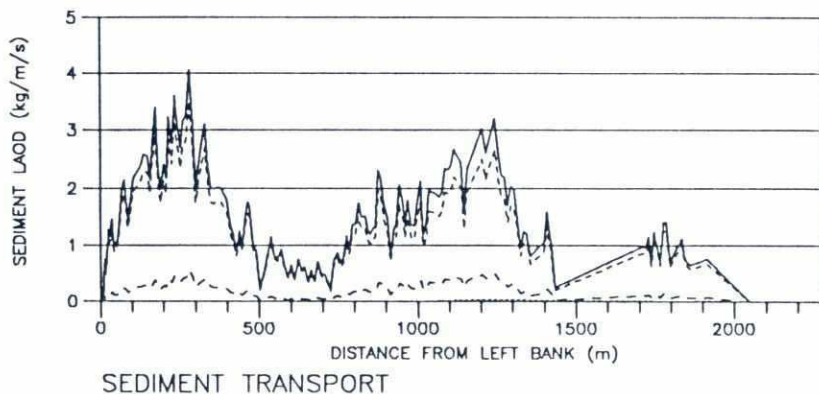
... U (m/s)

- . - V (m/s)

STAGE = 18.09 (m+PWD)

A = 9745 (m³)

Q = 6571 (m³/s)



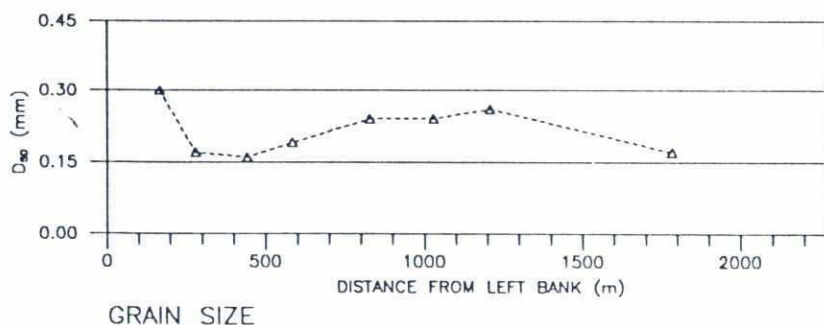
LEGEND :

— S_TOTAL 2846 (kg/s)

- - - S_WASH LOAD 2450 (kg/s)

... S_SUSP. BED 374 (kg/s)

- . - S_BED LOAD 22 (kg/s)



LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 80 : 14 - 16 July , 1994

Location 1 : Jamuna River, Bahadurabad

Date : 07 Sep 1994

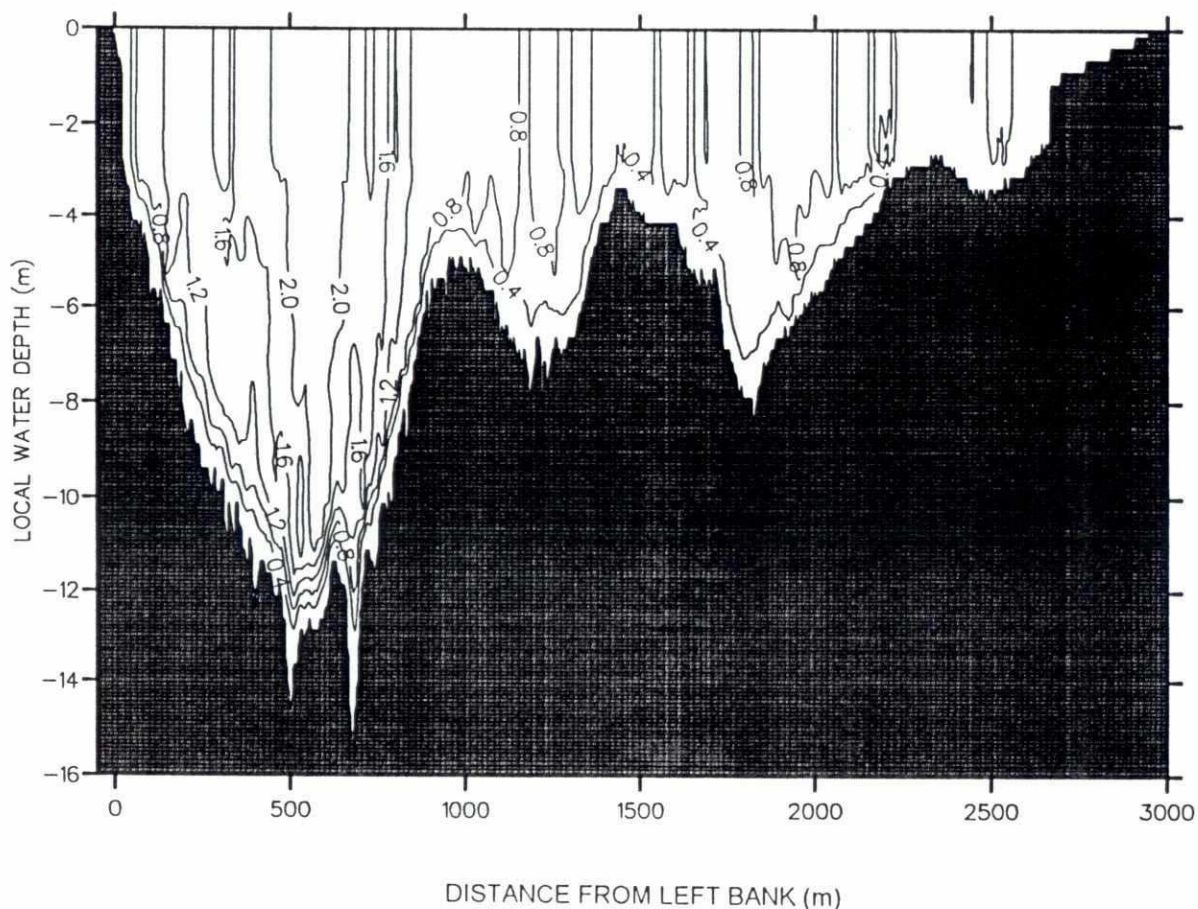
Init : m2h/sjr

Horizontal distribution of flow and sediments
Channel 3

page

3.3

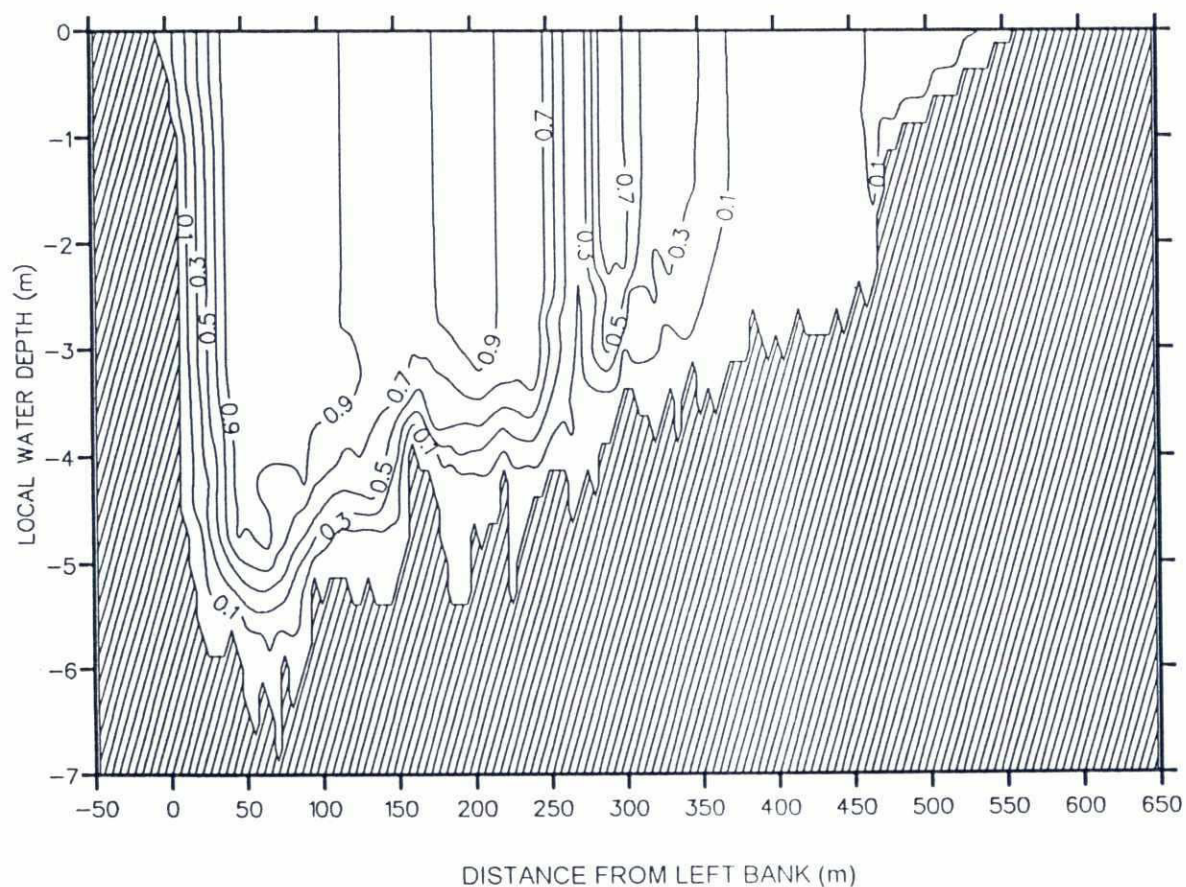
File : B47E1T01



Iso-velocity contours (m/s)

Water level : 17.98 m + PWD measured at the station indicated on page 1.1

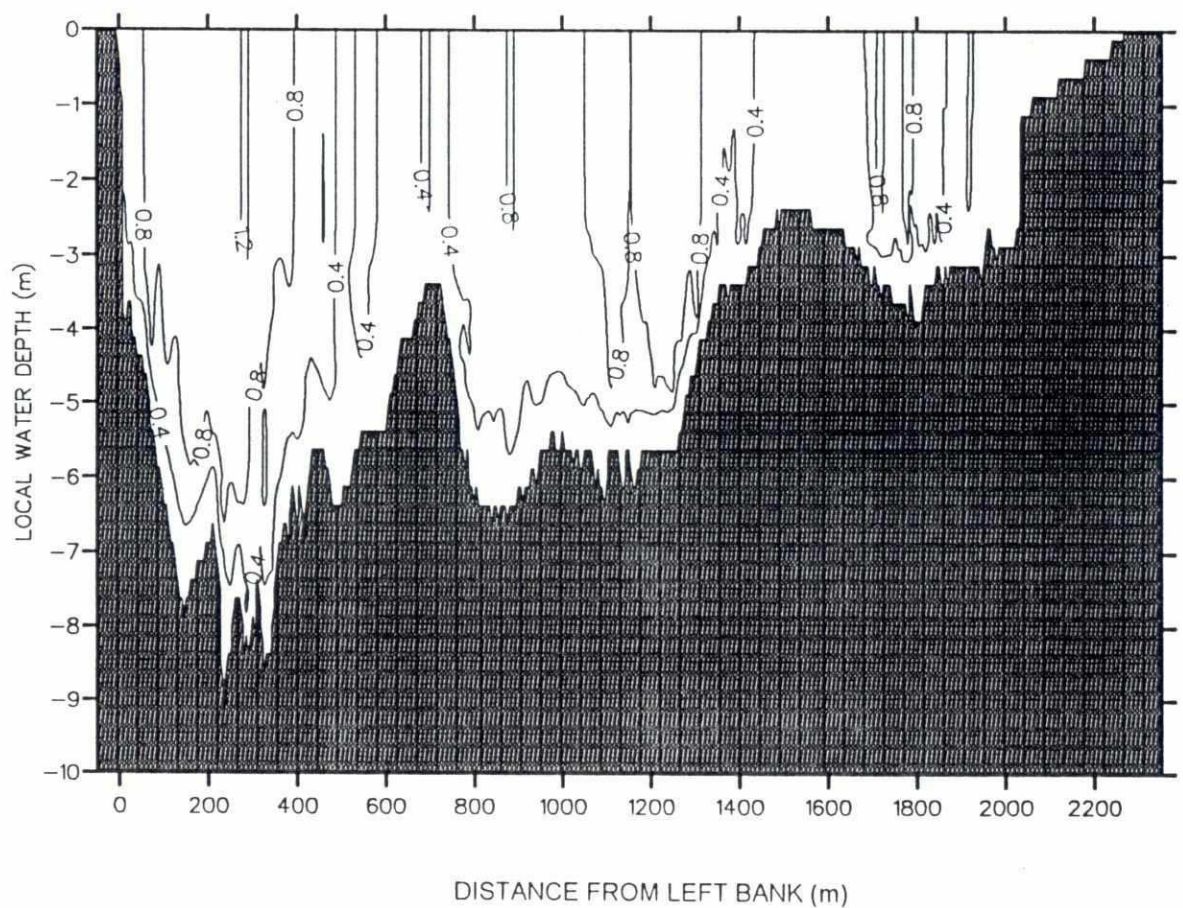
FAP 24  DELFT - DHI		Survey Bulletin 80 : 14 - 16 July , 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B47F1T01	Date : 07 Sep 1994	Cross-sectional distribution of flow velocity Channel 1	page 4.1
	Init : mzh/sjr		



Iso-velocity contours (m/s)

Water level : 17.84 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 80 : 14 - 16 July , 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B47G1T07	Date : 07 Sep 1994	Cross-sectional distribution of flow velocity Channel 2	page
	Init : mzh/sjr		4.2



Iso-velocity contours (m/s)

Water level : 18.09 m + PWD measured at the station indicated on page 1.1

RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 80 : 14 - 16 July , 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B47E1T01	Date : 07 Sep 1994	Cross-sectional distribution of flow velocity Channel 3	page 4.3
	Init : mzh/sjr		

Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm		D35 (mm)	D50 (mm)	D65 (mm)
1	1	9407151010-1012	5.20	1.366	98.634	0.171	0.201	0.237
	2	9407151031-1033	8.90	0.191	99.809	0.311	0.348	0.390
	3	9407151052-1054	10.60	0.451	99.549	0.266	0.308	0.357
	4	9407151118-1120	11.70	0.255	99.745	0.304	0.342	0.384
	5	9407151151-1153	12.70	0.826	99.174	0.272	0.313	0.361
	6	9407151220-1222	14.20	0.948	99.052	0.153	0.251	0.309
	7	9407151448-1450	7.80	0.236	99.764	0.293	0.332	0.376
	8	9407151516-1518	5.10	1.251	98.749	0.209	0.264	0.320
	9	9407151542-1544	6.60	2.187	97.813	0.189	0.268	0.326
	10	9407151612-1614	7.70	2.809	97.191	0.173	0.261	0.320
	11	9407151632-1634	5.20	0.284	99.716	0.289	0.329	0.374
	1	9407151013-1015	5.20	0.582	99.418	0.187	0.225	0.278
	2	9407151034-1036	8.90	0.258	99.742	0.309	0.347	0.389
	3	9407151053-1055	10.60	1.666	98.334	0.152	0.187	0.229
	4	9407151119-1121	11.70	1.312	98.688	0.212	0.281	0.334
	5	9407151154-1156	12.70	1.109	98.891	0.264	0.306	0.356
	6	9407151222-1224	14.20	0.760	99.240	0.265	0.307	0.356
	7	9407151450-1452	7.80	0.728	99.272	0.192	0.278	0.332
	8	9407151518-1520	5.10	0.699	99.301	0.260	0.303	0.353
	9	9407151544-1546	6.60	1.999	98.001	0.200	0.266	0.324
	10	9407151614-1616	7.70	1.976	98.024	0.167	0.216	0.281
	11	9407151634-1636	5.20	0.290	99.710	0.205	0.255	0.313
2	1	9407161410-1412	5.60	0.103	99.897	0.278	0.319	0.366
	2	9407161432-1434	6.20	0.109	99.891	0.201	0.247	0.306
	3	9407161612-1614	4.40	0.819	99.181	0.172	0.202	0.236
	4	9407161630-1632	3.10	0.324	99.676	0.251	0.295	0.346
	1	9407161412-1414	5.60	0.160	99.840	0.276	0.317	0.364
	2	9407161434-1436	6.20	0.305	99.695	0.142	0.166	0.195
	3	9407161614-1616	4.40	0.247	99.753	0.127	0.155	0.190
	4	9407161632-1634	3.10	0.273	99.727	0.254	0.297	0.348

Table 5.3 : Grain sizes of bed load

(continued)

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Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
3	1	9407141024-1026	7.00	0.201	99.799	0.301	0.339	0.382
	2	9407141537-1539	8.50	0.947	99.053	0.176	0.208	0.245
	3	9407141213-1215	5.30	0.803	99.197	0.148	0.195	0.257
	4	9407141251-1253	5.10	6.132	93.868	0.124	0.175	0.247
	5	9407141344-1346	6.30	1.168	98.832	0.189	0.234	0.294
	6	9407141410-1412	5.50	1.012	98.988	0.184	0.254	0.314
	7	9407141432-1434	5.50	2.323	97.677	0.168	0.222	0.289
	8	9407141506-1508	3.60	0.723	99.277	0.141	0.165	0.193
	1	9407141027-1029	7.00	2.705	97.295	0.206	0.269	0.326
	2	9407141540-1542	8.50	3.838	96.162	0.102	0.129	0.168
	3	9407141216-1218	5.30	3.332	96.668	0.101	0.128	0.230
	4	9407141254-1256	5.10	6.990	93.010	0.153	0.198	0.256
	5	9407141347-1349	6.3	1.694	98.306	0.195	0.249	0.309
	6	9407141413-1415	5.50	2.107	97.893	0.176	0.232	0.297
	7	9407141435-1437	5.50	0.705	99.295	0.250	0.294	0.345
	8	9407141509-1511	3.60	0.510	99.490	0.139	0.172	0.212
Table 5.3 : Grain sizes of bed load								

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 80 : 14 - 16 July , 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 07 Sep 1994	Grain size distributions	page 5.3
	Init : mzh/sjr		

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Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9407150728-0751	B47F1T01 *
		9407150754-0820	B47F1T02
		9407151659-1725	B47F1T03
		9407151727-1750	B47F1T04
	2	9407161054-1059	B47G1T07 *
		9407161100-1105	B47G1T08
		9407161651-1656	B47G1T09
		9407161657-1702	B47G1T10
	3	9407140814-0833	B47E1T01 *
		9407140837-0856	B47E1T02
		9407141659-1718	B47E1T03
		9407141719-1737	B47E1T04

Table 6.1: ADCP & EMF transects

* : transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9407151015-1024	470515	777300	5.20	B47F1P01 *
		2	9407151036-1044	470413	777297	8.90	B47F1P02 *
		3	9407151057-1108	470298	777301	10.60	B47F1P03 *
		4	9407151123-1134	470224	777305	11.70	B47F1P04 *
		5	9407151156-1204	470047	777302	12.70	B47F1P05 *
		6	9407151225-1429	469944	777306	14.20	B47F1P07 **
		7	9407151453-1506	469821	777302	7.80	B47F1P08 *
		8	9407151521-1529	469657	777304	5.10	B47F1P09 *
		9	9407151547-1601	469354	777304	6.60	B47F1P10 *
		10	9407151617-1627	468826	777303	7.70	B47F1P11 *
		11	9407151637-1646	468602	777302	5.20	B47F1P12 *
	2	1	9407161414-1422	466392	779618	5.60	B47G1P01 *
		2	9407161438-1546	466416	779712	6.20	B47G1P02 **
		3	9407161617-1624	466387	779837	4.40	B47G1P03 *
		4	9407161635-1641	466390	779936	3.10	B47G1P04 *
	3	1	9407141029-1059	462130	783606	7.00	B47E1P01 *
		2	9407141542-1647	462041	783602	8.50	B47E1P09 **
		3	9407141218-1227	461855	783595	5.30	B47E1P03 *
		4	9407141256-1304	461713	783587	5.10	B47E1P04 *
		5	9407141349-1356	461470	783574	6.30	B47E1P05 *
		6	9407141415-1425	461270	783555	5.50	B47E1P06 *
		7	9407141437-1446	461090	783554	5.50	B47E1P07 *
		8	9407141511-1520	460515	783520	3.60	B47E1P08 *

Table 6.2: Vertical profiles

** MEX not available

* S4 & MEX not available

 FAP 24 DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 80 : 14 - 16 July , 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 07 Sep 1994	Collected data and their storage (1)	page 6.1
	Init : mzh/sjr		

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	6	6	9407151225-1429	469944	777306	14.20
	2	2	5	9407161438-1546	466416	779712	6.20
	3	2	5	9407141542-1647	462041	783602	8.50

Table 6.3: Suspended sediment - point sampled

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	1	1	1	9407151015-1024	470515	777300	5.20
		2	1	9407151036-1044	470413	777297	8.90
		3	1	9407151057-1108	470298	777301	10.60
		4	1	9407151123-1134	470224	777305	11.70
		5	1	9407151156-1204	470047	777302	12.70
		6	1	9407151225-1429	469944	777306	14.20
		7	1	9407151453-1506	469821	777302	7.80
		8	1	9407151521-1529	469657	777304	5.10
		9	1	9407151547-1601	469354	777304	6.60
		10	1	9407151617-1627	468826	777303	7.70
		11	1	9407151637-1646	468602	777302	5.20
	2	1	1	9407161414-1422	466392	779618	5.60
		2	1	9407161438-1546	466416	779712	6.20
		3	1	9407161617-1624	466387	779837	4.40
		4	1	9407161635-1641	466390	779936	3.10
	3	1	1	9407141029-1059	462130	783606	7.00
		2	1	9407141542-1647	462041	783602	8.50
		3	1	9407141218-1227	461855	783595	5.30
		4	1	9407141256-1304	461713	783587	5.10
		5	1	9407141349-1356	461470	783574	6.30
		6	1	9407141415-1425	461270	783555	5.50
		7	1	9407141437-1446	461090	783554	5.50
		8	1	9407141511-1520	460515	783520	3.60

Table 6.4: Suspended sediment - depth integrated

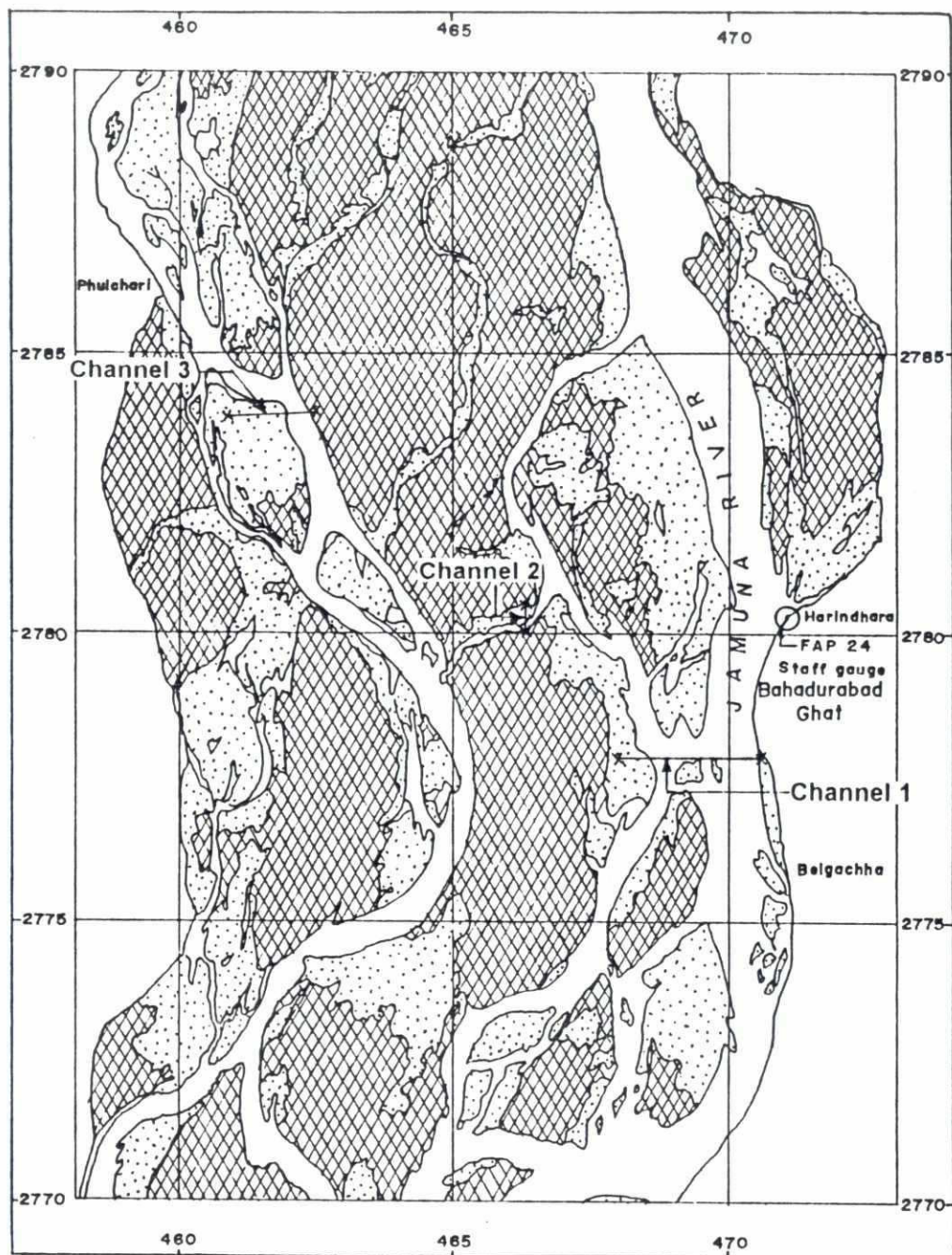
FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 80 : 14 - 16 July , 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 07 Sep 1994	Collected data and their storage (2)	page
	Init : mzh/sjr		6.2

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1	9407151010-1012	470515	777300	5.20	A1135
		2	9407151031-1033	470413	777297	8.90	A1658
		3	9407151052-1054	470298	777301	10.60	A1602
		4	9407151118-1120	470224	777305	11.70	A875
		5	9407151151-1153	470047	777302	12.70	A1379
		6	9407151220-1222	469944	777306	14.20	A883
		7	9407151448-1450	469821	777302	7.80	A569
		8	9407151516-1518	469657	777304	5.10	A1839
		9	9407151542-1544	469354	777304	6.60	A1876
		10	9407151612-1614	468826	777303	7.70	A1971
		11	9407151632-1634	468602	777302	5.20	A2036
		1	9407151013-1015	470515	777300	5.20	A85
		2	9407151034-1036	470413	777297	8.90	A893
		3	9407151053-1055	470298	777301	10.60	A97
		4	9407151119-1121	470224	777305	11.70	A1606
		5	9407151154-1156	470047	777302	12.70	A121
		6	9407151222-1224	469944	777306	14.20	A88
		7	9407151450-1452	469821	777302	7.80	A371
		8	9407151518-1520	469657	777304	5.10	A1865
		9	9407151544-1546	469354	777304	6.60	A1857
		10	9407151614-1616	468826	777303	7.70	A1863
		11	9407151634-1636	468602	777302	5.20	A1875
	2	1	9407161410-1412	466392	779618	5.60	A910
		2	9407161432-1434	466416	779712	6.20	A1898
		3	9407161612-1614	466387	779837	4.40	A1907
		4	9407161630-1632	466390	779936	3.10	A1880
		1	9407161412-1414	466392	779618	5.60	A2034
		2	9407161434-1436	466416	779712	6.20	A2035
		3	9407161614-1616	466387	779837	4.40	A1901
		4	9407161632-1634	466390	779936	3.10	A1895
	3	1	9407141024-1026	462130	783606	7.00	A1915
		2	9407141537-1539	462041	783602	8.50	A1858
		3	9407141213-1215	461855	783595	5.30	A1981
		4	9407141251-1253	461713	783587	5.10	A1977
		5	9407141344-1346	461470	783574	6.30	A1856
		6	9407141410-1412	461270	783555	5.50	A1914
		7	9407141432-1434	461090	783554	5.50	A1381
		8	9407141506-1508	460515	783520	3.60	A1881
		1	9407141027-1029	462130	783606	7.00	A1917
		2	9407141540-1542	462041	783602	8.50	A1976
		3	9407141216-1218	461855	783595	5.30	A1912
		4	9407141254-1256	461713	783587	5.10	A1979
		5	9407141347-1349	461470	783574	6.30	A1877
		6	9407141413-1415	461270	783555	5.50	A1916
		7	9407141435-1437	461090	783554	5.50	A1659
		8	9407141509-1511	460515	783520	3.60	A884

Table 6.5 : Bed load

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 80 : 14 - 16 July , 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 07 Sep 1994	Collected data and their storage (3)	page 6.3
	Init : mzh/sjr		

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	B47F1T01.ase
ADCP/S4/EMF data	2	QUATTRO	B47G1T07.ase
ADCP/S4/EMF data	3	QUATTRO	B47E1T01.ase
Echosounder data	1	QUATTRO	B47F1T01.ech
Echosounder data	2	QUATTRO	B47G1T07.ech
Echosounder data	3	QUATTRO	B47E1T01.ech
Sediment transport data	1	QUATTRO	B47F1T01.bdl
Sediment transport data	2	QUATTRO	B47G1T07.bdl
Sediment transport data	3	QUATTRO	B47E1T01.bdl
Bed load sediment analysis	1	QUATTRO	B47F1T01.ssc
Bed load sediment analysis	2	QUATTRO	B47G1T07.ssc
Bed load sediment analysis	3	QUATTRO	B47E1T01.ssc
Transect plot data	1	QUATTRO	B47F1T01.trs
Transect plot data	2	QUATTRO	B47G1T07.trs
Transect plot data	3	QUATTRO	B47E1T01.trs
Iso-velocity plot data	1	MIKE 21 MIKE 21	B47F1T01.ct2 B47F1T01.dt2
Iso-velocity plot data	2	MIKE 21 MIKE 21	B47G1T07.ct2 B47G1T07.dt2
Iso-velocity plot data	3	MIKE 21 MIKE 21	B47E1T01.ct2 B47E1T01.dt2
Table 7.1 PSD 24 Database file description			



LEGEND:

- ✕✕ Cross section
- ▨ Highland
- ░ Unstable/low char
- FAP 24 Staff gauge



5000m 2500m 0

Map is based on satellite images of March 1994

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 89 : 06 - 09 August , 1994

Location 1 : Jamuna River, Bahadurabad

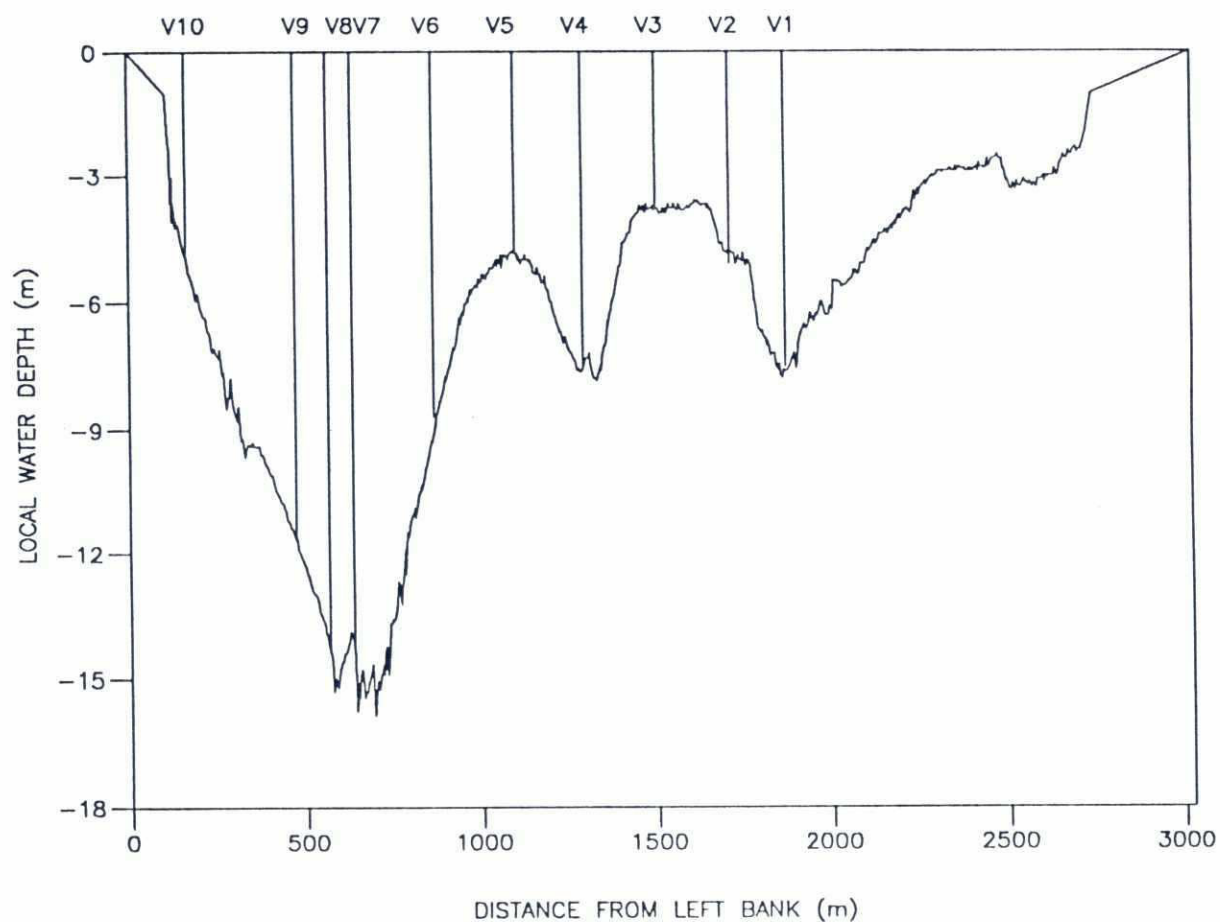
Date : 08 Nov 1994

Init : sjr

Location map

page

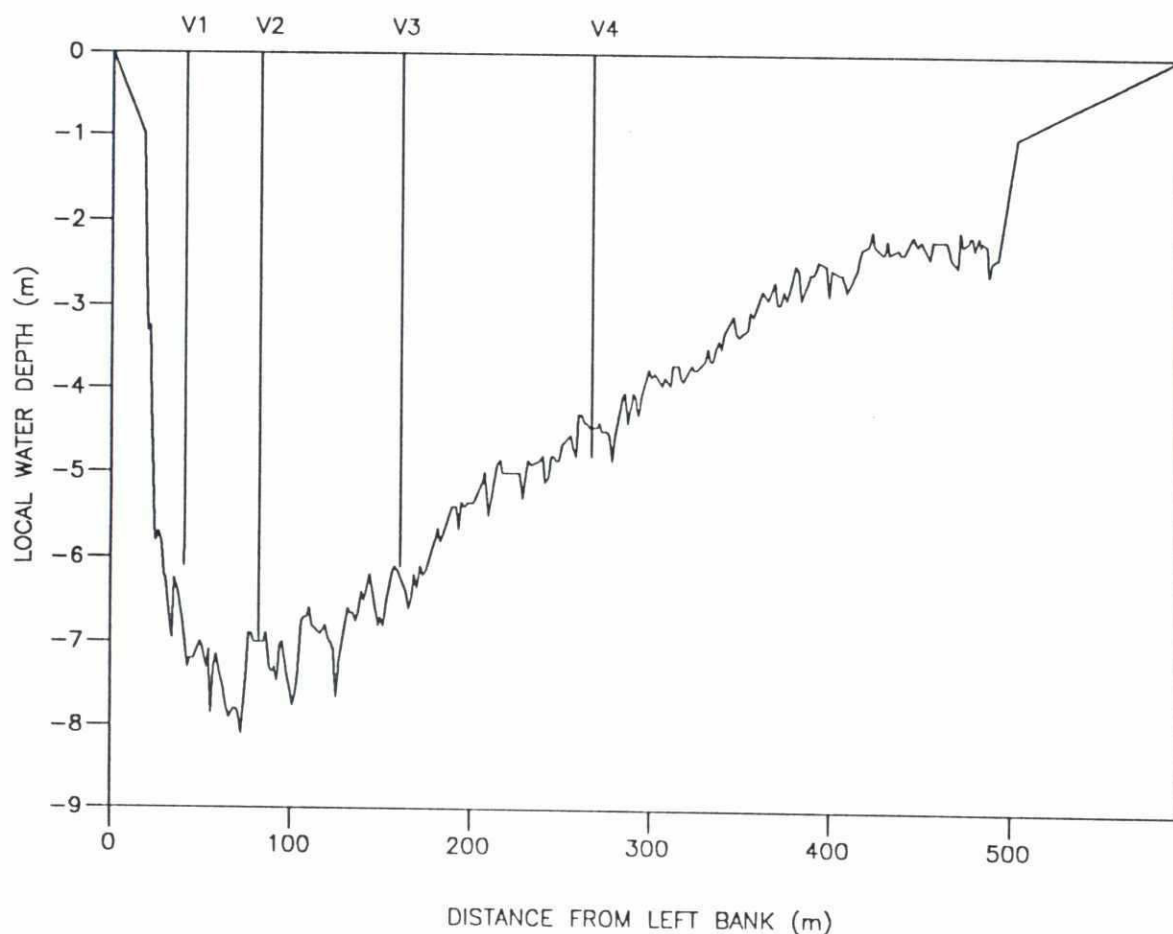
1.1



Water level : 17.86 m + PWD measured at the station indicated on page 1.1

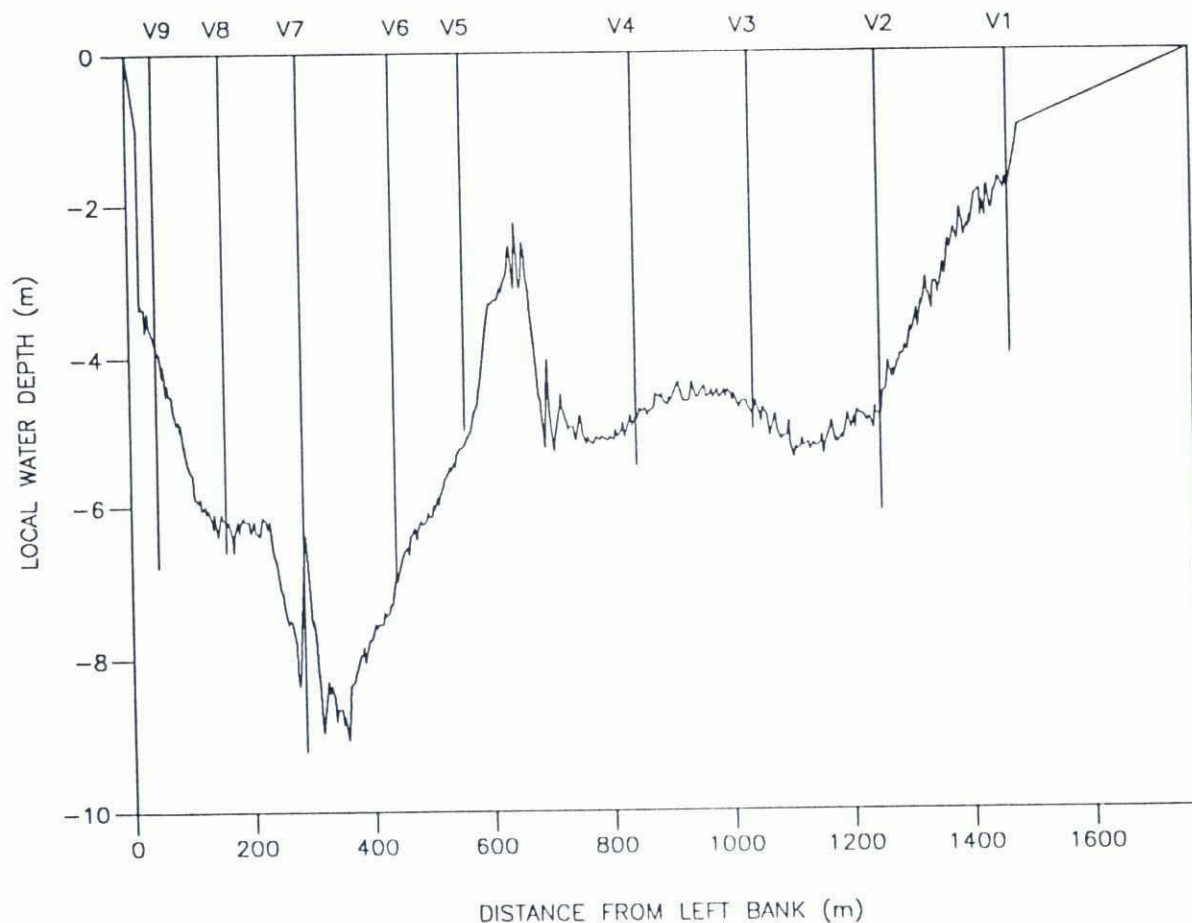
FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 89 : 06 - 09 August, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4861T05	Date : 08 Nov 1994	Cross-sections and measured verticals Channel 1	page
	Init : sjr		1.2

289



Water level : 17.78 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 89 : 06 - 09 August, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4881T04	Date : 08 Nov 1994	Cross-sections and measured verticals Channel 2	page 1.3
	Init : sjr		



Water level : 17.74 m + PWD measured at the station indicated on page 1.1

2102

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	7	4	6	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No. of verticals in channel	10	4	9	-
	ADCP	10	4	9	-
	S4 current meter	1	1	1	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	6	6	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	12	10	-
	Integrated bottle sampling	11	4	9	-
	Collapsible bag	10	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	18	8	18	-
	Delft Bottle	22	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1: Survey programme as made

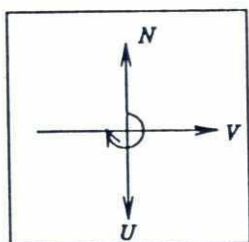
	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	3026	17308	17.86	17293	49	16587
Channel 2	592	2281	17.78	1405	93	682
Channel 3	1772	7518	17.74	4446	4	2101

Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	06 Aug 94	17.86	FAP 24
		07 Aug 94	17.82	FAP 24
	Channel 2	08 Aug 94	17.78	FAP 24
	Channel 3	09 Aug 94	17.74	FAP 24

Table 2.3: Water-levels

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 89 : 06 - 09 August, 1994	
		Location 1 : Jamuna River, Bahadurabad	
Files : B4861T05 B4881T04 B4891T02	Date : 08 Nov 1994	Survey programme as made and key figures	page
	Init : sjr		2.1

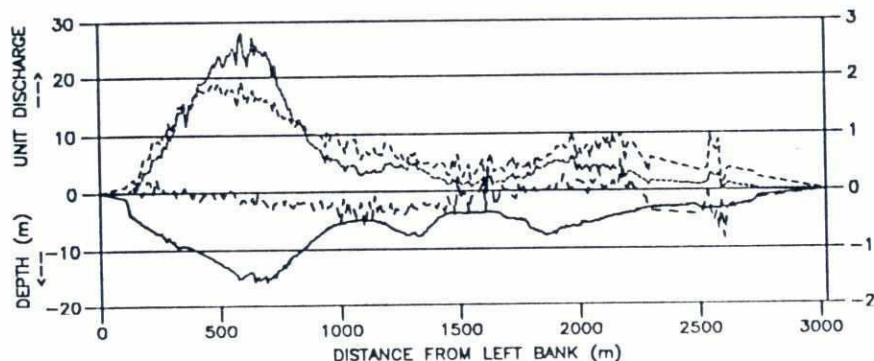


TRANSECT AZIMUTH = 270°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STAGE)

--- UNIT DISCHARGE (m³/s.m)

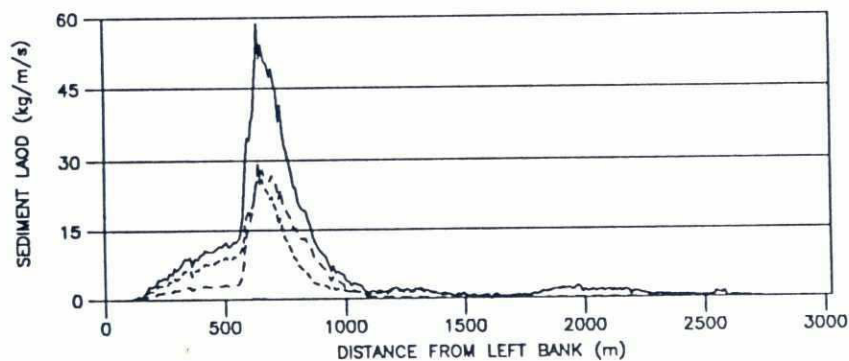
... U (m/s)

-.- V (m/s)

STAGE = 17.86 (m+PWD)

A = 17308 (m³)

Q = 17293 (m³/s)



SEDIMENT TRANSPORT

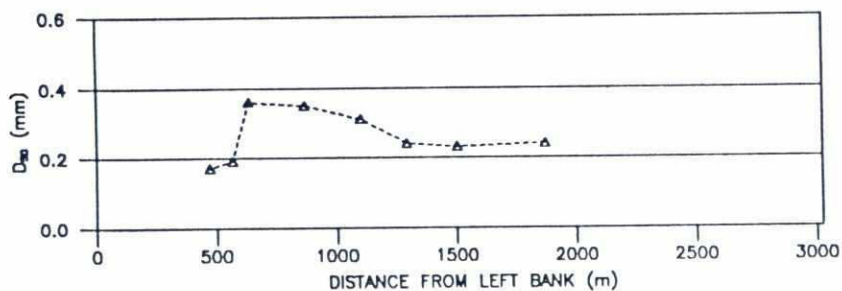
LEGEND :

— S_{TOTAL} 16636 (kg/s)

--- S_{WASH LOAD} 9002 (kg/s)

... S_{SUSP. BED} 7585 (kg/s)

-.- S_{BED LOAD} 49 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)

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DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 89 : 06 - 09 August, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4861T05

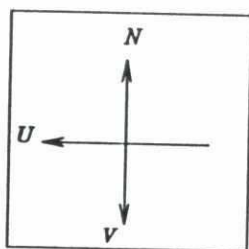
Date : 08 Nov 1994

Init : sjr

Horizontal distribution of flow and sediments
Channel 1

page

3.1

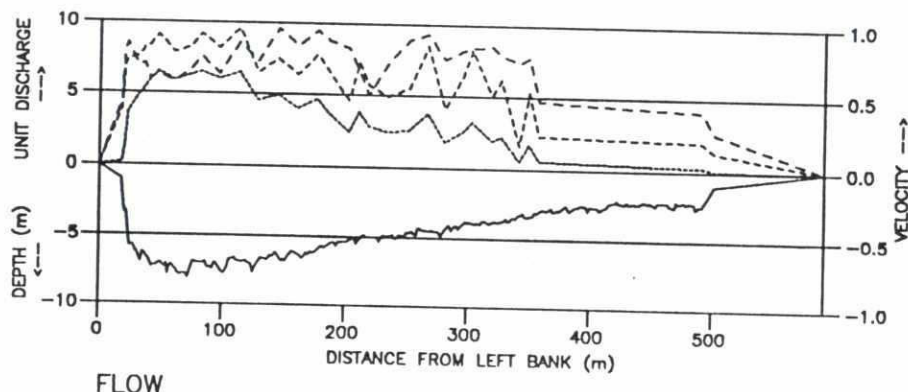


TRANSECT AZIMUTH = 0°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STAGE)

- - - UNIT DISCHARGE ($m^3/s.m$)

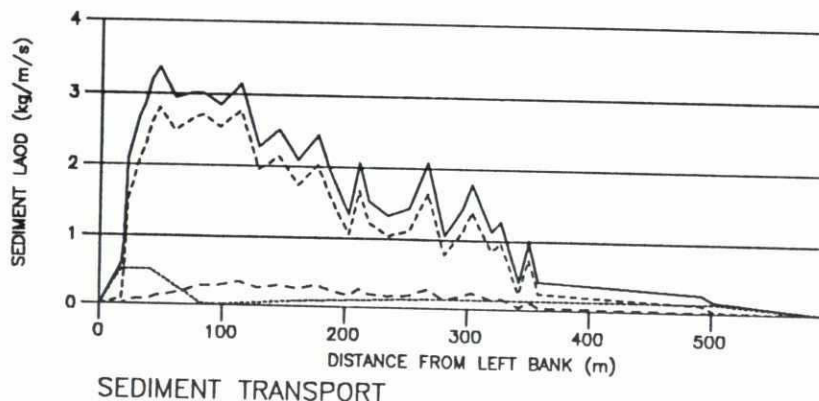
... U (m/s)

- . - V (m/s)

STAGE = 17.78 (m+PWD)

A = 2281 (m^2)

Q = 1405 (m^3/s)



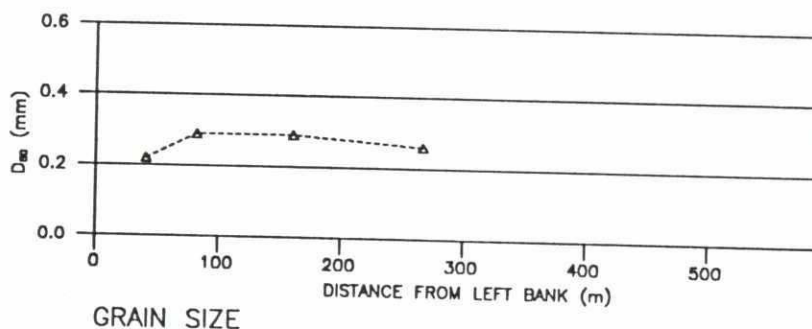
LEGEND :

— S_{TOTAL} 775 (kg/s)

- - - $S_{WASH LOAD}$ 804 (kg/s)

... $S_{SUSP. BED}$ 78 (kg/s)

- . - $S_{BED LOAD}$ 93 (kg/s)



LEGEND :

... $D_{50 SUSP.}$ (mm)

- - - $D_{50 BED LOAD}$ (mm)

- . - $D_{50 BED MAT.}$ (mm)

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Location 1 : Jamuna River, Bahadurabad

File : B4881T04

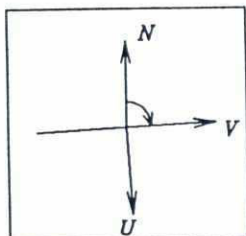
Date : 08 Nov 1994

Init : sjr

Horizontal distribution of flow and sediments
Channel 2

page

3.2

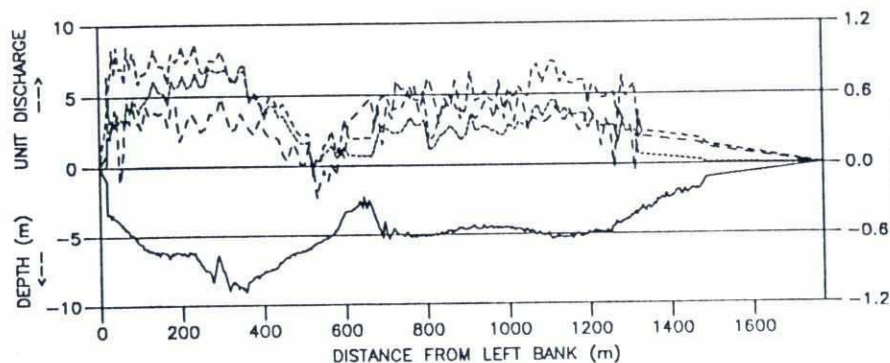


TRANSECT AZIMUTH = 87°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

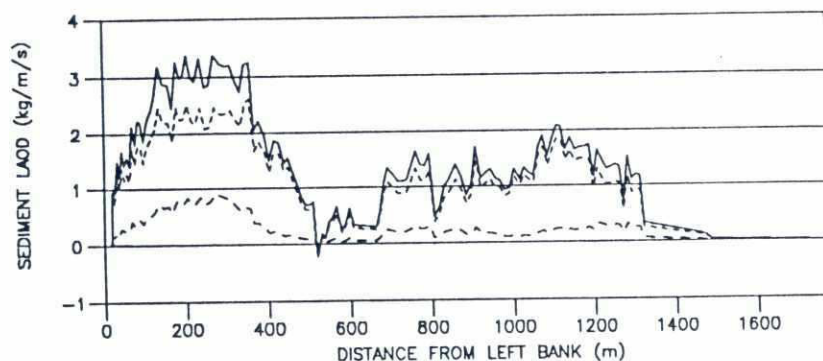
LEGEND :

— WATER DEPTH (m below STAGE)
 --- UNIT DISCHARGE (m³/s.m)
 --- U (m/s)
 --- V (m/s)

STAGE = 17.74 (m+PWD)

A = 7518 (m³)

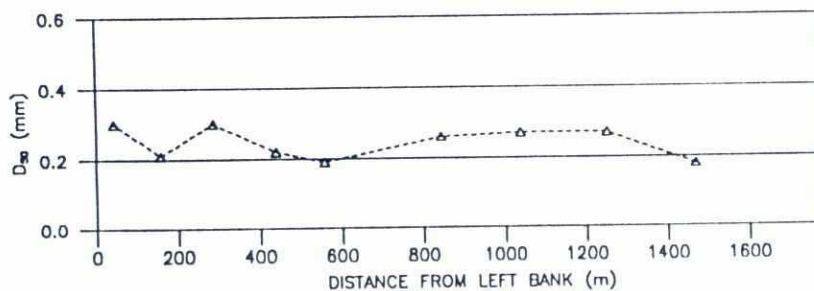
Q = 4446 (m³/s)



SEDIMENT TRANSPORT

LEGEND :

— S_{TOTAL} 2105 (kg/s)
 --- S_{WASH LOAD} 1700 (kg/s)
 ... S_{SUSP. BED} 401 (kg/s)
 -.- S_{BED LOAD} 4 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇ D₅₀ SUSP. (mm)
 △△△△ D₅₀ BED LOAD (mm)
 □□□□ D₅₀ BED MAT. (mm)

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Survey Bulletin 89 : 06 - 09 August, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4891T02

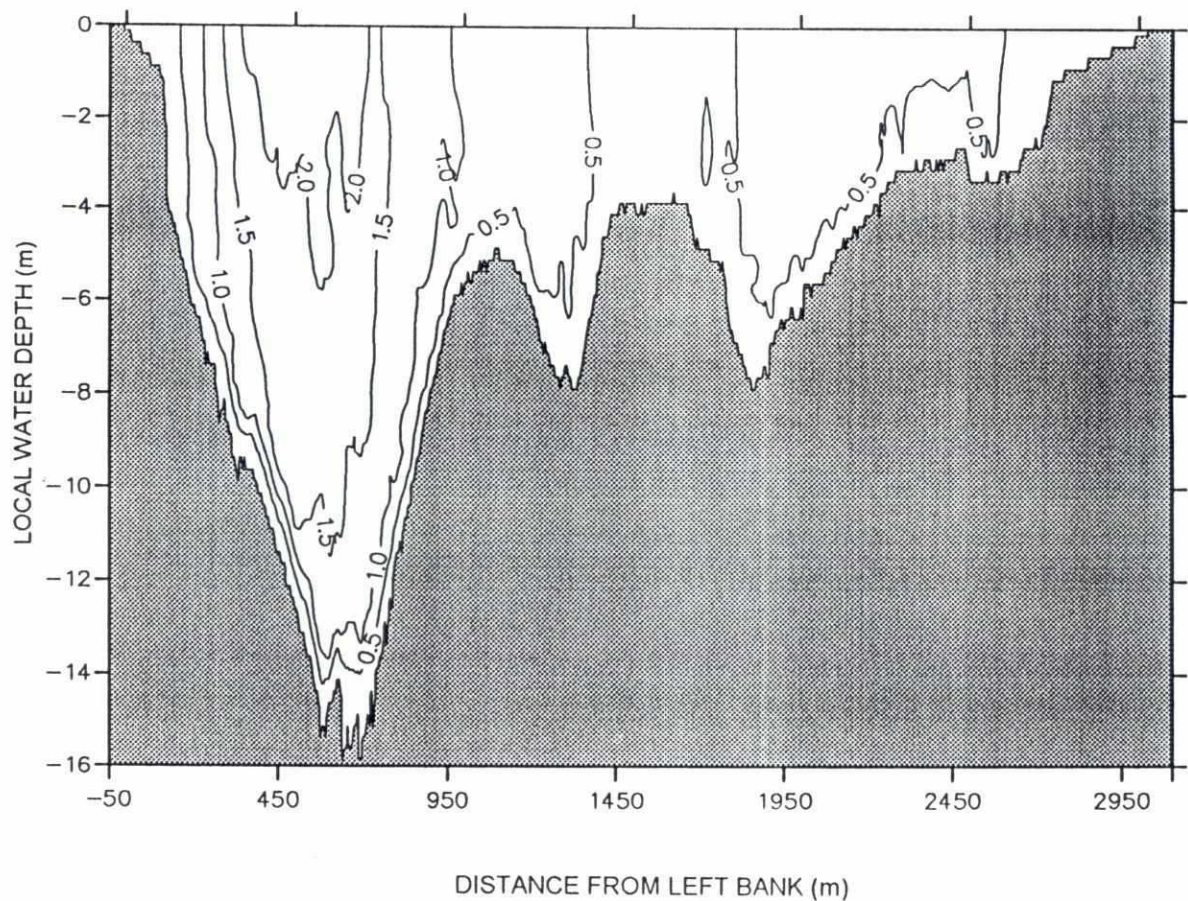
Date : 08 Nov 1994

Init : sjr

Horizontal distribution of flow and sediments
 Channel 3

page

3.3

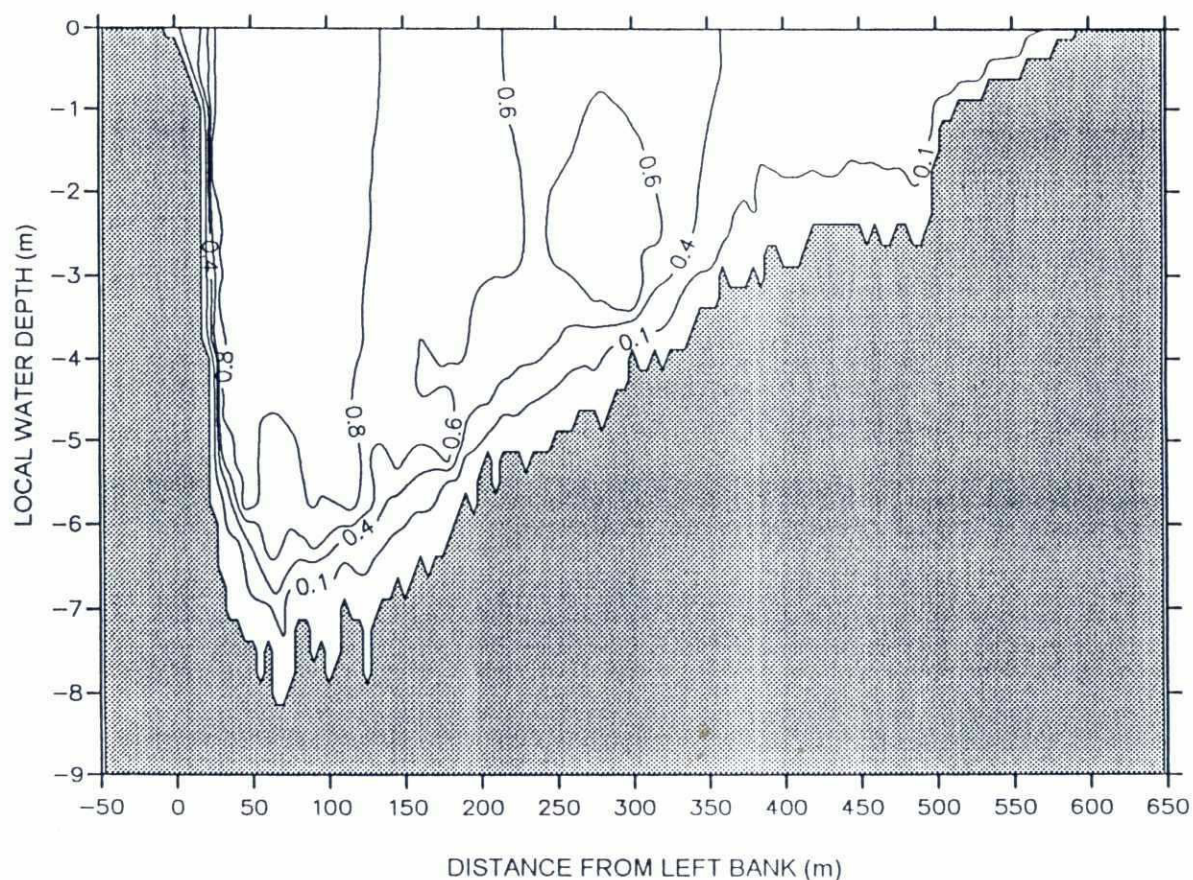


Iso-velocity contours (m/s)

Water level : 17.86 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 89 : 06 - 09 August, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4861T05	Date : 08 Nov 1994	Cross-sectional distribution of flow velocity Channel 1	page 4.1
	Init : sjr		

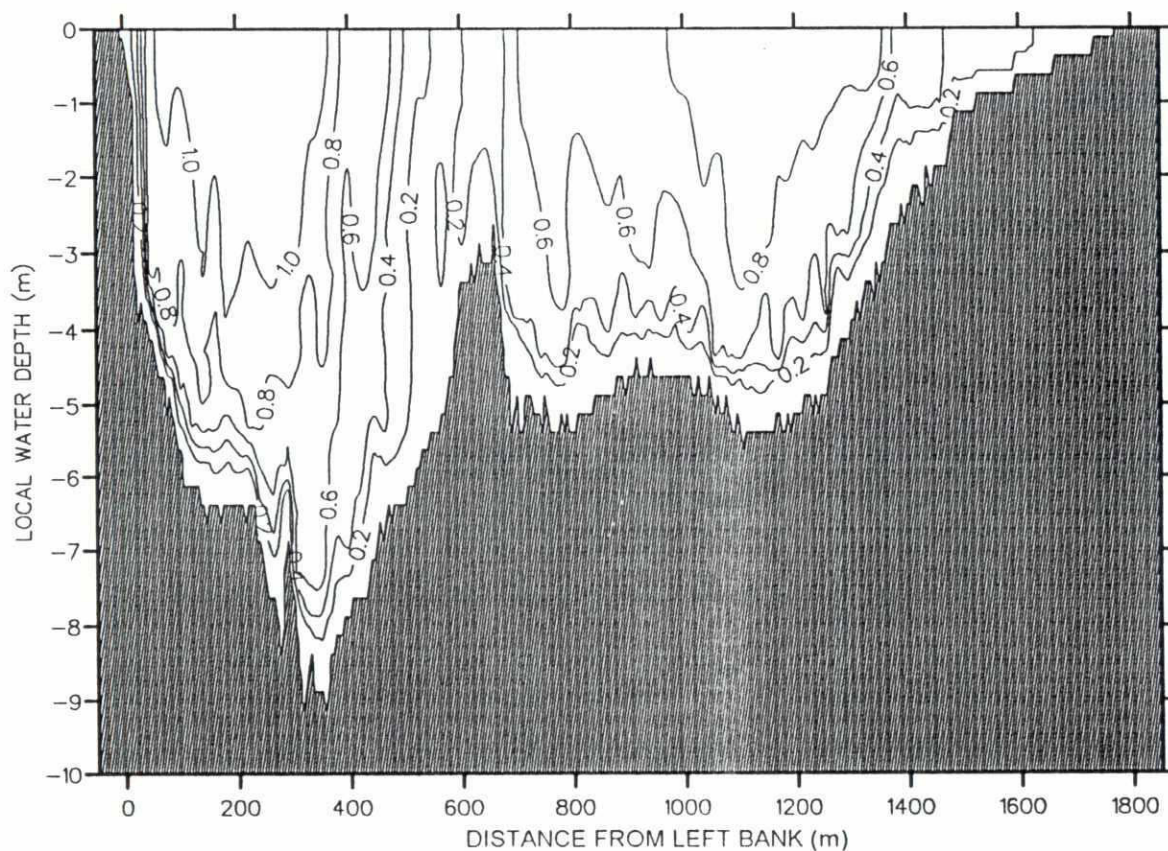
1228



Iso-velocity contours (m/s)

Water level : 17.78 m + PWD measured at the station indicated on page 1.1

FAP 24  DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 89 : 06 - 09 August, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4881T04	Date : 08 Nov 1994	Cross-sectional distribution of flow velocity Channel 2	page
	Init : sjr		4.2



Iso-velocity contours (m/s)

Water level : 17.74 m + PWD measured at the station indicated on page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 89 : 06 - 09 August, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4891T02

Date : 08 Nov 1994

Init : sjr

Cross-sectional distribution of flow velocity
Channel 3

page

4.3

Andreasen settling tube							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D35 (mm)	D50 (mm)	D65 (mm)
Sample not collected							
Table 5.1: Grain size of near bed suspended sediment (0.3 m above river bed)							

US BM-54 bed samples							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D35 (mm)	D50 (mm)	D65 (mm)
Sample not collected							
Table 5.2 : Grain size of bed material							

Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm		D35 (mm)	D50 (mm)	D65 (mm)
1	1	9408071628-1706	7.50	7.082	92.918	0.191	0.257	0.318
	3	9408071414-1449	3.80	2.948	97.052	0.191	0.240	0.300
	4	9408071225-1306	7.60	4.605	95.395	0.179	0.222	0.280
	5	9408071126-1155	4.80	0.766	99.234	0.250	0.295	0.348
	6	9408071020-1044	8.70	0.152	99.848	0.309	0.347	0.388
	7	9408070917-0956	14.40	0.113	99.887	0.327	0.370	0.419
	8	9408061209-1323	14.30	1.509	98.491	0.149	0.176	0.209
	9	9408061420-1500	11.70	1.724	98.276	0.136	0.161	0.190
	10	9408061535-1612	4.80	82.65	17.347	-	-	-
	1	9408071628-1706	7.50	6.466	93.534	0.172	0.216	0.274
	3	9408071414-1449	3.80	3.538	96.462	0.184	0.230	0.293
	4	9408071225-1306	7.60	3.796	96.204	0.199	0.261	0.321
	5	9408071126-1155	4.80	0.333	99.667	0.289	0.329	0.374
	6	9408071020-1044	8.70	0.101	99.899	0.311	0.348	0.390
	7	9408070917-0956	14.40	0.068	99.932	0.321	0.360	0.404
	8	9408061209-1323	14.30	0.918	99.082	0.169	0.211	0.268
	9	9408061420-1500	11.70	1.135	98.865	0.150	0.180	0.217
	10	9408061535-1612	4.80	78.749	21.251	-	-	-
2	1	9408081248-1420	6.10	0.200	99.800	0.187	0.223	0.274
	2	9408081440-1453	7.00	0.957	99.043	0.262	0.305	0.354
	3	9408081508-1516	6.10	0.133	99.867	0.239	0.288	0.340
	4	9408081547-1656	4.80	0.242	99.758	0.210	0.262	0.319
	1	9408081248-1420	6.10	0.201	99.799	0.182	0.214	0.255
	2	9408081440-1453	7.00	1.894	98.106	0.227	0.280	0.334
	3	9408081508-1516	6.10	0.261	99.739	0.257	0.302	0.355
	4	9408081547-1656	4.80	0.158	99.842	0.205	0.254	0.312
Table 5.3 : Grain size of bed load (continued)								

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Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35	D50	D65
				< 0.06 mm	> 0.06 mm	(mm)	(mm)	(mm)
3	1	9408091613-1620	4.00	5.797	94.203	0.151	0.180	0.215
	2	9408091550-1558	6.10	0.635	99.365	0.194	0.256	0.314
	3	9408091520-1530	5.00	0.197	99.803	0.274	0.316	0.364
	4	9408091647-1658	5.50	0.445	99.555	0.234	0.286	0.341
	5	9408091450-1502	5.00	7.551	92.449	0.137	0.171	0.213
	6	9408091421-1428	7.00	8.717	91.283	0.173	0.224	0.288
	7	9408091233-1325	9.20	0.813	99.187	0.215	0.271	0.329
	8	9408091152-1202	6.60	1.751	98.249	0.190	0.240	0.302
	9	9408091110-1130	6.80	0.253	99.747	0.249	0.295	0.349
	1	9408091613-1620	4.00	5.798	94.202	0.157	0.185	0.217
	2	9408091550-1558	6.10	0.858	99.142	0.230	0.284	0.339
	3	9408091520-1530	5.00	1.267	98.733	0.186	0.225	0.281
	4	9408091647-1658	5.50	0.228	99.772	0.186	0.230	0.289
	5	9408091450-1502	5.00	4.236	95.764	0.172	0.211	0.261
	6	9408091421-1428	7.00	5.147	94.853	0.168	0.207	0.257
	7	9408091233-1325	9.20	0.543	99.457	0.282	0.322	0.369
	8	9408091152-1202	6.60	1.508	98.492	0.147	0.175	0.207
	9	9408091110-1130	6.80	0.197	99.803	0.263	0.306	0.357
Table 5.3 : Grain size of bed load								

Delft - Bottle								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35	D50	D65
				< 0.06 mm	> 0.06 mm	(mm)	(mm)	(mm)
1	1	9408071628-1706	7.50	48.748	51.252	-	0.064	0.083
	2	9408071509-1549	5.10	21.596	78.404	0.093	0.136	0.176
	3	9408071414-1449	3.80	32.408	67.592	0.065	0.081	0.101
	4	9408071225-1306	7.60	27.442	72.558	0.069	0.082	0.098
	5	9408071126-1155	4.80	11.901	88.099	0.088	0.109	0.138
	6	9408071020-1044	8.70	19.134	80.866	0.079	0.098	0.121
	7	9408070917-0956	14.40	6.009	93.991	0.103	0.135	0.185
	8	9408061209-1323	14.30	2.390	97.610	0.136	0.161	0.192
	8	9408061209-1323	14.30	3.083	96.917	0.103	0.130	0.160
	9	9408061420-1500	11.70	1.401	98.599	0.121	0.147	0.176
	10	9408061535-1612	4.80	38.11	61.890	-	0.074	0.089
	1	9408071628-1706	7.50	49.038	50.962	-	0.064	0.086
	2	9408071509-1549	5.10	46.713	53.287	-	0.068	0.100
	3	9408071414-1449	3.80	35.141	64.859	-	0.082	0.107
	4	9408071225-1306	7.60	44.234	55.766	-	0.068	0.084
	5	9408071126-1155	4.80	16.088	83.912	0.080	0.096	0.115
	6	9408071020-1044	8.70	9.868	90.132	0.092	0.115	0.147
	7	9408070917-0956	14.40	8.479	91.521	0.103	0.139	0.195
	8	9408061209-1323	14.30	2.138	97.862	0.112	0.139	0.167
	8	9408061209-1323	14.30	4.610	95.390	0.097	0.120	0.151
	9	9408061420-1500	11.70	3.582	96.418	0.103	0.130	0.160
	10	9408061535-1612	4.80	63.688	36.312	-	-	0.065
Table 5.4 : Grain size of bed load								

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Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9408060846-0914	B4861T03
		9408060925-0947	B4861T04
		9408061639-1701	B4861T05 *
		9408061705-1729	B4861T06
		9408070800-0821	B4871T01
		9408070828-0854	B4871T02
		9408071720-1744	B4871T03
	2	9408081200-1208	B4881T01
		9408081212-1217	B4881T02
		9408081616-1621	B4881T03
		9408081624-1630	B4881T04 *
	3	9408090810-0827	B4891T01
		9408090833-0846	B4891T02 *
		9408090908-0932	B4891T03
		9408090952-1013	B4891T04
		9408091017-1035	B4891T05
		9408091722-1739	B4891T07

Table 6.1: ADCP & EMF transects * : transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9408071628-1706	468815	777298	7.50	B4871P08 *
		2	9408071509-1549	468978	777296	5.10	B4871P07 *
		3	9408071414-1449	469188	777299	3.80	B4871P05 *
		4	9408071225-1306	469400	777300	7.60	B4871P04 *
		5	9408071126-1155	469592	777299	4.80	B4871P03 *
		6	9408071020-1044	469822	777300	8.70	B4871P02 *
		7	9408070917-0956	470050	777299	14.40	B4871P01 *
		8	9408061209-1323	470125	777301	14.30	B4861P02 **
		9	9408061420-1500	470215	777298	11.70	B4861P03 *
		10	9408061535-1612	470515	777326	4.80	B4861P04 *
	2	1	9408081248-1420	466392	779573	6.10	B4881P01
		2	9408081440-1453	466388	779618	7.00	B4881P02 *
		3	9408081508-1516	466391	779700	6.10	B4881P03 *
		4	9408081547-1656	466394	779804	4.80	B4881P04 *
	3	1	9408091613-1620	460909	783644	4.00	B4891P08 *
		2	9408091550-1558	461131	783594	6.10	B4891P07 *
		3	9408091520-1530	461349	783546	5.00	B4891P06 *
		4	9408091647-1658	461545	783480	5.50	B4891P09 *
		5	9408091450-1502	461833	783421	5.00	B4891P05 *
		6	9408091421-1428	461954	783387	7.00	B4891P04 *
		7	9408091233-1325	462100	783347	9.20	B4891P03
		8	9408091152-1202	462229	783314	6.60	B4891P02 *
		9	9408091110-1130	462376	783275	6.80	B4891P01 *

Table 6.2: Vertical profiles ** MEX not available * S4 & MEX not available

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Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	8	6	9408061209-1323	470125	777301	14.30
	2	1	6	9408081248-1420	466392	779573	6.10
	3	7	6	9408091233-1325	462100	783347	9.20

Table 6.3: Suspended sediment - point sampled

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	1	1	1	9408071628-1706	468815	777298	7.50
		2	1	9408071509-1549	468978	777296	5.10
		3	1	9408071414-1449	469188	777299	3.80
		4	2	9408071225-1306	469400	777300	7.60
		5	1	9408071126-1155	469592	777299	4.80
		6	1	9408071020-1044	469822	777300	8.70
		7	1	9408070917-0956	470050	777299	14.40
		8	1	9408061209-1323	470125	777301	14.30
		9	1	9408061420-1500	470215	777298	11.70
		10	1	9408061535-1612	470515	777326	4.80
	2	1	1	9408081248-1420	466392	779573	6.10
		2	1	9408081440-1453	466388	779618	7.00
		3	1	9408081508-1516	466391	779700	6.10
		4	1	9408081547-1656	466394	779804	4.80
	3	1	1	9408091613-1620	460909	783644	4.00
		2	1	9408091550-1558	461131	783594	6.10
		3	1	9408091520-1530	461349	783546	5.00
		4	1	9408091647-1658	461545	783480	5.50
		5	1	9408091450-1502	461833	783421	5.00
		6	1	9408091421-1428	461954	783387	7.00
		7	1	9408091233-1325	462100	783347	9.20
		8	1	9408091152-1202	462229	783314	6.60
		9	1	9408091110-1130	462376	783275	6.80

Table 6.4: Suspended sediment - depth integrated

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	Init : sjr		

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1	9408071628-1706	468815	777298	7.50	A2148
		3	9408071414-1449	469188	777299	3.80	A2156
		4	9408071225-1306	469400	777300	7.60	A2026
		5	9408071126-1155	469592	777299	4.80	A98
		6	9408071020-1044	469822	777300	8.70	A889
		7	9408070917-0956	470050	777299	14.40	A1617
		8	9408061209-1323	470125	777301	14.30	A1953
		9	9408061420-1500	470215	777298	11.70	A2018
		10	9408061535-1612	470515	777326	4.80	A76
		1	9408071628-1706	468815	777298	7.50	A2025
		3	9408071414-1449	469188	777299	3.80	A2146
		4	9408071225-1306	469400	777300	7.60	A2157
		5	9408071126-1155	469592	777299	4.80	A1668
		6	9408071020-1044	469822	777300	8.70	A1649
		7	9408070917-0956	470050	777299	14.40	A907
		8	9408061209-1323	470125	777301	14.30	A704
		9	9408061420-1500	470215	777298	11.70	A744
		10	9408061535-1612	470515	777326	4.80	A2016
	2	1	9408081248-1420	466392	779573	6.10	A1957
		2	9408081440-1453	466388	779618	7.00	A1635
		3	9408081508-1516	466391	779700	6.10	A1601
		4	9408081547-1656	466394	779804	4.80	A1630
		1	9407161412-1414	466392	779573	6.10	A1690
		2	9407161434-1436	466388	779618	7.00	A1834
		3	9407161614-1616	466391	779700	6.10	A1963
		4	9407161632-1634	466394	779804	4.80	A2003
	3	1	9408091613-1620	460909	783644	4.00	A2180
		2	9408091550-1558	461131	783594	6.10	A882
		3	9408091520-1530	461349	783546	5.00	A363
		4	9408091647-1658	461545	783480	5.50	A689
		5	9408091450-1502	461833	783421	5.00	A232
		6	9408091421-1428	461954	783387	7.00	A367
		7	9408091233-1325	462100	783347	9.20	A116
		8	9408091152-1202	462229	783314	6.60	A84
		9	9408091110-1130	462376	783275	6.80	A1937
		1	9408091613-1620	460909	783644	4.00	A86
		2	9408091550-1558	461131	783594	6.10	A1607
		3	9408091520-1530	461349	783546	5.00	A1691
		4	9408091647-1658	461545	783480	5.50	A1164
		5	9408091450-1502	461833	783421	5.00	A1899
		6	9408091421-1428	461954	783387	7.00	A1148
		7	9408091233-1325	462100	783347	9.20	A1881
		8	9408091152-1202	462229	783314	6.60	A923
		9	9408091110-1130	462376	783275	6.80	A1973

Table 6.5 : Bed load

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Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Delft Bottle Sample	1	1	9408071628-1706	468815	777298	7.50	A1319
		2	9408071509-1549	468978	777296	5.10	E206
		3	9408071414-1449	469188	777299	3.80	A1744
		4	9408071225-1306	469400	777300	7.60	A840
		5	9408071126-1155	469592	777299	4.80	A1007
		6	9408071020-1044	469822	777300	8.70	A968
		7	9408070917-0956	470050	777299	14.40	A1049
		8	9408061209-1323	470125	777301	14.30	A145
		8	9408061209-1323	470125	777301	14.30	A973
		9	9408061420-1500	470215	777298	11.70	A1043
		10	9408061535-1612	470515	777326	4.80	A1045
		1	9408071628-1706	468815	777298	7.50	A1584
		2	9408071509-1549	468978	777296	5.10	A1254
		3	9408071414-1449	469188	777299	3.80	A1432
		4	9408071225-1306	469400	777300	7.60	A1168
		5	9408071126-1155	469592	777299	4.80	A140
		6	9408071020-1044	469822	777300	8.70	A972
		7	9408070917-0956	470050	777299	14.40	A942
		8	9408061209-1323	470125	777301	14.30	A984
		8	9408061209-1323	470125	777301	14.30	A1010
		9	9408061420-1500	470215	777298	11.70	A1042
		10	9408061535-1612	470515	777326	4.80	A142

Table 6.6 : Bed load

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (collapsible bag)	1	1	1	9408071628-1706	468815	777298	7.50
		2	1	9408071509-1549	468978	777296	5.10
		3	1	9408071414-1449	469188	777299	3.80
		4	1	9408071225-1306	469400	777300	7.60
		5	1	9408071126-1155	469592	777299	4.80
		6	1	9408071020-1044	469822	777300	8.70
		7	1	9408070917-0956	470050	777299	14.40
		8	1	9408061209-1323	470125	777301	14.30
		9	1	9408061420-1500	470125	777298	11.70
		10	1	9408061535-1612	470515	777326	4.80

Table 6.7: Suspended sediment - depth integrated

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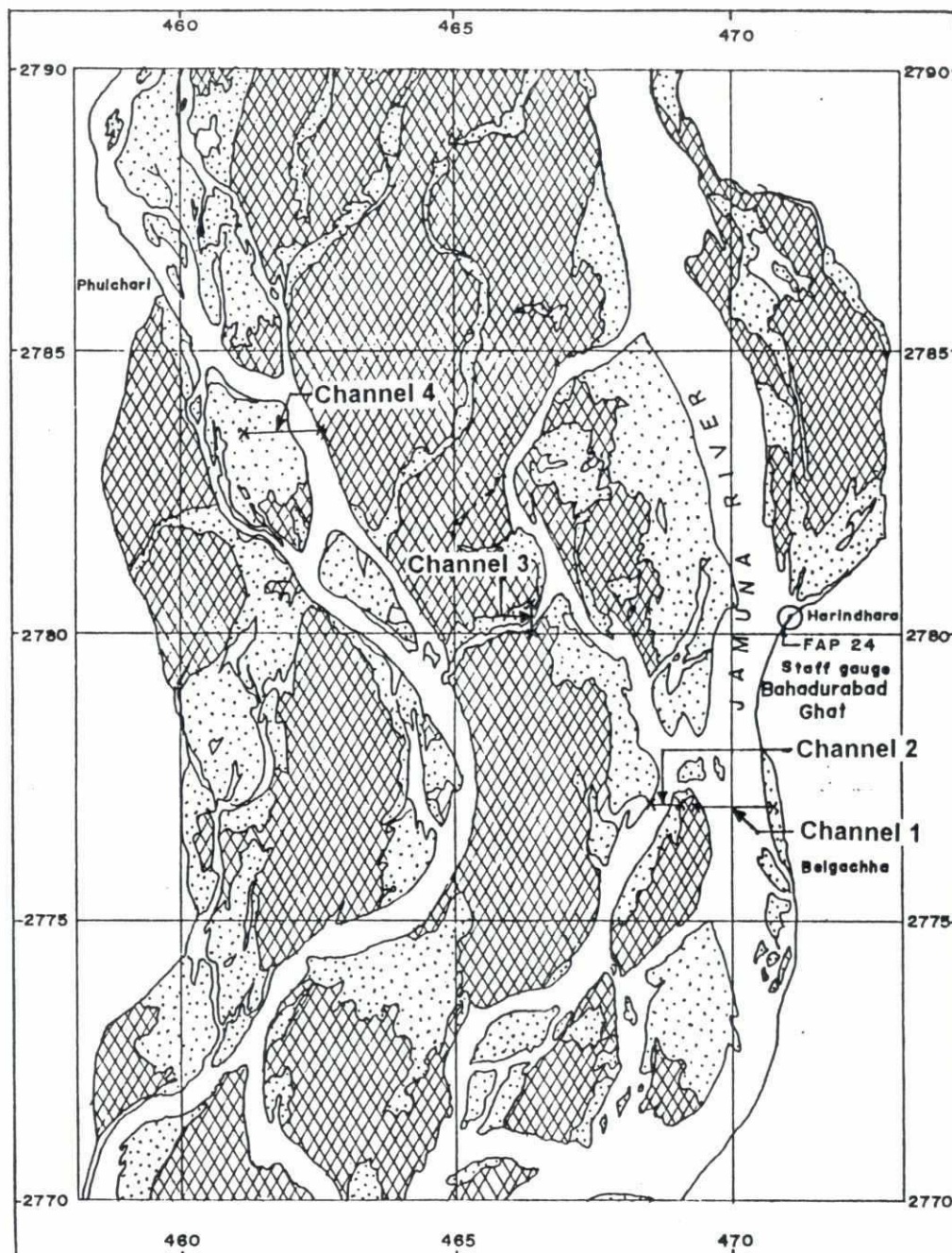
622

Types of Data	Channel	Format	Filename
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ADCP/S4/EMF data	2	QUATTRO	B4881T04.ase
ADCP/S4/EMF data	3	QUATTRO	B4891T02.ase
Echosounder data	1	QUATTRO	B4861T05.ech
Echosounder data	2	QUATTRO	B4881T04.ech
Echosounder data	3	QUATTRO	B4891T02.ech
Sediment transport data	1	QUATTRO	B4861T05.sed
Sediment transport data	2	QUATTRO	B4881T04.sed
Sediment transport data	3	QUATTRO	B4891T02.sed
Bed load sediment analysis	1	QUATTRO	B4861T05.bdl
Bed load sediment analysis	2	QUATTRO	B4881T04.bdl
Bed load sediment analysis	3	QUATTRO	B4891T02.bdl
Susp. sed. conc. analysis	1	QUATTRO	B4861T05.ssc
Susp. sed. conc. analysis	2	QUATTRO	B4881T04.ssc
Susp. sed. conc. analysis	3	QUATTRO	B4891T02.ssc
Transect plot data	1	QUATTRO	B4861T05.trs
Transect plot data	2	QUATTRO	B4881T04.trs
Transect plot data	3	QUATTRO	B4891T02.trs
Iso-velocity plot data	1	MIKE 21 MIKE 21	B4861T05.ct2 B4861T05.dt2
Iso-velocity plot data	2	MIKE 21 MIKE 21	B4881T04.ct2 B4881T04.dt2
Iso-velocity plot data	3	MIKE 21 MIKE 21	B4891T02.ct2 B4891T02.dt2

Table 7.1 PSD 24 Database file description

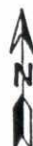


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	Date : 08 Nov 1994	PSD 24 Database file description	page 7.1
	Init : sjr		



LEGEND:

- *—* Cross section
- ▨ Highland
- ░ Unstable/low char
- FAP 24 Staff gauge



5000m 2500m 0

Map is based on satellite images of March 1994

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 95 : 01 - 06 September, 1994

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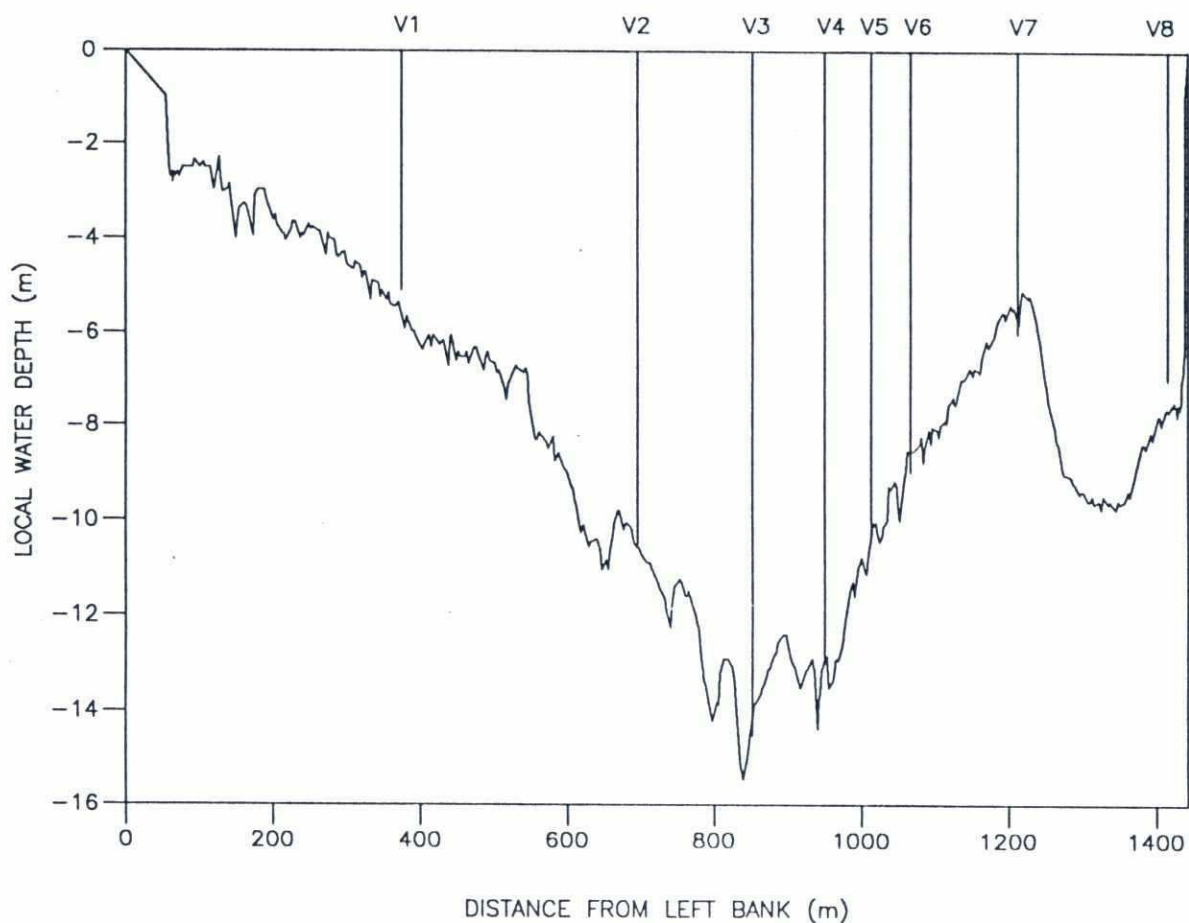
Date : 10 Dec 1994

Init : mzh/sjr

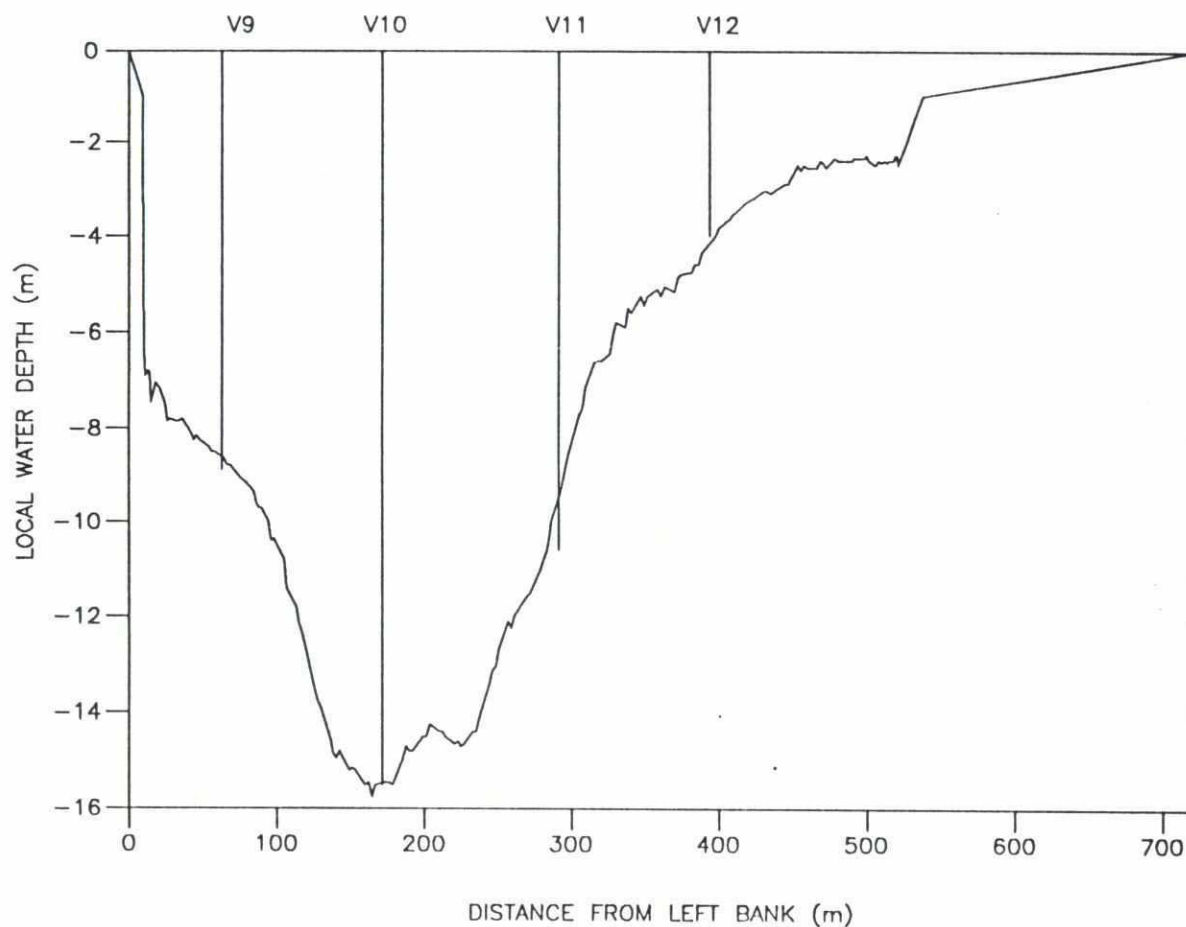
Location map

page

1.1

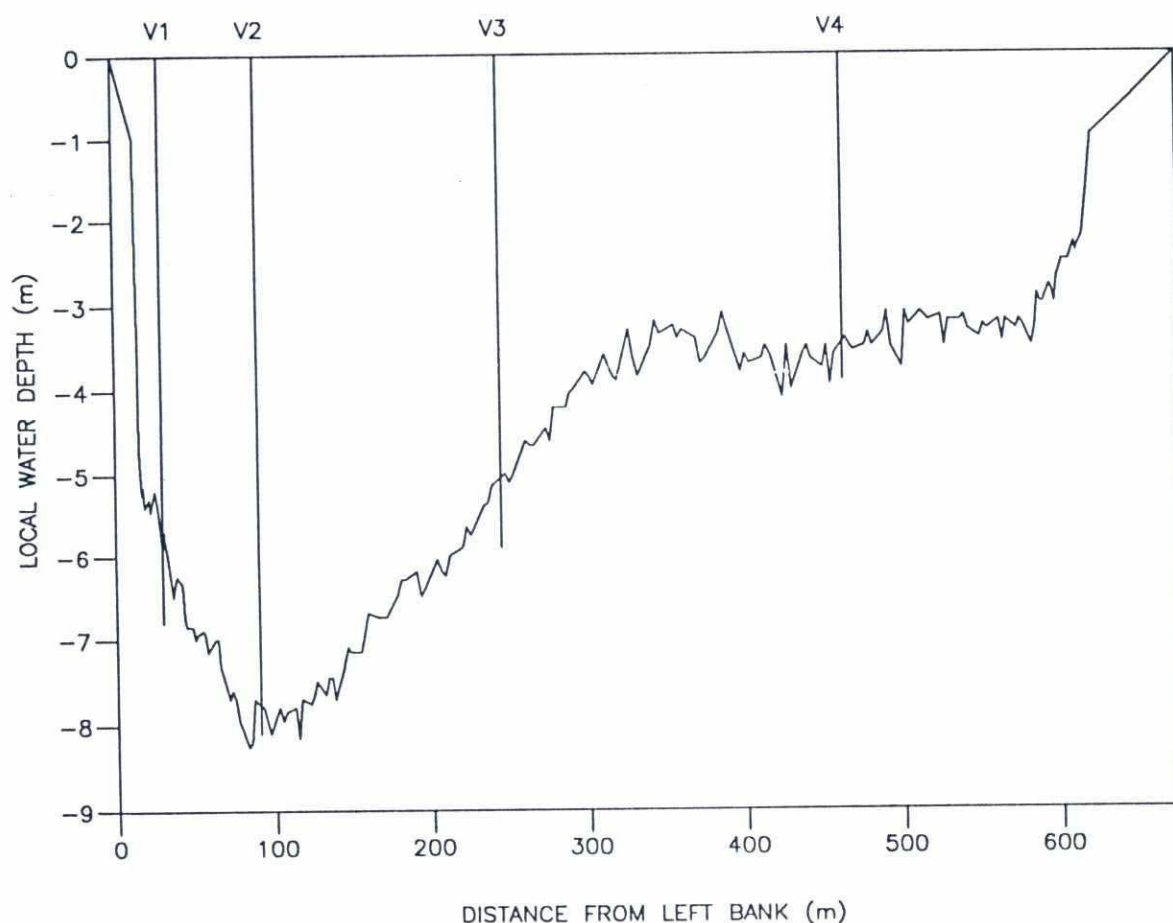


Water level : 17.96 m + PWD measured at the station indicated on Page 1.1

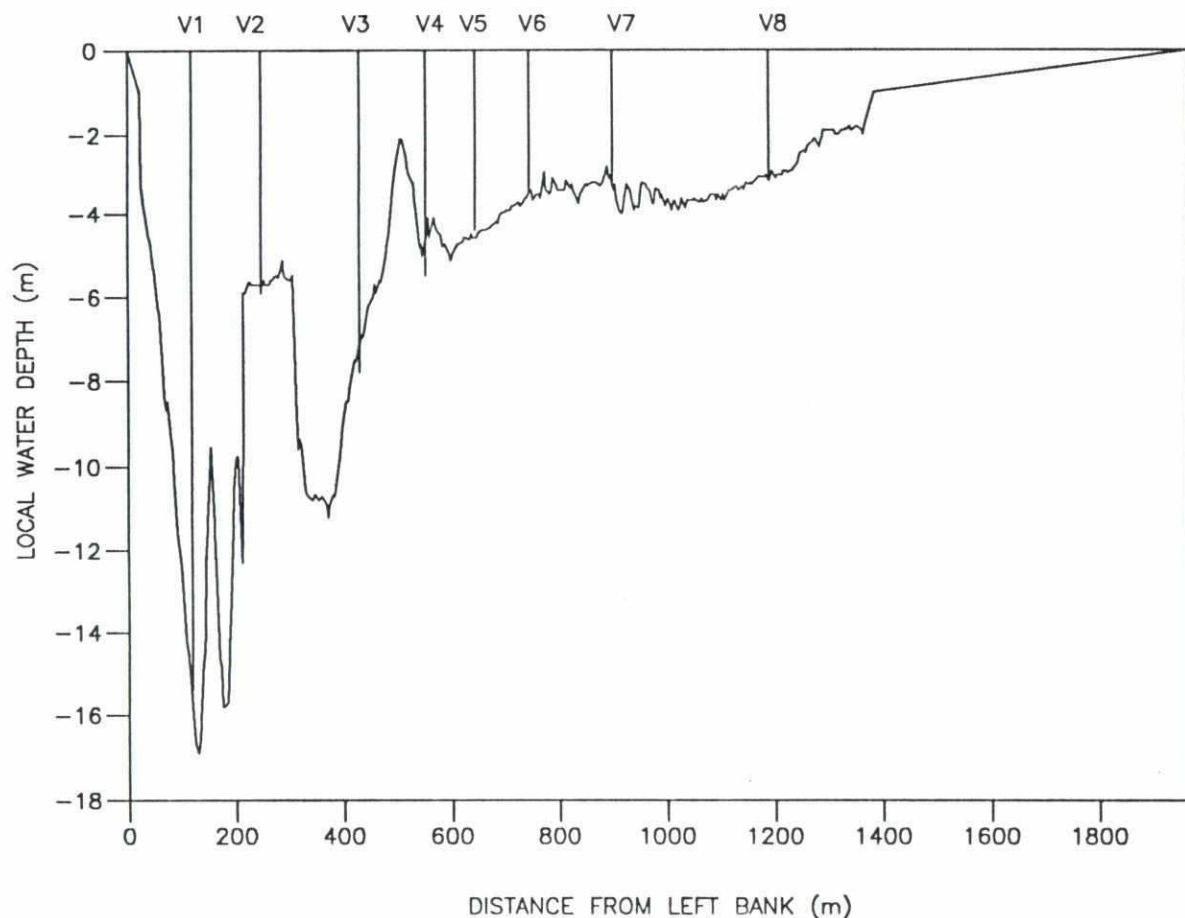


Water level : 17.96 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4911T07	Date : 10 Dec 1994	Cross-sections and measured verticals Channel 2	page 1.3
	Init : mzh/sjr		



Water level : 17.65 m + PWD measured at the station indicated on Page 1.1



Water level : 17.53 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4951T08	Date : 10 Dec 1994	Cross-sections and measured verticals Channel 4	page
	Init : mzh/sjr		1.5

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	10	8	4	6
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No. of verticals in channel	8	4	4	8
	ADCP	8	4	4	8
	S4 current meter	1	1	1	1
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	-	6	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	8	4	4	8
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	16	8	8	16
	Delft Bottle	16	8	8	16
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1: Survey programme as made

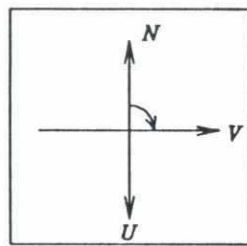
	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	1443	11159	17.96	13953	142	7812
Channel 2	721	4473	17.96	4240	27	2448
Channel 3	676	2939	17.65	1734	31	709
Channel 4	1968	7465	17.53	3929	23	1787

Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	01 Sep 94	17.96	FAP 24
		02 Sep 94	17.85	FAP 24
		03 Sep 94	17.77	FAP 24
	Channel 2	01 Sep 94	17.96	FAP 24
		02 Sep 94	17.85	FAP 24
	Channel 3	04 Sep 94	17.65	FAP 24
	Channel 4	05 Sep 94	17.53	FAP 24
		06 Sep 94	17.42	FAP 24

Table 2.3: Water-levels

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4911T08 B4911T07 B4941T04 B4951T08	Date : 10 Dec 1994	Survey programme as made and key figures	page
	Init : mzh/sjr		2.1

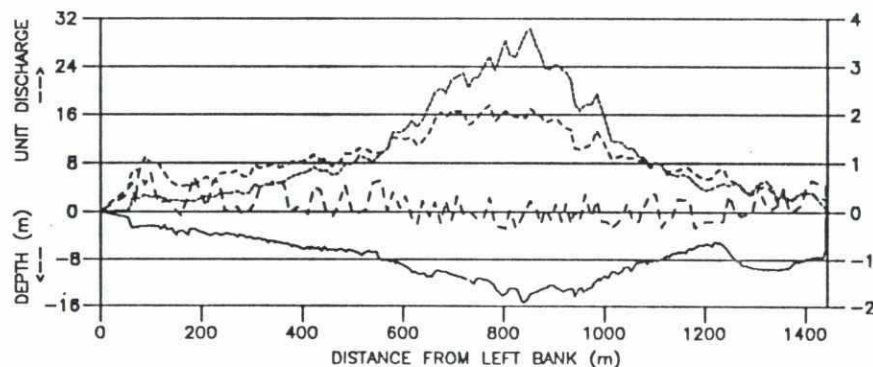


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

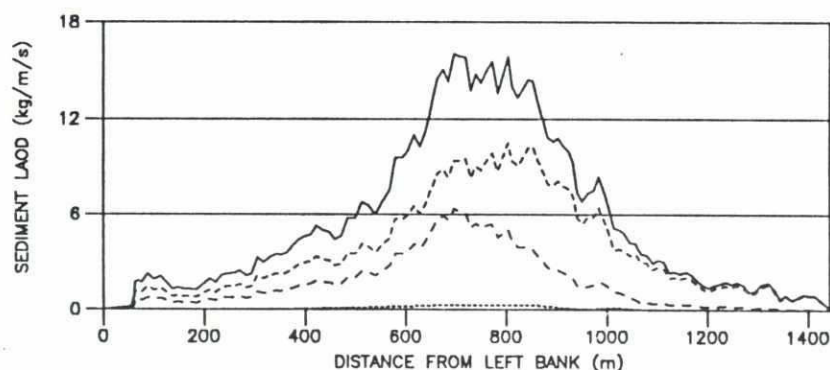
LEGEND :

- WATER DEPTH (m below STAGE)
- UNIT DISCHARGE (m³/s.m)
- U (m/s)
- V (m/s)

STAGE = 17.98 (m+PWD)

A = 11159 (m³)

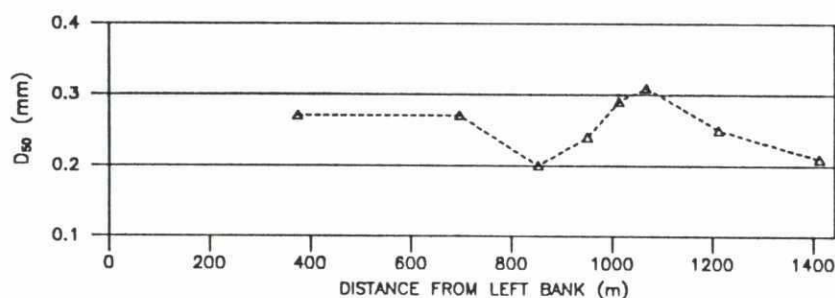
Q = 13953 (m³/s)



SEDIMENT TRANSPORT

LEGEND :

- S_{TOTAL} 7954 (kg/s)
- S_{WASH LOAD} 5354 (kg/s)
- S_{SUSP. BED} 2458 (kg/s)
- S_{BED LOAD} 142 (kg/s)



GRAIN SIZE

LEGEND :

- ◇◇◇◇◇ D₅₀ SUSP. (mm)
- △△△△△ D₅₀ BED LOAD (mm)
- D₅₀ BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 95: 01 - 06 September, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4911T08

Date : 10 Dec 1994

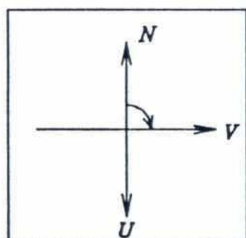
Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 1

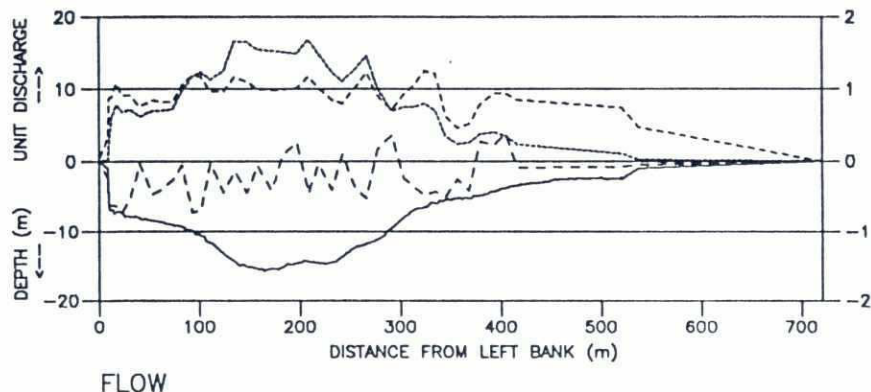
page

3.1

920



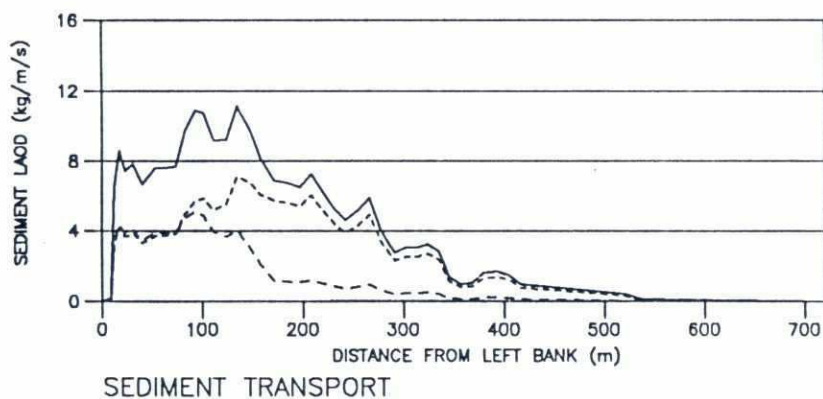
TRANSECT AZIMUTH = 90°
 U - VELOCITY NORMAL TO TRANSECT (m/s)
 V - VELOCITY PARALLEL TO TRANSECT (m/s)
 N - MAGNETIC NORTH



LEGEND :

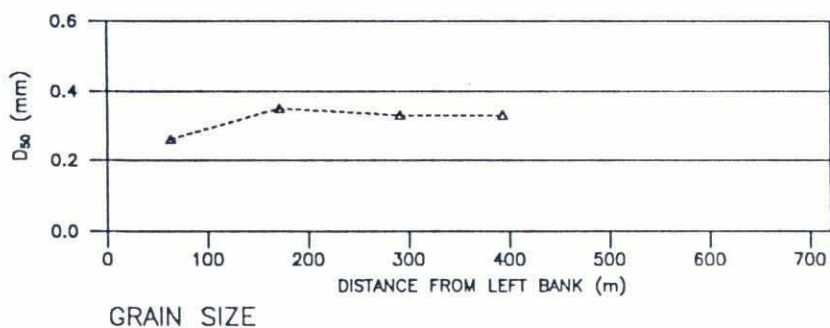
— WATER DEPTH (m below STAGE)
 --- UNIT DISCHARGE (m³/s.m)
 ... U (m/s)
 ... V (m/s)

STAGE = 17.96 (m+PWD)
 A = 4473 (m³)
 Q = 4240 (m³/s)



LEGEND :

— S_{TOTAL} 2476 (kg/s)
 --- S_{WASH LOAD} 1677 (kg/s)
 ... S_{SUSP. BED} 771 (kg/s)
 -.- S_{BED LOAD} 27 (kg/s)



LEGEND :

◇◇◇◇ D₅₀ SUSP. (mm)
 △△△△ D₅₀ BED LOAD (mm)
 □□□□ D₅₀ BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
 Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 95: 01 - 06 September, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4911T07

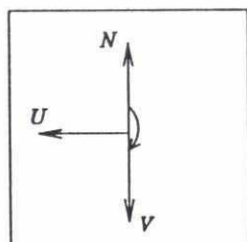
Date : 10 Dec 1994

Init : mzh/sjr

Horizontal distribution of flow and sediments
 Channel 2

page

3.2

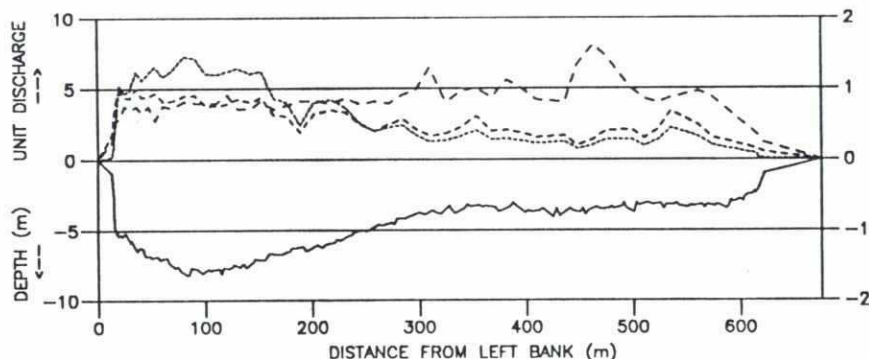


TRANSECT AZIMUTH = 180°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STAGE)

- - - UNIT DISCHARGE ($m^3/s.m$)

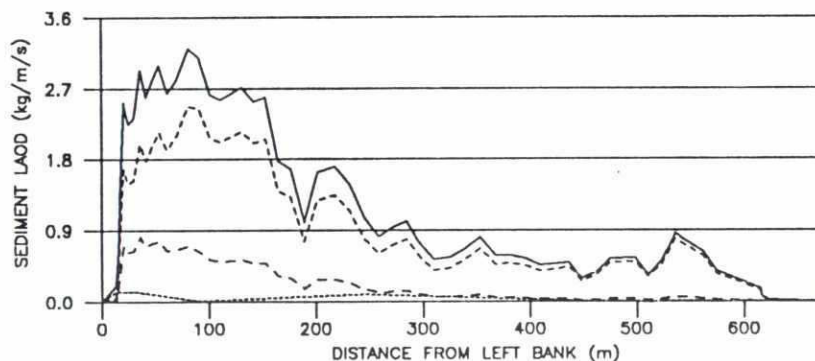
... U (m/s)

- . - V (m/s)

STAGE = $17.65 (m + PWD)$

A = $2939 (m^2)$

Q = $1734 (m^3/s)$



SEDIMENT TRANSPORT

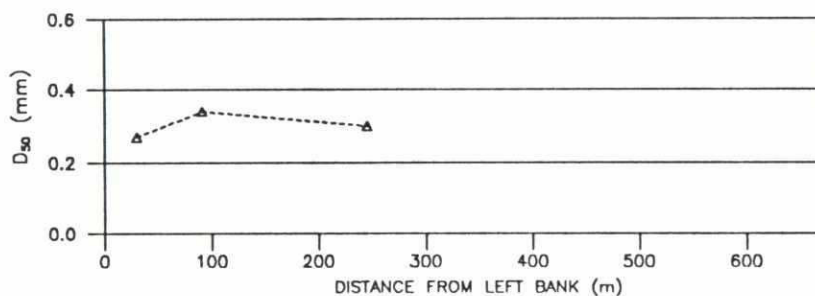
LEGEND :

— S_{TOTAL} 740 (kg/s)

- - - $S_{WASH LOAD}$ 577 (kg/s)

... $S_{SUSP. BED}$ 132 (kg/s)

- . - $S_{BED LOAD}$ 31 (kg/s)



GRAIN SIZE

LEGEND :

◆◆◆◆◆ $D_{50 SUSP. (mm)}$

△△△△△ $D_{50 BED LOAD (mm)}$

□□□□□ $D_{50 BED MAT. (mm)}$

FAP 24



RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 95: 01 - 06 September, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4941T04

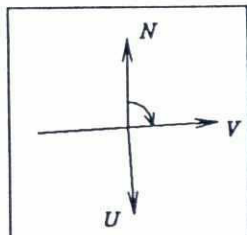
Date : 10 Dec 1994

Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 3

page

3.3

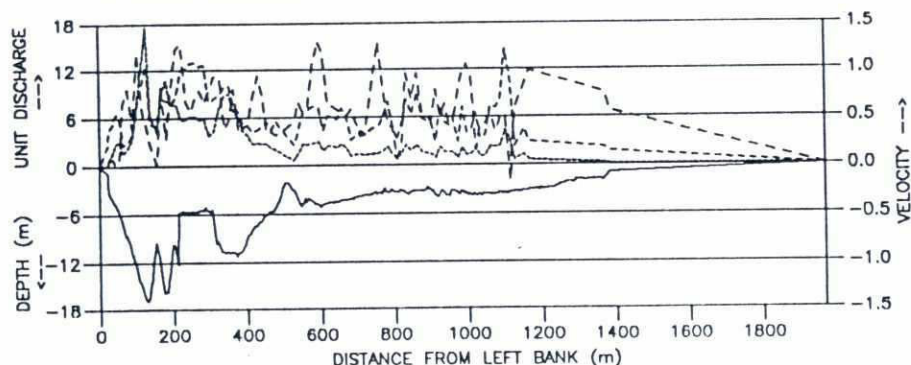


TRANSECT AZIMUTH = 87°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STAGE)

--- UNIT DISCHARGE ($m^3/s.m$)

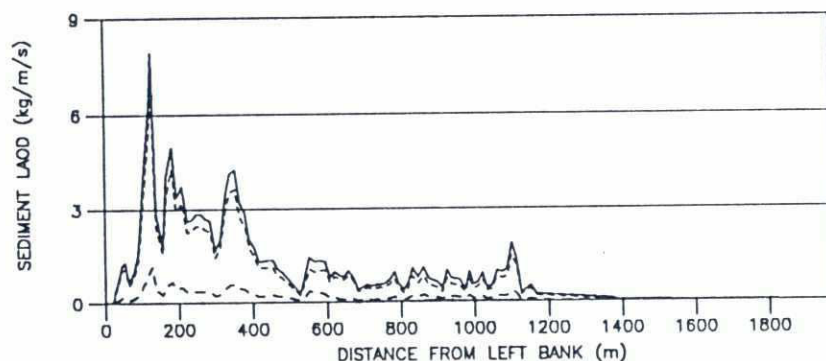
... U (m/s)

-.- V (m/s)

STAGE = $17.53 (m+PWD)$

A = $7465 (m^3)$

Q = $3929 (m^3/s)$



SEDIMENT TRANSPORT

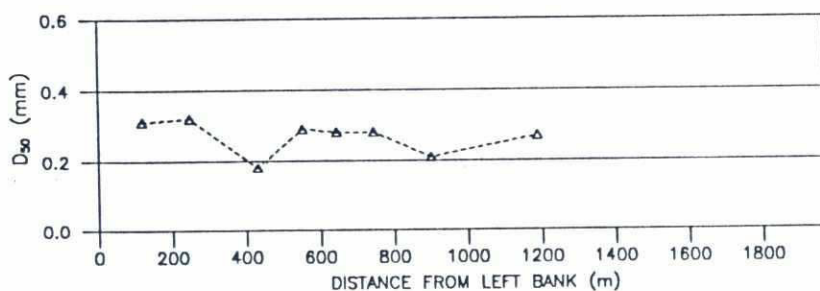
LEGEND :

— S_{TOTAL} 1810 (kg/s)

--- $S_{WASH LOAD}$ 1501 (kg/s)

... $S_{SUSP. BED}$ 286 (kg/s)

-.- $S_{BED LOAD}$ 23 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇◇ $D_{50} SUSP. (mm)$

△△△△△ $D_{50} BED LOAD (mm)$

□□□□□ $D_{50} BED MAT. (mm)$

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 95: 01 - 06 September, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4951T08

Date : 10 Dec 1994

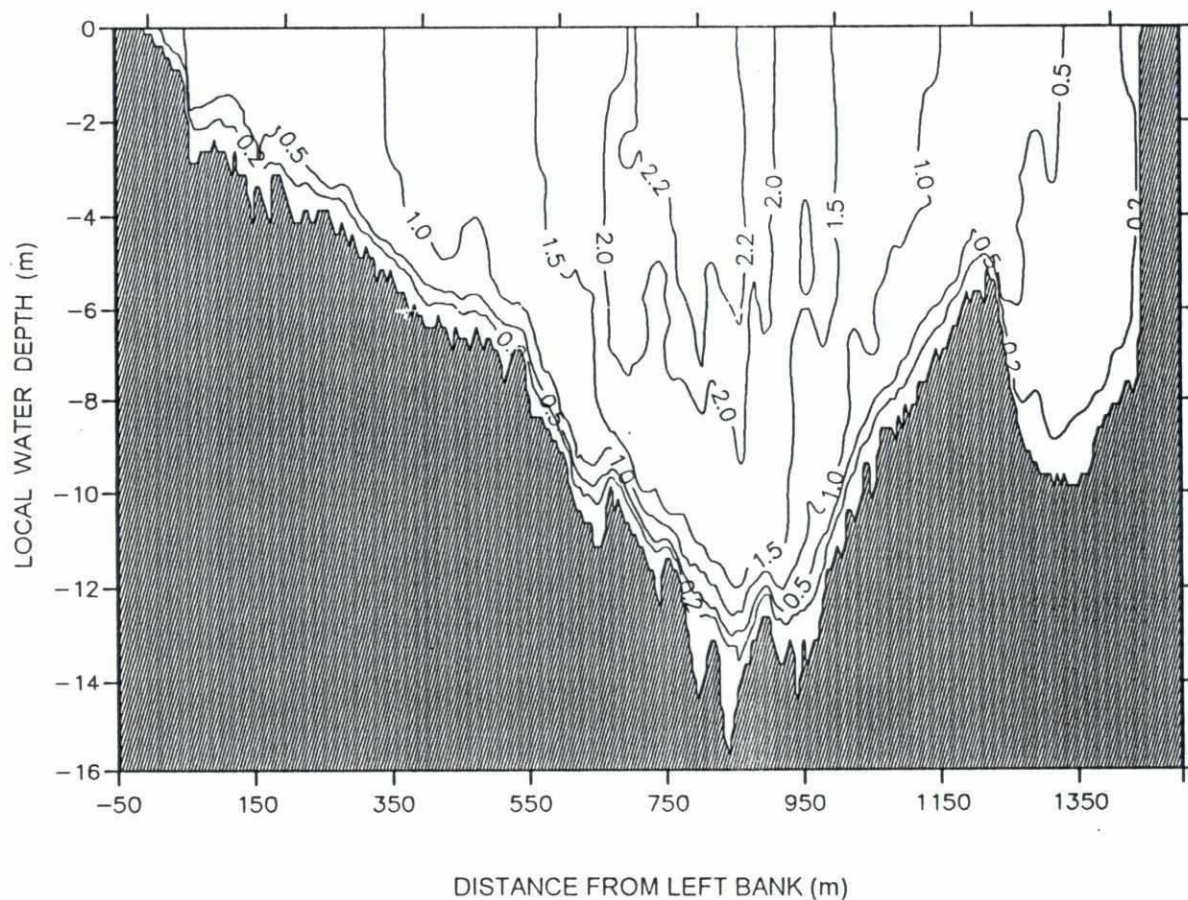
Init : mzh/sjr

Horizontal distribution of flow and sediments

Channel 4

page

3.4



Iso-velocity contours (m/s)

Water-level : 17.96 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 95: 01 - 06 September, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4911T08

Date : 10 Dec 1994

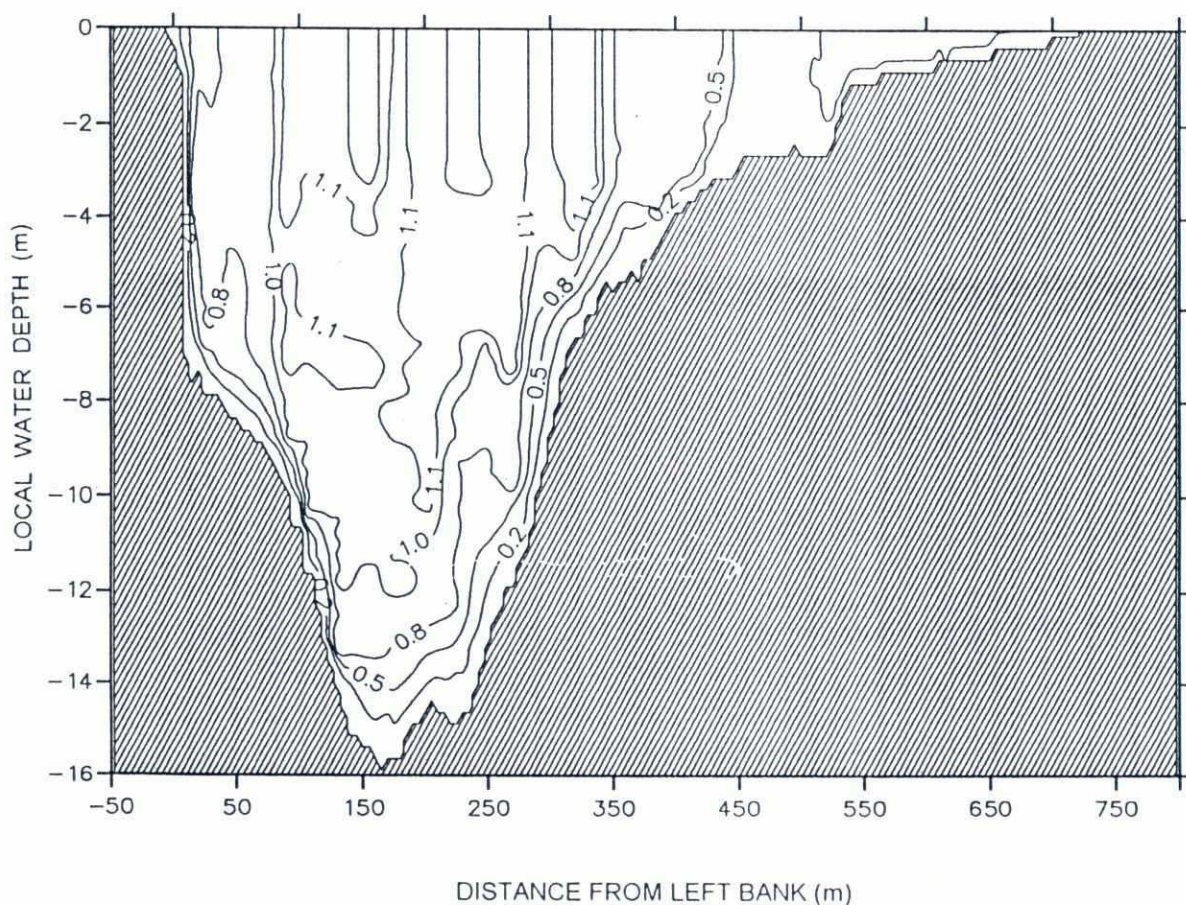
Init : mzh/sjr

Cross-sectional distribution of flow velocity
Channel 1

page

4.1

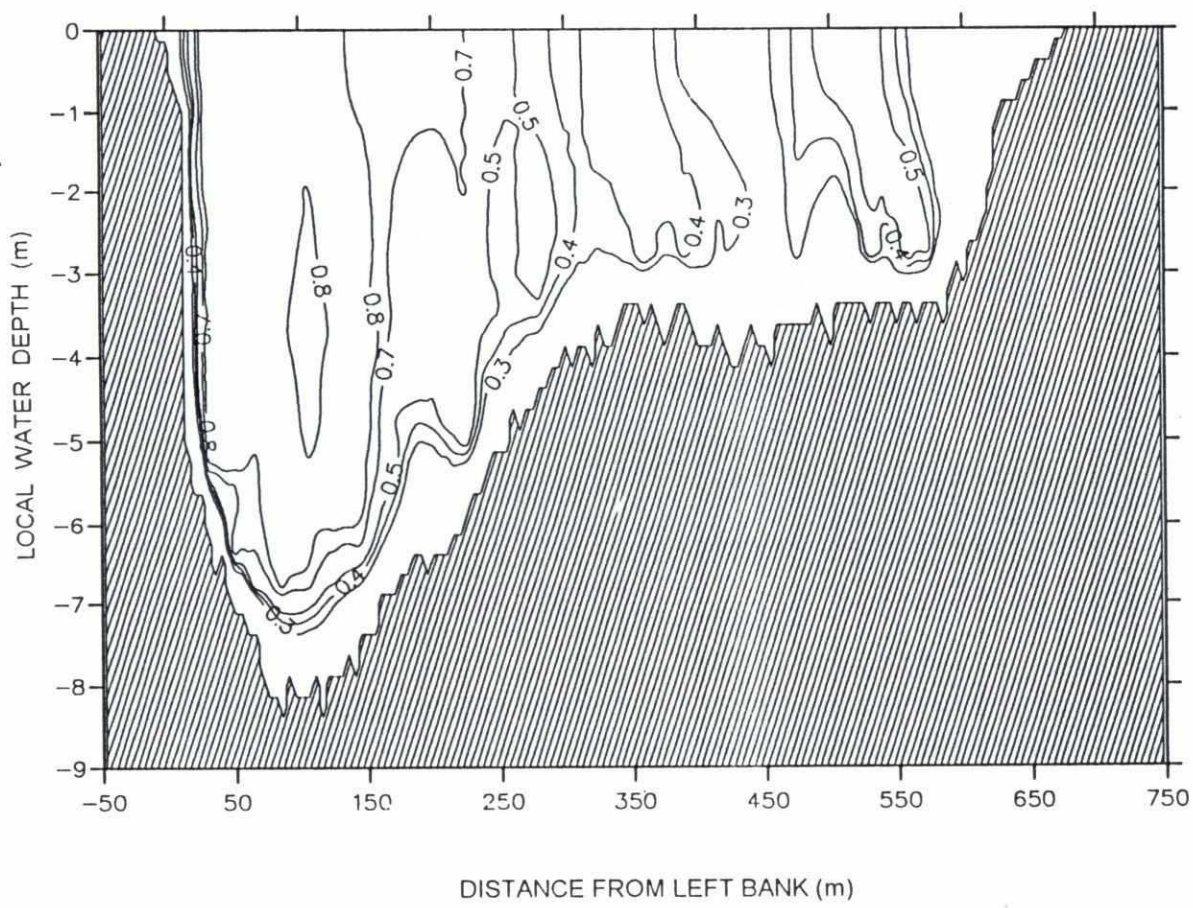
28



Iso-velocity contours (m/s)

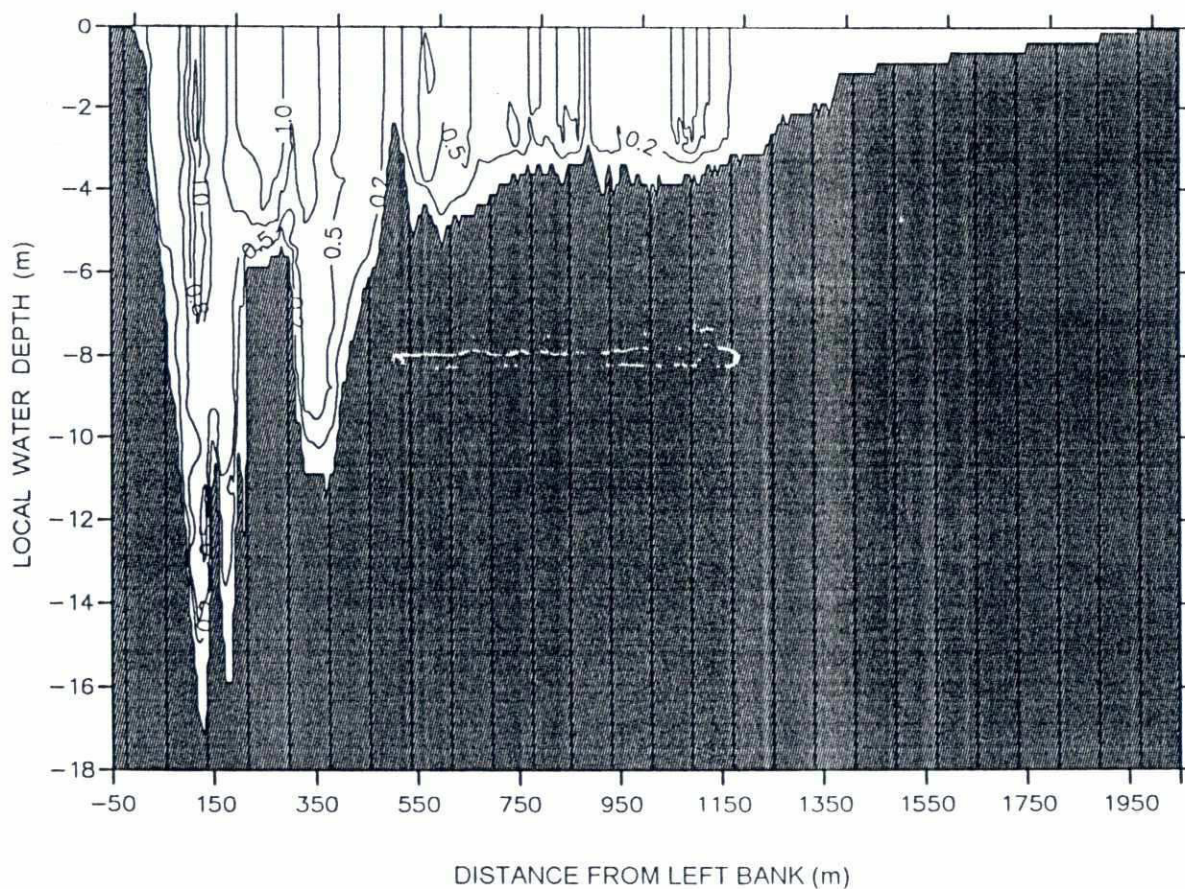
Water level : 17.96 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4911T07	Date : 10 Dec 1994	Cross-sectional distribution of flow velocity Channel 2	page
	Init : mzh/sjr		4.2



Iso-velocity contours (m/s)
Water level : 17.65 m + PWD measured at the station indicated on Page 1.1

 FAP 24 DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4941T04	Date : 10 Dec 1994	Cross-sectional distribution of flow velocity Channel 3	page 4.3
	Init : mzh/sjr		



Iso-velocity contours (m/s)

Water level : 17.53 m + PWD measured at the station indicated on Page 1.1

629

Andreasen settling tube							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D35 (mm)	D50 (mm)	D65 (mm)
Sample not collected							
Table 5.1: Grain size of near bed suspended sediment (0.3 m above river bed)							

US BM-54 bed samples							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D35 (mm)	D50 (mm)	D65 (mm)
Sample not collected							
Table 5.2 : Grain size of bed material							

Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm		D35 (mm)	D50 (mm)	D65 (mm)
1	1	9409031526-1538	5.10	0.401	99.599	0.204	0.254	0.313
	2	9409031428-1444	10.50	1.247	98.753	0.203	0.257	0.314
	3	9409031141-1210	14.50	1.174	98.826	0.160	0.188	0.220
	4	9409031001-1011	13.00	0.301	99.699	0.231	0.283	0.337
	5	9409030903-0913	10.40	0.239	99.761	0.259	0.302	0.352
	6	9409021624-1634	9.00	0.211	99.789	0.265	0.307	0.355
	7	9409021526-1535	6.00	0.906	99.094	0.239	0.288	0.340
	8	9409021504-1509	7.00	22.278	77.722	0.091	0.135	0.178
	1	9409031526-1538	5.10	1.123	98.877	0.234	0.286	0.340
	2	9409031428-1444	10.50	1.012	98.988	0.238	0.288	0.342
	3	9409031141-1210	14.50	0.557	99.443	0.184	0.222	0.276
	4	9409031001-1011	13.00	1.119	98.881	0.168	0.205	0.250
	5	9409030903-0913	10.40	0.344	99.656	0.237	0.286	0.339
	6	9409021624-1634	9.00	0.160	99.840	0.264	0.306	0.355
	7	9409021526-1535	6.00	1.448	98.552	0.180	0.220	0.276
	8	9409021504-1509	7.00	7.044	92.956	0.223	0.284	0.337
2	9	9409011700-1710	8.90	1.689	98.311	0.216	0.275	0.334
	10	9409020843-1004	15.50	0.447	99.553	0.309	0.348	0.392
	11	9409021058-1108	10.60	0.115	99.885	0.290	0.329	0.373
	12	9409021139-1148	4.00	0.087	99.913	0.279	0.321	0.368
	9	9409011700-1710	8.90	7.932	92.068	0.179	0.248	0.310
	10	9409020843-1004	15.50	0.170	99.830	0.314	0.351	0.393
	11	9409021058-1108	10.60	0.175	99.825	0.293	0.332	0.376
	12	9409021139-1148	4.00	0.084	99.916	0.291	0.330	0.375
Table 5.3 : Grain sizes of bed load (continued)								

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 95: 01 - 06 September, 1994 Location 1 : Jamuna River, Bahadurabad	
	Date : 10 Dec 1994 Init : mzh/sjr	Grain size distributions page 5.1		

Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
3	1	9409040940-0956	6.80	0.454	99.546	0.206	0.258	0.315
	2	9409041244-1310	8.10	0.204	99.796	0.291	0.330	0.375
	3	9409041422-1432	5.90	0.077	99.923	0.251	0.295	0.346
	4	9409041505-1516	3.90	0.234	99.766	0.243	0.291	0.343
	1	9409040940-0956	6.80	3.134	96.866	0.226	0.281	0.336
	2	9409041244-1310	8.10	0.372	99.628	0.300	0.339	0.382
	3	9409041422-1432	5.90	0.213	99.787	0.267	0.309	0.357
	4	9409041505-1516	3.90	0.083	99.917	0.283	0.324	0.371
4	1	9409051337-1402	15.40	2.503	97.497	0.255	0.300	0.354
	2	9409051452-1502	5.90	0.141	99.859	0.296	0.335	0.378
	3	9409051558-1605	7.80	17.542	82.458	0.131	0.169	0.219
	4	9409051656-1701	5.50	1.127	98.873	0.185	0.237	0.299
	5	9409061146-1155	4.40	0.340	99.660	0.232	0.284	0.338
	6	9409061045-1054	3.40	0.095	99.905	0.231	0.283	0.336
	7	9409060953-1003	3.20	0.198	99.802	0.181	0.215	0.257
	8	9409060911-0921	3.10	0.444	99.556	0.210	0.269	0.325
	1	9409051337-1402	15.40	3.808	96.192	0.277	0.320	0.369
	2	9409051452-1502	5.90	3.003	96.997	0.255	0.301	0.355
	3	9409051558-1605	7.80	11.122	88.878	0.152	0.201	0.266
	4	9409051656-1701	5.50	0.114	99.886	0.298	0.336	0.379
	5	9409061146-1155	4.40	0.367	99.633	0.217	0.271	0.328
	6	9409061045-1054	3.40	0.304	99.696	0.223	0.276	0.332
	7	9409060953-1003	3.20	0.278	99.722	0.179	0.210	0.248
	8	9409060911-0921	3.10	0.368	99.632	0.220	0.278	0.332

Table 5.3 : Grain sizes of bed load

Delft Bottle								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
1	1	9409031526-1538	5.10	16.806	83.194	0.091	0.123	0.158
	2	9409031428-1444	10.50	0.480	99.520	0.250	0.294	0.347
	3	9409031141-1210	14.50	0.911	99.089	0.160	0.189	0.223
	4	9409031001-1011	13.00	3.851	96.149	0.112	0.141	0.173
	5	9409030903-0913	10.40	0.764	99.236	0.181	0.219	0.270
	6	9409021624-1634	9.00	1.773	98.227	0.167	0.198	0.236
	7	9409021526-1535	6.00	1.620	98.380	0.145	0.167	0.192
	8	9409021504-1509	7.00	56.609	43.391	-	-	0.073
	1	9409031526-1538	5.10	17.126	82.874	0.084	0.107	0.138
	2	9409031428-1444	10.50	6.931	93.069	0.133	0.166	0.208
	3	9409031141-1210	14.50	1.865	98.135	0.146	0.171	0.201
	4	9409031001-1011	13.00	6.500	93.500	0.096	0.118	0.149
	5	9409030903-0913	10.40	7.574	92.426	0.144	0.175	0.214
	6	9409021624-1634	9.00	3.568	96.432	0.144	0.170	0.202
	7	9409021526-1535	6.00	5.577	94.423	0.118	0.144	0.172
	8	9409021504-1509	7.00	53.210	46.790	-	-	0.076

Table 5.4 : Grain sizes of bed load (continued)

		Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 10 Dec 1994	Grain size distributions	page
	Init : mzh/sjr		5.2

Delft Bottle								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
2	9	9409011700-1710	8.90	12.160	87.840	0.079	0.093	0.108
	10	9409020843-1004	15.50	18.812	81.188	0.075	0.088	0.103
	11	9409021058-1108	10.60	6.439	93.561	0.179	0.251	0.309
	12	9409021139-1148	4.00	9.579	90.421	0.144	0.187	0.241
	9	9409011700-1710	8.90	9.467	90.533	0.080	0.093	0.107
	10	9409020843-1004	15.50	21.367	78.633	0.074	0.088	0.105
	11	9409021058-1108	10.60	4.409	95.591	0.157	0.205	0.268
	12	9409021139-1148	4.00	21.545	78.455	0.087	0.123	0.185
3	1	9409040940-0956	6.80	0.119	99.881	0.162	0.183	0.207
	2	9409041244-1310	8.10	9.255	90.745	0.133	0.162	0.197
	3	9409041422-1432	5.90	0.341	99.659	0.185	0.222	0.275
	4	9409041505-1516	3.90	1.002	98.998	0.193	0.237	0.297
	1	9409040940-0956	6.80	0.446	99.554	0.159	0.181	0.206
	2	9409041244-1310	8.10	7.933	92.067	0.142	0.173	0.211
	3	9409041422-1432	5.90	1.688	98.312	0.169	0.202	0.241
	4	9409041505-1516	3.90	2.287	97.713	0.165	0.195	0.230
4	1	9409051337-1402	15.40	15.160	84.840	0.084	0.104	0.131
	2	9409051452-1502	5.90	10.656	89.344	0.088	0.108	0.135
	3	9409051558-1605	7.80	28.414	71.586	0.068	0.080	0.095
	4	9409051656-1701	5.50	5.759	94.241	0.088	0.105	0.125
	5	9409061146-1155	4.40	15.471	84.529	0.090	0.117	0.153
	6	9409061045-1054	3.40	2.674	97.326	0.163	0.193	0.229
	7	9409060953-1003	3.20	11.667	88.333	0.102	0.134	0.165
	8	9409060911-0921	3.10	12.507	87.493	0.079	0.091	0.106
	1	9409051337-1402	15.40	18.461	81.539	0.079	0.097	0.119
	2	9409051452-1502	5.90	18.207	81.793	0.078	0.094	0.113
	3	9409051558-1605	7.80	24.323	75.677	0.070	0.082	0.099
	4	9409051656-1701	5.50	5.405	94.595	0.089	0.105	0.125
	5	9409061146-1155	4.40	18.847	81.153	0.077	0.093	0.113
	6	9409061045-1054	3.40	5.240	94.760	0.153	0.182	0.216
	7	9409060953-1003	3.20	15.306	84.694	0.087	0.111	0.143
	8	9409060911-0921	3.10	13.616	86.384	0.078	0.090	0.104

Table 5.4 : Grain sizes of bed load

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 10 Dec 1994	Grain size distributions	page
	Init : mzh/sjr		

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9409011229-1240	B4911T08 *
		9409011247-1257	B4911T09
		9409021258-1309	B4921T05
		9409021312-1322	B4921T06
		9409021727-1737	B4921T08
		9409021738-1749	B4921T09
		9409030825-0836	B4931T02
		9409030838-0849	B4931T03
		9409031605-1616	B4931T04
		9409031618-1629	B4931T05
	2	9409011206-1210	B4911T06
		9409011212-1217	B4911T07 *
		9409011737-1741	B4911T16
		9409011742-1747	B4911T17
		9409020803-0808	B4921T01
		9409020810-0815	B4921T02
		9409021232-1238	B4921T03
		9409021240-1247	B4921T04
	3	9409040844-0850	B4941T01
		9409040900-0905	B4941T03
		9409041555-1600	B4941T04 *
		9409041603-1609	B4941T05
	4	9409050929-0941	B4951T01
		9409051721-1731	B4951T08 *
		9409051733-1748	B4951T09
		9409060829-0840	B4961T03
		9409061448-1458	B4961T10
		9409061528-1537	B4961T13

Table 6.1: ADCP & EMF transects

* : transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9409031526-1538	470439	776522	5.10	B4931P06 *
		2	9409031428-1444	470125	776518	10.50	B4931P05 *
		3	9409031141-1210	469969	776515	14.50	B4931P04 **
		4	9409031001-1011	469867	776516	13.00	B4931P03 *
		5	9409030903-0913	469805	776520	10.40	B4931P01 *
		6	9409021624-1634	469754	776520	9.00	B4921P07 *
		7	9409021526-1535	469607	776520	6.00	B4921P06 *
		8	9409021504-1509	469405	776521	7.00	B4921P05 *
	2	9	9409011700-1710	468875	776520	8.90	B4911P01 *
		10	9409020843-1004	468772	776516	15.50	B4921P01 **
		11	9409021058-1108	468655	776523	10.60	B4921P03 *
		12	9409021139-1148	468546	776521	4.00	B4921P04 *

Table 6.2: Vertical profiles (continued)

* S4 & MEX not available

** MEX not available

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 10 Dec 1994 Init : mzh/sjr	Collected data and their storage (1)	page 6.1

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	3	1	9409040940-0956	466386	779502	6.80	B4941P01 *
		2	9409041244-1310	466388	779561	8.10	B4941P03 **
		3	9409041422-1432	466391	779715	5.90	B4941P04 *
		4	9409041505-1516	466391	779931	3.90	B4941P05 *
	4	1	9409051337-1402	462430	783190	15.40	B4951P01 **
		2	9409051452-1502	462304	783196	5.90	B4951P02 *
		3	9409051558-1605	462124	783181	7.80	B4951P03 *
		4	9409051656-1701	461994	783164	5.50	B4951P04 *
		5	9409061146-1155	461910	783155	4.40	B4961P06 *
		6	9409061045-1054	461806	783154	3.40	B4961P04 *
		7	9409060953-1003	461650	783149	3.20	B4961P03 *
		8	9409060911-0921	461367	783131	3.10	B4961P02 *

Table 6.2: Vertical profiles	* S4 & MEX not available	** MEX not available
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Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	2	10	6	9409020843-1004	468772	776516	15.50
Table 6.3: Suspended sediment - point sampled							

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	1	1	1	9409031526-1538	470439	776522	5.10
		2	1	9409031428-1444	470125	776518	10.50
		3	1	9409031141-1210	469969	776515	14.50
		4	1	9409031001-1011	469867	776516	13.00
		5	1	9409030903-0913	469805	776520	10.40
		6	1	9409021624-1634	469754	776520	9.00
		7	1	9409021526-1535	469607	776520	6.00
		8	1	9409021504-1509	469405	776521	7.00
	2	9	1	9409011700-1710	468875	776520	8.90
		10	1	9409020843-1004	468772	776516	15.50
		11	1	9409021058-1108	468655	776523	10.60
		12	1	9409021139-1148	468546	776521	4.00
	3	1	1	9409040940-0956	466386	779502	6.80
		2	1	9409041244-1310	466388	779561	8.10
		3	1	9409041422-1432	466391	779715	5.90
		4	1	9409041505-1516	466391	779931	3.90
	4	1	1	9409051337-1402	462430	783190	15.40
		2	1	9409051452-1502	462304	783196	5.90
		3	1	9409051558-1605	462124	783181	7.80
		4	1	9409051656-1701	461994	783164	5.50
		5	1	9409061146-1155	461910	783155	4.40
		6	1	9409061045-1054	461806	783154	3.40
		7	1	9409060953-1003	461650	783149	3.20
		8	1	9409060911-0921	461367	783131	3.10

Table 6.4: Suspended sediment - depth integrated

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad		
Date : 10 Dec 1994		Collected data and their storage (2)		page
Init : mzh/sjr				6.2

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1	9409031526-1538	470439	776522	5.10	A73
		2	9409031428-1444	470125	776518	10.50	A1809
		3	9409031141-1210	469969	776515	14.50	A2157
		4	9409031001-1011	469867	776516	13.00	A1803
		5	9409030903-0913	469805	776520	10.40	A1897
		6	9409021624-1634	469754	776520	9.00	A1892
		7	9409021526-1535	469607	776520	6.00	A1380
		8	9409021504-1509	469405	776521	7.00	A2168
		1	9409031526-1538	470439	776522	5.10	A71
		2	9409031428-1444	470125	776518	10.50	A1947
		3	9409031141-1210	469969	776515	14.50	A1848
		4	9409031001-1011	469867	776516	13.00	A1950
		5	9409030903-0913	469805	776520	10.40	A1595
		6	9409021624-1634	469754	776520	9.00	A1885
		7	9409021526-1535	469607	776520	6.00	A111
		8	9409021504-1509	469405	776521	7.00	A108
	2	9	9409011700-1710	468875	776520	8.90	A1810
		10	9409020843-1004	468772	776516	15.50	A1673
		11	9409021058-1108	468655	776523	10.60	A1919
		12	9409021139-1148	468546	776521	4.00	A1995
		9	9409011700-1710	468875	776520	8.90	A707
		10	9409020843-1004	468772	776516	15.50	A1955
		11	9409021058-1108	468655	776523	10.60	A94
		12	9409021139-1148	468546	776521	4.00	A866
	3	1	9409040940-0956	466386	779502	6.80	A2019
		2	9409041244-1310	466388	779561	8.10	A2158
		3	9409041422-1432	466391	779715	5.90	A87
		4	9409041505-1516	466391	779931	3.90	A530
		1	9409040940-0956	466386	779502	6.80	A2183
		2	9409041244-1310	466388	779561	8.10	A887
		3	9409041422-1432	466391	779715	5.90	A586
		4	9409041505-1516	466391	779931	3.90	A2177
	4	1	9409051337-1402	462430	783190	15.40	A1965
		2	9409051452-1502	462304	783196	5.90	A706
		3	9409051558-1605	462124	783181	7.80	A862
		4	9409051656-1701	461994	783164	5.50	A2006
		5	9409061146-1155	461910	783155	4.40	A1931
		6	9409061045-1054	461806	783154	3.40	A2148
		7	9409060953-1003	461650	783149	3.20	A1942
		8	9409060911-0921	461367	783131	3.10	A1982
		1	9409051337-1402	462430	783190	15.40	A1960
		2	9409051452-1502	462304	783196	5.90	A362
		3	9409051558-1605	462124	783181	7.80	A1970
		4	9409051656-1701	461994	783164	5.50	A2181
		5	9409061146-1155	461910	783155	4.40	A1133
		6	9409061045-1054	461806	783154	3.40	A2178
		7	9409060953-1003	461650	783149	3.20	A1642
		8	9409060911-0921	461367	783131	3.10	A2168

Table 6.5: Bed load

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities DELFT - DHI		Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 10 Dec 1994	Collected data and their storage (3)	page
	Init : mzh/sjr		6.3

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Delft Bottle Sample	1	1	9409031526-1538	470439	776522	5.10	A135
		2	9409031428-1444	470125	776518	10.50	A1054
		3	9409031141-1210	469969	776515	14.50	A997
		4	9409031001-1011	469867	776516	13.00	A781
		5	9409030903-0913	469805	776520	10.40	A131
		6	9409021624-1634	469754	776520	9.00	A621
		7	9409021526-1535	469607	776520	6.00	A608
		8	9409021504-1509	469405	776521	7.00	A584
		1	9409031526-1538	470439	776522	5.10	A776
		2	9409031428-1444	470125	776518	10.50	A790
		3	9409031141-1210	469969	776515	14.50	A1047
		4	9409031001-1011	469867	776516	13.00	A939
		5	9409030903-0913	469805	776520	10.40	A526
		6	9409021624-1634	469754	776520	9.00	A445
		7	9409021526-1535	469607	776520	6.00	A182
		8	9409021504-1509	469405	776521	7.00	A188
	2	9	9409011700-1710	468875	776520	8.90	A221
		10	9409020843-1004	468772	776516	15.50	A521
		11	9409021058-1108	468655	776523	10.60	A681
		12	9409021139-1148	468546	776521	4.00	A586
		9	9409011700-1710	468875	776520	8.90	A527
		10	9409020843-1004	468772	776516	15.50	A511
		11	9409021058-1108	468655	776523	10.60	A645
		12	9409021139-1148	468546	776521	4.00	A684
	3	1	9409040940-0956	466386	779502	6.80	A1057
		2	9409041244-1310	466388	779561	8.10	A974
		3	9409041422-1432	466391	779715	5.90	A134
		4	9409041505-1516	466391	779931	3.90	A1048
		1	9409040940-0956	466386	779502	6.80	A978
		2	9409041244-1310	466388	779561	8.10	A986
		3	9409041422-1432	466391	779715	5.90	A961
		4	9409041505-1516	466391	779931	3.90	A987
	4	1	9409051337-1402	462430	783190	15.40	A1056
		2	9409051452-1502	462304	783196	5.90	A132
		3	9409051558-1605	462124	783181	7.80	A1002
		4	9409051656-1701	461994	783164	5.50	A971
		5	9409061146-1155	461910	783155	4.40	A943
		6	9409061045-1054	461806	783154	3.40	A940
		7	9409060953-1003	461650	783149	3.20	A980
		8	9409060911-0921	461367	783131	3.10	A1035
		1	9409051337-1402	462430	783190	15.40	A970
		2	9409051452-1502	462304	783196	5.90	A988
		3	9409051558-1605	462124	783181	7.80	A962
		4	9409051656-1701	461994	783164	5.50	A1017
		5	9409061146-1155	461910	783155	4.40	A1038
		6	9409061045-1054	461806	783154	3.40	A1034
		7	9409060953-1003	461650	783149	3.20	A1030
		8	9409060911-0921	461367	783131	3.10	A798

Table 6.6: Bed load

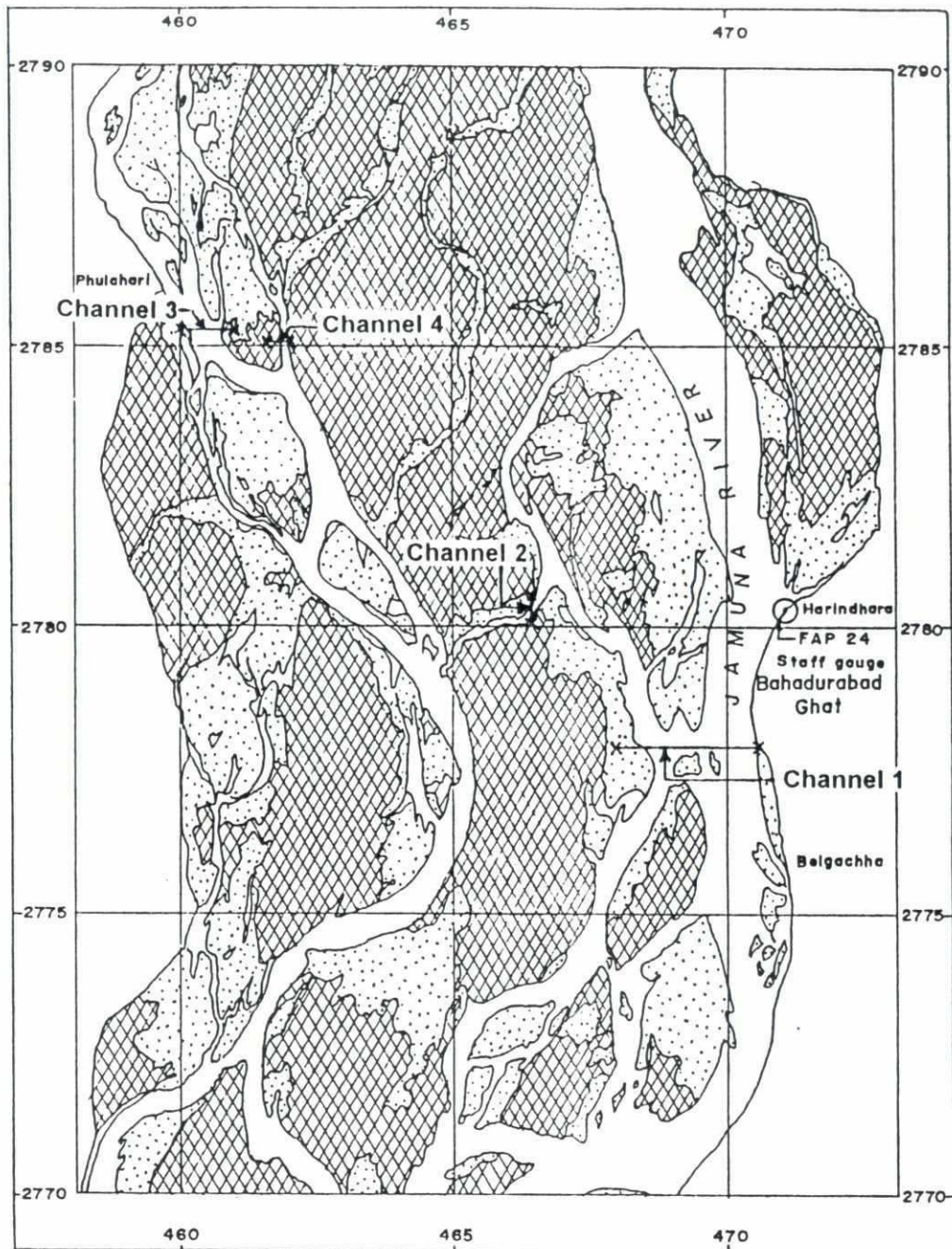
 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 95: 01 - 06 September, 1994		
	Location 1 : Jamuna River, Bahadurabad		
	Date : 10 Dec 1994	Collected data and their storage (4)	page
	Init : mzh/sjr		6.4

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Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	B4911T08 .ase
ADCP/S4/EMF data	2	QUATTRO	B4911T07 .ase
ADCP/S4/EMF data	3	QUATTRO	B4941T04 .ase
ADCP/S4/EMF data	4	QUATTRO	B4951T08 .ase
Echosounder data	1	QUATTRO	B4911T08 .ech
Echosounder data	2	QUATTRO	B4911T07 .ech
Echosounder data	3	QUATTRO	B4941T04 .ech
Echosounder data	4	QUATTRO	B4951T08 .ech
Sediment transport data	1	QUATTRO	B4911T08 .sed
Sediment transport data	2	QUATTRO	B4911T07 .sed
Sediment transport data	3	QUATTRO	B4941T04 .sed
Sediment transport data	4	QUATTRO	B4951T08 .sed
Bed load sed. analysis	1	QUATTRO	B4911T08 .bdl
Bed load sed. analysis	2	QUATTRO	B4911T07 .bdl
Bed load sed. analysis	3	QUATTRO	B4941T04 .bdl
Bed load sed. analysis	4	QUATTRO	B4951T08 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B4911T08 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B4911T07 .ssc
Suspended sed. conc. analysis	3	QUATTRO	B4941T04 .ssc
Suspended sed. conc. analysis	4	QUATTRO	B4951T08 .ssc
Transect plot data	1	QUATTRO	B4911T08 .trs
Transect plot data	2	QUATTRO	B4911T07 .trs
Transect plot data	3	QUATTRO	B4941T04 .trs
Transect plot data	4	QUATTRO	B4951T08 .trs
Iso-velocity plot data	1	MIKE 21 MIKE 21	B4911T08 .dt2 B4911T08 .ct2
Iso-velocity plot data	2	MIKE 21 MIKE 21	B4911T07 .dt2 B4911T07 .ct2
Iso-velocity plot data	3	MIKE 21 MIKE 21	B4941T04 .dt2 B4941T04 .ct2
Iso-velocity plot data	4	MIKE 21 MIKE 21	B4951T08 .dt2 B4951T08 .ct2

Table 7.1 PSD 24 Database file description

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 95: 01 - 06 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 10 Dec 1994	PSD 24 Database file description	page
	Init mzh/sjr		7.1



LEGEND:

- *—* Cross section
- Highland
- Unstable/low char
- FAP 24 Staff gauge



5000m 2500m 0

Map is based on satellite images of March 1994

FAP 24
DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordinating Organization
Commission of the European Communities

Survey Bulletin 98 : 21 - 28 September, 1994

Location 1 : Jamuna River, Bahadurabad

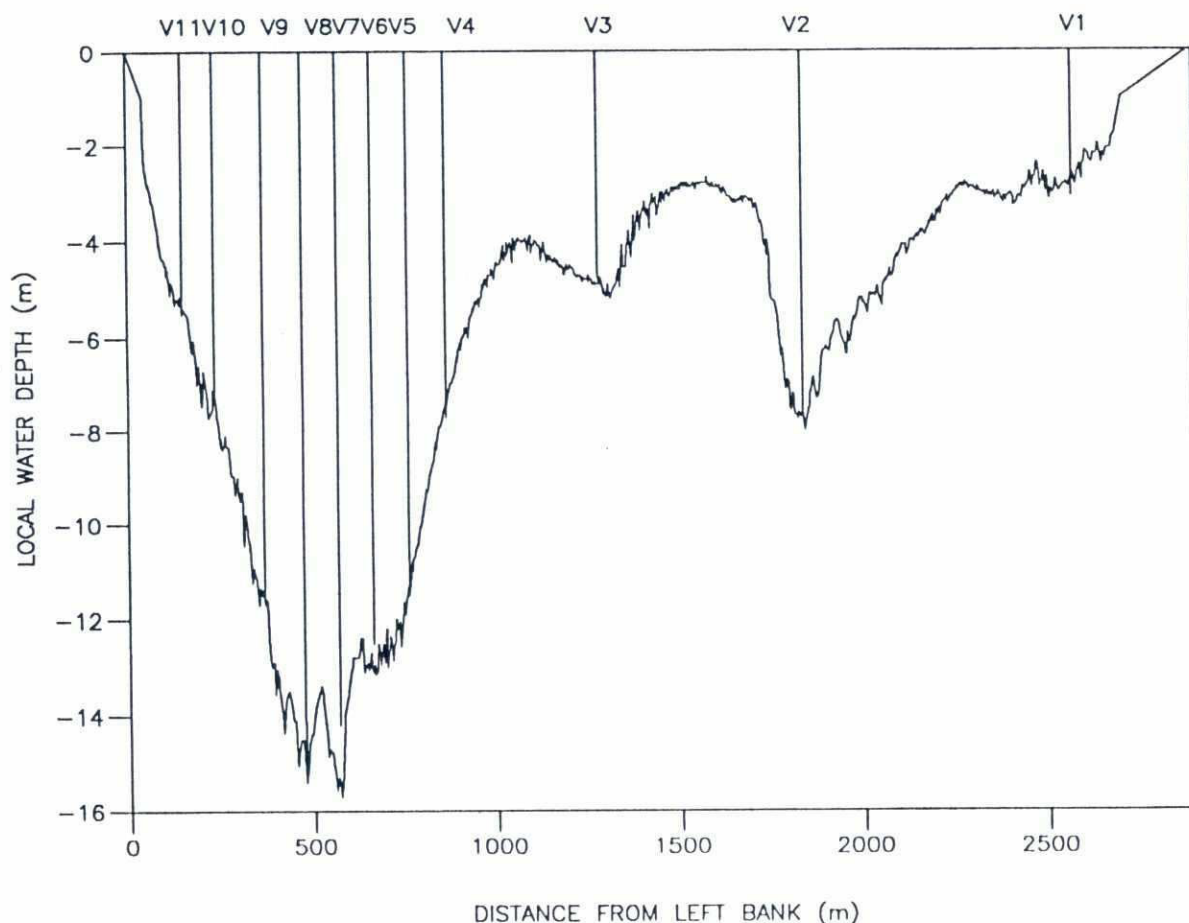
Date : 21 Dec 1994

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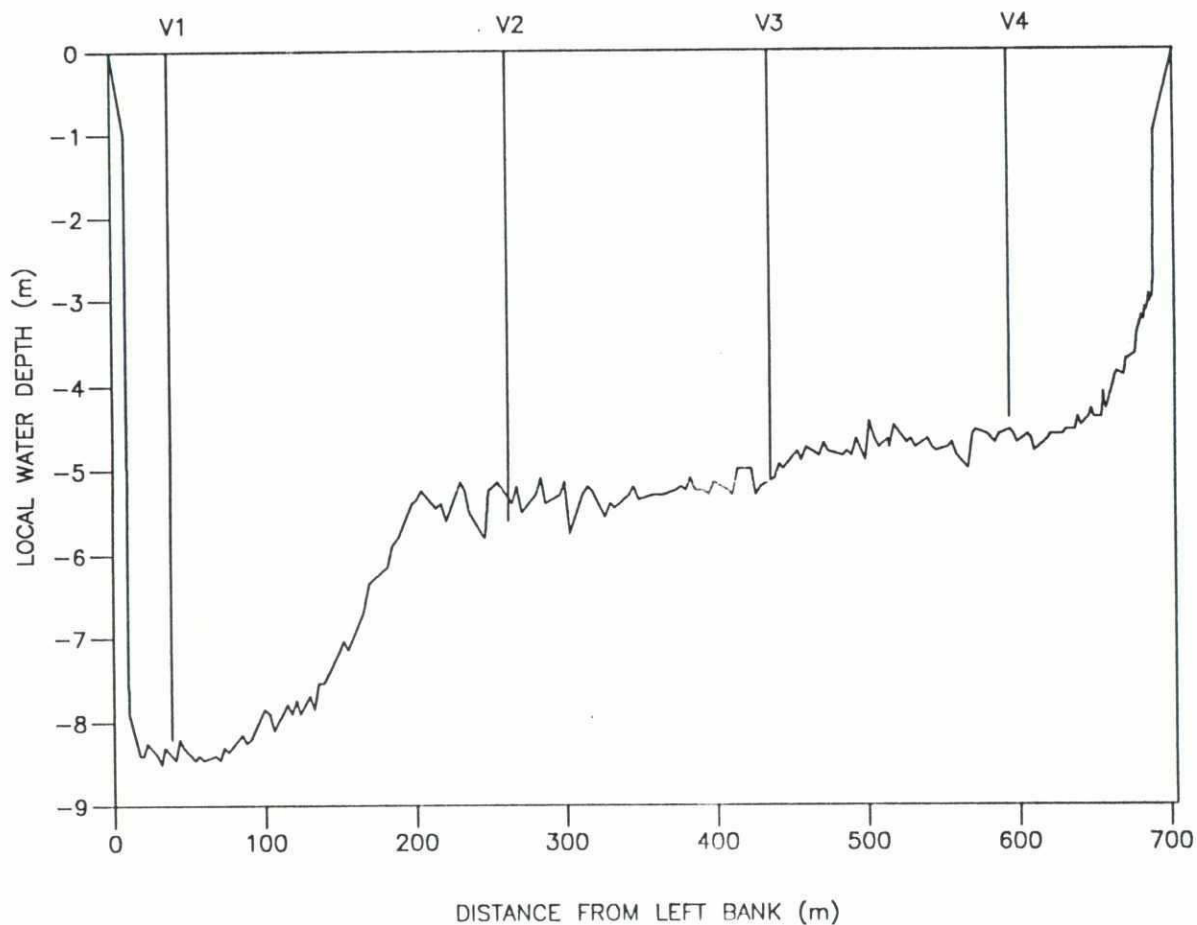
Location map

page

1.1

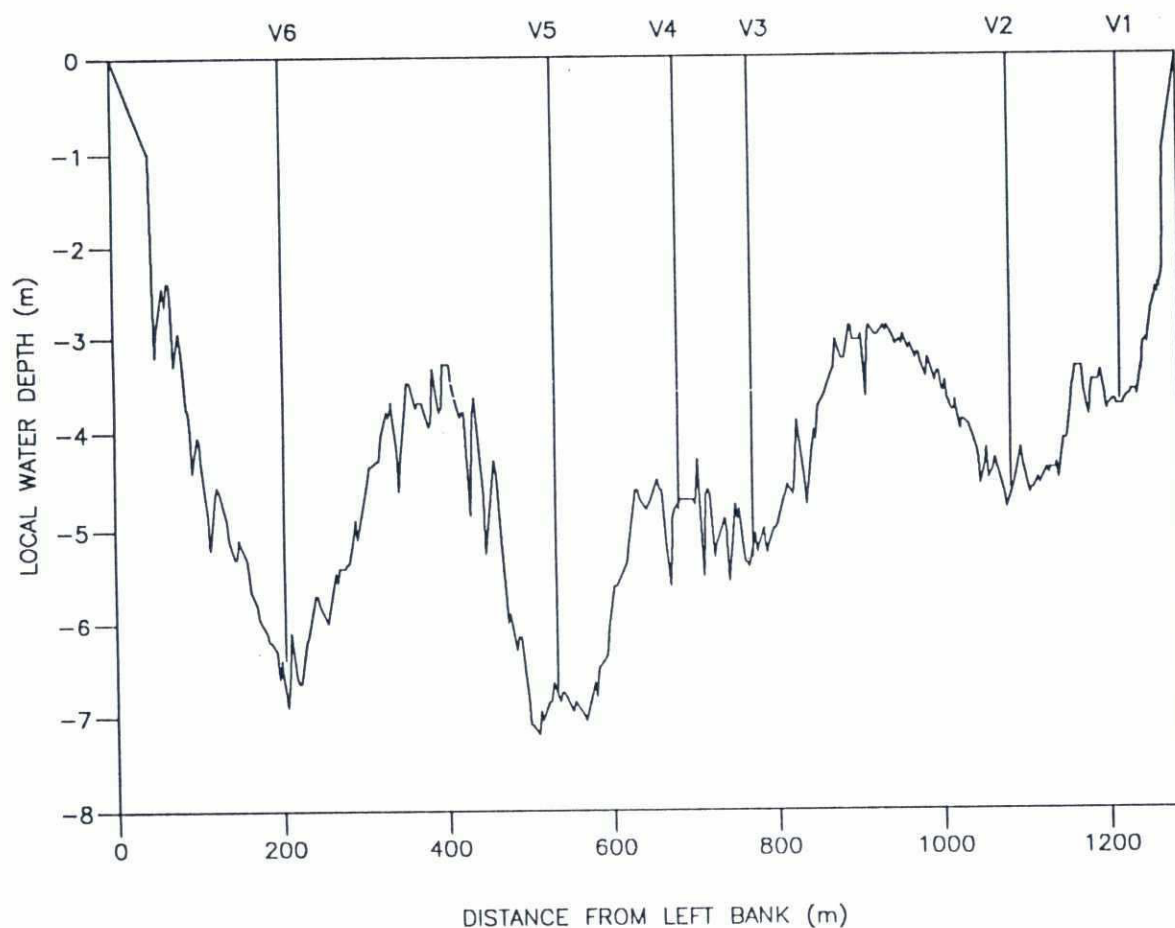


Water level : 17.75 m + PWD measured at the station indicated on Page 1.1

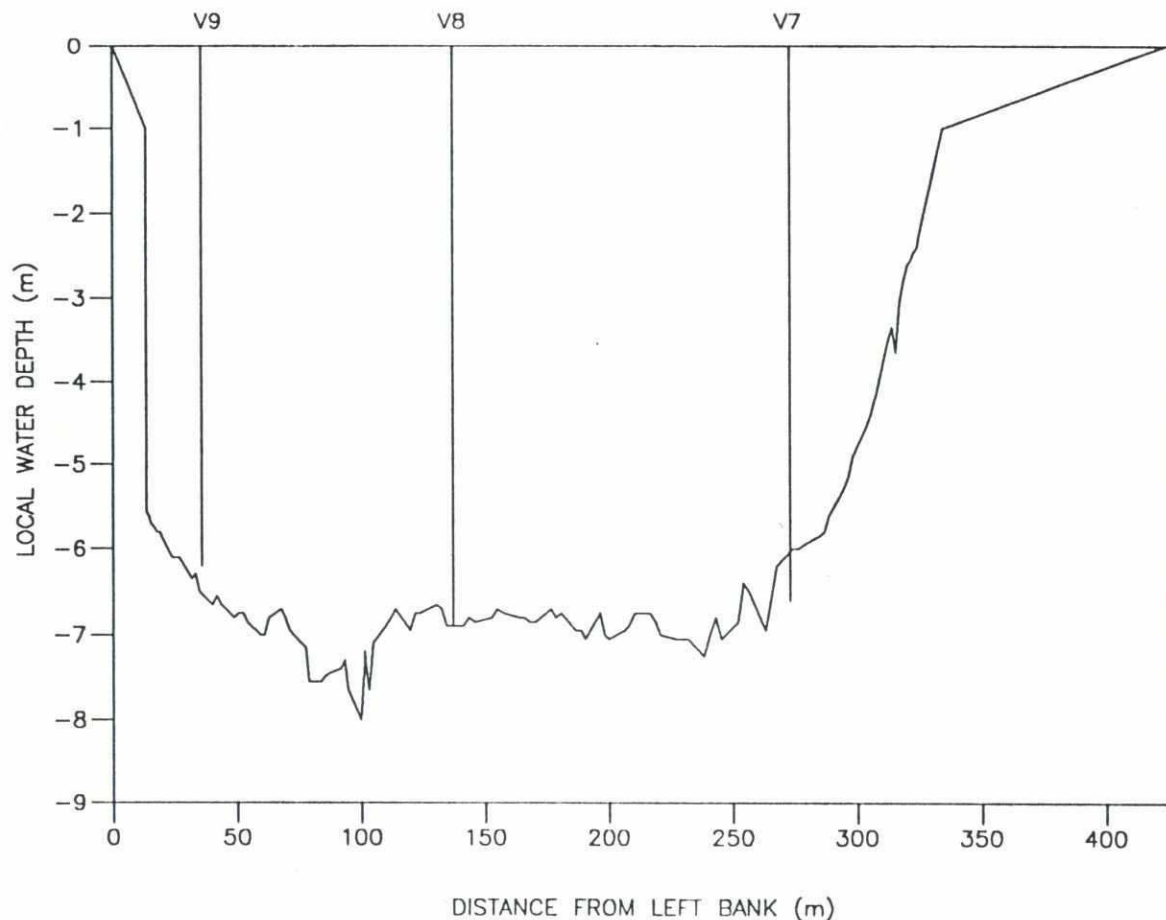


Water level : 17.74 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 98: 21 - 28 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B49P1T03	Date : 21 Dec 1994	Cross-sections and measured verticals Channel 2	page 1.3
	Init : mzh/sjr		



Water level : 17.70 m + PWD measured at the station indicated on Page 1.1



Water level : 17.70 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 98: 21 - 28 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B49R1T08	Date : 21 Dec 1994	Cross-sections and measured verticals Channel 4	page 1.5
	Init : mzh/sjr		

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	8	5	14	4
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No. of verticals in channel	11	4	6	3
	ADCP	11	4	6	3
	S4 current meter	1	1	1	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	8	6	3	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	11	4	6	3
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	16	8	12	6
	Delft Bottle	22	8	12	6
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1: Survey programme as made

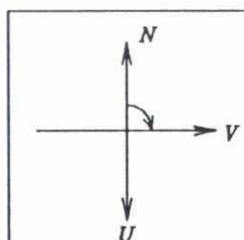
	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	2890	16200	17.75	18007	55	8540
Channel 2	704	3884	17.74	1926	124	661
Channel 3	1289	5621	17.70	3740	9	1370
Channel 4	427	2096	17.70	1997	10	743

Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	21 Sep 94	17.75	FAP 24
		22 Sep 94	17.77	FAP 24
		23 Sep 94	17.72	FAP 24
		24 Sep 94	17.72	FAP 24
	Channel 2	25 Sep 94	17.74	FAP 24
	Channel 3	26 Sep 94	17.72	FAP 24
		27 Sep 94	17.70	FAP 24
	Channel 4	28 Sep 94	17.62	FAP 24
		27 Sep 94	17.70	FAP 24

Table 2.3: Water-levels

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 98: 21 - 28 September, 1994	
				Location 1 : Jamuna River, Bahadurabad	
File : B49L1T02 B49P1T03 B49R1T03 B49R1T08		Date : 21 Dec 1994 Init : mzh/sjr		Survey programme as made and key figures	page 2.1

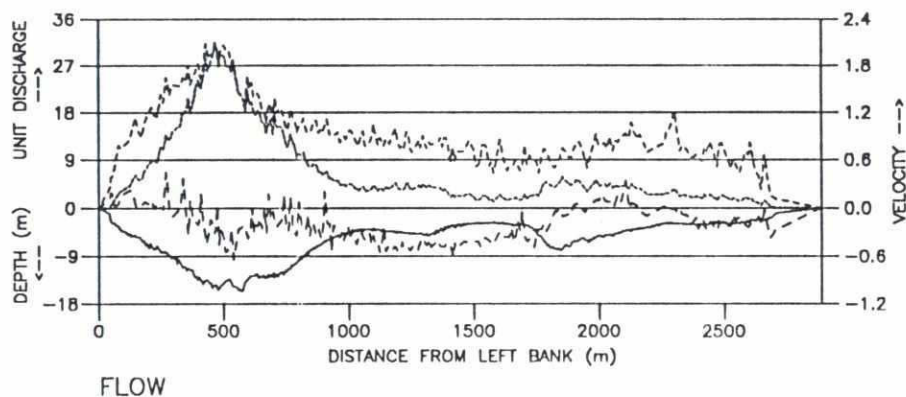


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STAGE)

--- UNIT DISCHARGE (m³/s.m)

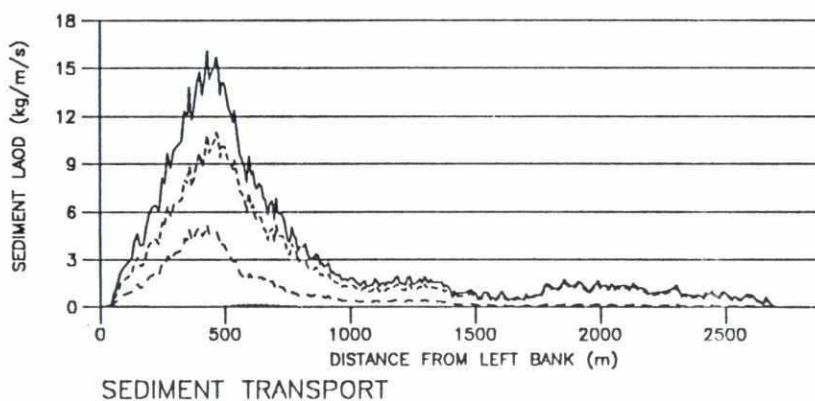
--- U (m/s)

--- V (m/s)

STAGE = 17.75 (m+PWD)

A = 16200 (m³)

Q = 18007 (m³/s)



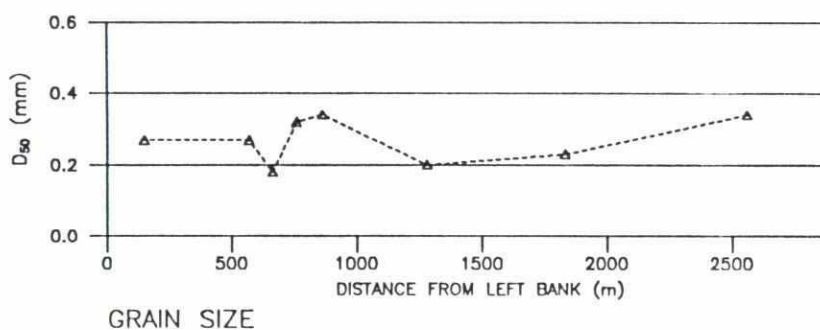
LEGEND :

— S_{TOTAL} 8596 (kg/s)

--- S_{WASH LOAD} 6280 (kg/s)

--- S_{SUSP. BED} 2260 (kg/s)

--- S_{BED LOAD} 55 (kg/s)



LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 98: 21 - 28 September, 1994

Location 1 : Jamuna River, Bahadurabad

File : B49L1T02

Date : 21 Dec 1994

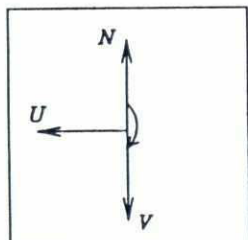
Init : mzh/sjr

Horizontal distribution of flow and sediments

Channel 1

page

3.1

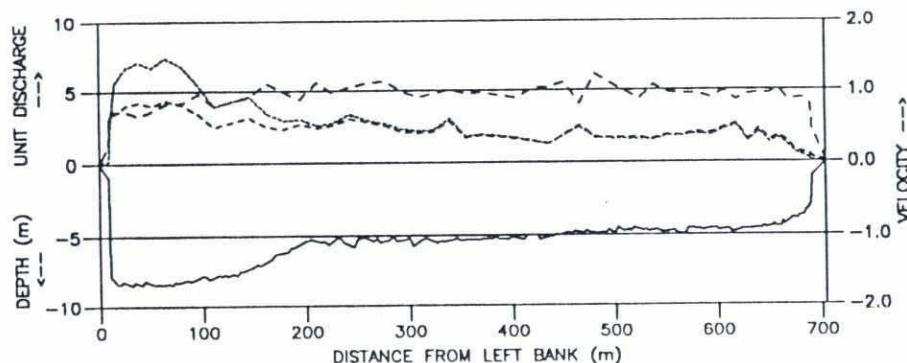


TRANSECT AZIMUTH = 180°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

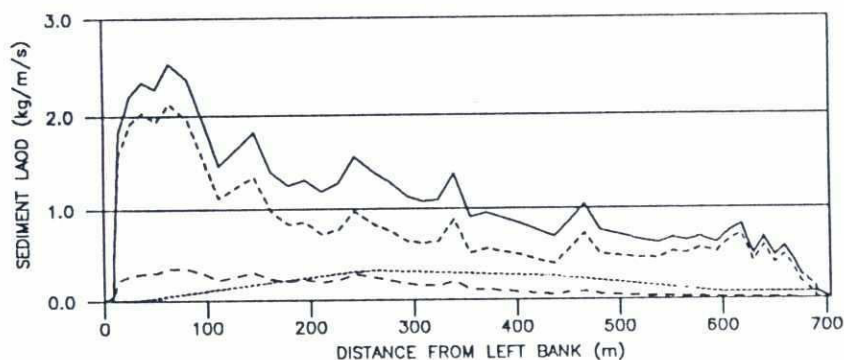
LEGEND :

— WATER DEPTH (m below STAGE)
 --- UNIT DISCHARGE ($m^3/s.m$)
 ... U (m/s)
 -.- V (m/s)

STAGE = 17.74 ($m+PWD$)

A = 3884 (m^2)

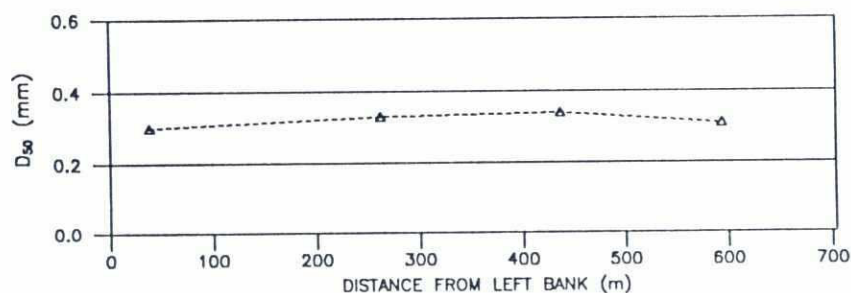
Q = 1926 (m^3/s)



SEDIMENT TRANSPORT

LEGEND :

— S_{TOTAL} 785 (kg/s)
 --- $S_{WASH LOAD}$ 562 (kg/s)
 ... $S_{SUSP. BED}$ 99 (kg/s)
 -.- $S_{BED LOAD}$ 124 (kg/s)



GRAIN SIZE

LEGEND :

◆◆◆◆ $D_{50 SUSP.}$ (mm)
 ▲▲▲▲ $D_{50 BED LOAD}$ (mm)
 □□□□ $D_{50 BED MAT.}$ (mm)

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 Flood Plan Coordination Organization
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Location 1 : Jamuna River, Bahadurabad

File : B49P1T03

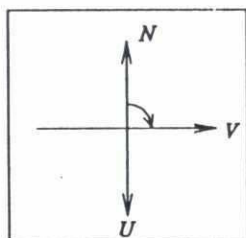
Date : 21 Dec 1994

Init : mzh/sjr

Horizontal distribution of flow and sediments
 Channel 2

page

3.2

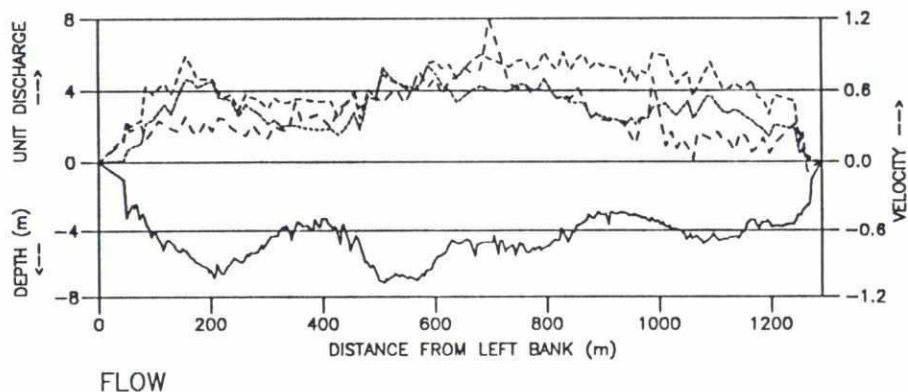


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STACK)

--- UNIT DISCHARGE (m³/s.m)

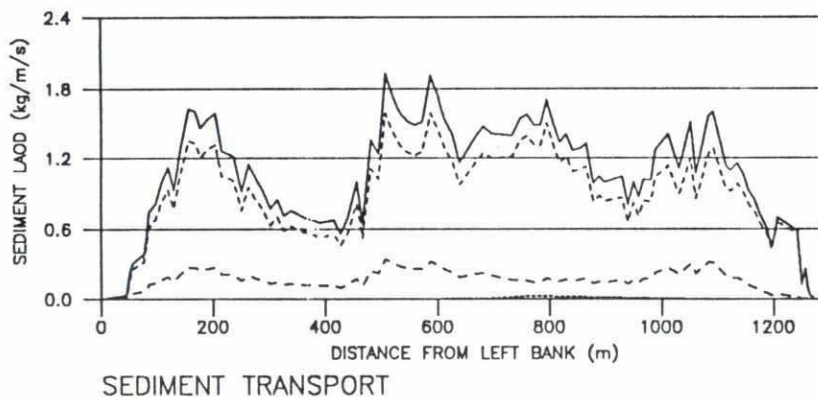
... U (m/s)

-.- V (m/s)

STAGE = 17.70 (m+PWD)

A = 5621 (m³)

Q = 3740 (m³/s)



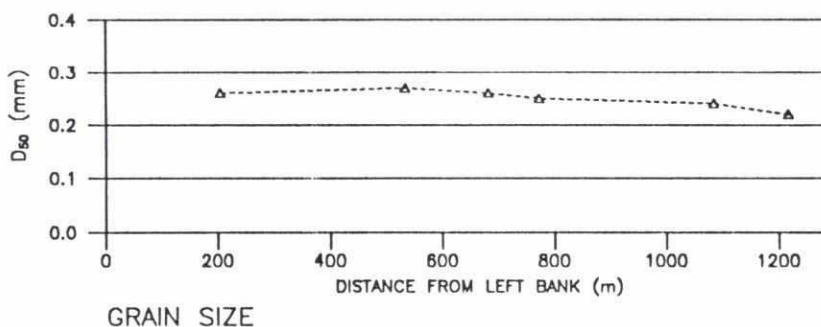
LEGEND :

— S_{TOTAL} 1379 (kg/s)

--- S_{WASH LOAD} 1155 (kg/s)

... S_{SUSP. BED} 215 (kg/s)

-.- S_{BED LOAD} 9 (kg/s)



LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (m.m.)

△△△△△ D₅₀ BED LOAD (m.m.)

□□□□□ D₅₀ BED MAT. (m.m.)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

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Location 1 : Jamuna River, Bahadurabad

File : B49R1T03

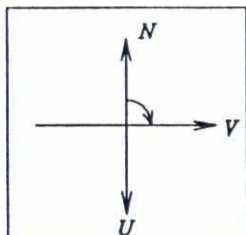
Date : 21 Dec 1994

Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 3

page

3.3

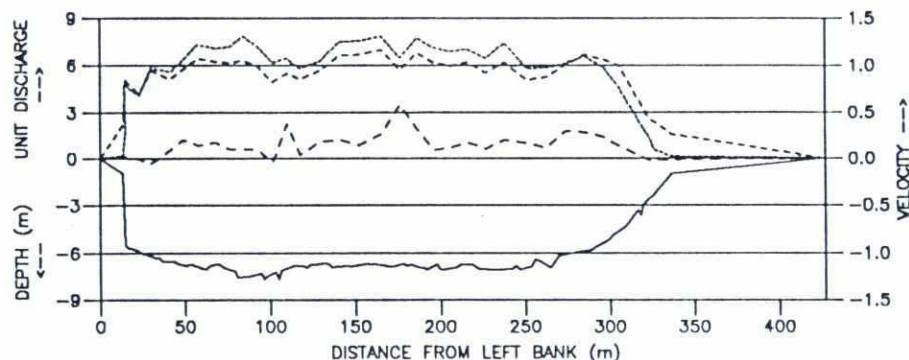


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STAGE)

- - - UNIT DISCHARGE (m³/s.m)

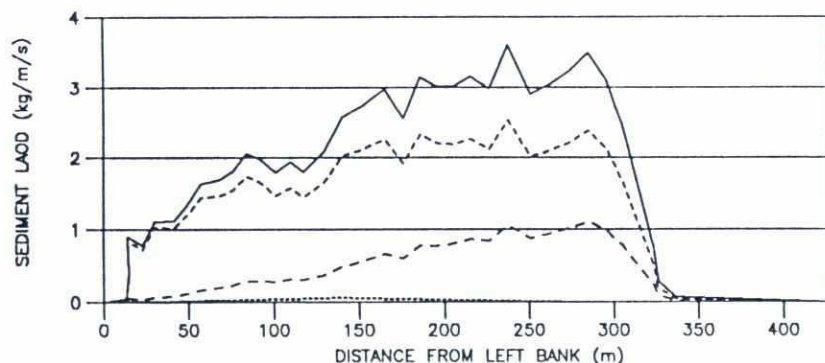
... U (m/s)

- . - V (m/s)

STAGE = 17.70 (m+PWD)

A = 2096 (m³)

Q = 1997 (m³/s)



SEDIMENT TRANSPORT

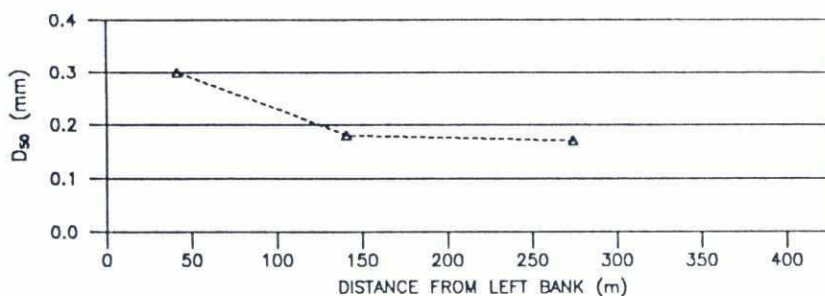
LEGEND :

— S_{TOTAL} 753 (kg/s)

- - - S_{WASH LOAD} 565 (kg/s)

... S_{SUSP. BED} 178 (kg/s)

- . - S_{BED LOAD} 10 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)

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DELFT - DHI

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Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 98: 21 - 28 September, 1994

Location 1 : Jamuna River, Bahadurabad

File : B49R1T08

Date : 21 Dec 1994

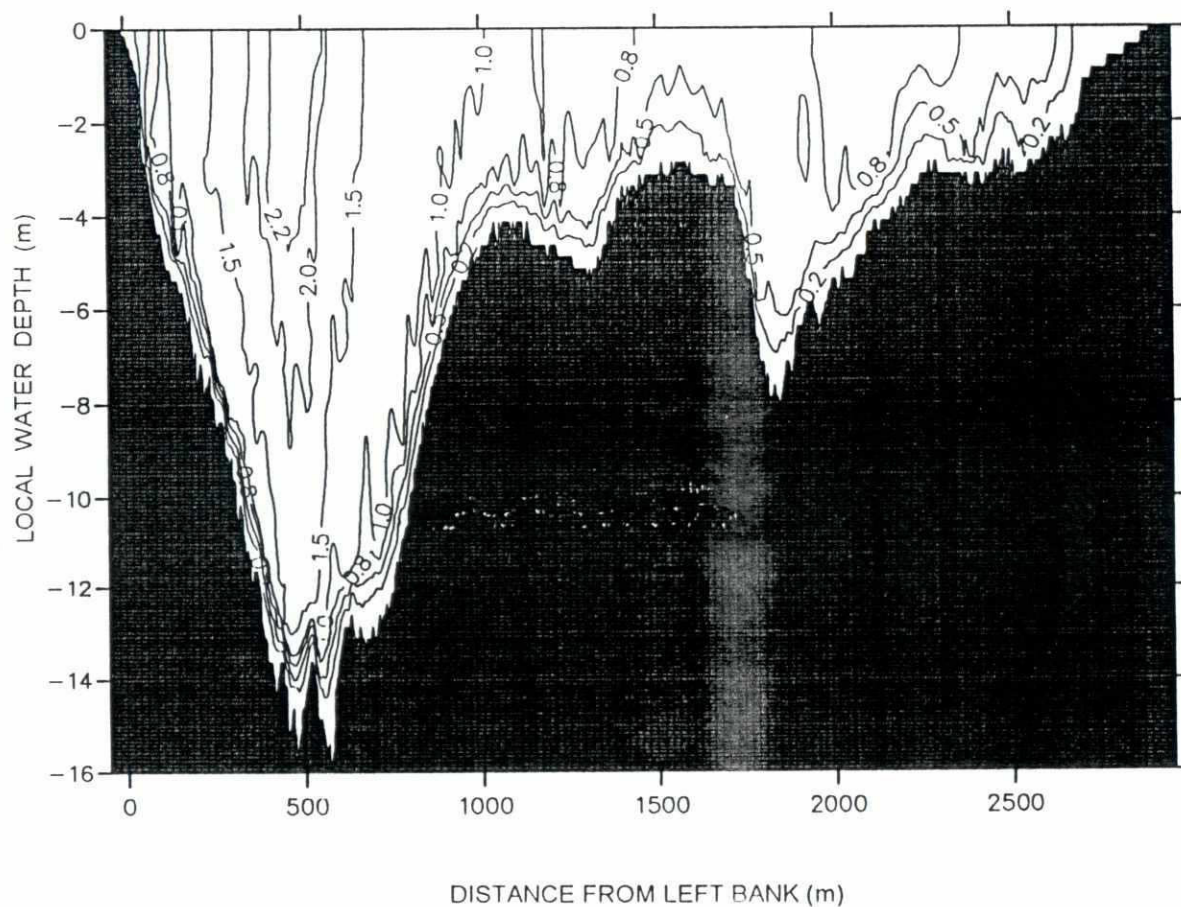
Init : mzh/sjr

Horizontal distribution of flow and sediments

Channel 4

page

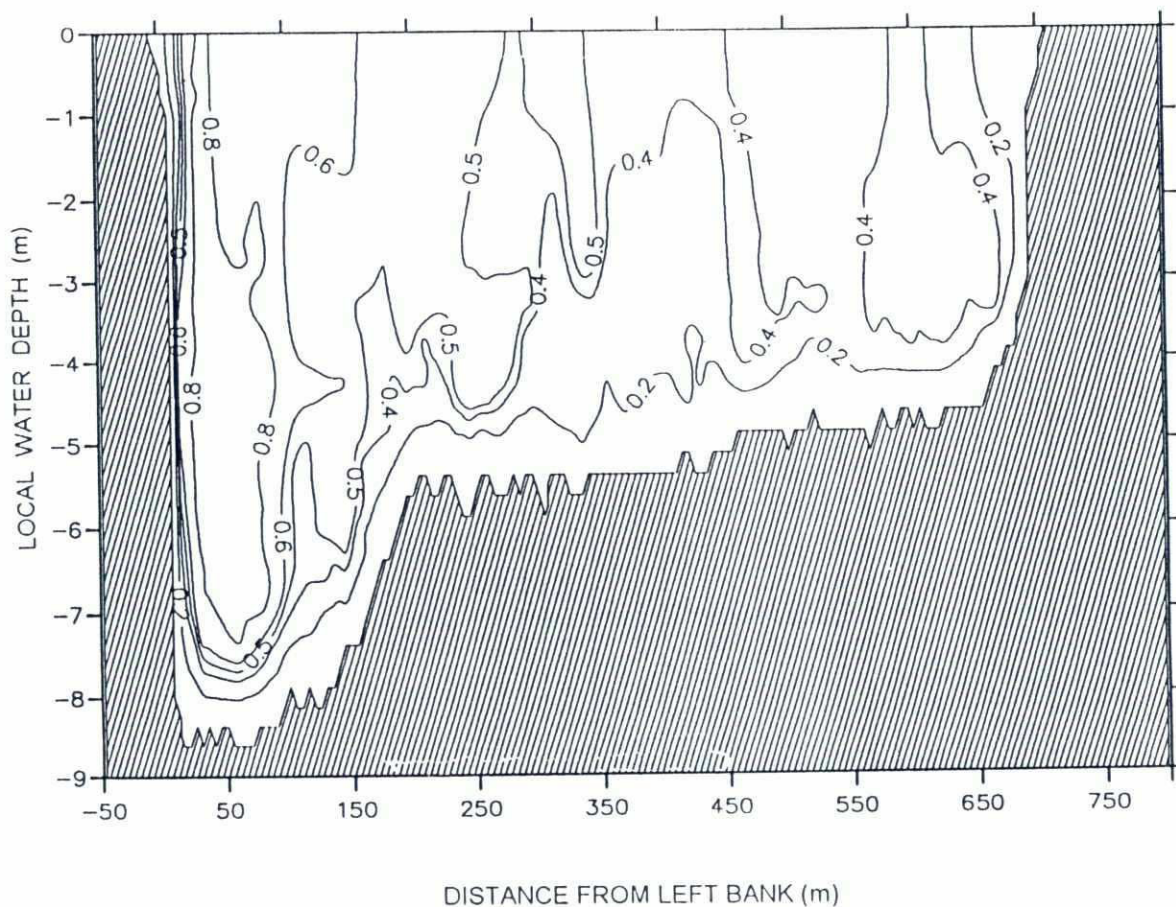
3.4



Iso-velocity contours (m/s)

Water-level : 17.75 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 98: 21 - 28 September, 1994	
		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	
File : B49L1T02	Date : 21 Dec 1994	Cross-sectional distribution of flow velocity Channel 1	page
	Init : mzh/sjr		4.1



Iso-velocity contours (m/s)

Water level : 17.74 m + PWD measured at the station indicated on Page 1.1

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RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 98: 21 - 28 September, 1994

Location 1 : Jamuna River, Bahadurabad

File : B49P1T03

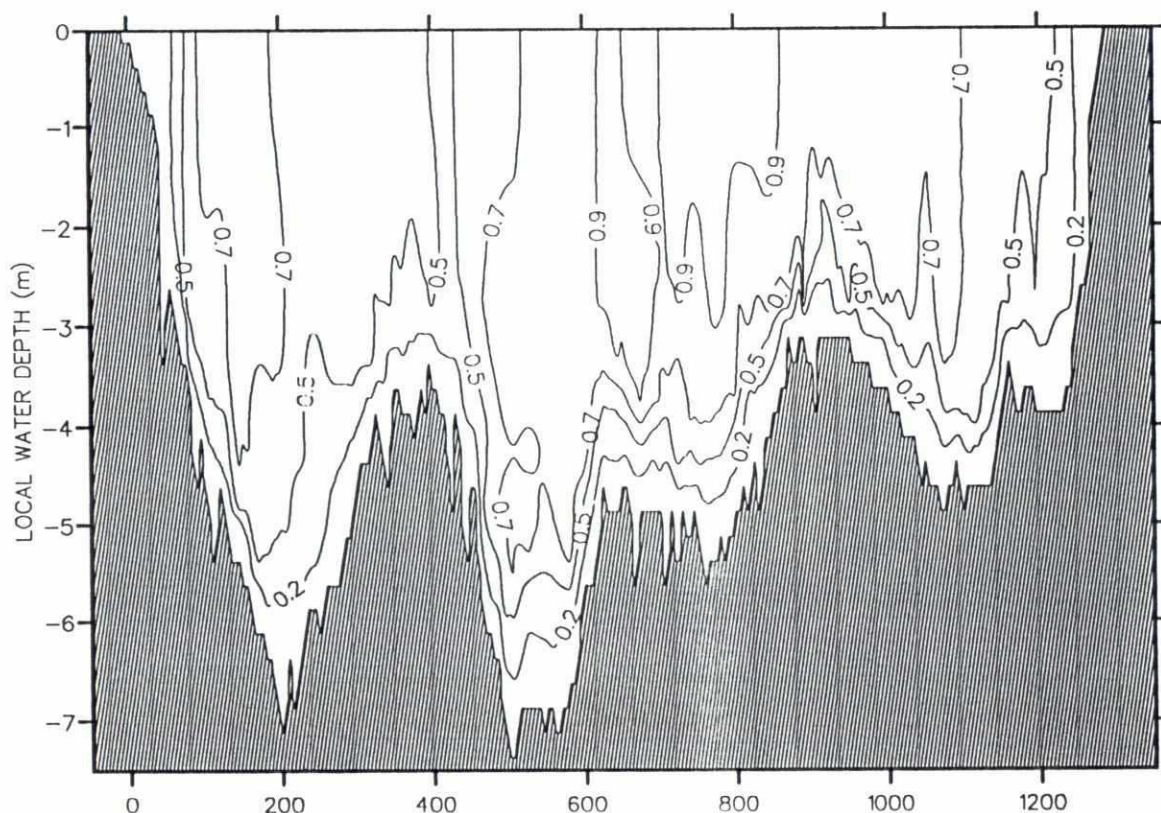
Date : 21 Dec 1994

Init : mzh/sjr

Cross-sectional distribution of flow velocity
Channel 2

page

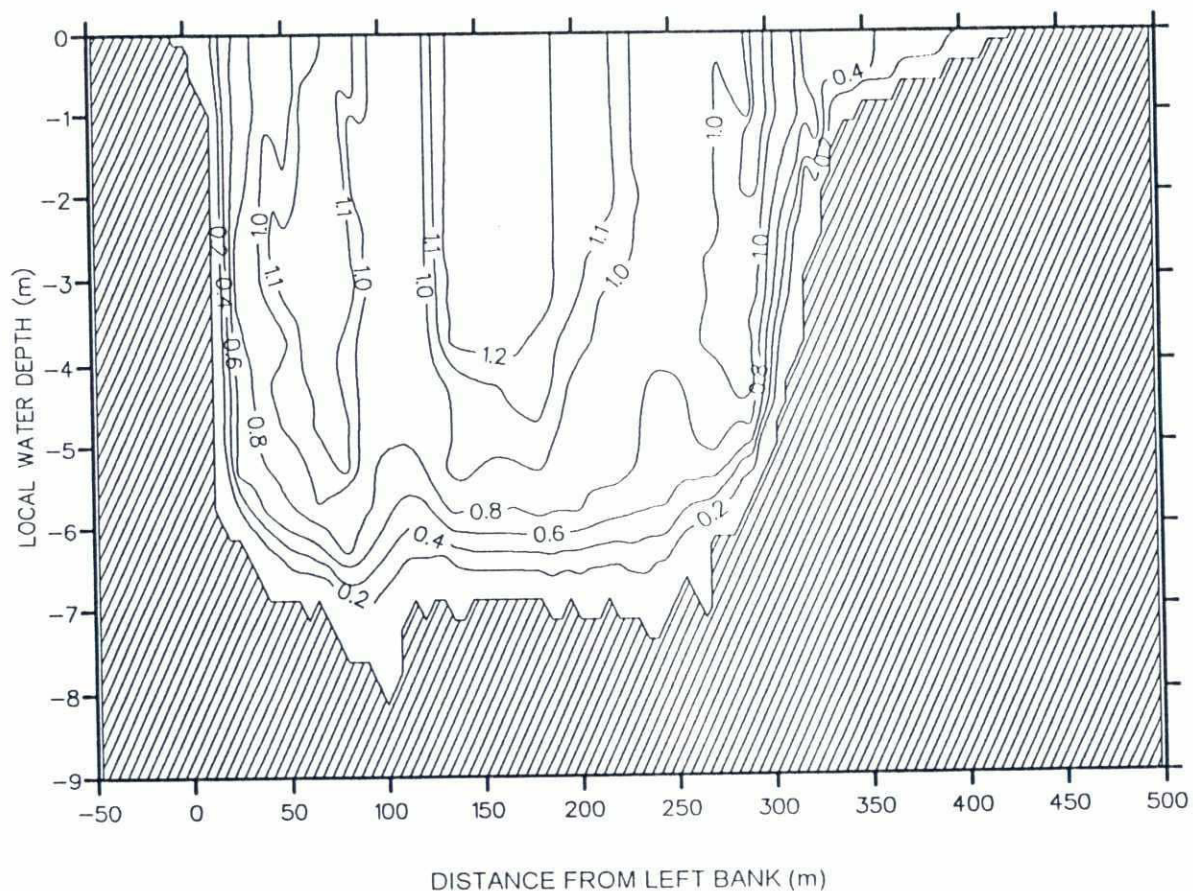
4.2



Iso-velocity contours (m/s)

Water level : 17.70 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 98: 21 - 28 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B49R1T03	Date : 21 Dec 1994	Cross-sectional distribution of flow velocity Channel 3	page
	Init : mzh/sjr		4.3



Iso-velocity contours (m/s)

Water level : 17.70 m + PWD measured at the station indicated on Page 1.1

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Location 1 : Jamuna River, Bahadurabad

File : B49R1T08

Date : 21 Dec 1994

Init : mzh/sjr

Cross-sectional distribution of flow velocity
Channel 4

page

4.4

Andreasen settling tube							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D35 (mm)	D50 (mm)	D65 (mm)
Sample not collected							
Table 5.1: Grain size of near bed suspended sediment (0.3 m above river bed)							

US BM-54 bed samples							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D35 (mm)	D50 (mm)	D65 (mm)
Sample not collected							
Table 5.2 : Grain size of bed material							

Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm		D35 (mm)	D50 (mm)	D65 (mm)
1	1	9409231459-1529	3.10	1.960	98.040	0.306	0.343	0.386
	2	9409231404-1435	7.60	8.333	91.667	0.105	0.146	0.214
	3	9409231226-1257	4.80	0.341	99.659	0.167	0.195	0.227
	4	9409231102-1133	7.70	1.827	98.173	0.286	0.326	0.371
	5	9409231018-1047	11.50	0.122	99.878	0.275	0.317	0.364
	6	9409230931-0957	12.50	0.845	99.155	0.161	0.186	0.213
	7	9409241428-1458	14.20	0.245	99.755	0.289	0.328	0.373
	11	9409211220-1300	5.50	0.419	99.581	0.227	0.280	0.334
	1	9409231459-1529	3.10	0.503	99.497	0.307	0.345	0.387
	2	9409231404-1435	7.60	0.397	99.603	0.273	0.315	0.363
	3	9409231226-1257	4.80	0.550	99.450	0.166	0.194	0.228
	4	9409231102-1133	7.70	0.464	99.536	0.308	0.345	0.388
	5	9409231018-1047	11.50	0.231	99.769	0.286	0.327	0.373
	6	9409230931-0957	12.50	0.860	99.140	0.161	0.184	0.210
	7	9409241428-1458	14.20	1.303	98.697	0.178	0.216	0.268
	11	9409211220-1300	5.50	0.900	99.100	0.209	0.262	0.320
2	1	9409251139-1228	8.20	0.722	99.278	0.231	0.283	0.336
	2	9409251336-1411	5.60	0.070	99.930	0.289	0.328	0.373
	3	9409251436-1514	5.10	0.151	99.849	0.296	0.335	0.378
	4	9409251532-1600	4.40	0.282	99.718	0.264	0.307	0.356
	1	9409251139-1228	8.20	0.283	99.717	0.277	0.319	0.368
	2	9409251336-1411	5.60	0.082	99.918	0.301	0.339	0.382
	3	9409251436-1514	5.10	0.174	99.826	0.295	0.334	0.378
	4	9409251532-1600	4.40	0.190	99.810	0.274	0.315	0.362
Table 5.3 : Grain sizes of bed load (continued)								

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		Location 1 : Jamuna River, Bahadurabad	
	Date : 21 Dec 1994	Grain size distributions	page 5.1
	Init : mzh/sjr		

Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
3	1	9409281015-1046	3.70	2.897	97.103	0.170	0.207	0.254
	2	9409280930-1000	4.60	0.918	99.082	0.180	0.215	0.261
	3	9409280840-0913	5.30	0.244	99.756	0.202	0.253	0.311
	4	9409271624-1704	4.80	0.435	99.565	0.187	0.228	0.285
	5	9409261610-1721	6.80	0.733	99.267	0.206	0.265	0.324
	6	9409271522-1601	6.40	2.547	97.453	0.206	0.261	0.321
	1	9409281015-1046	3.70	6.857	93.143	0.179	0.229	0.292
	2	9409280930-1000	4.60	2.328	97.672	0.203	0.256	0.314
	3	9409280840-0913	5.30	0.285	99.715	0.192	0.240	0.299
	4	9409271624-1704	4.80	0.471	99.529	0.228	0.282	0.336
	5	9409261610-1721	6.80	0.378	99.622	0.225	0.279	0.333
	6	9409271522-1601	6.40	4.668	95.332	0.209	0.267	0.324
4	7	9409271139-1219	6.60	0.797	99.203	0.174	0.220	0.282
	8	9409271241-1313	6.90	0.366	99.634	0.156	0.175	0.197
	9	9409271351-1424	6.20	0.106	99.894	0.255	0.299	0.350
	7	9409271139-1219	6.60	3.189	96.811	0.099	0.123	0.153
	8	9409271241-1313	6.90	0.390	99.610	0.157	0.177	0.198
	9	9409271351-1424	6.20	0.219	99.781	0.253	0.297	0.349

Table 5.3 : Grain sizes of bed load

Delft Bottle								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
1	1	9409231459-1529	3.10	15.816	84.184	0.083	0.103	0.138
	2	9409231404-1435	7.60	14.399	85.601	0.084	0.104	0.129
	3	9409231226-1257	4.80	8.788	91.212	0.088	0.106	0.131
	4	9409231102-1133	7.70	4.209	95.791	0.099	0.123	0.156
	5	9409231018-1047	11.50	5.114	94.886	0.126	0.151	0.181
	6	9409230931-0957	12.50	3.790	96.210	0.136	0.158	0.184
	7	9409241428-1458	14.20	1.745	98.255	0.178	0.211	0.250
	8	9409221006-1057	15.20	0.973	99.027	0.209	0.270	0.329
	9	9409211527-1607	11.60	12.355	87.645	0.097	0.128	0.159
	10	9409211423-1443	7.20	6.369	93.631	0.165	0.236	0.301
	11	9409211220-1300	5.50	6.227	93.773	0.141	0.163	0.189
	1	9409231459-1529	3.10	29.895	70.105	0.067	0.080	0.096
	2	9409231404-1435	7.60	10.545	89.455	0.091	0.115	0.149
	3	9409231226-1257	4.80	8.319	91.681	0.084	0.099	0.116
	4	9409231102-1133	7.70	5.784	94.216	0.097	0.122	0.156
	5	9409231018-1047	11.50	8.092	91.908	0.106	0.136	0.166
	6	9409230931-0957	12.50	3.435	96.565	0.131	0.154	0.181
	7	9409241428-1458	14.20	9.670	90.330	0.117	0.146	0.177
	8	9409221006-1057	15.20	1.674	98.326	0.234	0.287	0.341
	9	9409211527-1607	11.60	8.659	91.341	0.115	0.167	0.245
	10	9409211423-1443	7.20	10.138	89.862	0.111	0.158	0.223
	11	9409211220-1300	5.50	7.573	92.427	0.117	0.165	0.233

Table 5.4 : Grain sizes of bed load (continued)

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 98: 21 - 28 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
Date : 21 Dec 1994		Grain size distributions	page 5.2
Init : mzh/sjr			

Delft Bottle		Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
Channel	Vertical			< 0.06 mm	> 0.06 mm			
2	1	9409251139-1228	8.20	5.543	94.457	0.121	0.150	0.185
	2	9409251336-1411	5.60	0.499	99.501	0.279	0.320	0.367
	3	9409251436-1514	5.10	0.775	99.225	0.277	0.318	0.366
	4	9409251532-1600	4.40	8.479	91.521	0.162	0.209	0.270
	1	9409251139-1228	8.20	20.822	79.178	0.076	0.092	0.112
	2	9409251336-1411	5.60	1.478	98.522	0.238	0.289	0.342
	3	9409251436-1514	5.10	7.773	92.227	0.174	0.240	0.304
	4	9409251532-1600	4.40	16.107	83.893	0.125	0.160	0.204
3	1	9409281015-1046	3.70	31.244	68.756	0.066	0.079	0.094
	2	9409280930-1000	4.60	12.660	87.340	0.092	0.119	0.151
	3	9409280840-0913	5.30	0.956	99.044	0.198	0.257	0.316
	4	9409271624-1704	4.80	8.501	91.499	0.098	0.126	0.157
	5	9409261610-1721	6.80	7.752	92.248	0.093	0.116	0.147
	6	9409271522-1601	6.40	21.416	78.584	0.084	0.114	0.150
	1	9409281015-1046	3.70	39.337	60.663	-	0.073	0.091
	2	9409280930-1000	4.60	20.809	79.191	0.130	0.152	0.178
	3	9409280840-0913	5.30	5.750	94.250	0.126	0.157	0.195
	4	9409271624-1704	4.80	13.222	86.778	0.133	0.155	0.180
	5	9409261610-1721	6.80	15.768	84.232	0.078	0.093	0.110
	6	9409271522-1601	6.40	42.014	57.986	-	0.072	0.094
	7	9409271139-1219	6.60	8.499	91.501	0.087	0.104	0.125
	8	9409271241-1313	6.90	7.687	92.313	0.126	0.149	0.177
	9	9409271351-1424	6.20	2.052	97.948	0.162	0.186	0.215
	7	9409271139-1219	6.60	12.800	87.200	0.083	0.100	0.121
	8	9409271241-1313	6.90	10.918	89.082	0.109	0.140	0.170
	9	9409271351-1424	6.20	4.922	95.078	0.154	0.178	0.207

Table 5.4 : Grain sizes of bed load

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 98: 21 - 28 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 21 Dec 1994	Grain size distributions	page 5.3
	Init : mzh/sjr		

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9409210914-0932 9409210942-1006 9409211624-1644 9409211650-1715 9409220801-0820 9409230807-0827 9409241100-1121 9409241124-1146	B49L1T01 B49L1T02 * B49L1T03 B49L1T04 B49M1T01 B49N1T01 B49O1T01 B49O1T02
	2	9409250928-0935 9409250940-0944 9409251617-1622 9409251636-1643 9409251649-1653	B49P1T02 B49P1T03 * B49P1T06 B49P1T07 B49P1T08
	3	9409260914-0924 9409261141-1153 9409261206-1216 9409261441-1445 9409261447-1450 9409261516-1528 9409261535-1544 9409270859-0909 9409270916-0927 9409271727-1737 9409271740-1749 9409280816-0827 9409281104-1113 9409281115-1126	B49Q1T04 B49Q1T10 B49Q1T11 B49Q1T14 B49Q1T15 B49Q1T16 B49Q1T17 B49R1T03 * B49R1T04 B49R1T13 B49R1T14 B49S1T02 B49S1T03 B49S1T04
	4	9409271042-1045 9409271048-1051 9409271435-1438 9409271441-1444	B49R1T07 B49R1T08 * B49R1T10 B49R1T11

Table 6.1: ADCP & EMF transects

* : transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9409231459-1529	468084	777302	3.10	B49N1P09 *
		2	9409231404-1435	468819	777306	7.60	B49N1P07 *
		3	9409231226-1257	469370	777305	4.80	B49N1P06 *
		4	9409231102-1133	469790	777304	7.70	B49N1P04 *
		5	9409231018-1047	469890	777307	11.50	B49N1P02 *
		6	9409230931-0957	469989	777305	12.50	B49N1P01 *
		7	9409241428-1458	470079	777298	14.20	B49O1P01 **
		8	9409221006-1057	470173	777304	15.20	B49M1P01 *
		9	9409211527-1607	470280	777309	11.60	B49L1P03 *
		10	9409211423-1443	470411	777312	7.20	B49L1P02 *
		11	9409211220-1300	470505	777308	5.50	B49L1P01 *

Table 6.2: Vertical profiles (continued)

* S4 & MEX not available

** MEX not available

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 98: 21 - 28 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 21 Dec 1994	Collected data and their storage (1)	page 6.1
	Init : mzh/sjr		

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	2	1	9409251139-1228	466393	779480	8.20	B49P1P09 **
		2	9409251336-1411	466388	779702	5.60	B49P1P10 *
		3	9409251436-1514	466387	779885	5.10	B49P1P11 *
		4	9409251532-1600	466392	780045	4.40	B49P1P12 *
	3	1	9409281015-1046	459886	784800	3.70	B49S1P04 *
		2	9409280930-1000	460028	784800	4.60	B49S1P02 *
		3	9409280840-0913	460337	784803	5.30	B49S1P01 *
		4	9409271624-1704	460430	784808	4.80	B49R1P10 *
		5	9409261610-1721	460578	784799	6.80	B49Q1P01 **
		6	9409271522-1601	460903	784800	6.40	B49R1P07 *
	4	7	9409271139-1219	461722	784652	6.60	B49R1P03 *
		8	9409271241-1313	461858	784648	6.90	B49R1P05 *
		9	9409271351-1424	461960	784655	6.20	B49R1P06 *
Table 6.2: Vertical profiles							
				* S4 & MEX not available		** MEX not available	

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	7	6	9409241428-1458	470079	777298	14.20
	1	8	1	9409221006-1057	470173	777304	15.20
	1	9	1	9409211527-1607	470280	777309	11.60
	2	1	6	9409251139-1228	466393	779480	8.20
	3	5	3	9409261610-1721	460578	784799	6.80
Table 6.3: Suspended sediment - point sampled							

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	1	1	1	9409231459-1529	468084	777302	3.10
		2	1	9409231404-1435	468819	777306	7.60
		3	1	9409231226-1257	469370	777305	4.80
		4	1	9409231102-1133	469790	777304	7.70
		5	1	9409231018-1047	469890	777307	11.50
		6	1	9409230931-0957	469989	777305	12.50
		7	1	9409241428-1458	470079	777298	14.20
		8	1	9409221006-1057	470173	777304	15.20
		9	1	9409211527-1607	470280	777309	11.60
		10	1	9409211423-1443	470411	777312	7.20
		11	1	9409211220-1300	470505	777308	5.50
	2	1	1	9409251139-1228	466393	779480	8.20
		2	1	9409251336-1411	466388	779702	5.60
		3	1	9409251436-1514	466387	779885	5.10
		4	1	9409251532-1600	466392	780045	4.40

Table 6.4: Suspended sediment - depth integrated (continued)							
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FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 98: 21 - 28 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 21 Dec 1994	Collected data and their storage (2)	page 6.2
	Init : mzh/sjr		

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	3	1	1	9409281015-1046	459886	784800	3.70
		2	1	9409280930-1000	460028	784800	4.60
		3	1	9409280840-0913	460337	784803	5.30
		4	1	9409271624-1704	460430	784808	4.80
		5	1	9409261610-1721	460578	784799	6.80
		6	1	9409271522-1601	460903	784800	6.40
	4	7	1	9409271139-1219	461722	784652	6.60
		8	1	9409271241-1313	461858	784648	6.90
		9	1	9409271351-1424	461960	784655	6.20

Table 6.4: Suspended sediment - depth integrated

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1	9409231459-1529	468084	777302	3.10	A1911
		2	9409231404-1435	468819	777306	7.60	A1616
		3	9409231226-1257	469370	777305	4.80	A121
		4	9409231102-1133	469790	777304	7.70	A2216
		5	9409231018-1047	469890	777307	11.50	A2243
		6	9409230931-0957	469989	777305	12.50	A567
		7	9409241428-1458	470079	777298	14.20	A1688
		11	9409211220-1300	470505	777308	5.50	A2283
		1	9409231459-1529	468084	777302	3.10	A72
		2	9409231404-1435	468819	777306	7.60	A888
		3	9409231226-1257	469370	777305	4.80	A1924
		4	9409231102-1133	469790	777304	7.70	A2349
		5	9409231018-1047	469890	777307	11.50	A2225
		6	9409230931-0957	469989	777305	12.50	A1815
		7	9409241428-1458	470079	777298	14.20	A1636
		11	9409211220-1300	470505	777308	5.50	A2239
	2	1	9409251139-1228	466393	779480	8.20	A1661
		2	9409251336-1411	466388	779702	5.60	A2253
		3	9409251436-1514	466387	779885	5.10	A1945
		4	9409251532-1600	466392	780045	4.40	A1845
		1	9409251139-1228	466393	779480	8.20	A1646
		2	9409251336-1411	466388	779702	5.60	A2339
		3	9409251436-1514	466387	779885	5.10	A1139
		4	9409251532-1600	466392	780045	4.40	A2030
	3	1	9409281015-1046	459886	784800	3.70	A2341
		2	9409280930-1000	460028	784800	4.60	A2321
		3	9409280840-0913	460337	784803	5.30	A2281
		4	9409271624-1704	460430	784808	4.80	A1813
		5	9409261610-1721	460578	784799	6.80	A105
		6	9409271522-1601	460903	784800	6.40	A3039

Table 6.5: Bed load (continued)

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 98: 21 - 28 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 21 Dec 1994	Collected data and their storage (3)	page 6.3
	Init : mzh/sjr		

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.	
Helley-Smith Sample 	3	1	9409281015-1046	459886	784800	3.70	A3043	
		2	9409280930-1000	460028	784800	4.60	A2229	
		3	9409280840-0913	460337	784803	5.30	A2020	
		4	9409271624-1704	460430	784808	4.80	A2293	
		5	9409261610-1721	460578	784799	6.80	A908	
		6	9409271522-1601	460903	784800	6.40	A3017	
	4	7	9409271139-1219	461722	784652	6.60	A1886	
		8	9409271241-1313	461858	784648	6.90	A1883	
		9	9409271351-1424	461960	784655	6.20	A910	
		7	9409271139-1219	461722	784652	6.60	A2331	
		8	9409271241-1313	461858	784648	6.90	A1641	
		9	9409271351-1424	461960	784655	6.20	A1804	
Table 6.5: Bed load								

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Delft Bottle Sample	1	1	9409231459-1529	468084	777302	3.10	A609
		2	9409231404-1435	468819	777306	7.60	A640
		3	9409231226-1257	469370	777305	4.80	A506
		4	9409231102-1133	469790	777304	7.70	A178
		5	9409231018-1047	469890	777307	11.50	A522
		6	9409230931-0957	469989	777305	12.50	A654
		7	9409241428-1458	470079	777298	14.20	A175
		8	9409221006-1057	470173	777304	15.20	A583
		9	9409211527-1607	470280	777309	11.60	A951
		10	9409211423-1443	470411	777312	7.20	A755
		11	9409211220-1300	470505	777308	5.50	A1055
	2	1	9409231459-1529	468084	777302	3.10	A842
		2	9409231404-1435	468819	777306	7.60	A651
		3	9409231226-1257	469370	777305	4.80	A146
		4	9409231102-1133	469790	777304	7.70	A155
		5	9409231018-1047	469890	777307	11.50	A238
		6	9409230931-0957	469989	777305	12.50	A761
		7	9409241428-1458	470079	777298	14.20	A591
		8	9409221006-1057	470173	777304	15.20	A682
		9	9409211527-1607	470280	777309	11.60	A985
		10	9409211423-1443	470411	777312	7.20	A1023
		11	9409211220-1300	470505	777308	5.50	A1001
2	1	9409251139-1228	466393	779480	8.20	A200	
	2	9409251336-1411	466388	779702	5.60	A650	
	3	9409251436-1514	466387	779885	5.10	A168	
	4	9409251532-1600	466392	780045	4.40	A600	

Table 6.6: Bed load (continued)

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 98: 21 - 28 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 21 Dec 1994	Collected data and their storage (4)	page
	Init : mzh/sjr		6.4

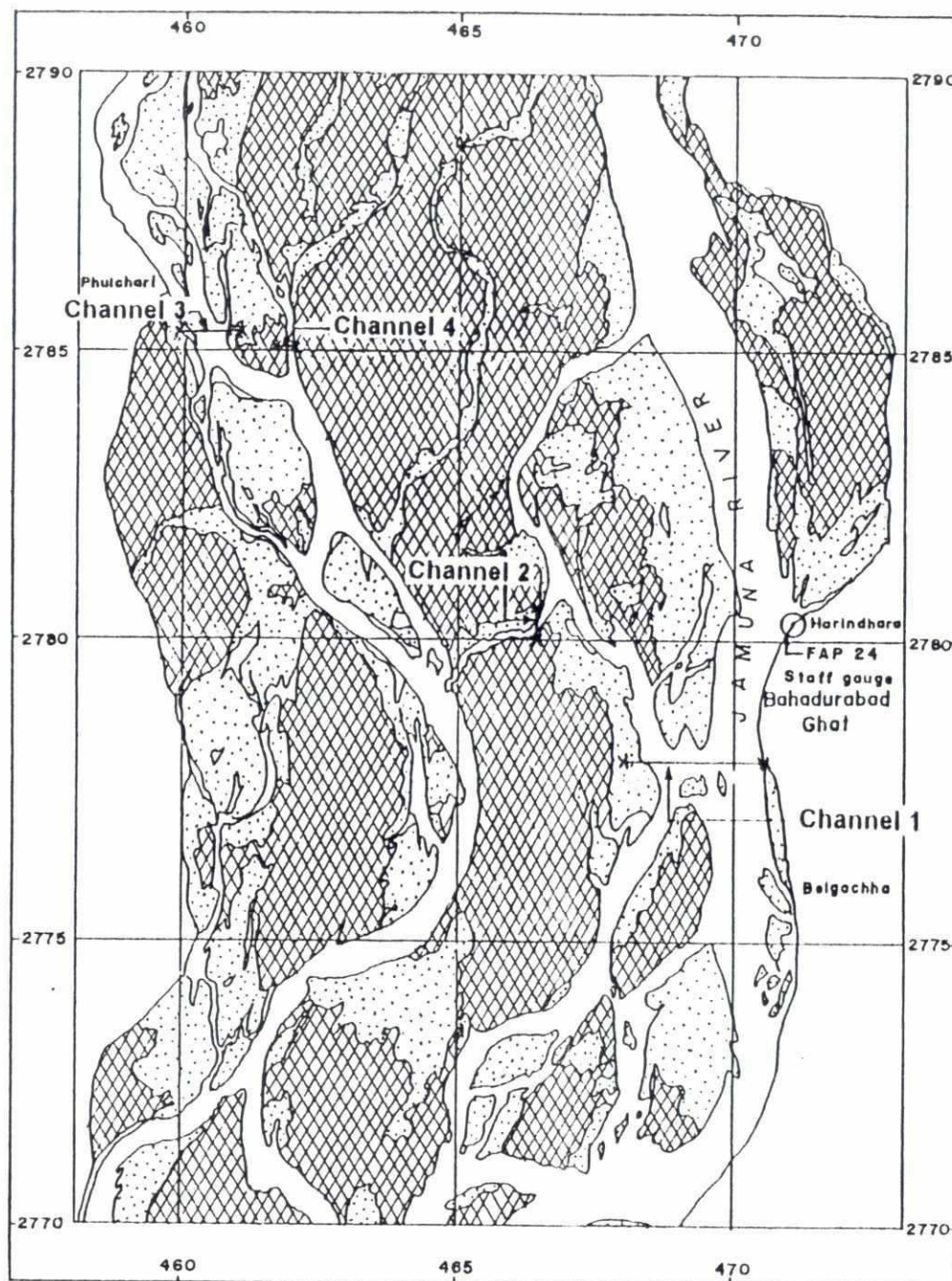
Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Delft Bottle Sample	2	1	9409251139-1228	466393	779480	8.20	A641
		2	9409251336-1411	466388	779702	5.60	A572
		3	9409251436-1514	466387	779885	5.10	A676
		4	9409251532-1600	466392	780045	4.40	A604
	3	1	9409281015-1046	459886	784800	3.70	A416
		2	9409280930-1000	460028	784800	4.60	A518
		3	9409280840-0913	460337	784803	5.30	A652
		4	9409271624-1704	460430	784808	4.80	A509
		5	9409261610-1721	460578	784799	6.80	A490
		6	9409271522-1601	460903	784800	6.40	A374
		1	9409281015-1046	459886	784800	3.70	A1059
		2	9409280930-1000	460028	784800	4.60	A992
		3	9409280840-0913	460337	784803	5.30	A638
		4	9409271624-1704	460430	784808	4.80	A516
		5	9409261610-1721	460578	784799	6.80	A520
		6	9409271522-1601	460903	784800	6.40	A679
	4	7	9409271139-1219	461722	784652	6.60	A451
		8	9409271241-1313	461858	784648	6.90	A491
		9	9409271351-1424	461960	784655	6.20	A661
		7	9409271139-1219	461722	784652	6.60	A686
		8	9409271241-1313	461858	784648	6.90	A172
		9	9409271351-1424	461960	784655	6.20	A528
Table 6.6: Bed load							

 FAP 24 DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 98: 21 - 28 September, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 21 Dec 1994	Collected data and their storage (5)	page 6.5
	Init : mzh/sjr		

Types of Data	Channel	Format	Filename
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ADCP/S4/EMF data	2	QUATTRO	B49P1T03 .ase
ADCP/S4/EMF data	3	QUATTRO	B49R1T03 .ase
ADCP/S4/EMF data	4	QUATTRO	B49R1T08 .ase
Echosounder data	1	QUATTRO	B49L1T02 .ech
Echosounder data	2	QUATTRO	B49P1T03 .ech
Echosounder data	3	QUATTRO	B49R1T03 .ech
Echosounder data	4	QUATTRO	B49R1T08 .ech
Sediment transport data	1	QUATTRO	B49L1T02 .sed
Sediment transport data	2	QUATTRO	B49P1T03 .sed
Sediment transport data	3	QUATTRO	B49R1T03 .sed
Sediment transport data	4	QUATTRO	B49R1T08 .sed
Bed load sed. analysis	1	QUATTRO	B49L1T02 .bdl
Bed load sed. analysis	2	QUATTRO	B49P1T03 .bdl
Bed load sed. analysis	3	QUATTRO	B49R1T03 .bdl
Bed load sed. analysis	4	QUATTRO	B49R1T08 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B49L1T02 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B49P1T03 .ssc
Suspended sed. conc. analysis	3	QUATTRO	B49R1T03 .ssc
Suspended sed. conc. analysis	4	QUATTRO	B49R1T08 .ssc
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Transect plot data	2	QUATTRO	B49P1T03 .trs
Transect plot data	3	QUATTRO	B49R1T03 .trs
Transect plot data	4	QUATTRO	B49R1T08 .trs
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Iso-velocity plot data	3	MIKE 21	B49R1T03 .dt2
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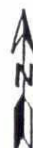
Table 7.1 PSD 24 Database file description

 FAP 24 DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 98: 21 - 28 September, 1994
	Location 1 : Jamuna River, Bahadurabad		
	Date : 21 Dec 1994	PSD 24 Database file description	page
	Init : mzh/sjr		71



LEGEND:

- *—* Cross section
- Highland
- Unstable/low char
- FAP 24 Staff gauge



5000m 2500m 0

Map is based on satellite images of March 1994

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 107 : 18 - 22 October, 1994

Location 1 : Jamuna River, Bahadurabad

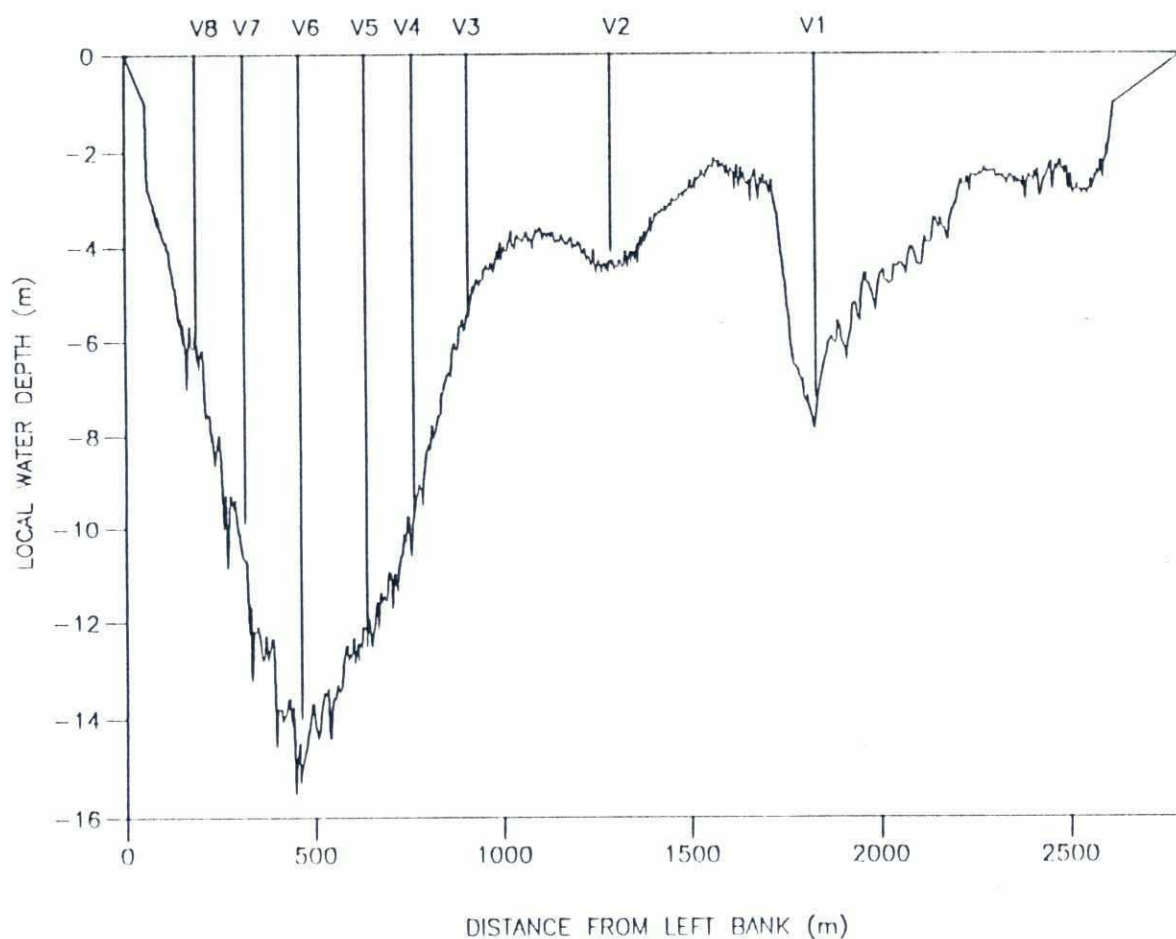
Date : 10 Jan 1994

Init : mzh/sjr

Location map

page

11



Water level : 17.26 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 107: 18 - 22 October, 1994

Location 1 : Jamuna River, Bahadurabad

File: R4A11T02

Date: 10 Jan 1994

Init: mzh/sjr

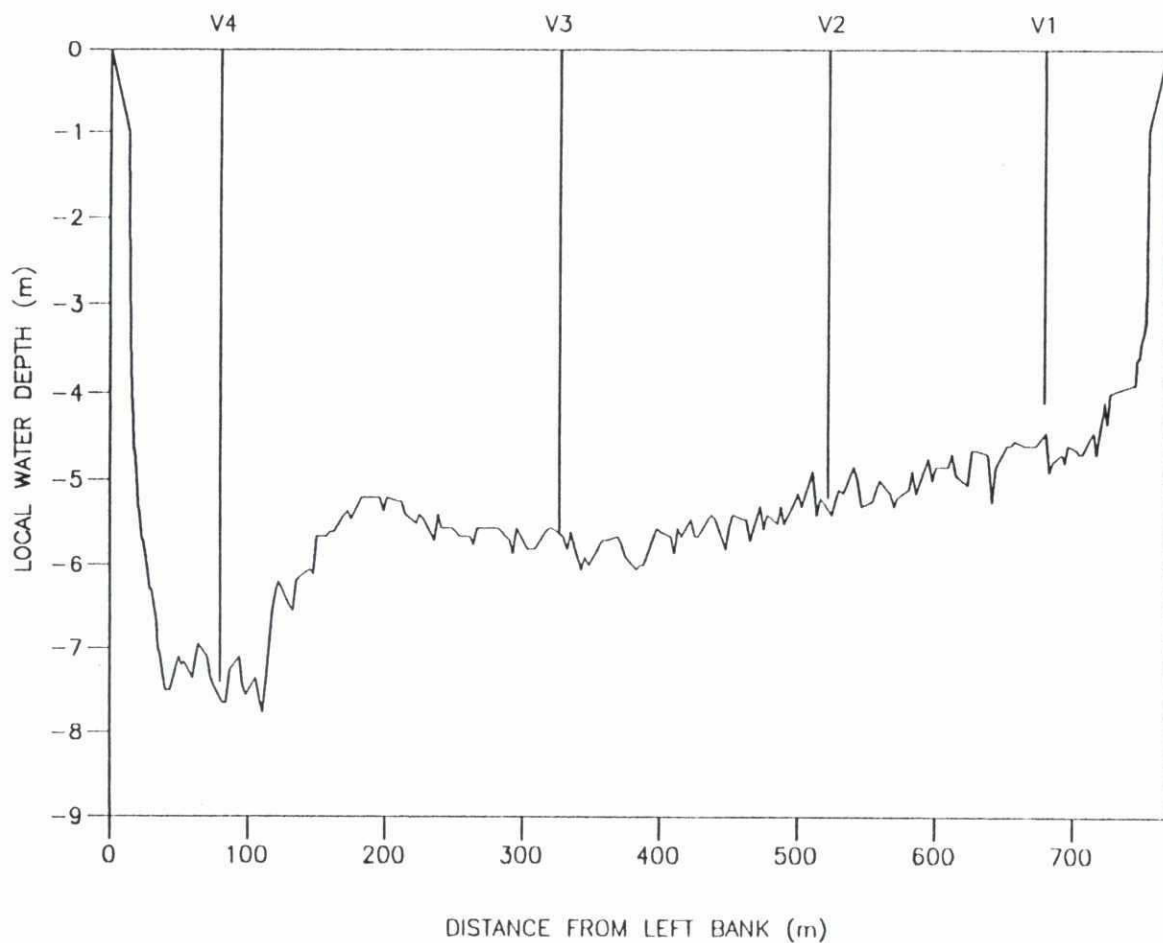
Cross-sections and measured verticals

Channel 1

page

12

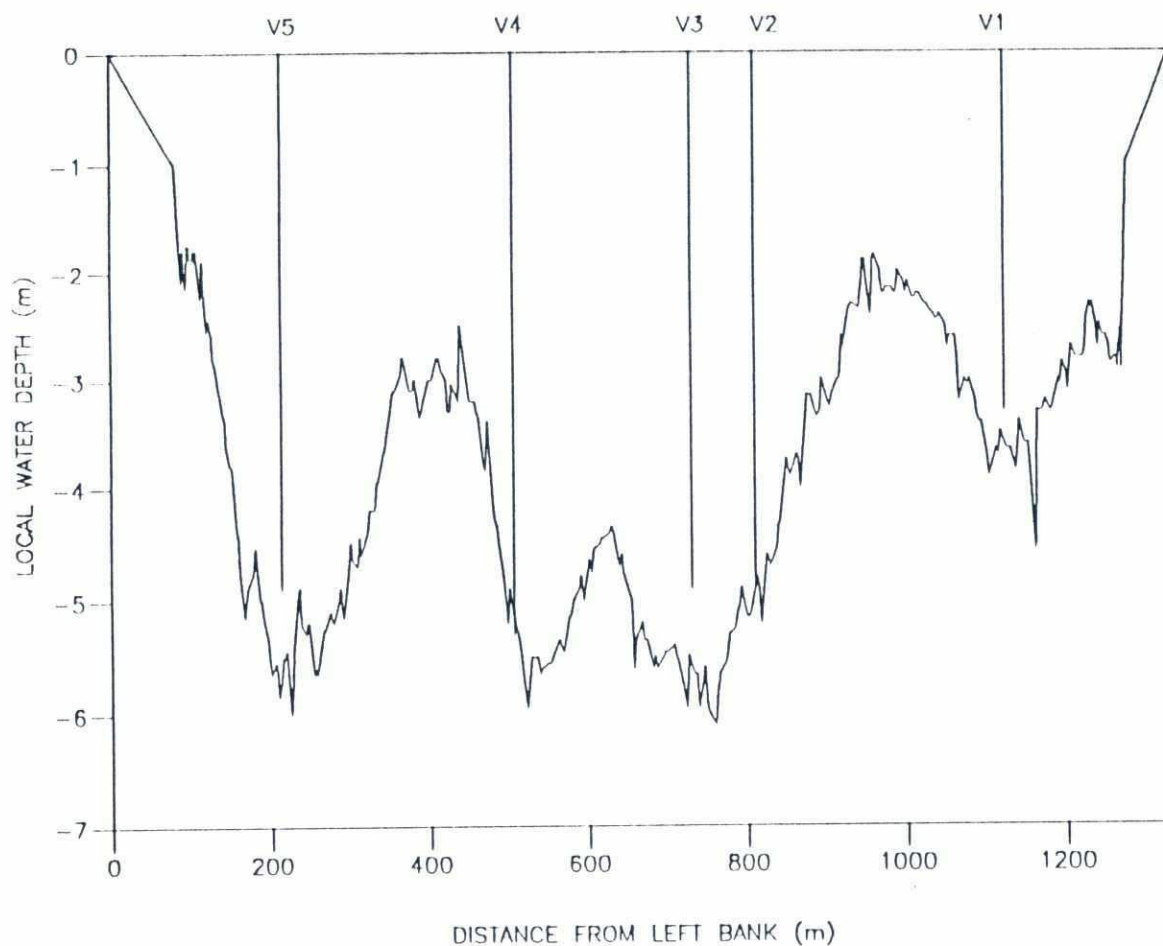
680



Water level : 17.04 m + PWD measured at the station indicated on Page 1.1

FAP 24  DEL FT - DHI		Survey Bulletin 107: 18 - 22 October, 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
File : B4AK1T05	Date : 10 Jan 1994	Cross-sections and measured verticals Channel 2	page
	Init : mzh/sjr		13

622



Water level : 16.88 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 107: 18 - 22 October, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4AL1T08

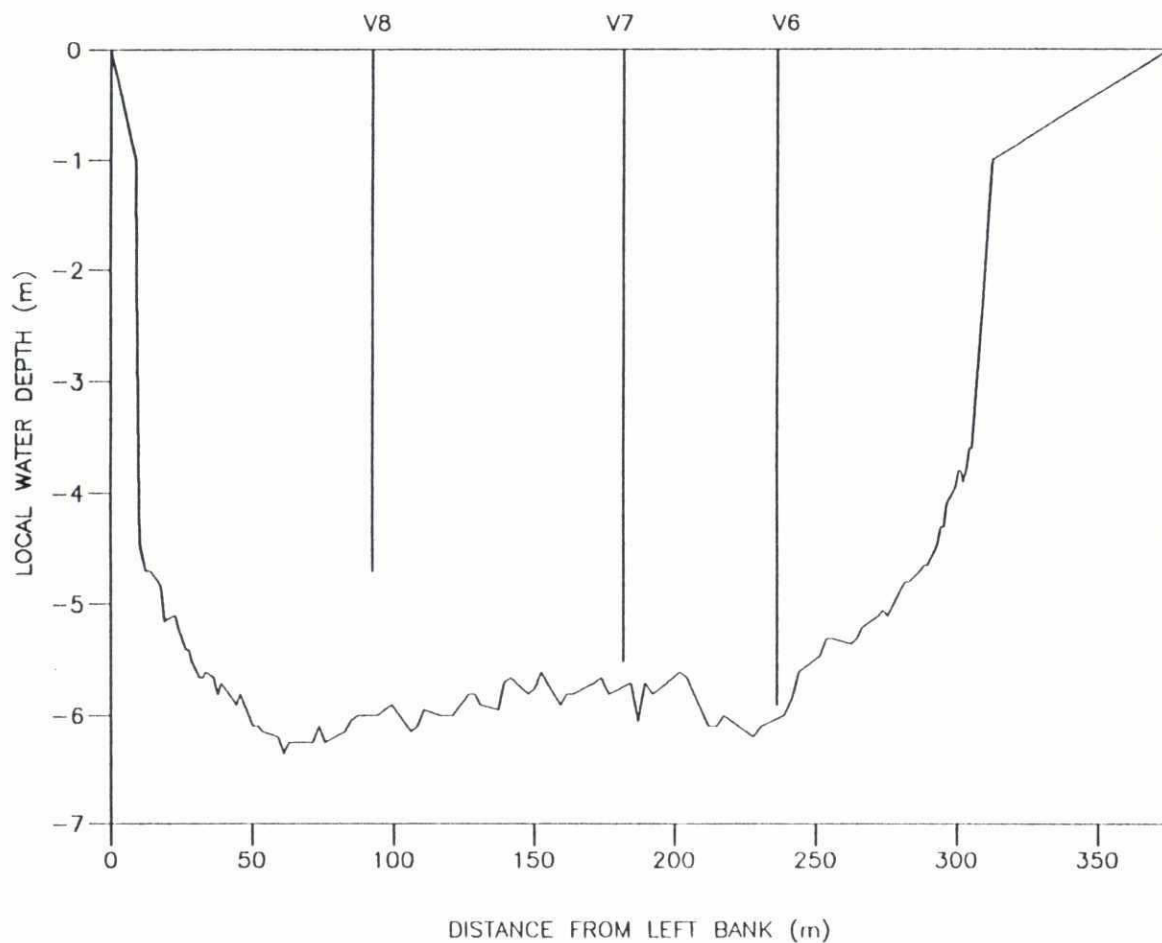
Date : 10 Jan 1994

Init : mzh/sjr

Cross-sections and measured verticals
Channel 3

page

1.4



Water-level : 16.88 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 107: 18 - 22 October, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4AL1T12	Date : 10 Jan 1994	Cross-sections and measured verticals Channel 4	page 15
	Init : mzh/sjr		

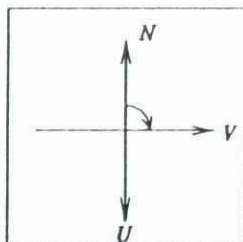
Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	5	3	6	6
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No. of verticals in channel	8	4	5	3
	ADCP	8	4	5	3
	S4 current meter	1	1	1	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	6	6	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	8	4	5	3
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	14	8	10	4
	Delft Bottle	16	8	10	6
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-
Table 2.1 Survey programme as made					

	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	2803	14983	17.26	16460	99	4953
Channel 2	768	4104	17.04	1694	49	317
Channel 3	1331	4774	16.88	2619	8	2224
Channel 4	375	1727	16.88	1310	1	334
Table 2.2: Key figures						

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	18 Oct 94	17.26	FAP 24
		19 Oct 94	17.19	FAP 24
	Channel 2	20 Oct 94	17.04	FAP 24
		Channel 3	21 Oct 94	16.88
	Channel 4	22 Oct 94	16.74	FAP 24
		21 Oct 94	16.88	FAP 24
		22 Oct 94	16.74	FAP 24

Table 2.3 Water-levels

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 107: 18 - 22 October, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4A11T02 B4AK1T05 B4AL1T08 B4AL1T12	Date : 10 Jan 1995 Init : mzh/sjr	Survey programme as made and key figures	page 2.1

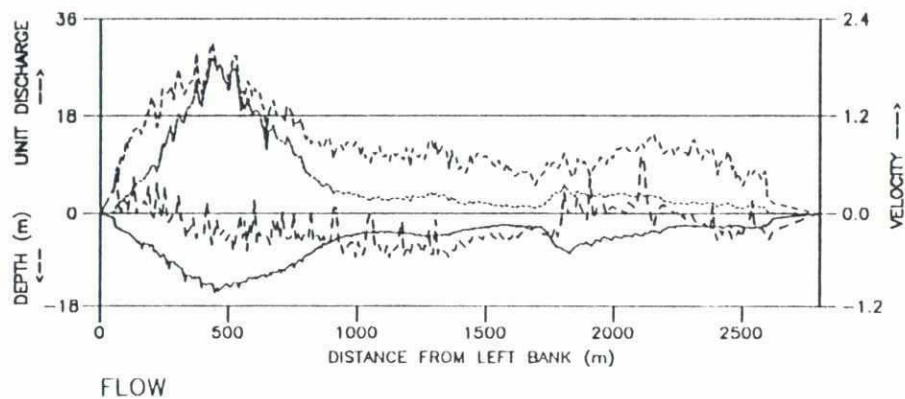


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STAGE)

--- UNIT DISCHARGE ($m^3/s.m$)

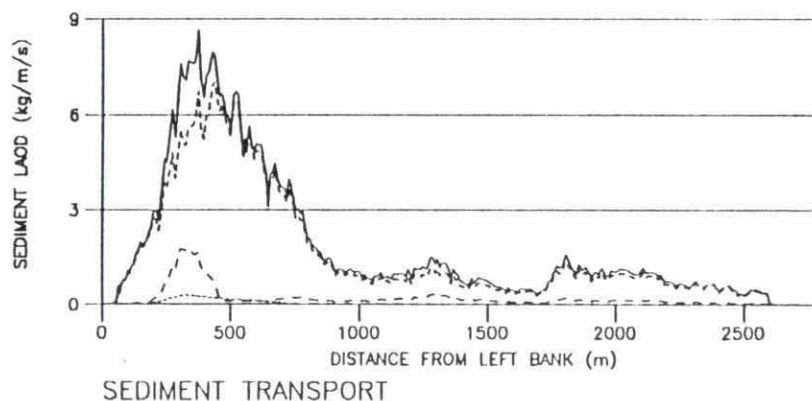
... U (m/s)

-.- V (m/s)

STAGE = 17.26 (m+PWD)

A = 14983 (m^2)

Q = 16460 (m^3/s)



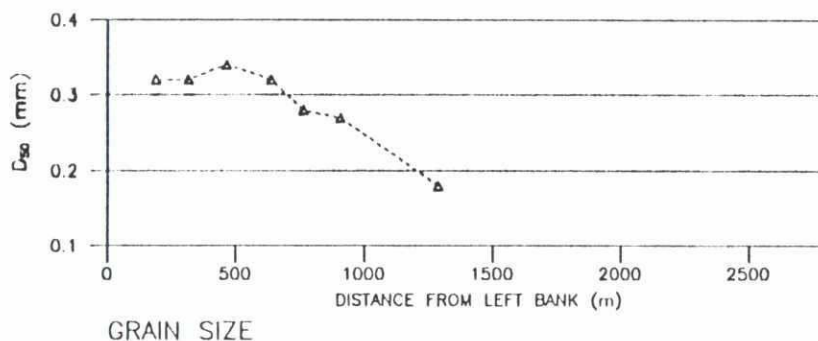
LEGEND :

— S_{TOTAL} 6052 (kg/s)

--- $S_{WASH\ LOAD}$ 4382 (kg/s)

... $S_{SUSP.\ BED}$ 571 (kg/s)

-.- $S_{BED\ LOAD}$ 99 (kg/s)



LEGEND :

◇◇◇◇ $D_{50\ SUSP.}$ (mm)

△△△△ $D_{50\ BED\ LOAD}$ (mm)

□□□□ $D_{50\ BED\ MAT.}$ (mm)

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DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 107: 18 - 22 October, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4AI1T02

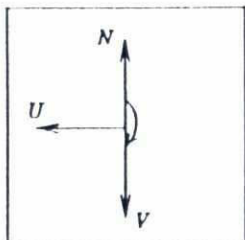
Date : 10 Jan 1994

Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 1

page

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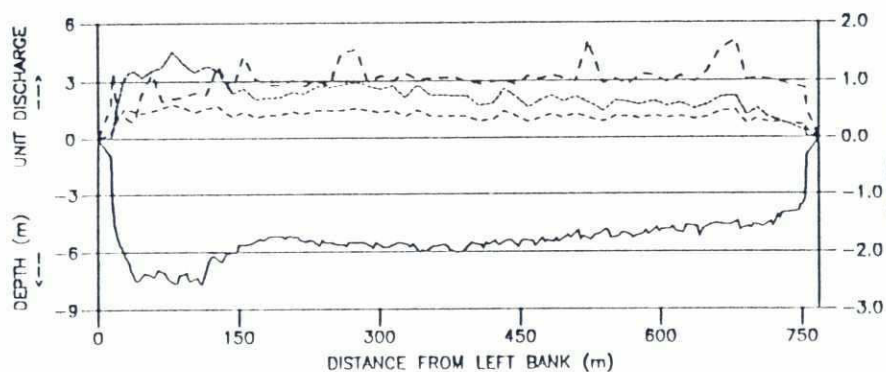


TRANSECT AZIMUTH = 180°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

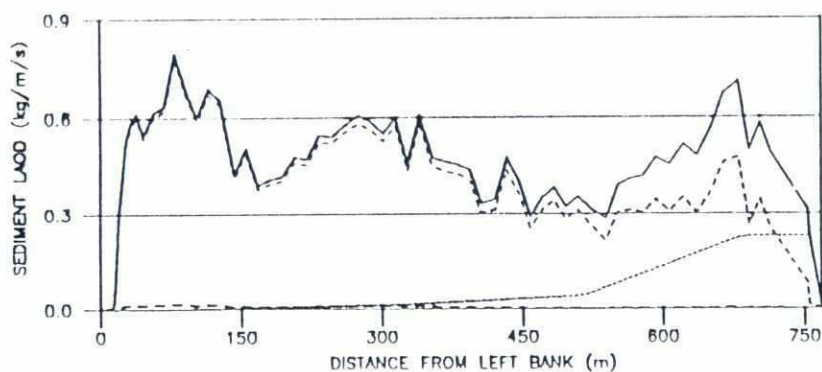
LEGEND :

— WATER DEPTH (m below STAGE)
 --- UNIT DISCHARGE ($m^3/s.m$)
 U (m/s)
 -.-.- V (m/s)

STAGE = 17.04 (m+P.W.D.)

A = 4104 (m^2)

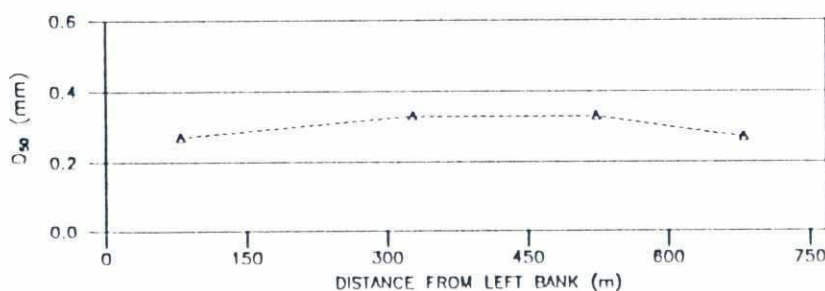
Q = 1694 (m^3/s)



SEDIMENT TRANSPORT

LEGEND :

— S_{TOTAL} 366 (kg/s)
 --- $S_{WASH LOAD}$ 312 (kg/s)
 $S_{RIMP. BED}$ 5 (kg/s)
 -.-.- $S_{BED LOAD}$ 49 (kg/s)



GRAIN SIZE

LEGEND :

○ ○ ○ ○ ○ $D_{50} SUSP.$ (mm)
 △ △ △ △ △ $D_{50} BED LOAD$ (mm)
 □ □ □ □ □ $D_{50} BED MAT.$ (mm)

FAP 24



DEIFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 107: 18 - 22 October, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4AK1T05

Date : 10 Jan 1995

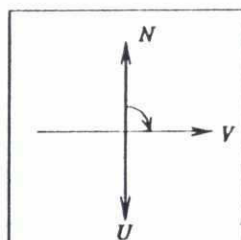
Init : mzh/sjr

Horizontal distribution of flow and sediments

Channel 2

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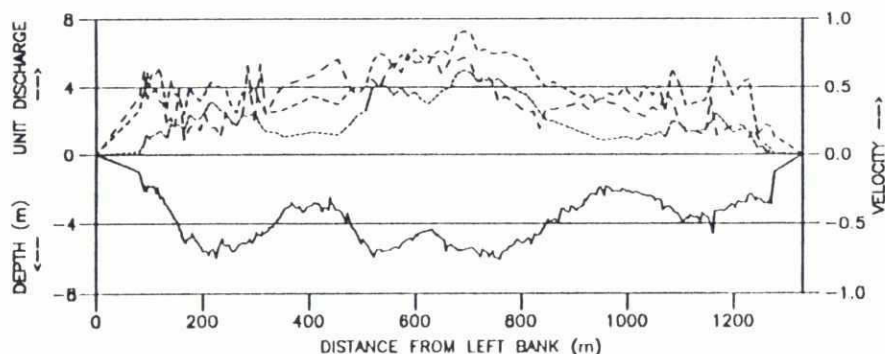


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STAGE)

..... UNIT DISCHARGE (m³/s.m)

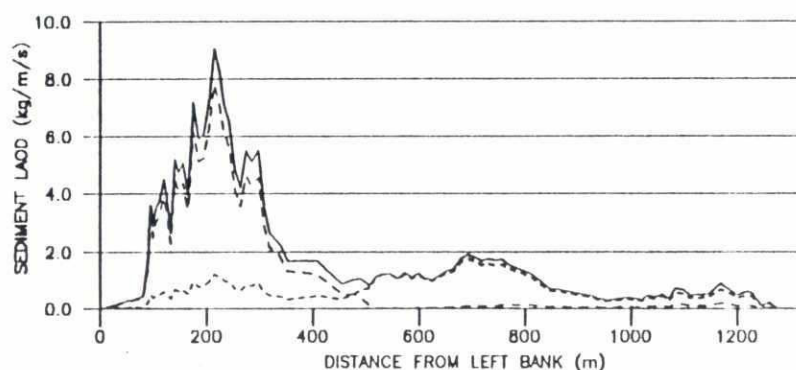
--- U (m/s)

-.- V (m/s)

STAGE = 16.88 (m+PND)

A = 4774 (m³)

Q = 2619 (m³/s)



SEDIMENT TRANSPORT

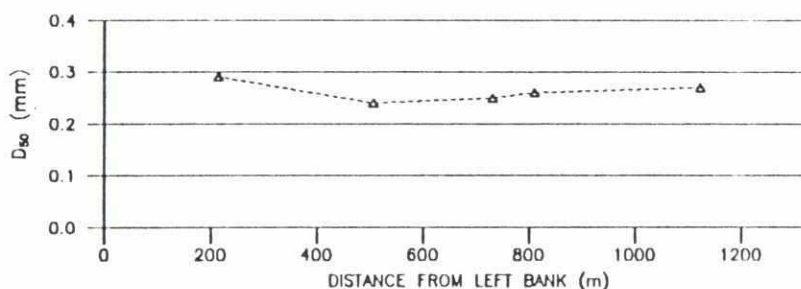
LEGEND :

— S_{TOTAL} 2232 (kg/s)

--- S_{WASH LOAD} 875 (kg/s)

-.- S_{SUSP. BED} 1349 (kg/s)

..... S_{BED LOAD} 8 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)

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DELFT - DHI

RIVER SURVEY PROJECT

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Location 1 : Jamuna River, Bahadurabad

File : B4AL1T08

Date : 10 Jan 1995

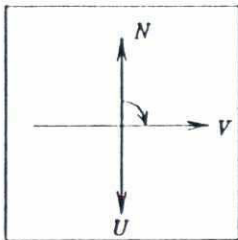
Int : mzh/sjr

Horizontal distribution of flow and sediments

Channel 3

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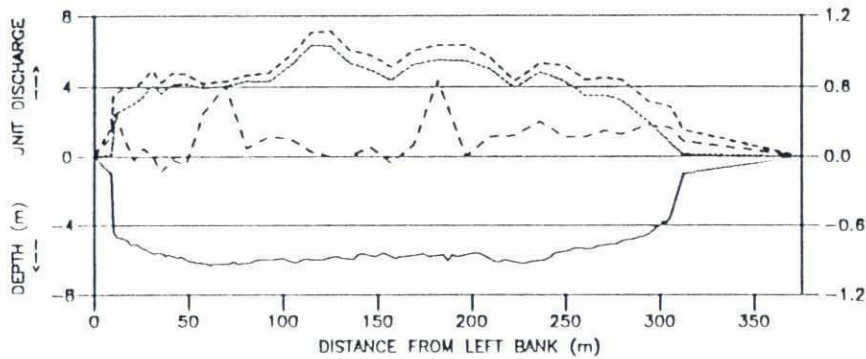


TRANSECT AZIMUTH = 90°

U -- VELOCITY NORMAL TO TRANSECT (m/s)

V -- VELOCITY PARALLEL TO TRANSECT (m/s)

N -- MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STACK)

- - - UNIT DISCHARGE (m³/s.m)

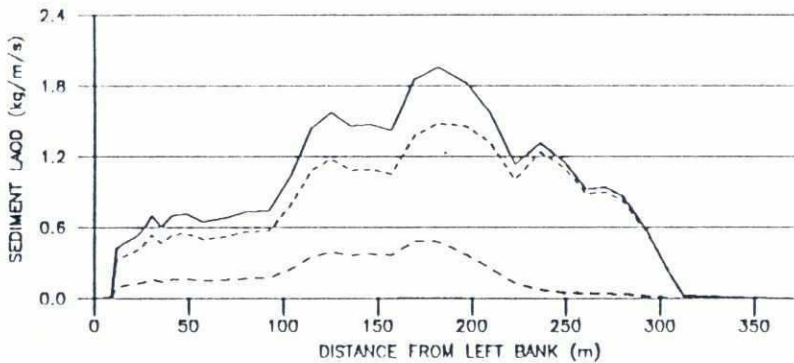
... U (m/s)

- . - V (m/s)

STACK = 16.88 (m+PWD)

A = 1727 (m²)

Q = 1310 (m³/s)



SEDIMENT TRANSPORT

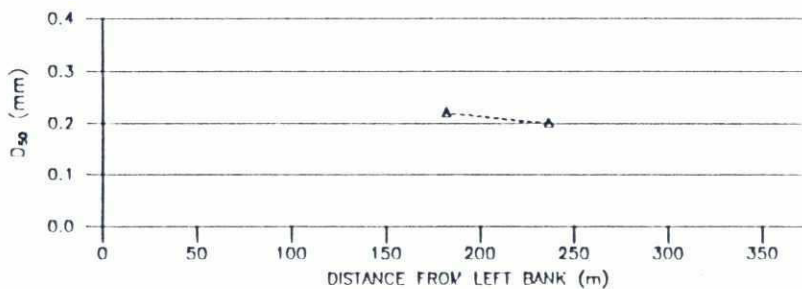
LEGEND :

— S_{TOTAL} 336 (kg/s)

- - - S_{WASH LOAD} 271 (kg/s)

... S_{SUSP. BED} 63 (kg/s)

- . - S_{BED LOAD} 1 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)

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RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 107: 18 - 22 October, 1994

Location 1 : Jamuna River, Bahadurabad

File: B4AL1T12

Date : 10 Jan 1995

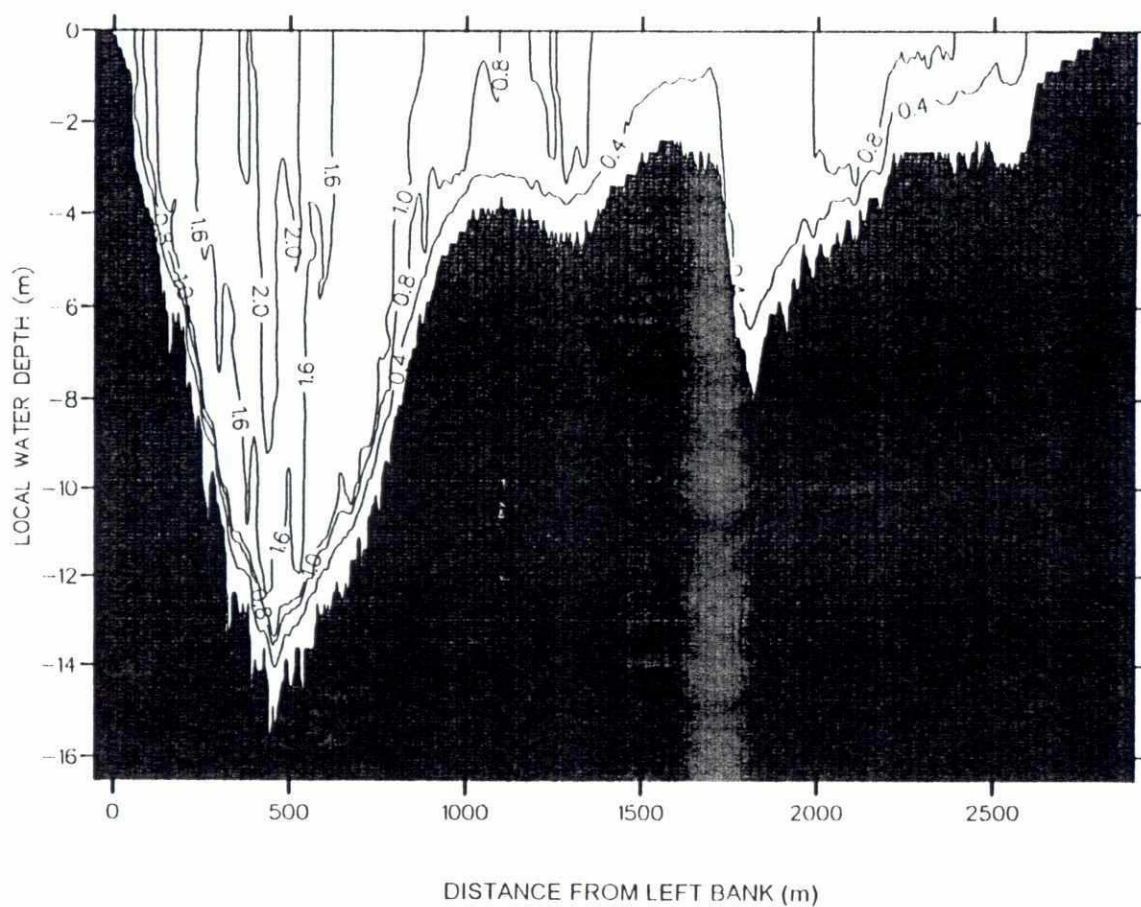
Init : mzh/sjr

Horizontal distribution of flow and sediments

Channel 4

page

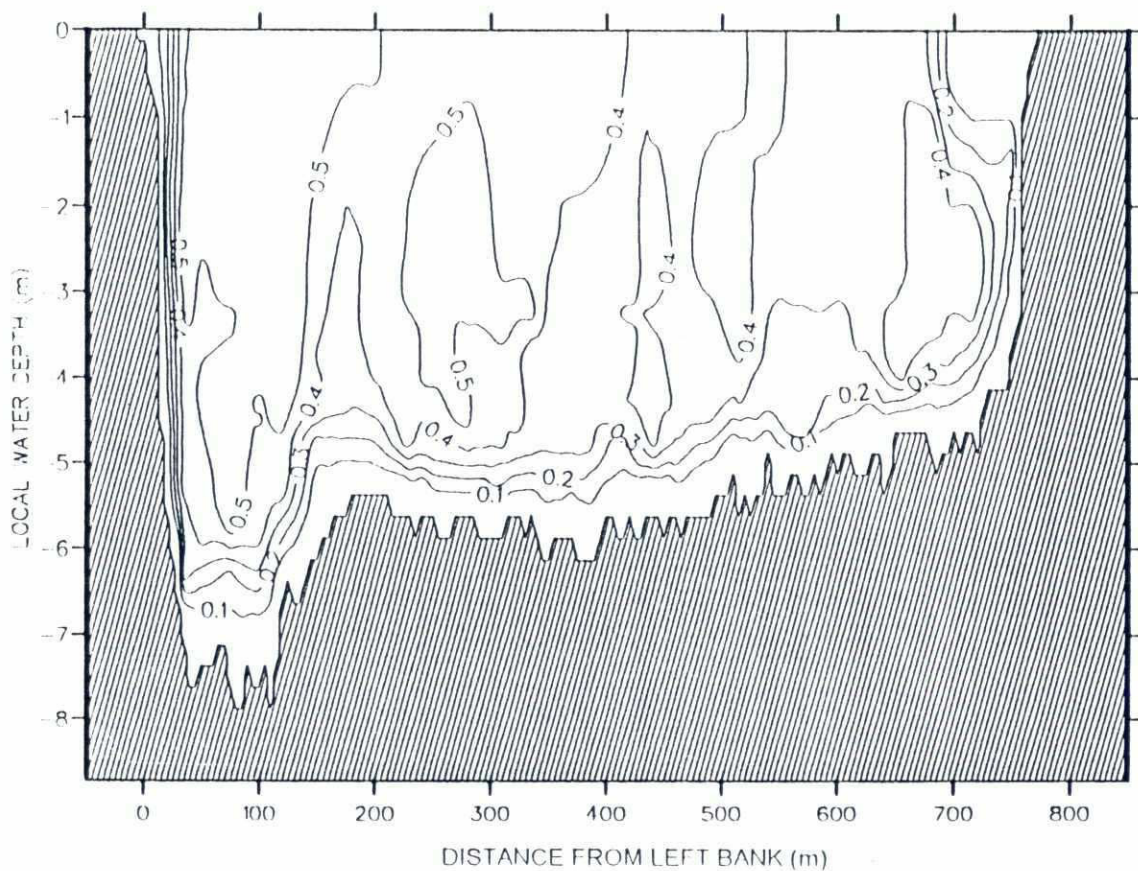
3.4



Iso-velocity contours (m/s)

Water-level : 17.26 m + PWD measured at the station indicated on Page 1.1

 FAP 24 DELFT · DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 107: 18 - 22 October, 1994	
				Location 1 : Jamuna River, Bahadurabad	
File : B4AI1T02		Date : 10 Jan 1994		Cross-sectional distribution of flow velocity	
		Init : mzh/sjr		Channel 1	
				page 41	



Iso-velocity contours (m/s)

Water level : 17.04 m + PWD measured at the station indicated on Page 1.1

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RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

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Location 1 : Jamuna River, Bahadurabad

File : B4AK1T05

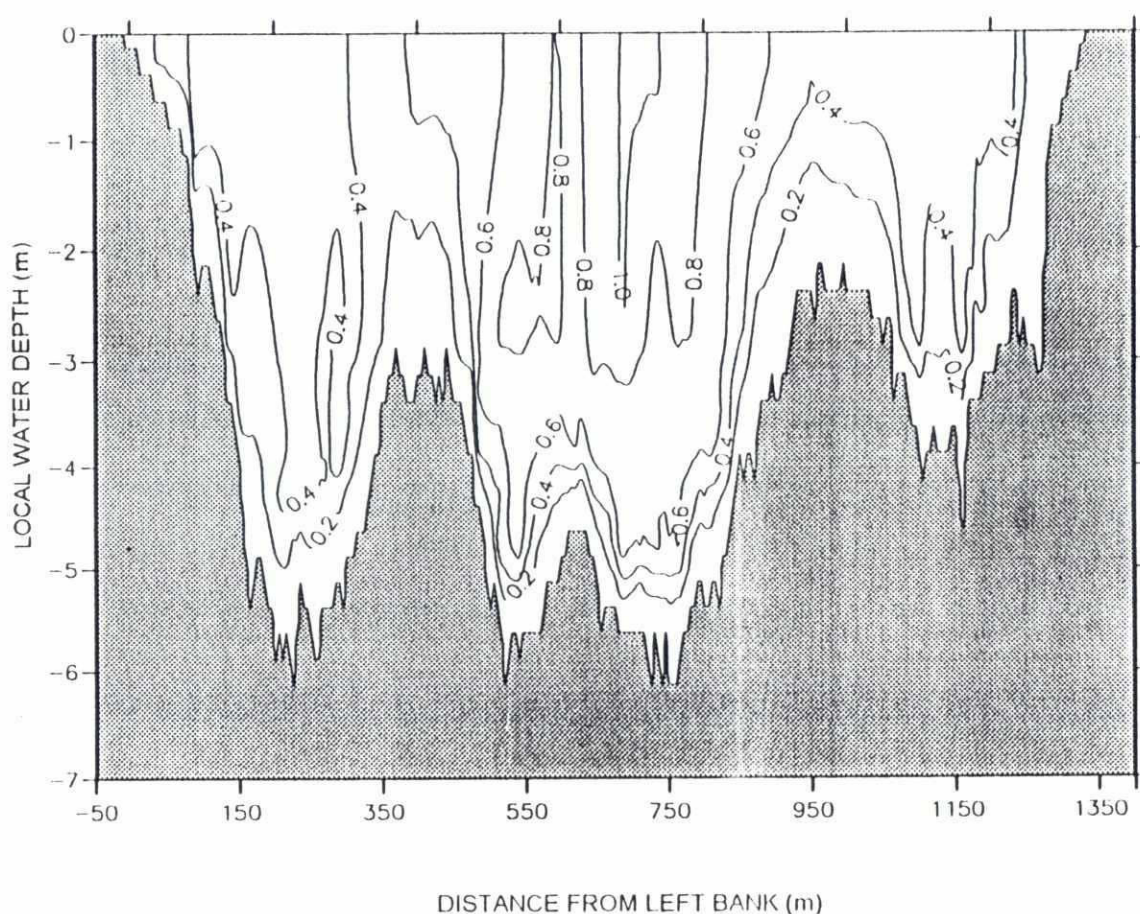
Date : 10 Jan 1994

Init : mzh/sjr

Cross-sectional distribution of flow velocity
Channel 2

page

4.2



Iso-velocity contours (m/s)

Water level : 16.88 m + PWD measured at the station indicated on Page 1.1

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RIVER SURVEY PROJECT
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Commission of the European Communities

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Location 1 : Jamuna River, Bahadurabad

File : B4AL1T08

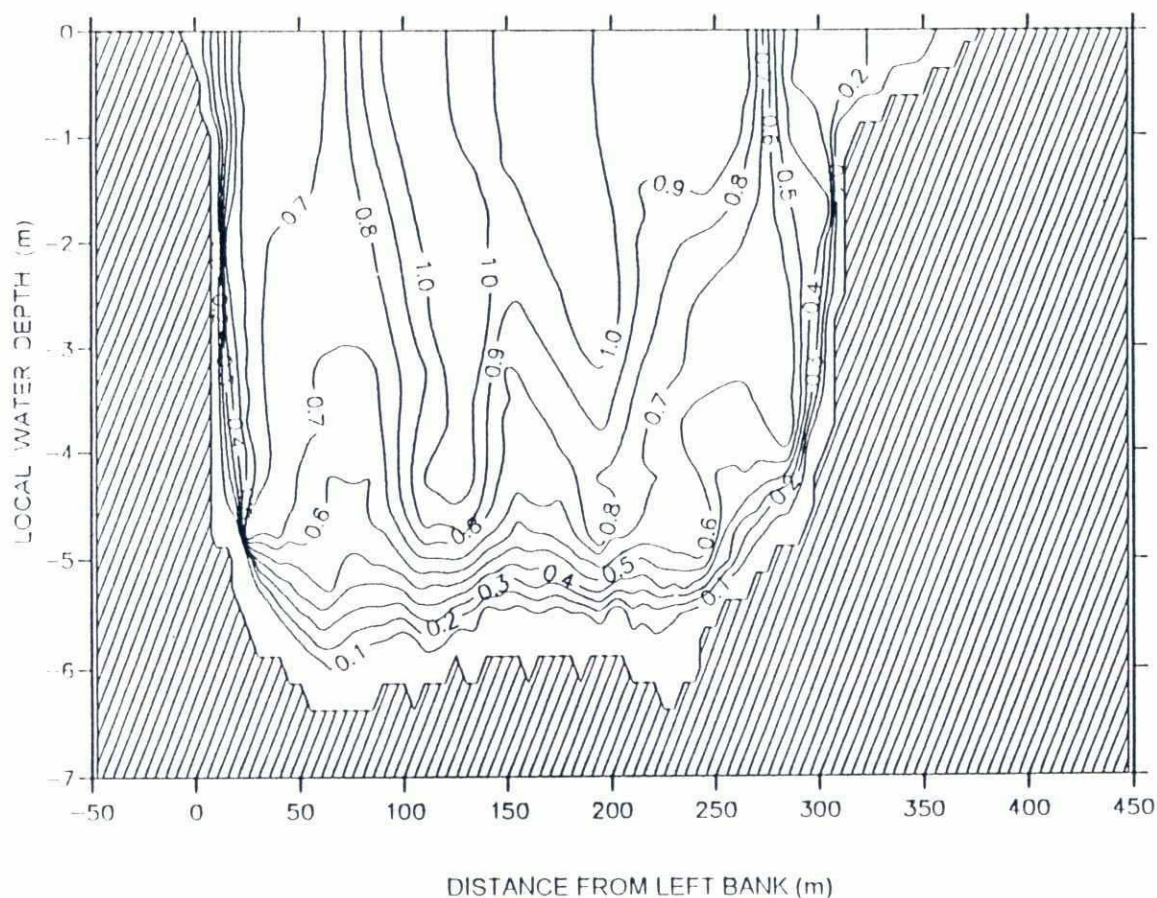
Date : 10 Jan 1995

Init : mzh/sjr

Cross-sectional distribution of flow velocity
Channel 3

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Iso-velocity contours (m/s)

Water level : 16.88 m + PWD measured at the station indicated on Page 1.1

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Flood Plan Coordination Organization

Commission of the European Communities

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Location 1 : Jamuna River, Bahadurabad

File : B4AL1T12

Date : 10 Jan 1995

Init : m7h/sjr

Cross-sectional distribution of flow velocity
Channel 4

page

4.4

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Andreasen settling tube							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D35 (mm)	D50 (mm)	D65 (mm)
Sample not collected							
Table 5.1: Grain size of near bed suspended sediment (0.3 m above river bed)							

US BM-54 bed samples							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D35 (mm)	D50 (mm)	D65 (mm)
Sample not collected							
Table 5.2: Grain size of bed material							

Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm		D35 (mm)	D50 (mm)	D65 (mm)
1	2	9410191403-1444	4.10	0.618	99.382	0.147	0.173	0.204
	3	9410191229-1309	5.50	1.048	98.952	0.263	0.306	0.357
	4	9410191157-1212	9.80	0.904	99.096	0.252	0.297	0.350
	5	9410181611-1637	12.50	0.177	99.823	0.271	0.313	0.361
	6	9410181345-1536	14.00	0.412	99.588	0.277	0.324	0.378
	7	9410181232-1252	9.90	0.502	99.498	0.266	0.308	0.358
	8	9410181138-1216	6.40	0.380	99.620	0.288	0.328	0.373
	2	9410191403-1444	4.10	0.603	99.397	0.156	0.183	0.214
	3	9410191229-1309	5.50	5.418	94.582	0.184	0.240	0.303
	4	9410191157-1212	9.80	0.367	99.633	0.215	0.270	0.326
	5	9410181611-1637	12.50	0.198	99.802	0.291	0.330	0.375
	6	9410181345-1536	14.00	0.304	99.696	0.299	0.350	0.411
	7	9410181232-1252	9.90	0.250	99.750	0.287	0.328	0.375
	8	9410181138-1216	6.40	1.228	98.772	0.268	0.311	0.360
2	1	9410201634-1700	4.10	0.051	99.949	0.226	0.279	0.332
	2	9410201506-1600	5.20	0.155	99.845	0.287	0.327	0.373
	3	9410201421-1447	5.60	0.333	99.667	0.301	0.339	0.383
	4	9410201157-1323	7.40	2.781	97.219	0.243	0.295	0.351
	1	9410201634-1700	4.10	0.070	99.930	0.214	0.266	0.322
	2	9410201506-1600	5.20	0.072	99.928	0.292	0.331	0.376
	3	9410201421-1447	5.60	0.275	99.725	0.289	0.329	0.375
	4	9410201157-1323	7.40	4.494	95.506	0.182	0.241	0.306
Table 5.3: Grain sizes of bed load (continued)								

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	Location 1: Jamuna River, Bahadurabad	
	Date: 10 Jan 1995 Init: mzh/sjr	Grain size distributions page 5.1

Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35	D50	D65
				< 0.06 mm	> 0.06 mm	(mm)	(mm)	(mm)
3	1	9410220906-0936	3.30	1 601	98 399	0 213	0 268	0 324
	2	9410211616-1637	4.90	1 953	98 047	0 256	0 300	0 351
	3	9410211436-1601	4.90	0 195	99 805	0 221	0 275	0 330
	4	9410211400-1421	5.30	0 832	99 168	0 190	0 234	0 293
	5	9410211233-1308	4.90	0 100	99 900	0 266	0 308	0 357
	1	9410220906-0936	3.30	2 750	97 250	0 219	0 276	0 331
	2	9410211616-1637	4.90	0 800	99 200	0 183	0 227	0 288
	3	9410211436-1601	4.90	0 152	99 848	0 190	0 229	0 285
	4	9410211400-1421	5.30	2 996	97 004	0 187	0 240	0 302
	5	9410211233-1308	4.90	0 116	99 884	0 216	0 269	0 324
4	6	9410221134-1201	5.90	0 253	99 747	0 169	0 196	0 227
	7	9410221220-1238	5.50	0 463	99 537	0 180	0 213	0 252
	6	9410221134-1201	5.90	0 208	99 792	0 176	0 206	0 242
	7	9410221220-1238	5.50	0 457	99 543	0 183	0 221	0 276

Table 5.3: Grain sizes of bed load

Delft Bottle								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35	D50	D65
				< 0.06 mm	> 0.06 mm	(mm)	(mm)	(mm)
1	1	9410191507-1557	7.20	13 633	86 367	0 088	0 111	0 144
	2	9410191403-1444	4.10	6 264	93 736	0 091	0 110	0 137
	3	9410191229-1309	5.50	9 923	90 077	0 087	0 105	0 130
	4	9410191157-1212	9.80	5 175	94 825	0 126	0 148	0 174
	5	9410181611-1637	12.50	7 609	92 391	0 131	0 158	0 192
	6	9410181345-1536	14.00	1 152	98 848	0 252	0 301	0 358
	7	9410181232-1252	9.90	1 954	98 046	0 253	0 301	0 356
	8	9410181138-1216	6.40	6 450	93 550	0 117	0 149	0 186
	1	9410191507-1557	7.20	48 403	51 597	-	0 065	0 084
	2	9410191403-1444	4.10	9 083	90 917	0 085	0 100	0 119
	3	9410191229-1309	5.50	9 378	90 622	0 087	0 104	0 126
	4	9410191157-1212	9.80	7 779	92 221	0 115	0 142	0 170
	5	9410181611-1637	12.50	5 062	94 938	0 143	0 171	0 204
	6	9410181345-1536	14.00	5 063	94 937	0 128	0 160	0 200
	7	9410181232-1252	9.90	2 845	97 155	0 149	0 186	0 234
	8	9410181138-1216	6.40	6 759	93 241	0 099	0 126	0 162
2	1	9410201634-1700	4.10	4 416	95 584	0 152	0 176	0 204
	2	9410201506-1600	5.20	10 256	89 744	0 137	0 177	0 230
	3	9410201421-1447	5.60	2 137	97 863	0 129	0 160	0 199
	4	9410201157-1323	7.40	6 877	93 123	0 089	0 107	0 131
	1	9410201634-1700	4.10	3 642	96 358	0 153	0 178	0 206
	2	9410201506-1600	5.20	2 650	97 350	0 169	0 213	0 272
	3	9410201421-1447	5.60	6 390	93 610	0 098	0 124	0 159
	4	9410201157-1323	7.40	9 927	90 073	0 084	0 100	0 119

Table 5.4: Grain sizes of bed load (continued)

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	Date : 10 Jan 1995 Init : mzh/sjr	Location 1 : Jamuna River, Bahadurabad Grain size distributions page 52

Delft Bottle		Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
Channel	Vertical			< 0.06 mm	> 0.06 mm			
3	1	9410220906-0936	3.30	19.599	80.401	0.075	0.090	0.107
	2	9410211616-1637	4.90	2.248	97.752	0.133	0.156	0.182
	3	9410211436-1601	4.90	0.662	99.338	0.163	0.188	0.216
	4	9410211400-1421	5.30	6.261	93.739	0.093	0.114	0.144
	5	9410211233-1308	4.90	11.487	88.513	0.103	0.135	0.167
	1	9410220906-0936	3.30	24.812	75.188	0.071	0.084	0.100
	2	9410211616-1637	4.90	3.825	96.175	0.123	0.148	0.176
	3	9410211436-1601	4.90	0.791	99.209	0.163	0.188	0.217
	4	9410211400-1421	5.30	9.472	90.528	0.084	0.099	0.118
	5	9410211233-1308	4.90	14.584	85.416	0.086	0.109	0.141
4	6	9410221134-1201	5.90	15.816	84.184	0.077	0.091	0.107
	7	9410221220-1238	5.50	8.706	91.294	0.087	0.106	0.131
	8	9410221331-1411	4.70	2.010	97.990	0.157	0.185	0.218
	6	9410221134-1201	5.90	16.772	83.228	0.083	0.102	0.127
	7	9410221220-1238	5.50	10.542	89.458	0.092	0.115	0.146
	8	9410221331-1411	4.70	7.552	92.448	0.160	0.184	0.212

Table 5.4 : Grain sizes of bed load

 FAP 24 DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 107: 18 - 22 October, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 10 Jan 1995	Grain size distributions	page 5.3
	Init : mzh/sjr		

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9410180836-0856	B4AI1T01
		9410180907-0930	B4AI1T02 *
		9410181654-1711	B4AI1T06
		9410181718-1741	B4AI1T07
		9410191620-1641	B4AJ1T04
	2	9410201104-1110	B4AK1T03
		9410201713-1719	B4AK1T05 *
		9410201722-1728	B4AK1T06
	3	9410211107-1117	B4AL1T07
		9410211121-1131	B4AL1T08 *
		9410220821-0830	B4AM1T01
		9410220845-0854	B4AM1T03
		9410220954-1003	B4AM1T04
		9410221007-1017	B4AM1T05
	4	9410211711-1714	B4AL1T12 *
		9410211716-1719	B4AL1T13
		9410221039-1042	B4AM1T06
		9410221045-1048	B4AM1T07
		9410221425-1428	B4AM1T09
		9410221431-1434	B4AM1T10

Table 6.1: ADCP & EMF transects	* : transect in PSD 24 data base and presented in Sections 3 and 4
---------------------------------	--

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9410191507-1557	468802	777304	7.20	B4AJ1P05 *
		2	9410191403-1444	469348	777303	4.10	B4AJ1P04 *
		3	9410191229-1309	469729	777304	5.50	B4AJ1P03 *
		4	9410191157-1212	469871	777303	9.80	B4AJ1P01 *
		5	9410181611-1637	470003	777296	12.50	B4AI1P04 *
		6	9410181345-1536	470173	777298	14.00	B4AI1P03 **
		7	9410181232-1252	470317	777299	9.90	B4AI1P02 *
		8	9410181138-1216	470445	777302	6.40	B4AI1P01 *
	2	1	9410201634-1700	466381	780102	4.10	B4AK1P08 *
		2	9410201506-1600	466389	779934	5.20	B4AK1P06 *
		3	9410201421-1447	466394	779741	5.60	B4AK1P04 *
		4	9410201157-1323	466384	779499	7.40	B4AK1P01 **
	3	1	9410220906-0936	460019	784800	3.30	B4AM1P01 *
		2	9410211616-1637	460342	784799	4.90	B4AL1P06 *
		3	9410211436-1601	460414	784806	4.90	B4AL1P05 **
		4	9410211400-1421	460636	784800	5.30	B4AL1P02 *
		5	9410211233-1308	460937	784803	4.90	B4AL1P01 *
	4	6	9410221134-1201	461754	784654	5.90	B4AM1P02 *
		7	9410221220-1238	461818	784653	5.50	B4AM1P03 *
		8	9410221331-1411	461902	784655	4.70	B4AM1P04 *

Table 6.2: Vertical profiles

* S4 & MEX not available

** MEX not available

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 107: 18 - 22 October, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 10 Jan 1995	Collected data and their storage (1)	page 6.1
	Init mzh/sjr		

Method	Channel	Vertical	No of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	6	6	9410181345-1536	470173	777298	14 00
	2	4	6	9410201157-1323	466384	779499	7 40
	3	3	6	9410211436-1601	460414	784806	4 90

Table 6 3: Suspended sediment - point sampled

Method	Channel	Vertical	No of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	1	1	1	9410191507-1557	468802	777304	7 20
		2	1	9410191403-1444	469348	777303	4 10
		3	1	9410191229-1309	469729	777304	5 50
		4	1	9410191157-1212	469871	777303	9 80
		5	1	9410181611-1637	470003	777296	12 50
		6	1	9410181345-1536	470173	777298	14 00
		7	1	9410181232-1252	470317	777299	9 90
		8	1	9410181138-1216	470445	777302	6 40
	2	1	1	9410201634-1700	466381	780102	4 10
		2	1	9410201506-1600	466389	779934	5 20
		3	1	9410201421-1447	466394	779741	5 60
		4	1	9410201157-1323	466384	779499	7 40
	3	1	1	9410220906-0936	460019	784800	3 30
		2	1	9410211616-1637	460342	784799	4 90
		3	1	9410211436-1601	460414	784806	4 90
		4	1	9410211400-1421	460636	784800	5 30
		5	1	9410211233-1308	460937	784803	4 90
	4	6	1	9410221134-1201	461754	784654	5 90
		7	1	9410221220-1238	461818	784653	5 50
		8	1	9410221331-1411	461902	784655	4 70

Table 6 4: Suspended sediment - depth integrated

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	2	9410191403-1444	469348	777303	4.10	A2292
		3	9410191229-1309	469729	777304	5.50	A2277
		4	9410191157-1212	469871	777303	9.80	A1600
		5	9410181611-1637	470003	777296	12.50	A1821
		6	9410181345-1536	470173	777298	14.00	A2276
		7	9410181232-1252	470317	777299	9.90	A3015
		8	9410181138-1216	470445	777302	6.40	A2285
		2	9410191403-1444	469348	777303	4.10	A2017
		3	9410191229-1309	469729	777304	5.50	A3009
		4	9410191157-1212	469871	777303	9.80	A2284
		5	9410181611-1637	470003	777296	12.50	A2134
		6	9410181345-1536	470173	777298	14.00	A2226
		7	9410181232-1252	470317	777299	9.90	A2151
		8	9410181138-1216	470445	777302	6.40	A875
	2	1	9410201634-1700	466381	780102	4.10	A884
		2	9410201506-1600	466389	779934	5.20	A1998
		3	9410201421-1447	466394	779741	5.60	A2186
		4	9410201157-1323	466384	779499	7.40	A2245
		1	9410201634-1700	466381	780102	4.10	A2179
		2	9410201506-1600	466389	779934	5.20	A2011
		3	9410201421-1447	466394	779741	5.60	A85
		4	9410201157-1323	466384	779499	7.40	A1612
	3	1	9410220906-0936	460019	784800	3.30	A2333
		2	9410211616-1637	460342	784799	4.90	A2304
		3	9410211436-1601	460414	784806	4.90	A2317
		4	9410211400-1421	460636	784800	5.30	A2310
		5	9410211233-1308	460937	784803	4.90	A2238
		1	9410220906-0936	460019	784800	3.30	A2286
		2	9410211616-1637	460342	784799	4.90	A2305
		3	9410211436-1601	460414	784806	4.90	A2309
		4	9410211400-1421	460636	784800	5.30	A2233
		5	9410211233-1308	460937	784803	4.90	A2246
	4	6	9410221134-1201	461754	784654	5.90	A1808
		7	9410221220-1238	461818	784653	5.50	A3042
		6	9410221134-1201	461754	784654	5.90	A3011
		7	9410221220-1238	461818	784653	5.50	A2302

Table 6.5: Bed load

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 107: 18 - 22 October, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 10 Jan 1995	Collected data and their storage (3)	page
	Init : mzh/sjr		6.3

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No
Delft Bottle Sample	1	1	9410191507-1557	468802	777304	7 20	A384
		2	9410191403-1444	469348	777303	4 10	A208
		3	9410191229-1309	469729	777304	5 50	A219
		4	9410191157-1212	469871	777303	9 80	A1036
		5	9410181611-1637	470003	777296	12 50	A1026
		6	9410181345-1536	470173	777298	14 00	A758
		7	9410181232-1252	470317	777299	9 90	A1018
		8	9410181138-1216	470445	777302	6 40	A751
		1	9410191507-1557	468802	777304	7 20	A206
		2	9410191403-1444	469348	777303	4 10	A190
		3	9410191229-1309	469729	777304	5 50	A224
		4	9410191157-1212	469871	777303	9 80	A990
		5	9410181611-1637	470003	777296	12 50	A1046
		6	9410181345-1536	470173	777298	14 00	A139
		7	9410181232-1252	470317	777299	9 90	A1031
		8	9410181138-1216	470445	777302	6 40	A1032
	2	1	9410201634-1700	466381	780102	4 10	A226
		2	9410201506-1600	466389	779934	5 20	A217
		3	9410201421-1447	466394	779741	5 60	A483
		4	9410201157-1323	466384	779499	7 40	A236
		1	9410201634-1700	466381	780102	4 10	A513
		2	9410201506-1600	466389	779934	5 20	A388
		3	9410201421-1447	466394	779741	5 60	A212
		4	9410201157-1323	466384	779499	7 40	A232
	3	1	9410220906-0936	460019	784800	3 30	A510
		2	9410211616-1637	460342	784799	4 90	A498
		3	9410211436-1601	460414	784806	4 90	A488
		4	9410211400-1421	460636	784800	5 30	A425
		5	9410211233-1308	460937	784803	4 90	A447
		1	9410220906-0936	460019	784800	3 30	A202
		2	9410211616-1637	460342	784799	4 90	A508
		3	9410211436-1601	460414	784806	4 90	A846
		4	9410211400-1421	460636	784800	5 30	A593
		5	9410211233-1308	460937	784803	4 90	A194
	4	6	9410221134-1201	461754	784654	5 90	A492
		7	9410221220-1238	461818	784653	5 50	A847
		8	9410221331-1411	461902	784655	4 70	A524
		6	9410221134-1201	461754	784654	5 90	A441
		7	9410221220-1238	461818	784653	5 50	A216
		8	9410221331-1411	461902	784655	4 70	A398

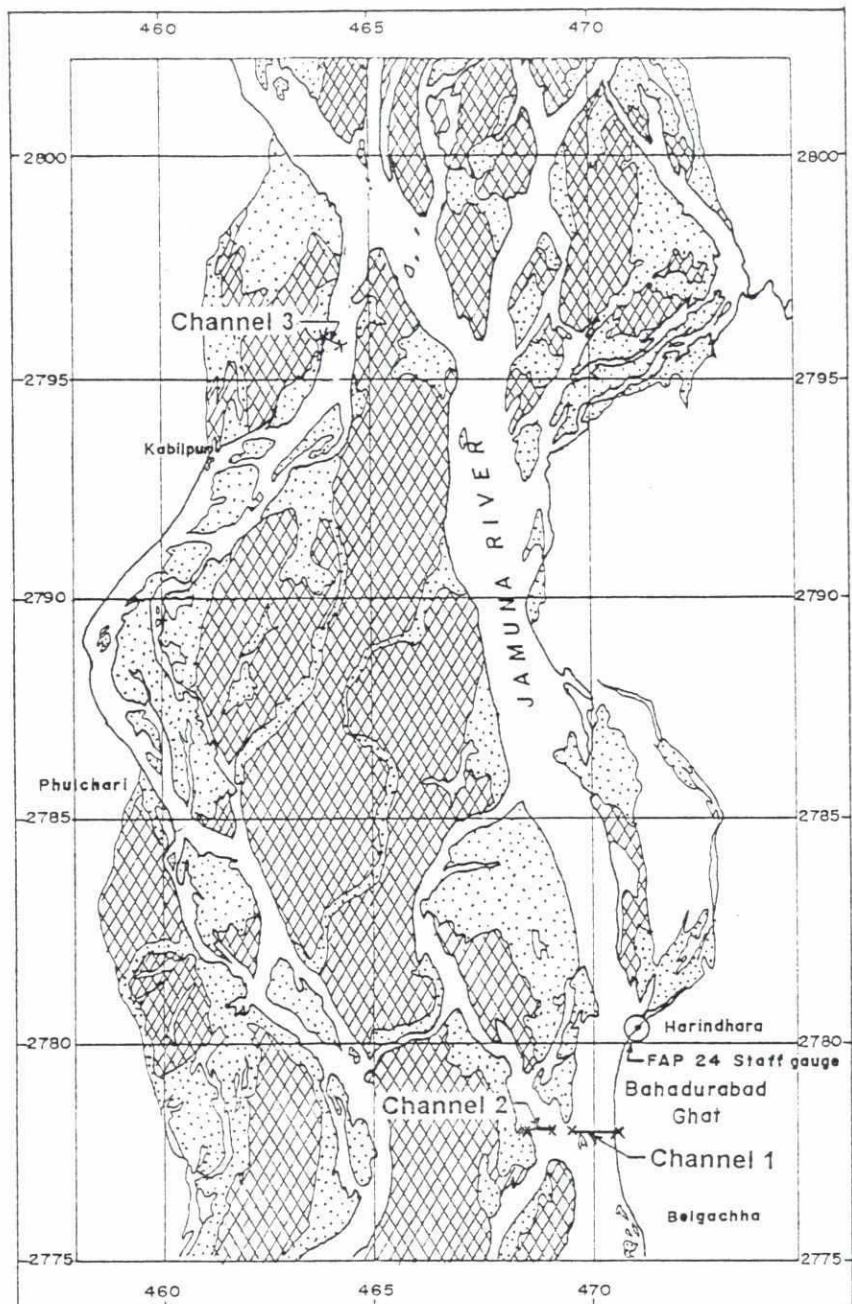
Table 6.6 Bed load

FAP 24  DEFT - DHI		Survey Bulletin 107: 18 - 22 October, 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
	Date : 10 Jan 1995	Collected data and their storage (4)	page
	Init : mzh/sjr		64

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	B4A11T02 ase
ADCP/S4/EMF data	2	QUATTRO	B4AK1T05 ase
ADCP/S4/EMF data	3	QUATTRO	B4AL1T08 ase
ADCP/S4/EMF data	4	QUATTRO	B4AL1T12 ase
Echosounder data	1	QUATTRO	B4A11T02 ech
Echosounder data	2	QUATTRO	B4AK1T05 ech
Echosounder data	3	QUATTRO	B4AL1T08 ech
Echosounder data	4	QUATTRO	B4AL1T12 ech
Sediment transport data	1	QUATTRO	B4A11T02 sed
Sediment transport data	2	QUATTRO	B4AK1T05 sed
Sediment transport data	3	QUATTRO	B4AL1T08 sed
Sediment transport data	4	QUATTRO	B4AL1T12 sed
Bed load sed. analysis	1	QUATTRO	B4A11T02 bdl
Bed load sed. analysis	2	QUATTRO	B4AK1T05 bdl
Bed load sed. analysis	3	QUATTRO	B4AL1T08 bdl
Bed load sed. analysis	4	QUATTRO	B4AL1T12 bdl
Suspended sed conc. analysis	1	QUATTRO	B4A11T02 ssc
Suspended sed conc. analysis	2	QUATTRO	B4AK1T05 ssc
Suspended sed conc. analysis	3	QUATTRO	B4AL1T08 ssc
Suspended sed conc. analysis	4	QUATTRO	B4AL1T12 ssc
Transect plot data	1	QUATTRO	B4A11T02 trs
Transect plot data	2	QUATTRO	B4AK1T05 trs
Transect plot data	3	QUATTRO	B4AL1T08 trs
Transect plot data	4	QUATTRO	B4AL1T12 trs
Iso velocity plot data	1	MIKE 21	B4A11T02 dt2
		MIKE 21	B4A11T02 ct2
Iso-velocity plot data	2	MIKE 21	B4AK1T05 dt2
		MIKE 21	B4AK1T05 ct2
Iso-velocity plot data	3	MIKE 21	B4AL1T08 dt2
		MIKE 21	B4AL1T08 ct2
Iso-velocity plot data	4	MIKE 21	B4AL1T12 dt2
		MIKE 21	B4AL1T12 ct2

Table 7.1 PSD 24 Database file description

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 107: 18 - 22 October, 1994	
			Location 1 : Jamuna River, Bahadurabad	
	Date 10 Jan 1995	PSD 24 Database file description		page
	Init mzh/sjr			71



LEGEND :

- * — * Cross section
- Highland
- Unstable / low char
- FAP 24 Staff gauge



5000 m 2500 m 0

Map is based on satellite images of March 1994

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 117 : 07 - 08 November, 1994

Location 1 : Jamuna River, Bahadurabad

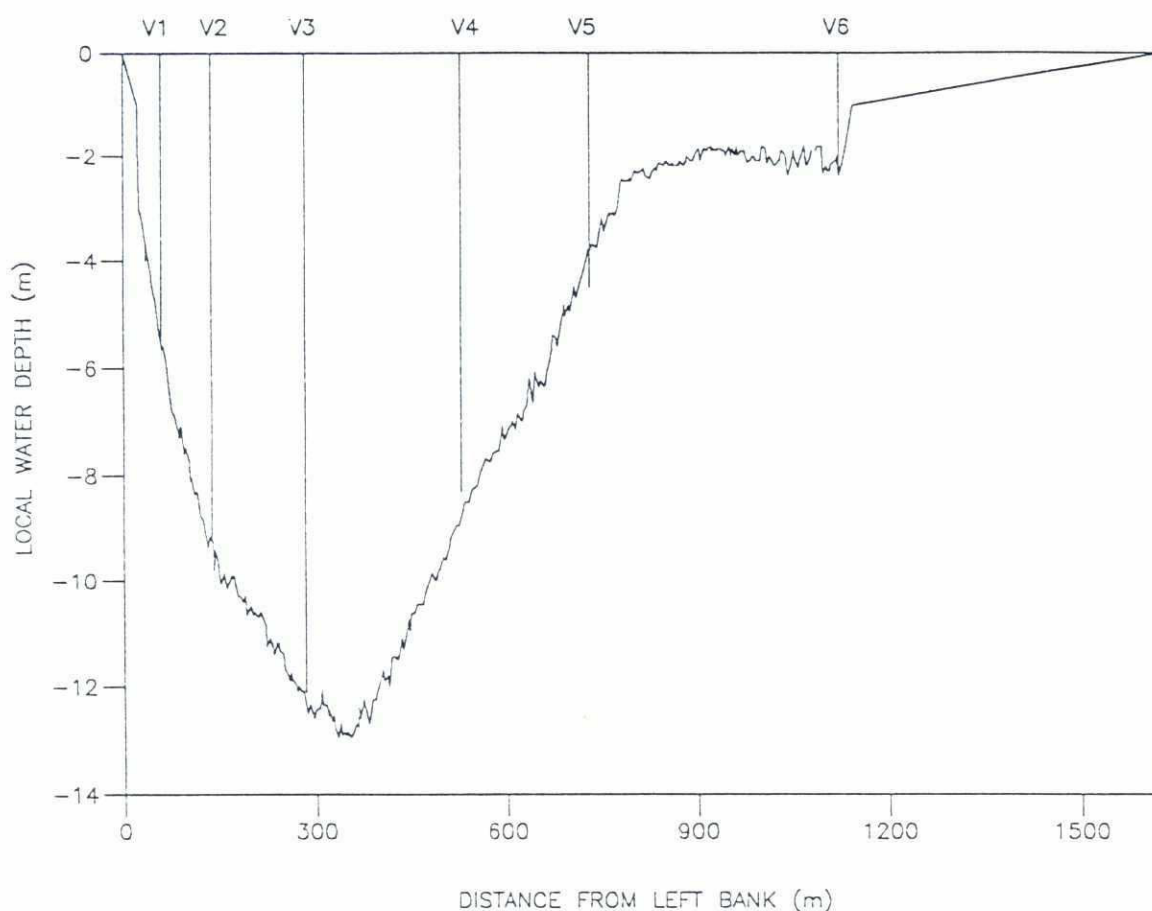
Date : 16 Jan 1995

Init : mzh/sjr

Location map

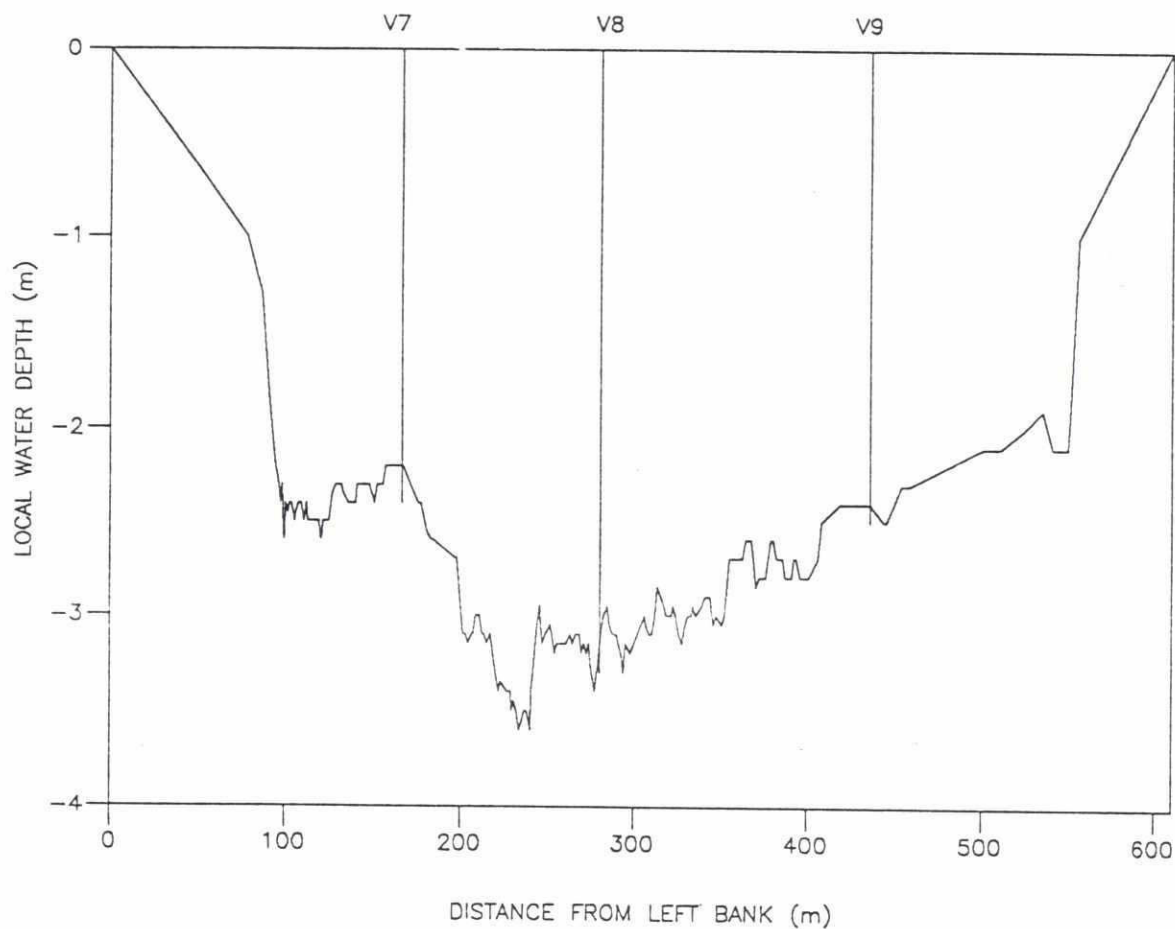
page

1.1



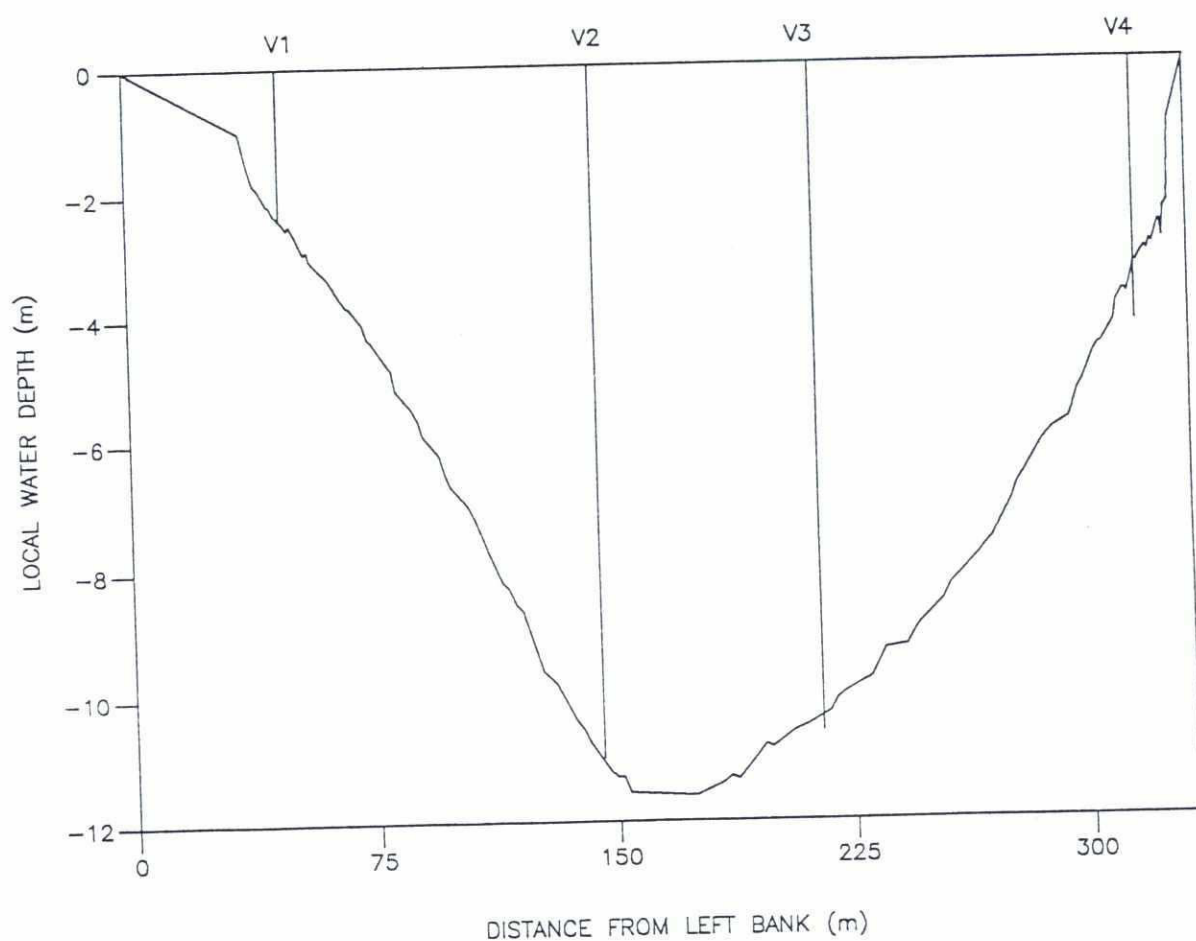
Water level : 15.08 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 117 : 07 - 08 November, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4B81T03	Date : 16 Jan 1995	Cross-sections and measured verticals Channel 1	page 1.2
	Init : mzh/sjr		



Water level : 15.08 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 117 : 07 - 08 November, 1994	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
File : B4B82T01	Date : 16 Jan 1995	Cross-sections and measured verticals Channel 2	page 1.3
	Init : mzh/sjr		



Water level : 15.10 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 117 : 07 - 08 November, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4B71T04

Date : 16 Jan 1995

Init : mzh/sjr

Cross-sections and measured verticals
Channel 3

page

1.4

98

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	4	-	4	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	2	-	-
Vertical current profile	No. of verticals in channel	6	3	4	-
	ADCP	4	-	4	-
	S4 current meter	1	3	1	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	-	6	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	6	3	4	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	12	-	6	-
	Delft Bottle	8	-	8	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1: Survey programme as made

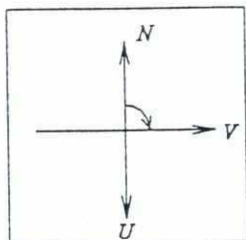
	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	1627	7618	15.08	7010	31	1639
Channel 2	610	1299	15.08	282	-	53
Channel 3	333	2242	15.10	1398	0.34	355

Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	08 Nov 94	15.08	FAP 24
	Channel 2	08 Nov 94	15.08	FAP 24
	Channel 3	07 Nov 94	15.10	FAP 24

Table 2.3: Water-levels

 FAP 24 DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 117 : 07 - 08 November, 1994	
				Location 1 : Jamuna River, Bahadurabad	
Files : B4B81T03 B4B82T01 B4B71T04		Date : 16 Jan 1995		Survey programme as made and key figures	
		Init : mzh/sjr			
					page 2.1

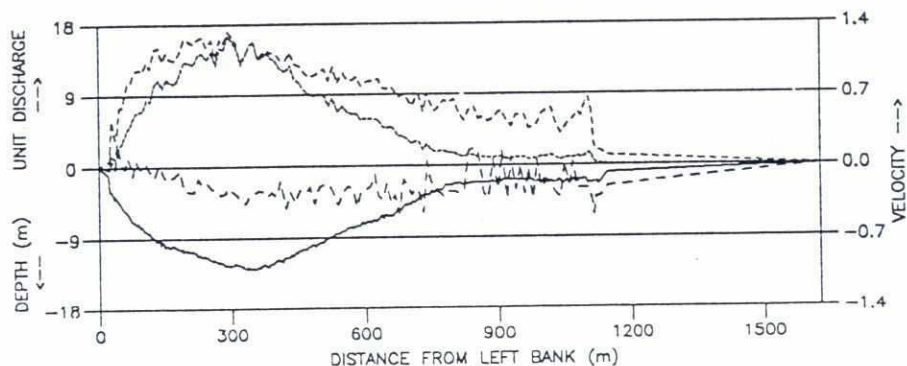


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STAGE)

— UNIT DISCHARGE ($m^3/s.m$)

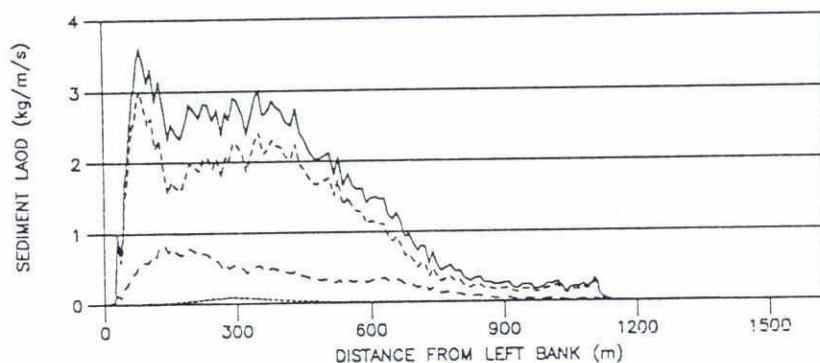
--- U (m/s)

--- V (m/s)

STAGE = 15.08 ($m+PWD$)

A = 7618 (m^2)

Q = 7010 (m^3/s)



SEDIMENT TRANSPORT

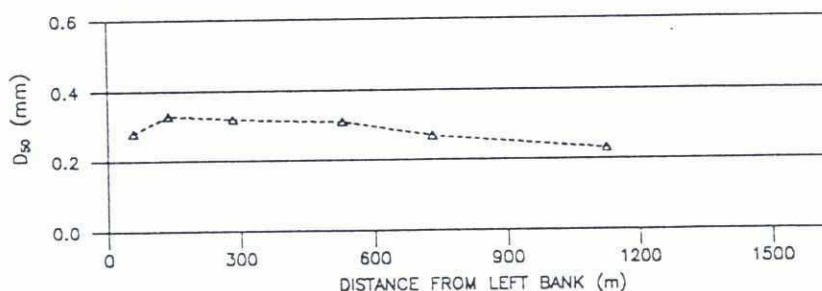
LEGEND :

— S_{TOTAL} 1670 (kg/s)

--- $S_{WASH LOAD}$ 1293 (kg/s)

--- $S_{SUSP. BED}$ 345 (kg/s)

--- $S_{BED LOAD}$ 31 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇◇ $D_{50 SUSP.}$ (mm)

△△△△△ $D_{50 BED LOAD}$ (mm)

□□□□□ $D_{50 BED MAT.}$ (mm)

FAP 24



RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 117 : 07 - 08 November, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4B81T03

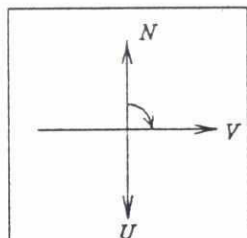
Date : 16 Jan 1995

Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 1

page

3.1

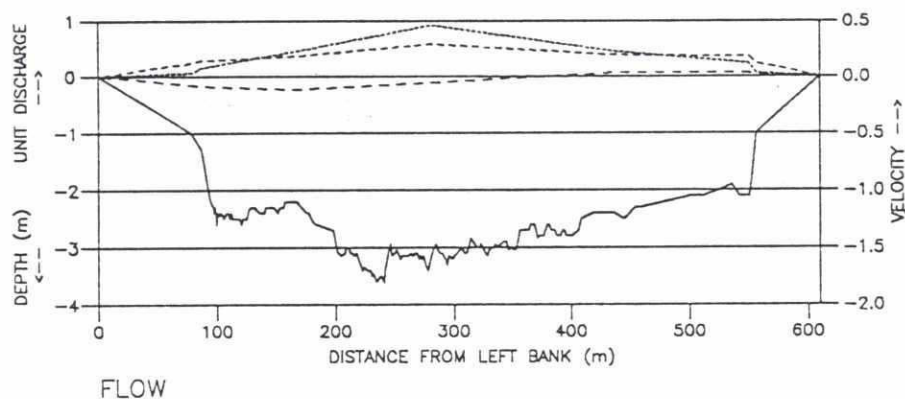


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

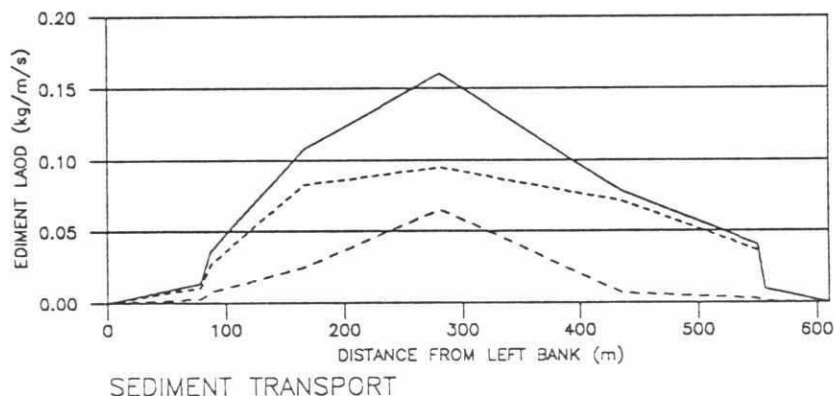
V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



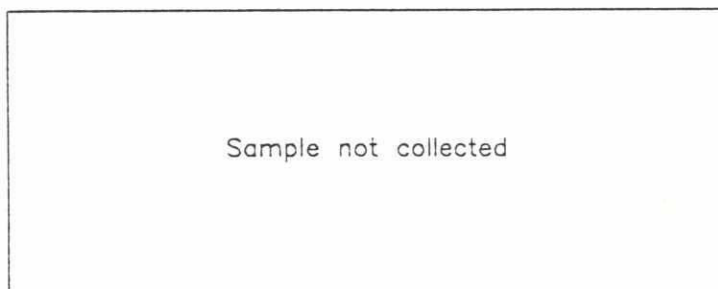
LEGEND :

- WATER DEPTH (m below STAGE)
- - - UNIT DISCHARGE (m³/s.m)
- ... U (m/s)
- . - V (m/s)
- STAGE = 15.08 (m+PWD)
- A = 1299 (m²)
- Q = 282 (m³/s)



LEGEND :

- S_{TOTAL} 53.45 (kg/s)
- - - S_{WASH LOAD} 39.57 (kg/s)
- ... S_{SUSP. BED} 13.88 (kg/s)
- . - S_{BED LOAD} - (kg/s)



GRAIN SIZE



RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 117 : 07 - 08 November, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4B82T01

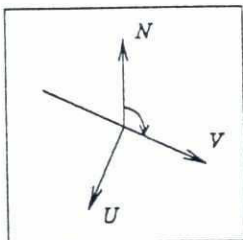
Date : 16 Jan 1995

Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 2

page

3.2

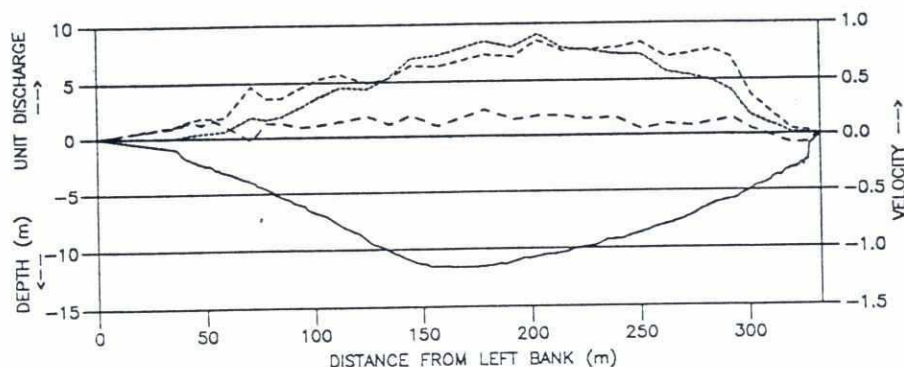


TRANSECT AZIMUTH = 115°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STAGE)

--- UNIT DISCHARGE (m³/s.m)

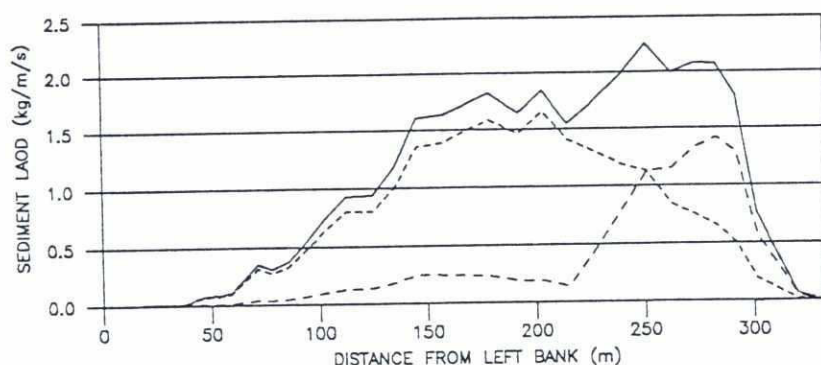
... U (m/s)

-.- V (m/s)

STAGE = 15.10 (m+PWD)

A = 2242 (m³)

Q = 1398 (m³/s)



SEDIMENT TRANSPORT

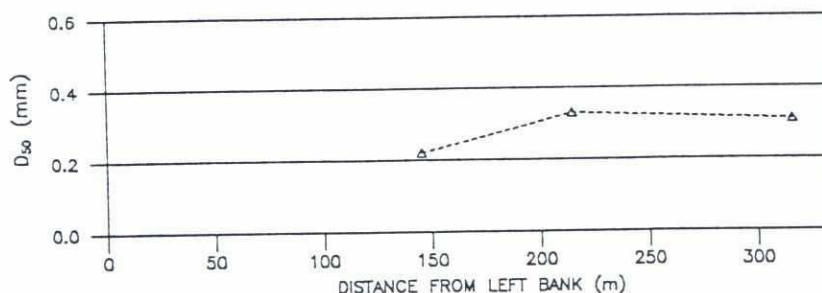
LEGEND :

— S_{TOTAL} 355.54 (kg/s)

--- S_{WASH LOAD} 240.17 (kg/s)

... S_{SUSP. BED} 115.03 (kg/s)

-.- S_{BED LOAD} 0.34 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)

FAP 24



RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 117 : 07 - 08 November, 1994

Location 1 : Jamuna River, Bahadurabad

File : B4B71T04

Date : 16 Jan 1995

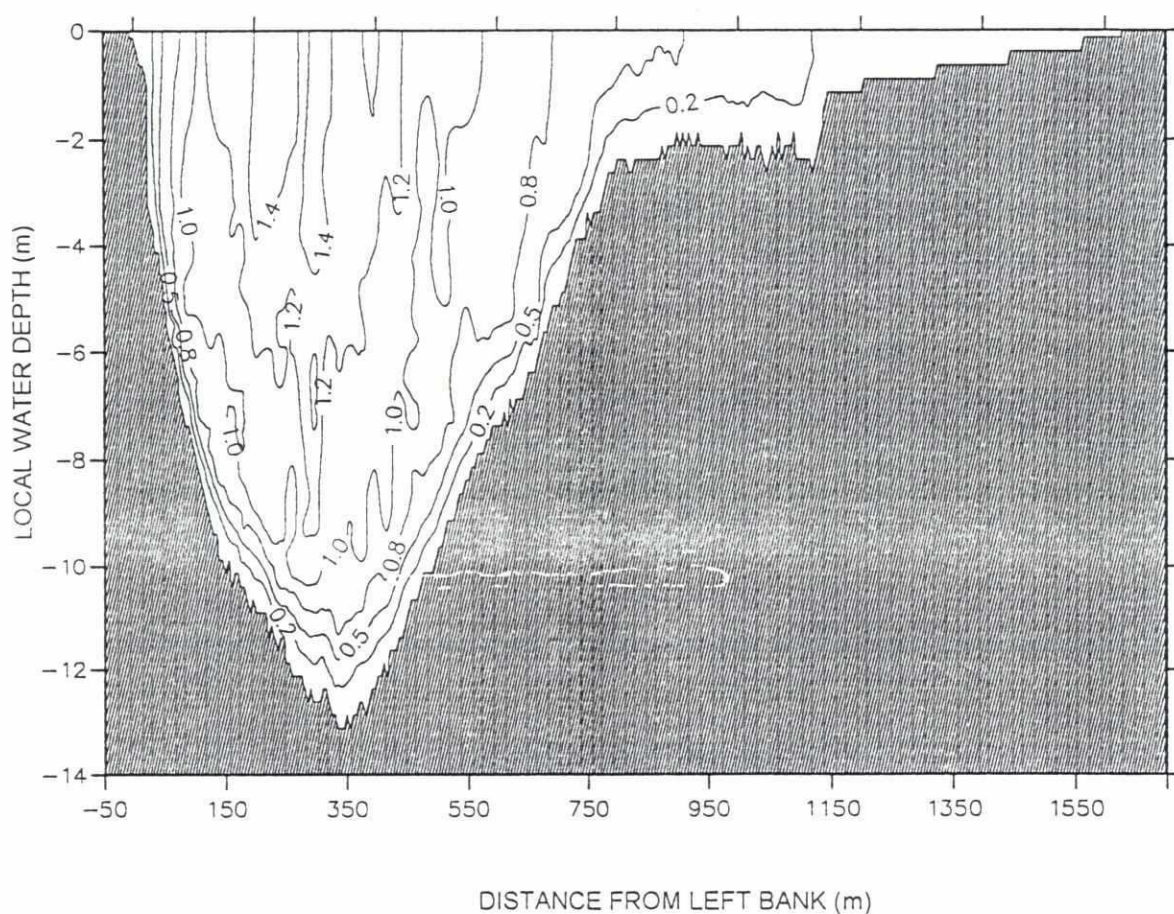
Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 3

page

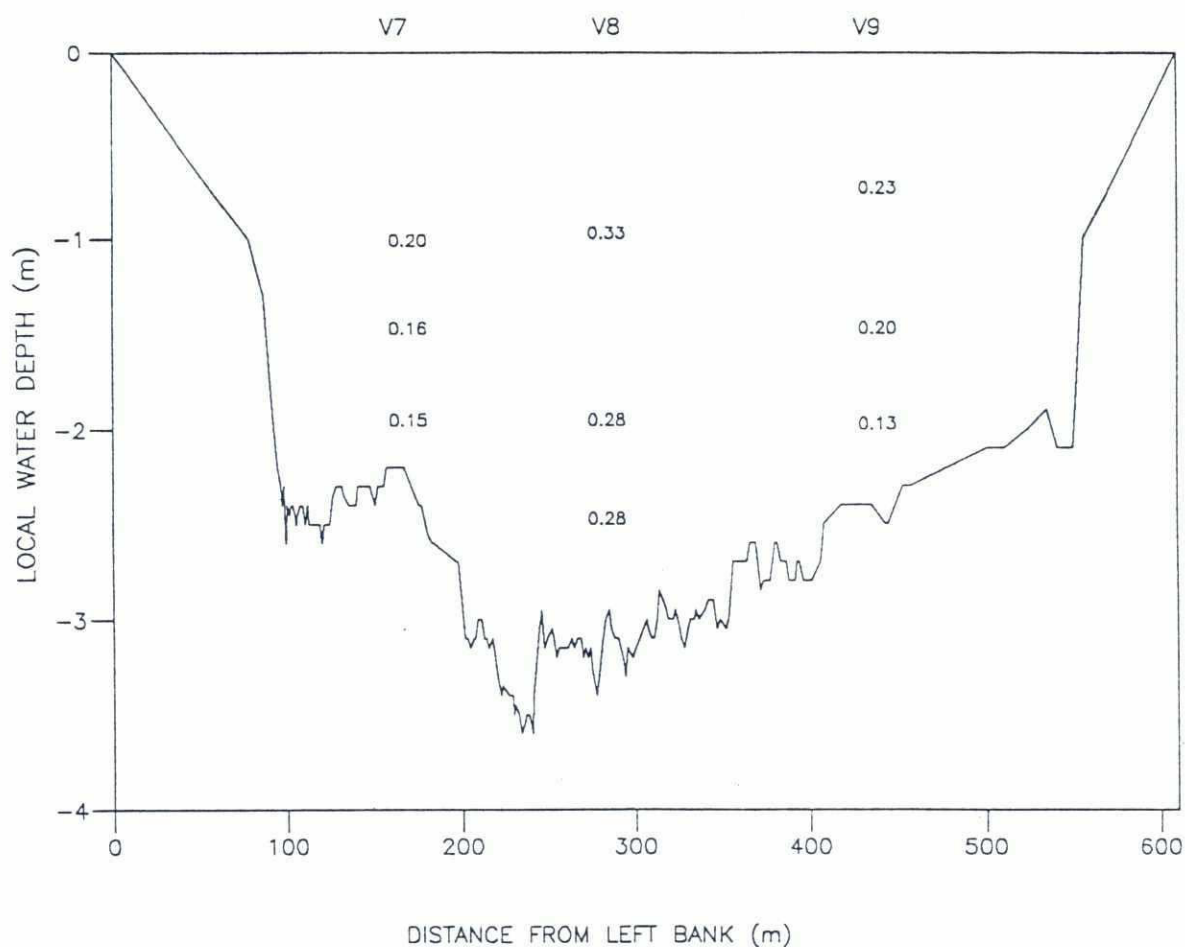
3.3

97



Iso-velocity contours (m/s)
Water-level : 15.08 m + PWD measured at the station indicated on Page 1.1

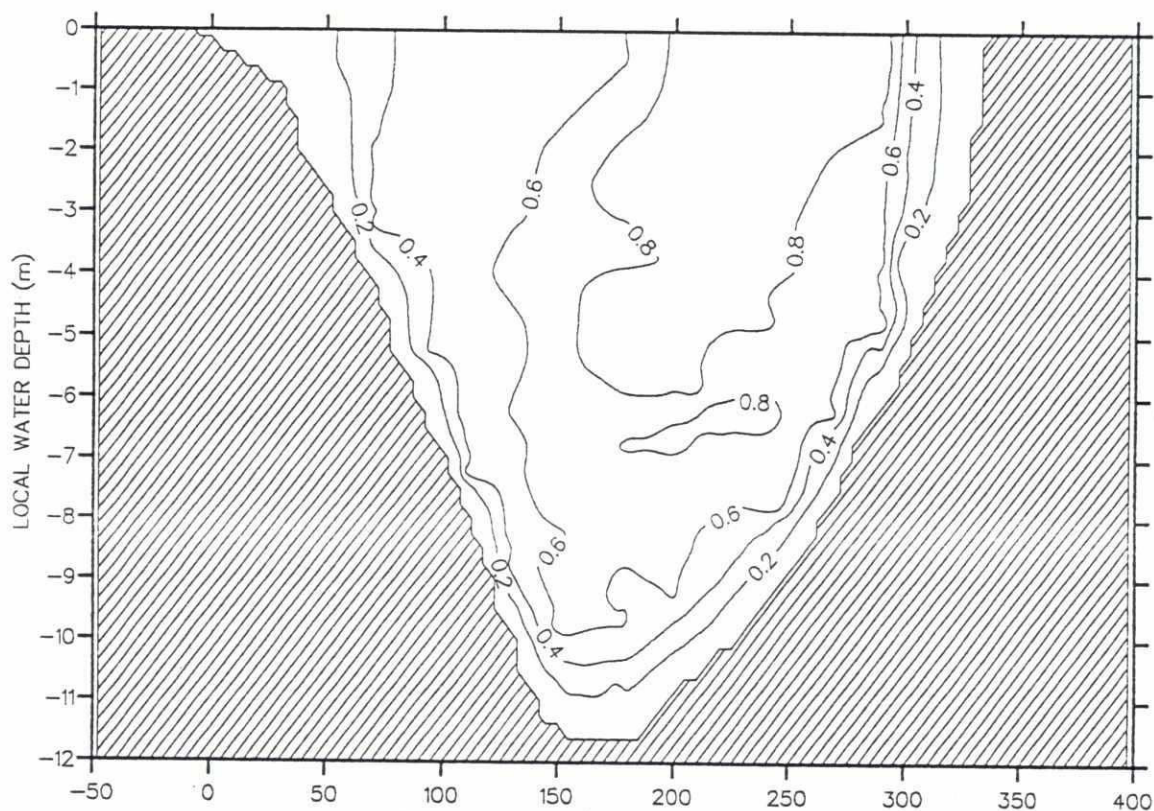
FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 117 : 07 - 08 November, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4B81T03	Date : 16 Jan 1995	Cross-sectional distribution of flow velocity Channel 1	page
	Init : mzh/sjr		4.1



Water level : 15.08 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 117 : 07 - 08 November, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4B82T01	Date : 16 Jan 1995	Cross-sectional distribution of flow velocity Channel 2	page 4.2
	Init : mzh/sjr		

670



Iso-velocity contours (m/s)
Water level : 15.10 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 117 : 07 - 08 November, 1994	
		Location 1 : Jamuna River, Bahadurabad	
File : B4B71T04	Date : 16 Jan 1995	Cross-sectional distribution of flow velocity Channel 3	page 4.3
	Init : mzh/sjr		

Andreasen settling tube							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D35 (mm)	D50 (mm)	D65 (mm)
Sample not collected							
Table 5.1: Grain size of near bed suspended sediment (0.3 m above river bed)							

US BM-54 bed samples							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D35 (mm)	D50 (mm)	D65 (mm)
Sample not collected							
Table 5.2 : Grain size of bed material							

Helley-Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm		D35 (mm)	D50 (mm)	D65 (mm)
1	1	9411081230-1251	5.50	0.738	99.262	0.222	0.276	0.331
	2	9411081345-1405	9.20	0.167	99.833	0.282	0.323	0.371
	3	9411081445-1545	12.10	0.059	99.941	0.309	0.349	0.395
	4	9411081615-1640	8.30	0.087	99.913	0.267	0.310	0.359
	5	9411081550-1615	4.50	0.107	99.893	0.231	0.283	0.336
	6	9411081530-1545	2.40	0.538	99.462	0.208	0.260	0.318
	1	9411081230-1251	5.50	0.443	99.557	0.226	0.279	0.333
	2	9411081345-1405	9.20	0.118	99.882	0.300	0.339	0.383
	3	9411081445-1545	12.10	0.114	99.886	0.237	0.288	0.343
	4	9411081615-1640	8.30	0.053	99.947	0.265	0.307	0.356
	5	9411081550-1615	4.50	0.114	99.886	0.201	0.249	0.307
	6	9411081530-1545	2.40	0.118	99.882	0.179	0.210	0.246
3	2	9411071547-1619	11.00	20.115	79.885	0.152	0.196	0.253
	3	9411071445-1525	10.60	0.267	99.733	0.295	0.335	0.380
	4	9411071359-1403	4.20	0.161	99.839	0.263	0.306	0.355
	2	9411071547-1619	11.00	2.911	97.089	0.191	0.246	0.308
	3	9411071445-1525	10.60	1.032	98.968	0.279	0.321	0.369
	4	9411071359-1403	4.20	0.123	99.877	0.262	0.305	0.355
Table 5.3 : Grain sizes of bed load								

 FAP 24 DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 117 : 07 - 08 November, 1994	
	Location 1 : Jamuna River, Bahadurabad		
	Date : 16 Jan 1995 Init : mzh/sjr	Grain size distributions	page 5.1

Delft Bottle		Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
Channel	Vertical			< 0.06 mm > 0.06 mm				
1	1	9411081230-1251	5.50	6.625	93.375	0.100	0.128	0.160
	2	9411081345-1405	9.20	5.421	94.579	0.119	0.149	0.182
	3	9411081445-1545	12.10	4.952	95.048	0.132	0.169	0.216
	4	9411081615-1640	8.30	1.003	98.997	0.165	0.193	0.226
	1	9411081230-1251	5.50	5.953	94.047	0.094	0.116	0.147
	2	9411081345-1405	9.20	1.717	98.283	0.146	0.174	0.207
	3	9411081445-1545	12.10	1.373	98.627	0.165	0.206	0.258
	4	9411081615-1640	8.30	1.250	98.750	0.167	0.199	0.236
3	1	9411071619-1638	2.40	37.098	62.902	-	0.074	0.090
	2	9411071547-1619	11.00	17.081	82.919	0.076	0.089	0.104
	3	9411071445-1525	10.60	9.921	90.079	0.082	0.096	0.112
	4	9411071359-1403	4.20	4.841	95.159	0.123	0.150	0.182
	1	9411071619-1638	2.40	29.878	70.122	0.067	0.082	0.100
	2	9411071547-1619	11.00	22.763	77.237	0.072	0.085	0.101
	3	9411071445-1525	10.60	7.663	92.337	0.084	0.099	0.116
	4	9411071359-1403	4.20	5.301	94.699	0.137	0.168	0.206

Table 5.4 : Grain sizes of bed load

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 117 : 07 - 08 November, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 16 Jan 1995	Grain size distributions	page
	Init : mzh/sjr		5.2

CFC

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9411081012-1023 9411081053-1104 9411081654-1704 9411081707-1715	B4B81T02 B4B81T03 * B4B81T04 B4B81T05
Echosounding	2	9411081131-1136 9411081138-1142	B4B82T01 * B4B82T02
ADCP & EMF transect	3	9411071132-1135 9411071142-1145 9411071640-1643 9411071646-1649	B4B71T04 * B4B71T05 B4B71T06 B4B71T07

Table 6.1: ADCP & EMF transects & echosounding * : transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9411081230-1251	470463	777501	5.50	B4B81P01 *
		2	9411081345-1405	470384	777503	9.20	B4B81P02 *
		3	9411081445-1545	470237	777497	12.10	B4B81P05 **
		4	9411081615-1640	469975	777500	8.30	B4B81P06 *
		5	9411081550-1615	469795	777502	4.50	-
		6	9411081530-1545	469400	777500	2.40	-
	2	7	9411081307-1319	468732	777499	2.40	B4B82P01 ***
		8	9411081433-1445	468618	777501	3.30	B4B82P02 ***
		9	9411081510-1522	468461	777499	2.50	B4B82P03 ***
	3	1	9411071619-1638	464085	795355	2.40	B4B71P04 *
		2	9411071547-1619	463995	795393	11.00	B4B71P03 *
		3	9411071445-1525	463934	795424	10.60	B4B71P02 **
		4	9411071359-1403	463846	795467	4.20	B4B71P01 *

Table 6.2: Vertical profiles * S4 & MEX not available ** MEX not available *** ADCP & MEX not available

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	3	6	9411081445-1545	470237	777497	12.10
	3	3	6	9411071445-1525	463934	795424	10.60

Table 6.3: Suspended sediment - point sampled

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 117 : 07 - 08 November, 1994	
		Location 1 : Jamuna River, Bahadurabad	
Date : 16 Jan 1995 Init : mzh/sjr		Collected data and their storage (1)	page 6.1

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	1	1	1	9411081230-1251	470463	777501	5.50
		2	1	9411081345-1405	470384	777503	9.20
		3	1	9411081445-1545	470237	777497	12.10
		4	1	9411081615-1640	469975	777500	8.30
		5	1	9411081550-1615	469795	777502	4.50
		6	1	9411081530-1545	469400	777500	2.40
	2	7	1	9411081307-1319	468732	777499	2.40
		8	1	9411081433-1445	468618	777501	3.30
		9	1	9411081510-1522	468461	777499	2.50
	3	1	1	9411071619-1638	464085	795355	2.40
		2	1	9411071547-1619	463995	795393	11.00
		3	1	9411071445-1525	463934	795424	10.60
		4	1	9411071359-1403	463846	795467	4.20

Table 6.4: Suspended sediment - depth integrated

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1	9411081230-1251	470463	777501	5.50	A2183
		2	9411081345-1405	470384	777503	9.20	A1644
		3	9411081445-1545	470237	777497	12.10	A3047
		4	9411081615-1640	469975	777500	8.30	A2158
		5	9411081550-1615	469795	777502	4.50	A61
		6	9411081530-1545	469400	777500	2.40	A40
		1	9411081230-1251	470463	777501	5.50	A2143
		2	9411081345-1405	470384	777503	9.20	A1853
		3	9411081445-1545	470237	777497	12.10	A2144
		4	9411081615-1640	469975	777500	8.30	A2278
		5	9411081550-1615	469795	777502	4.50	A690
		6	9411081530-1545	469400	777500	2.40	A465
	3	2	9411071547-1619	463995	795393	11.00	A1868
		3	9411071445-1525	463934	795424	10.60	A2002
		4	9411071359-1403	463846	795467	4.20	A2142
		2	9411071547-1619	463995	795393	11.00	A2176
		3	9411071445-1525	463934	795424	10.60	A2151
		4	9411071359-1403	463846	795467	4.20	A1828

Table 6.5: Bed load

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 117 : 07 - 08 November, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 16 Jan 1995	Collected data and their storage (2)	page 6.2
	Init : mzh/sjr		

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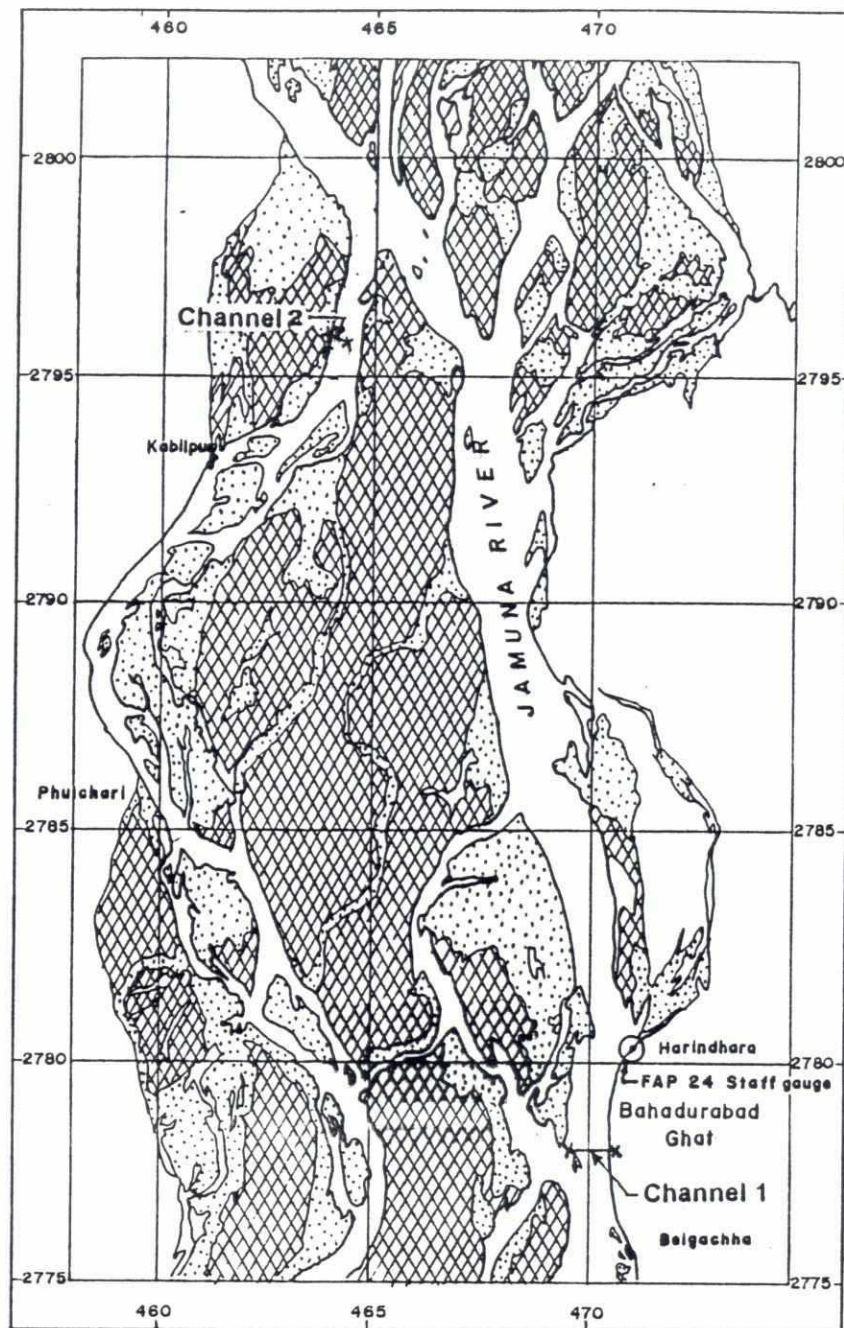
Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Delft Bottle Sample	1	1	9411081230-1251	470463	777501	5.50	A937
		2	9411081345-1405	470384	777503	9.20	A764
		3	9411081445-1545	470237	777497	12.10	A767
		4	9411081615-1640	469995	777500	8.30	A760
		1	9411081230-1251	470463	777501	5.50	A968
		2	9411081345-1405	470384	777503	9.20	A966
		3	9411081445-1545	470237	777497	12.10	A999
		4	9411081615-1640	469995	777500	8.30	A1009
	3	1	9411071619-1638	464085	795355	2.40	A964
		2	9411071547-1619	463995	795393	11.00	A750
		3	9411071445-1525	463934	795424	10.60	A785
		4	9411071359-1403	463846	795467	4.20	A780
		1	9411071619-1638	464085	795355	2.40	A1015
		2	9411071547-1619	463995	795393	11.00	A984
		3	9411071445-1525	463934	795424	10.60	A795
		4	9411071359-1403	463846	795467	4.20	A949

Table 6.5: Bed load

 FAP 24 DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 117 : 07 - 08 November, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 16 Jan 1995	Collected data and their storage (3)	page 6.3
	Init : mzh/sjr		

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	B4B81T03 .ase
ADCP/S4/EMF data	2	QUATTRO	B4B82T01 .ase
ADCP/S4/EMF data	3	QUATTRO	B4B71T04 .ase
Echosounder data	1	QUATTRO	B4B81T03 .ech
Echosounder data	2	QUATTRO	B4B82T01 .ech
Echosounder data	3	QUATTRO	B4B71T04 .ech
Sediment transport data	1	QUATTRO	B4B81T03 .sed
Sediment transport data	2	QUATTRO	B4B82T01 .sed
Sediment transport data	3	QUATTRO	B4B71T04 .sed
Bed load sed. analysis	1	QUATTRO	B4B81T03 .bdl
Bed load sed. analysis	2	QUATTRO	B4B82T01 .bdl
Bed load sed. analysis	3	QUATTRO	B4B71T04 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B4B81T03 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B4B82T01 .ssc
Suspended sed. conc. analysis	3	QUATTRO	B4B71T04 .ssc
Transect plot data	1	QUATTRO	B4B81T03 .trs
Transect plot data	2	QUATTRO	B4B82T01 .trs
Transect plot data	3	QUATTRO	B4B71T04 .trs
Iso-velocity plot data	1	MIKE 21 MIKE 21	B4B81T03 .ct2 B4B81T03 .dt2
Iso-velocity plot data	3	MIKE 21 MIKE 21	B4B71T04 .ct2 B4B71T04 .dt2
Table 7.1 PSD 24 Database file description			

 FAP 24 DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 117 : 07 - 08 November, 1994	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 16 Jan 1995	PSD 24 Database file description	page
	Init : mzh/sjr		7.1



LEGEND :

- *— Cross section
- ▨ Highland
- ▤ Unstable/low char
- FAP 24 Staff gauge



5000 m 2500 m 0

Map is based on satellite images of March 1994

FAP 24

 DELFT - DHI

RIVER SURVEY PROJECT
 Flood Plan Coordination Organization
 Commission of the European Communities

Survey Bulletin 122 : 26 - 28 November, 1994

Location 1 : Jamuna River, Bahadurabad

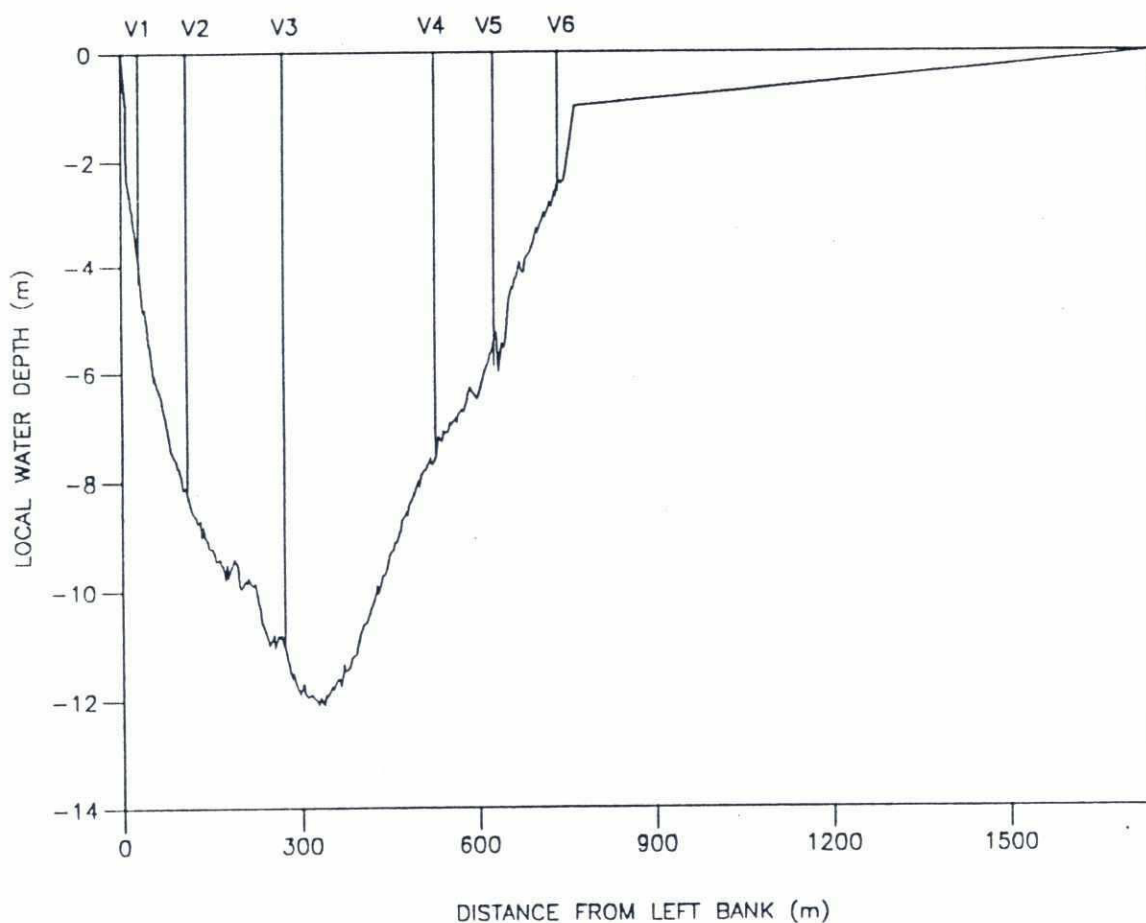
Date : 05 Feb 1995

Init : mzh/sjr

Location map

page

11



Water-level : 14.22 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 122 : 26-27 November, 1994

Location 01 : Jamuna River, Bahadurabad

File : B4BR1T02

Date : 05 Feb 1995

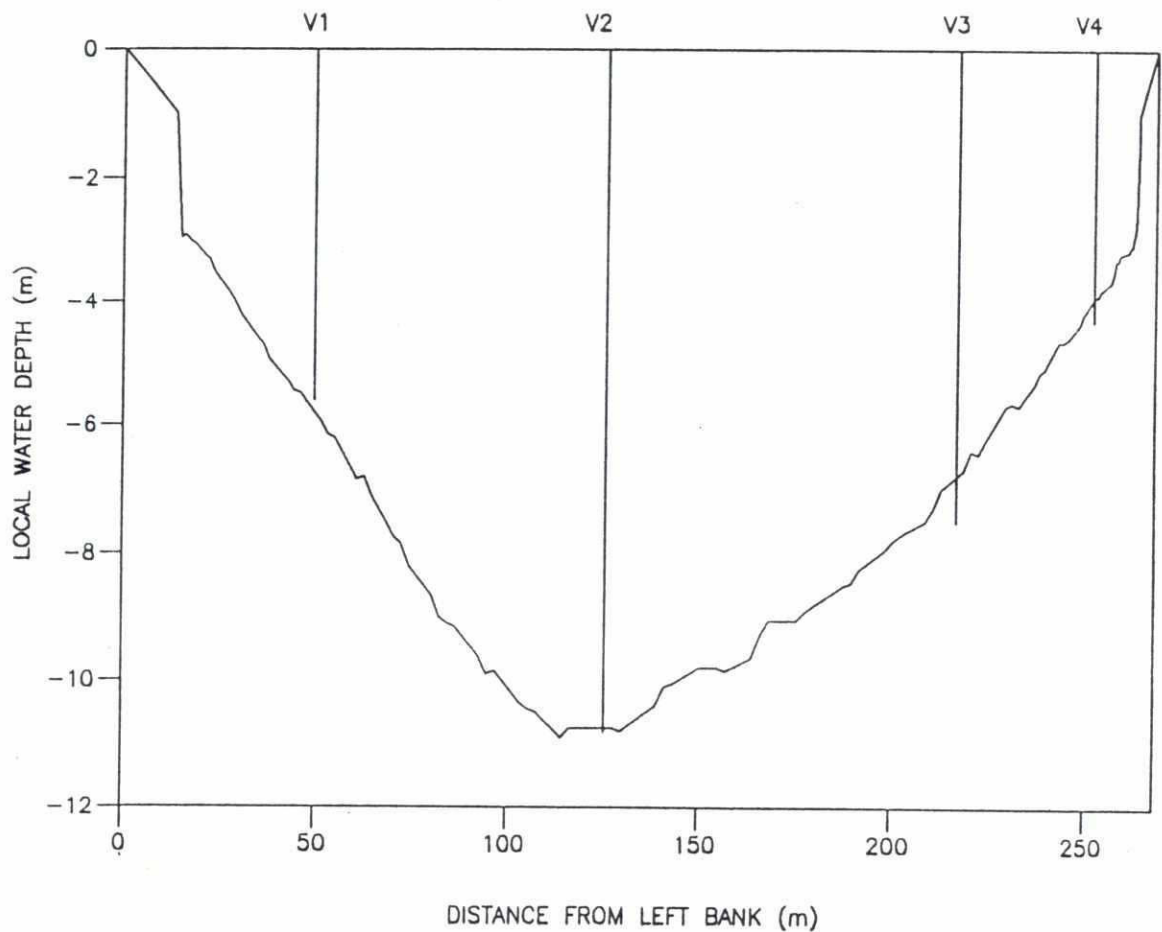
Init : mzh/sjr

Cross-sections and measured verticals
Channel 1

page

1.2

662



Water-level : 14.25 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 122 : 26-27 November, 1994	
		Location 01 : Jamuna River, Bahadurabad	
File : B4BQ1T01	Date : 05 Feb 1995	Cross-sections and measured verticals Channel 2	page
	Init : mzh/sjr		13

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	4	4	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No. of verticals in channel	6	4	-	-
	ADCP	6	4	-	-
	S4 current meter	-	1	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	6	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	6	4	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	12	6	-	-
	Delft Bottle	-	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1. Survey programme as made

	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	1748	6461	14.22	5557	3.69	1103.82
Channel 2	268	1897	14.25	785	0.05	108.45

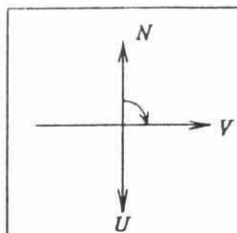
Table 2.2. Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+Pwd)	Gauge
Bahadurabad	Channel 1	27 Nov 94	14.22	FAP 24
	Channel 2	26 Nov 94	14.25	FAP 24

Table 2.3. Water-levels

FAP 24  RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 122 : 26-27 November, 1994	
		Location 01 : Jamuna River, Bahadurabad	
Files B4BR1T02 B4BQ1T01	Date : 05 Feb 1995 Init : mzh/sjr	Survey programme as made and key figures	
			page 2.1

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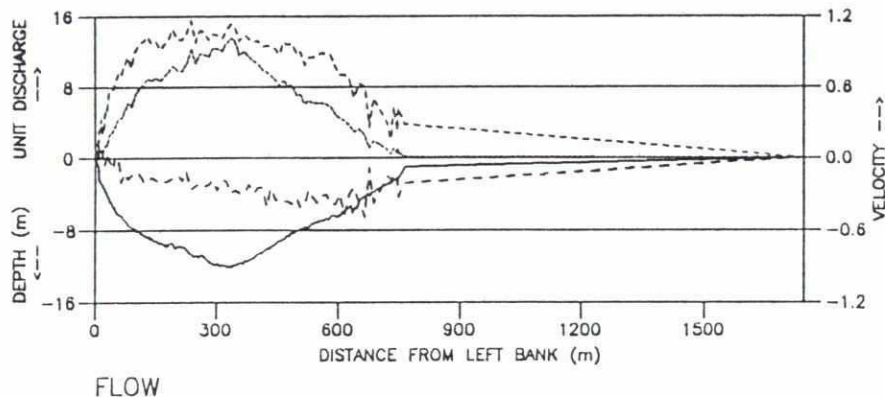


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



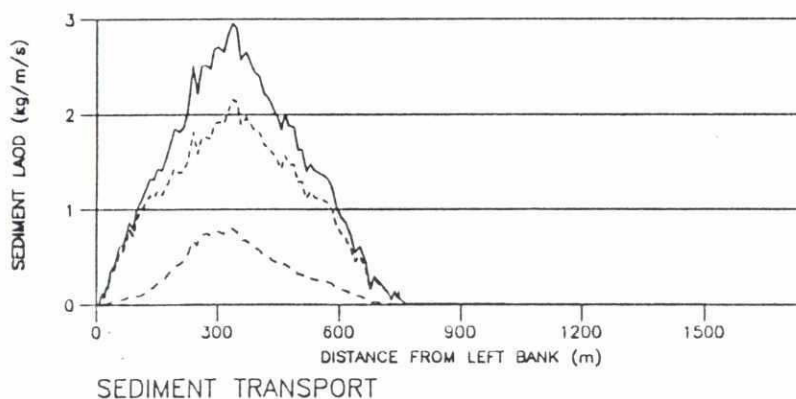
LEGEND :

- WATER DEPTH (m below STAGE)
- - - UNIT DISCHARGE (m³/s.m)
- ... U (m/s)
- . - V (m/s)

STAGE = 14.22 (m + PWD)

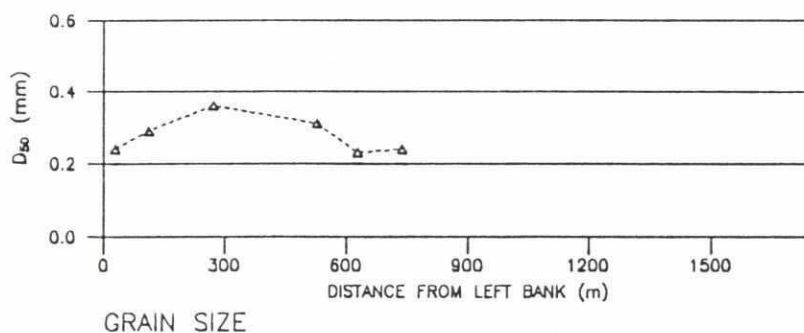
A = 6461 (m²)

Q = 5557 (m³/s)



LEGEND :

- S_{TOTAL} 1107.51 (kg/s)
- - - S_{FLASH LOAD} 858.94 (kg/s)
- ... S_{SUSP. BED} 244.88 (kg/s)
- . - S_{BED LOAD} 3.69 (kg/s)



LEGEND :

- ◊◊◊◊◊ D₅₀ SUSP. (mm)
- △△△△△ D₅₀ BED LOAD (mm)
- D₅₀ BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 122 : 26-27 November, 1994

Location 01 : Jamuna River, Bahadurabad

File : B4BR1T02

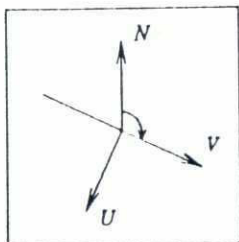
Date : 05 Feb 1995

Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 1

page

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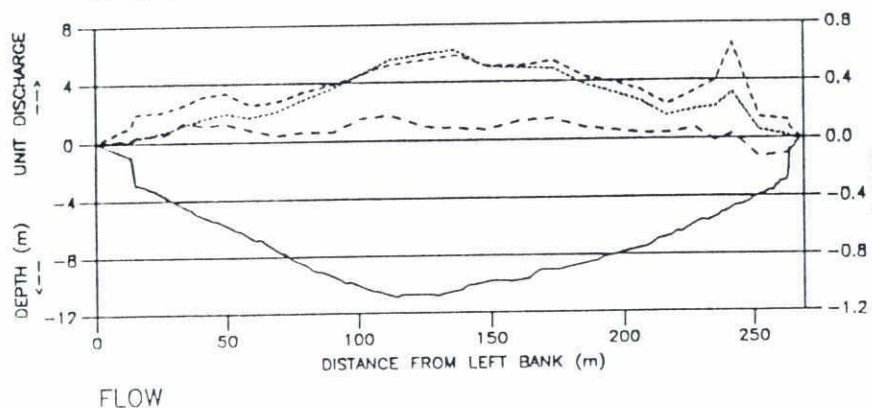


TRANSECT AZIMUTH = 115°

U - VELOCITY NORMAL TO TRANSECT (m/s)

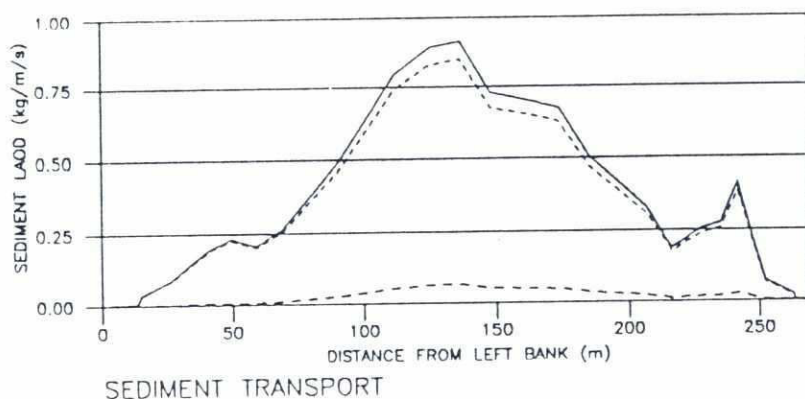
V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



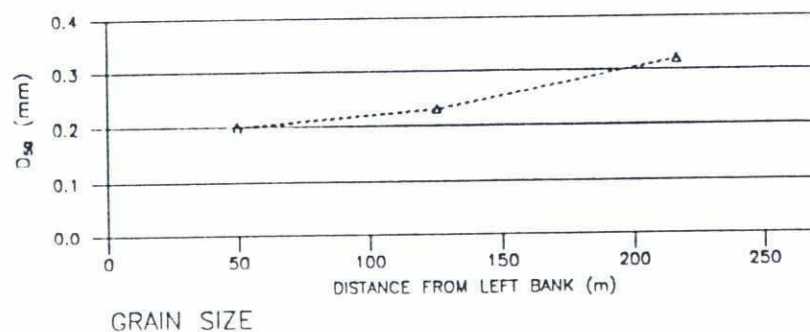
LEGEND :

— WATER DEPTH (m below STAGE)
 UNIT DISCHARGE ($m^3/s.m$)
 --- U (m/s)
 --- V (m/s)
 STAGE = 14.25 (m+PWD)
 A = 1897 (m^2)
 Q = 785 (m^3/s)



LEGEND :

— S_{TOTAL} 108.50 (kg/s)
 --- $S_{WASH LOAD}$ 101.38 (kg/s)
 $S_{SUSP. BED}$ 7.09 (kg/s)
 --- $S_{BED LOAD}$ 0.05 (kg/s)



LEGEND :

◇◇◇◇◇ $D_{50 SUSP.}$ (mm)
 △△△△△ $D_{50 BED LOAD}$ (mm)
 □□□□□ $D_{50 BED MAT.}$ (mm)

FAP 24



RIVER SURVEY PROJECT
 Flood Plan Coordination Organization
 Commission of the European Communities

Survey Bulletin 122 : 26-27 November, 1994

Location 01 : Jamuna River, Bahadurabad

File : B4BQ1T01

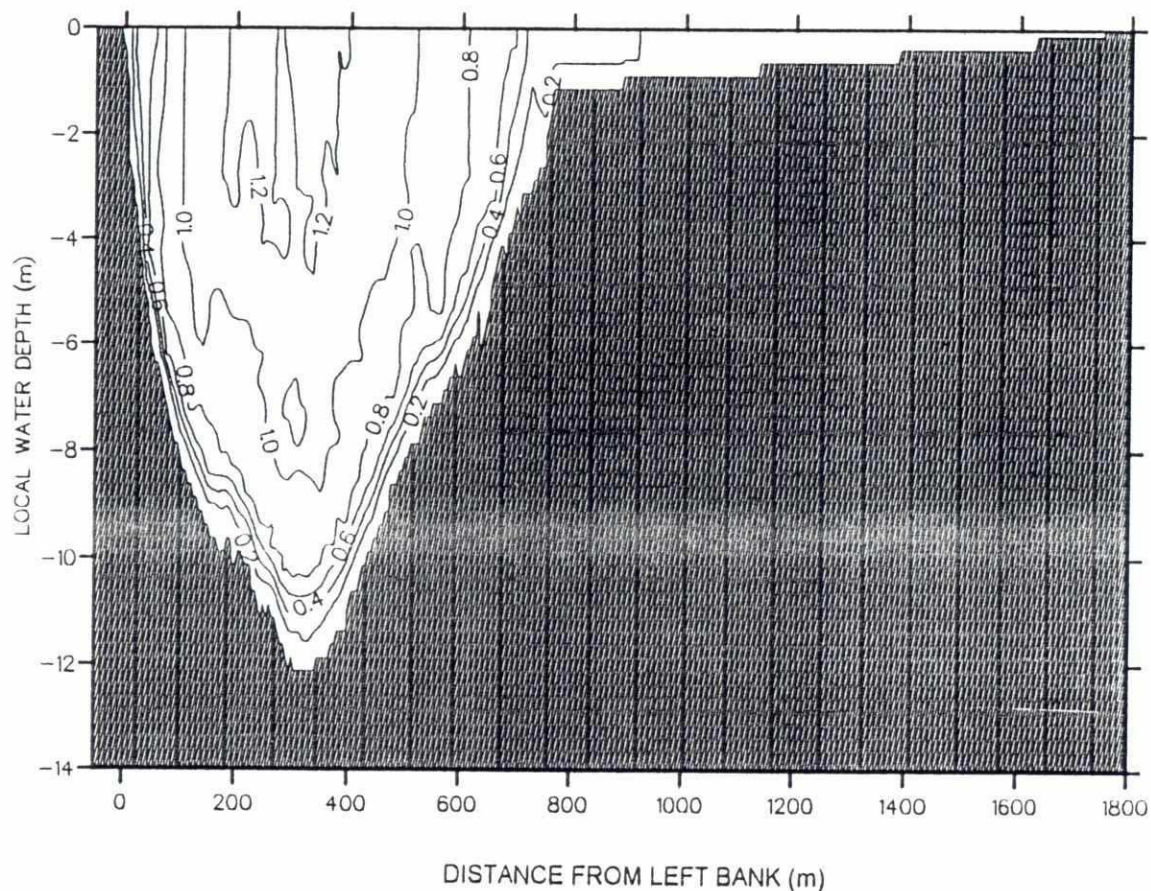
Date : 05 Feb 1995

Init : mzh/sjr

Horizontal distribution of flow and sediments
 Channel 2

page

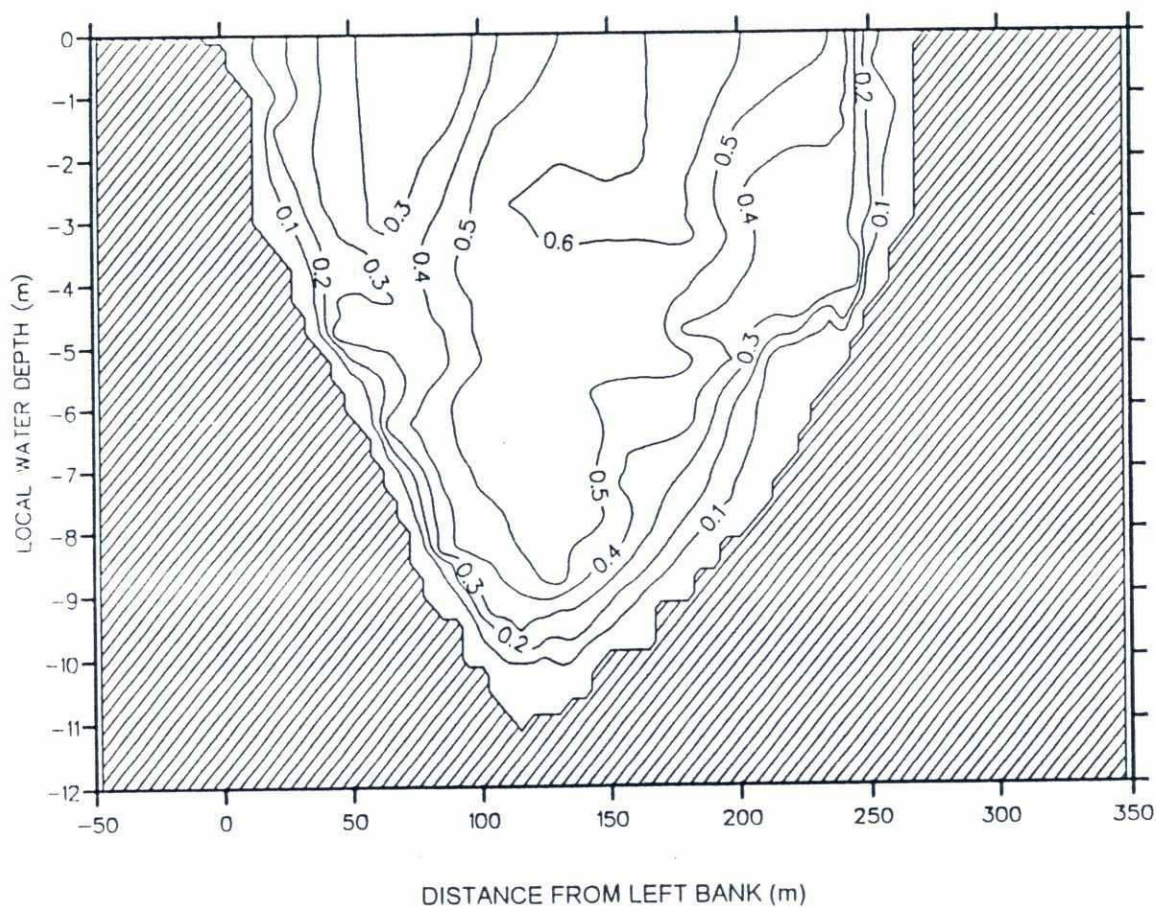
3.2



Iso-velocity contours (m/s)

Water-level : 14.22 m + PWD measured at the station indicated on Page 1.1

FAP 24 DELFT - DHI		Survey Bulletin 122 : 26-27 November, 1994	
		Location 01 : Jamuna River, Bahadurabad	
File : B4BR1T02	Date : 05 Feb 1995	Cross-sectional distribution of flow velocity Channel 1	page 4.1
	Init : mzh/sjr		



Iso-velocity contours (m/s)

Water-level : 14.25 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 122 : 26-27 November, 1994

Location 01 : Jamuna River, Bahadurabad

File : B4BQ1T01

Date : 05 Feb 1995

Init : mzh/sjr

Cross-sectional distribution of flow velocity
Channel 2

page

4.2

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Andreasen settling tube							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D10 (mm)	D50 (mm)	D90 (mm)
Sample not collected							
Table 5.1: Grain size of near bed suspended sediment (0.3 m above river bed)							

US BM-54 bed samples							
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm	D10 (mm)	D50 (mm)	D90 (mm)
Sample not collected							
Table 5.2: Grain size of bed material							

Helley-Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm		D35 (mm)	D50 (mm)	D65 (mm)
1	1	9411271130-1142	4.30	0.493	91.507	0.190	0.256	0.322
	2	9411271210-1223	8.30	0.323	99.677	0.255	0.299	0.350
	3	9411271046-1113	11.00	0.047	99.953	0.324	0.370	0.423
	4	9411271411-1418	7.50	0.159	99.841	0.263	0.306	0.355
	5	9411271348-1356	5.90	3.938	96.062	0.190	0.242	0.308
	6	9411271314-1333	2.60	2.033	97.967	0.219	0.276	0.332
	1	9411271130-1142	4.30	0.905	99.095	0.192	0.234	0.292
	2	9411271210-1223	8.30	0.478	99.522	0.242	0.291	0.344
	3	9411271046-1113	11.00	0.207	99.793	0.303	0.344	0.391
	4	9411271411-1418	7.50	0.219	99.781	0.265	0.308	0.357
	5	9411271348-1356	5.90	1.586	98.414	0.180	0.214	0.259
	6	9411271314-1333	2.60	8.674	91.326	0.167	0.210	0.269
2	1	9411261312-1321	5.60	9.187	90.813	0.152	0.200	0.263
	2	9411261122-1232	10.80	1.505	98.495	0.184	0.224	0.282
	3	9411261401-1417	7.50	0.310	99.690	0.269	0.311	0.360
	1	9411261312-1321	5.60	5.369	94.631	0.169	0.205	0.249
	2	9411261122-1232	10.80	1.189	98.811	0.191	0.238	0.300
	3	9411261401-1417	7.50	0.162	99.838	0.285	0.326	0.372
Table 5.3: Grain sizes of bed load								

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organisation Commission of the European Communities	Survey Bulletin 122 : 26-27 November, 1994
		Location 01 : Jamuna River, Bahadurabad	
	Date : 05 Feb 1995 Init : mzh/sjr	Grain size distributions	page 5.1

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9411270824-0829 9411270833-0840 9411271430-1436 9411271438-1444	B4BR1T01 B4BR1T02 * B4BR1T04 B4BR1T05
	2	9411260956-0958 9411261002-1005 9411261430-1433 9411261434-1436	B4BQ1T01 * B4BQ1T02 B4BQ1T03 B4BQ1T04

Table 6.1: ADCP & EMF transects

* : transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9411271130-1142	470472	777503	4 30	B4BR1P03 *
		2	9411271210-1223	470389	777498	8 30	B4BR1P04 *
		3	9411271046-1113	470235	777497	11 00	B4BR1P02 *
		4	9411271411-1418	469973	777502	7 50	B4BR1P07 *
		5	9411271348-1356	469871	777501	5 90	B4BR1P06 *
		6	9411271314-1333	469763	777504	2 60	B4BR1P05 *
	2	1	9411261312-1321	464041	795375	5 60	B4BQ1P03 *
		2	9411261122-1232	463966	795406	10 80	B4BQ1P01 **
		3	9411261401-1417	463881	795441	7 50	B4BQ1P05 *
		4	9411261340-1348	463852	795457	4 30	B4BQ1P04 *

Table 6.2: Vertical profiles

* S4 & MEX not available

** MEX not available

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	3	6	9411271046-1113	470235	777497	11 00
	2	2	6	9411261122-1232	463966	795406	10 80

Table 6.3: Suspended sediment - point sampled

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 122 : 26-27 November, 1994	
Date : 05 Feb 1995 Init : mzh/sjr		Location 01 : Jamuna River, Bahadurabad Collected data and their storage (1)	
		page 61	

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	1	1	1	9411271130-1142	470472	777503	4.30
		2	1	9411271210-1223	470389	777498	8.30
		3	1	9411271046-1113	470235	777497	11.00
		4	1	9411271411-1418	469973	777502	7.50
		5	1	9411271348-1356	469871	777501	5.90
		6	1	9411271314-1333	469763	777504	2.60
	2	1	1	9411261312-1321	464041	795375	5.60
		2	1	9411261122-1232	463966	795406	10.80
		3	1	9411261401-1417	463881	795441	7.50
		4	1	9411261340-1348	463852	795457	4.30

Table 6.4 Suspended sediment - depth integrated

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1	9411271130-1142	470472	777503	4.30	A1666
		2	9411271210-1223	470389	777498	8.30	A2249
		3	9411271046-1113	470235	777497	11.00	A1869
		4	9411271411-1418	469973	777502	7.50	A2306
		5	9411271348-1356	469871	777501	5.90	A3037
		6	9411271314-1333	469763	777504	2.60	A3014
		1	9411271130-1142	470472	777503	4.30	A2137
		2	9411271210-1223	470389	777498	8.30	A1865
		3	9411271046-1113	470235	777497	11.00	A1829
		4	9411271411-1418	469973	777502	7.50	A1640
		5	9411271348-1356	469871	777501	5.90	A1895
		6	9411271314-1333	469763	777504	2.60	A2258
	2	1	9411261312-1321	464041	795375	5.60	A878
		2	9411261122-1232	463966	795406	10.80	A3038
		3	9411261401-1417	463881	795441	7.50	A103
		1	9411261312-1321	464041	795375	5.60	A2188
		2	9411261122-1232	463966	795406	10.80	A881
		3	9411261401-1417	463881	795441	7.50	A2167

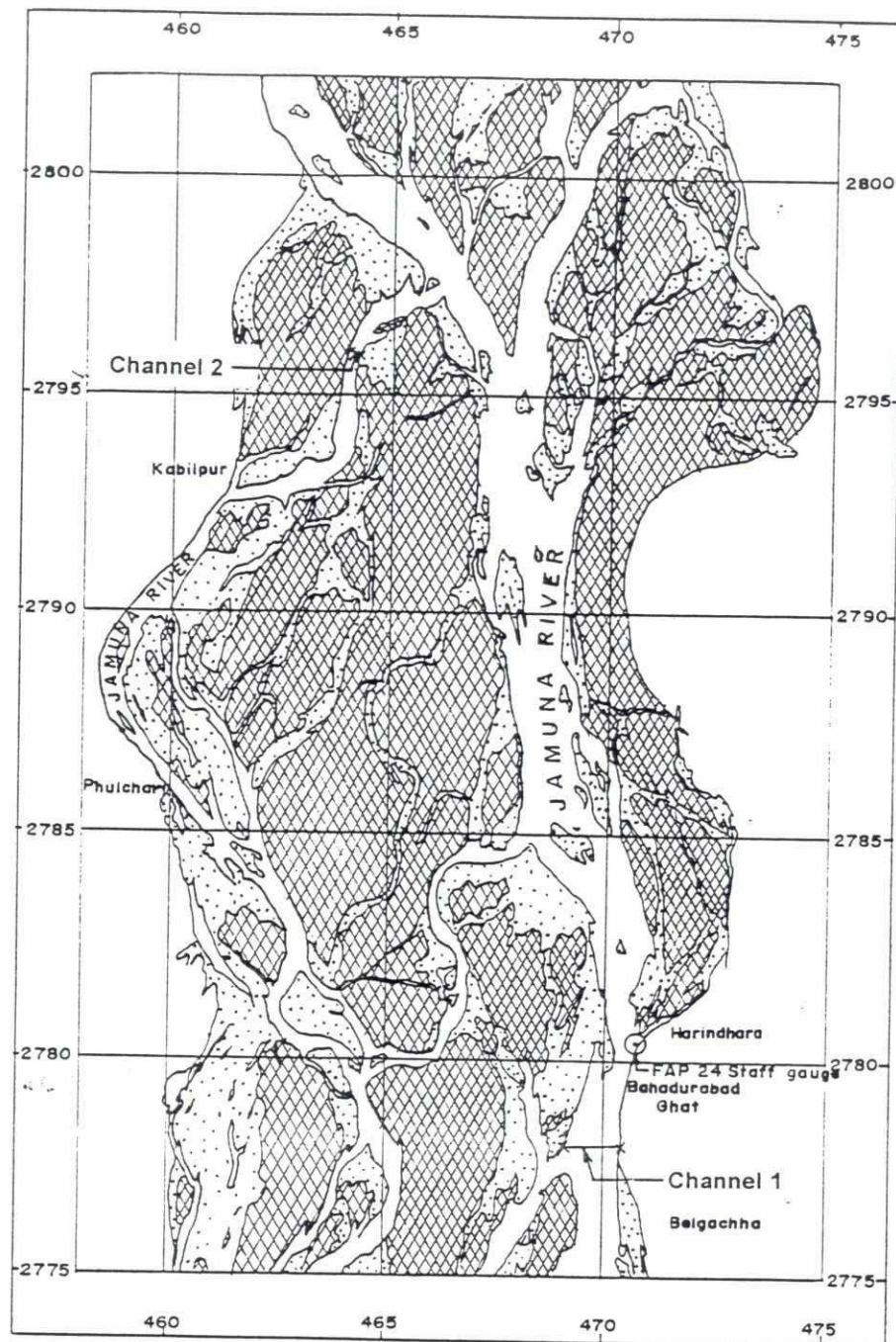
Table 6.5 Bed load

 FAP 24 RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 122 : 26-27 November, 1994	
		Location 01 : Jamuna River, Bahadurabad	
	Date : 05 Feb 1995	Collected data and their storage (2)	page
	Init : mzh/sjr		6.2

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	B4BR1T02 ase
ADCP/S4/EMF data	2	QUATTRO	B4BQ1T01 ase
Echosounder data	1	QUATTRO	B4BR1T02 ech
Echosounder data	2	QUATTRO	B4BQ1T01 ech
Sediment transport data	1	QUATTRO	B4BR1T02 sed
Sediment transport data	2	QUATTRO	B4BQ1T01 sed
Bed load sed. analysis	1	QUATTRO	B4BR1T02 bdl
Bed load sed. analysis	2	QUATTRO	B4BQ1T01 bdl
Suspended sed. conc. analysis	1	QUATTRO	B4BR1T02 ssc
Suspended sed. conc. analysis	2	QUATTRO	B4BQ1T01 ssc
Transect plot data	1	QUATTRO	B4BR1T02 trs
Transect plot data	2	QUATTRO	B4BQ1T01 trs
Iso-velocity plot data	1	MIKE 21	B4BR1T02 ct2
		MIKE 21	B4BR1T02 dt2
Iso-velocity plot data	2	MIKE 21	B4BQ1T01 ct2
		MIKE 21	B4BQ1T01 dt2

Table 7 1 PSD 24 Database file description

 FAP 24 DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 122 : 26-27 November, 1994	
		Location 01 : Jamuna River, Bahadurabad	
	Date : 05 Feb 1995	PSD 24 Database file description	page
	Init : mzh/sjr		7.1



LEGEND:

-  Highland
-  Unstable/low char
-  FAP 24 Staff gauge



5000m 2500m 0

Map is based on satellite images of March 1995

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 DELFT - DHI

RIVER SURVEY PROJECT
 Flood Plan Coordination Organization
 Commission of the European Communities

Survey Bulletin 132 : 08 - 09 February, 1995

Location 1 : Jamuna River, Bahadurabad

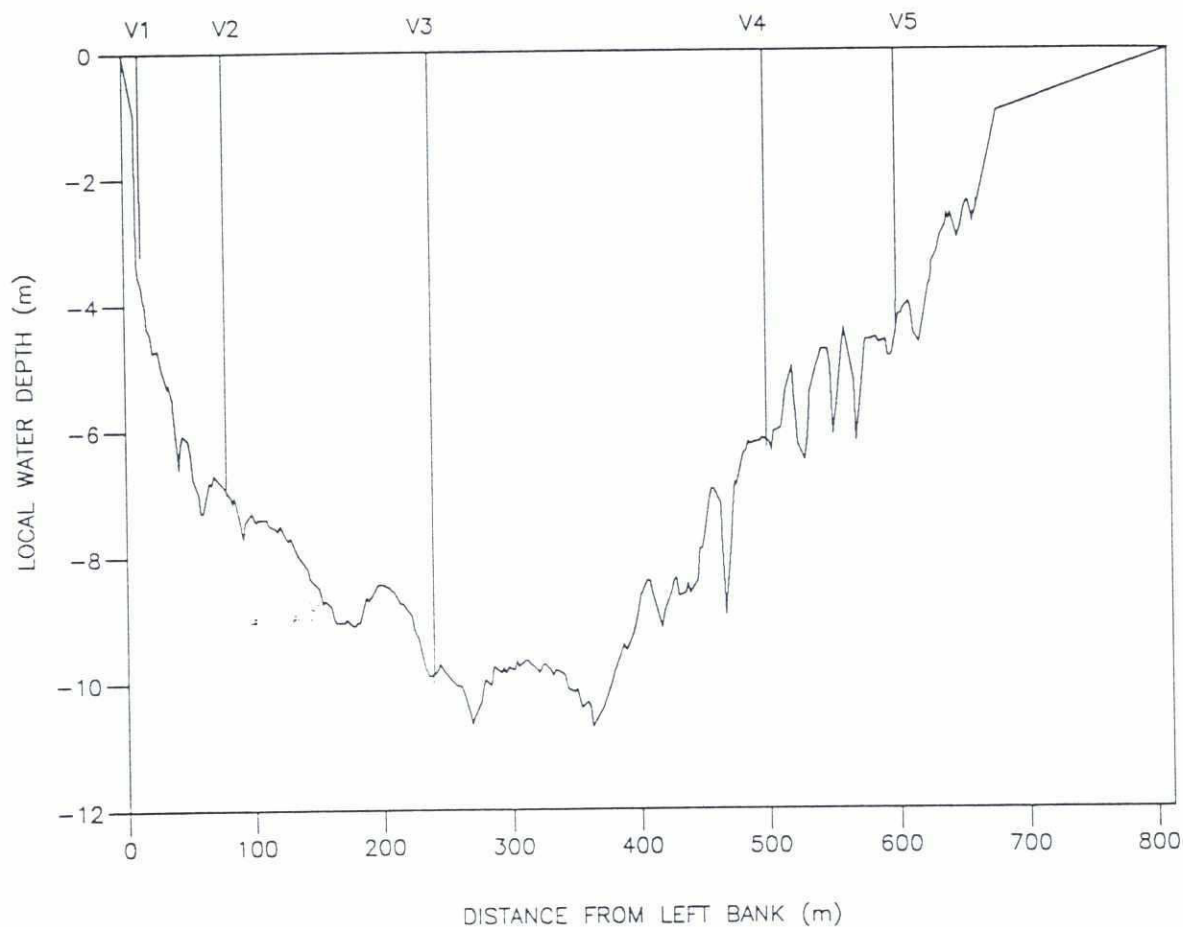
Date : 24 Aug 1995

Init : urzh/sjr

Location map

page
1.1

800



Water level : 12.90 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 132 : 08 - 09 February, 1995

Location 1 : Jamuna River, Bahadurabad

File : B5291T02

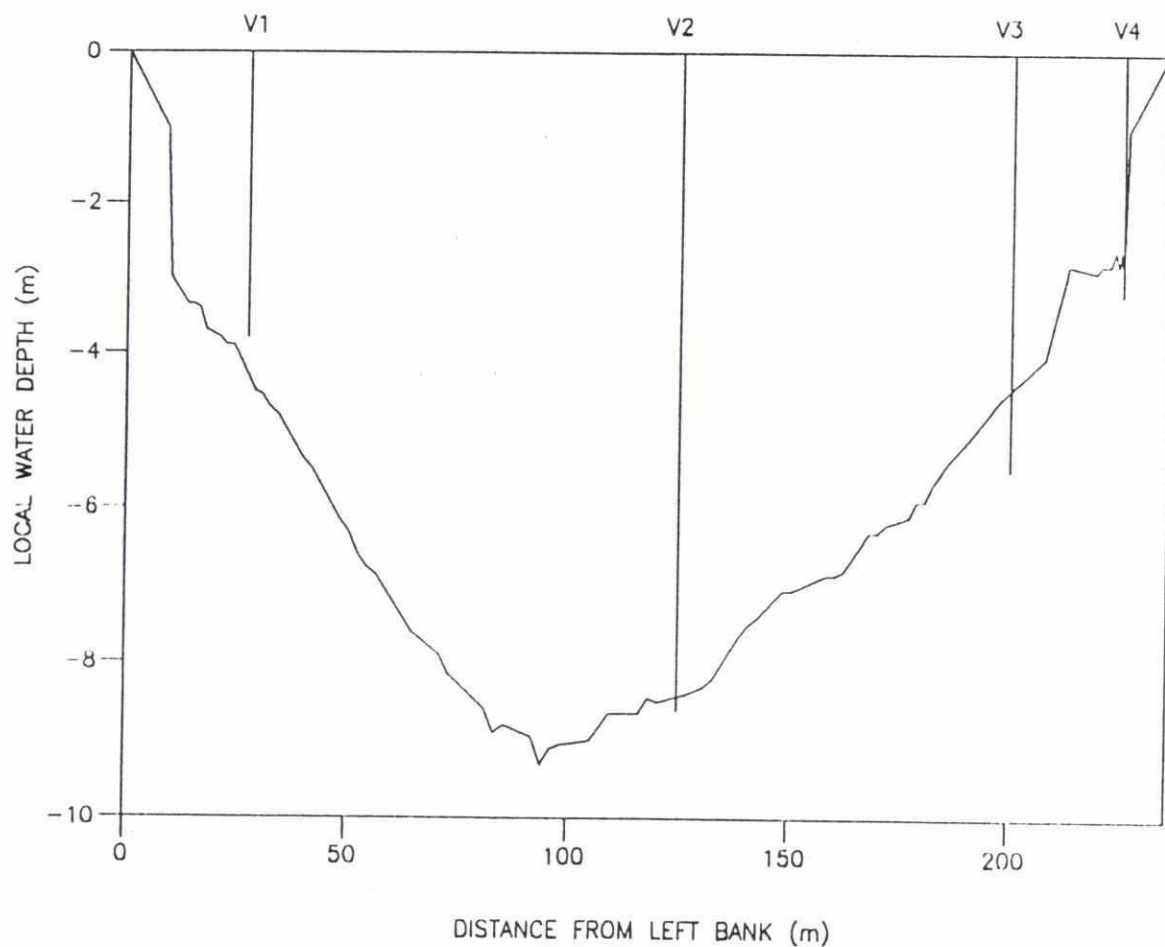
Date : 24 Aug 1995

Init : mzh/sjr

Cross-sections and measured verticals
Channel 1

page

1.2



Water level : 12.91 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 132 : 08 - 09 February, 1995	
		Location 1 : Jamuna River, Bahadurabad	
File : B5281T02	Date : 24 Aug 1995	Cross-sections and measured verticals Channel 2	page
	Init : mzh/sjr		13

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	4	1	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No of verticals in channel	5	4	-	-
	ADCP	5	4	-	-
	S4 current meter	1	1	-	-
	Ott current meter	-	-	-	-
		-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	6	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	5	4	-	-
	Collapsible bag	-	-	-	-
		-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	10	4	-	-
	Delft Bottle	-	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1: Survey programme as made

	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	812	4947	12.90	3335	0.69	337.57
Channel 2	235	1399	12.91	225	0.10	18.04

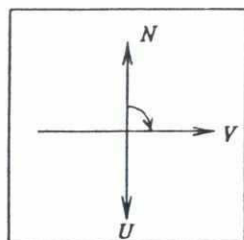
Table 2.2: Key figures

Gauge location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 2	08 Feb 95	12.91	FAP 24
	Channel 1	09 Feb 95	12.90	

Table 2.3: Water-levels

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 132 : 08 - 09 February, 1995	
				Location 1 : Jamuna River, Bahadurabad	
Files : B5291T02 B5281T02		Date : 24 Aug 1995 Init : mzh'sjr		Survey programme as made and key figures	page 2.1

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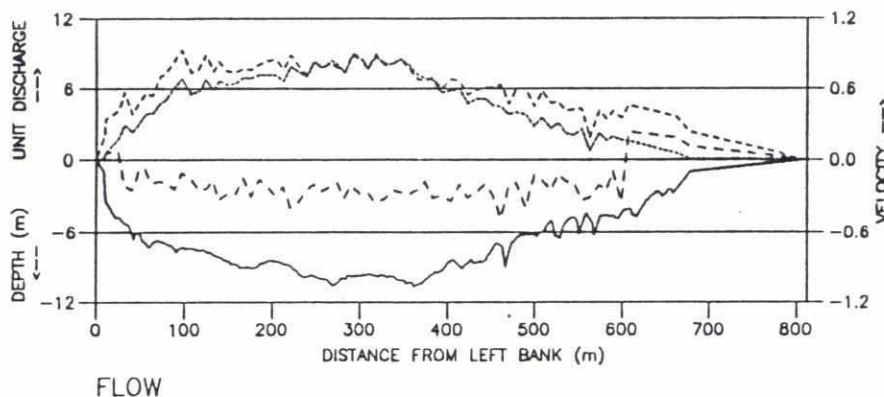


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



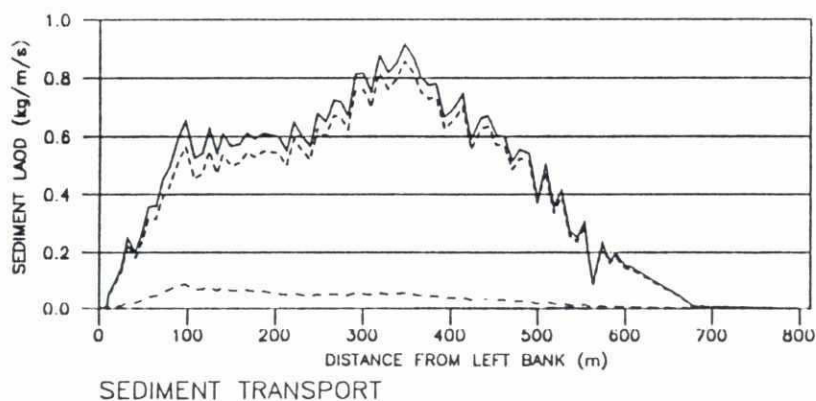
LEGEND :

— WATER DEPTH (m below STAGE)
 --- UNIT DISCHARGE (m³/s.m)
 ... U (m/s)
 -.- V (m/s)

STAGE = 12.90 (m+PWD)

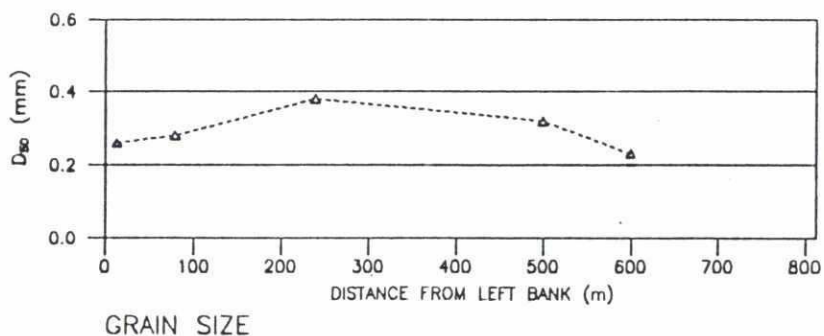
A = 4947 (m²)

Q = 3335 (m³/s)



LEGEND :

— S_{TOTAL} 338.25 (kg/s)
 --- S_{WASH LOAD} 311.54 (kg/s)
 ... S_{SUSP. BED} 26.03 (kg/s)
 -.- S_{BED LOAD} 0.69 (kg/s)



LEGEND :

◇◇◇◇◇ D₅₀ SUSP. (mm)
 △△△△△ D₅₀ BED LOAD (mm)
 ▢▢▢▢▢ D₅₀ BED MAT. (mm)

FAP 24



DELFT · DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 132 : 08 - 09 February, 1995

Location 1 : Jamuna River, Bahadurabad

File : B5291T02

Date : 24 Aug 1995

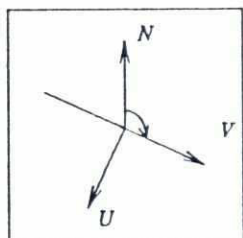
Init : mzh/sjr

Horizontal distribution of flow and sediments
 Channel 1

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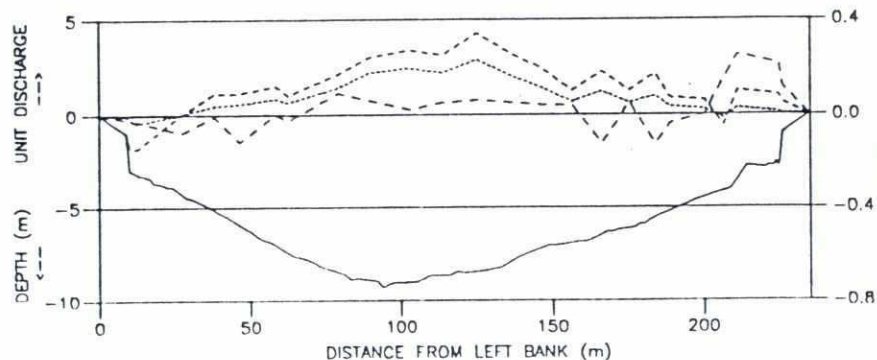


TRANSECT AZIMUTH = 115°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

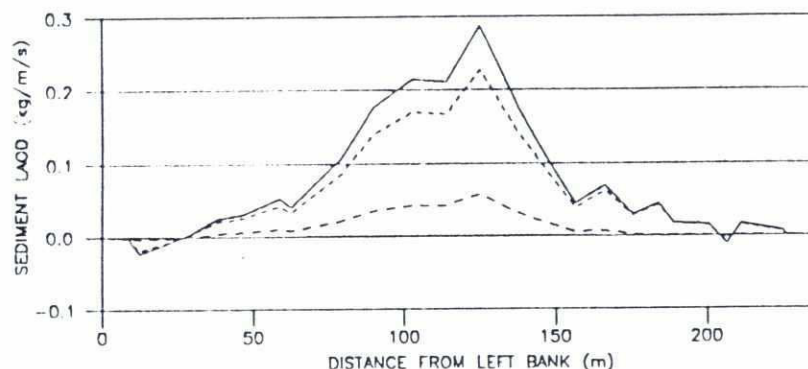
— WATER DEPTH (m below STAGE)
 - - - UNIT DISCHARGE (m³/s.m)
 - - - U (m/s)
 - - - V (m/s)

STAGE = 12.91 (m+P.W.D.)

A = 1399 (m³)

Q = 225 (m³/s)

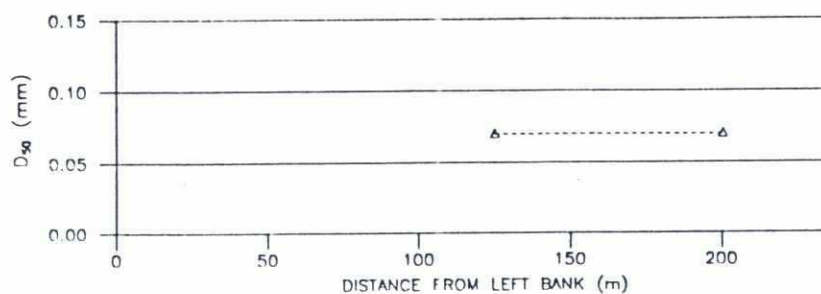
FLOW



LEGEND :

— S_{TOTAL} 18.13 (kg/s)
 - - - S_{BATH LOAD} 14.75 (kg/s)
 - - - S_{SURP. BED} 3.29 (kg/s)
 - - - S_{BED LOAD} 0.10 (kg/s)

SEDIMENT TRANSPORT



LEGEND :

◊◊◊◊ D₅₀ SURF. (mm)
 △△△△ D₅₀ BED LOAD (mm)
 □□□□ D₅₀ BED MAT. (mm)

GRAIN SIZE

FAP 24



RIVER SURVEY PROJECT
 Flood Plan Coordination Organization
 Commission of the European Communities

Survey Bulletin 132 : 08 - 09 February, 1995

Location 1 : Jamuna River, Bahadurabad

Date : 24 Aug 1995

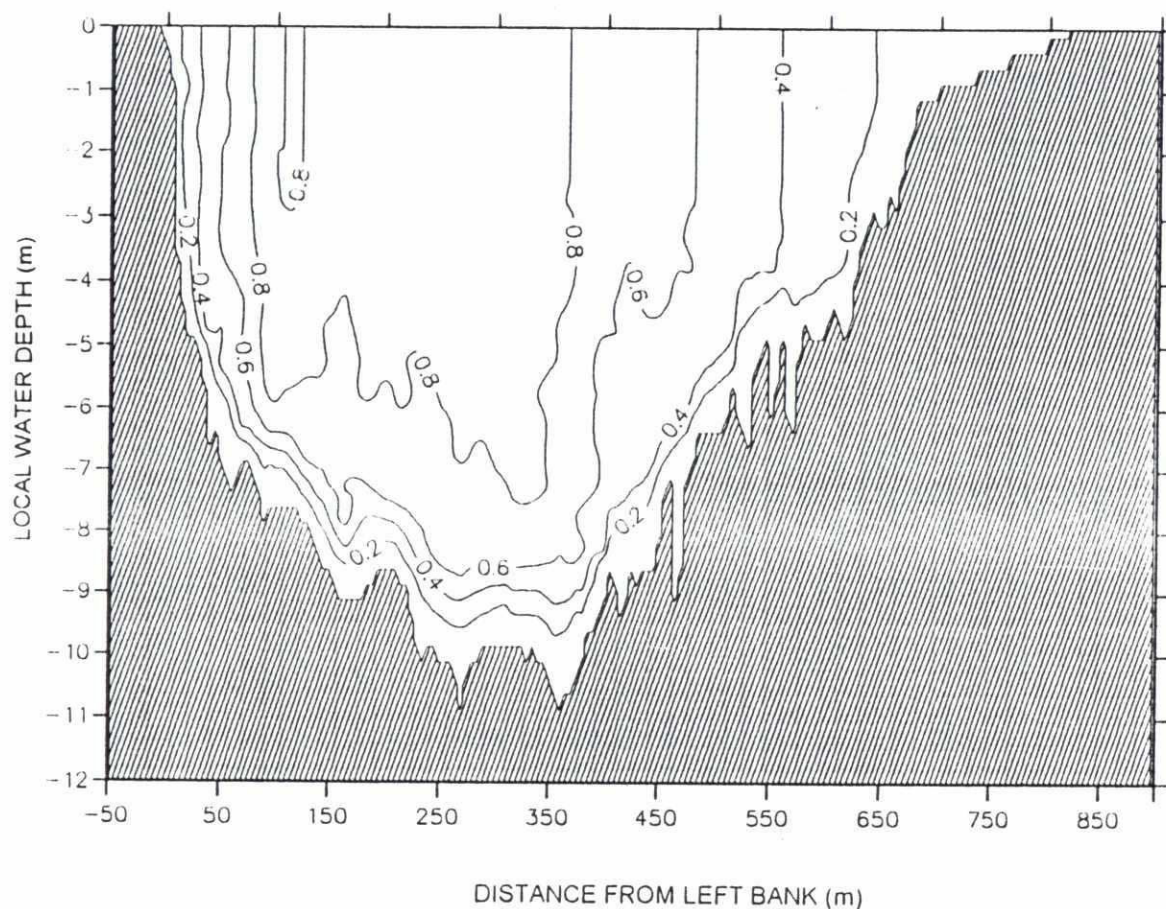
Init : mzh/sjr

Horizontal distribution of flow and sediments
 Channel 2

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File B5281T02



Iso-velocity contours (m/s)

Water level : 12.90 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT · DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 132 : 08 - 09 February, 1995

Location 1 : Jamuna River, Bahadurabad

File : B5291T02

Date : 24 Aug 1995

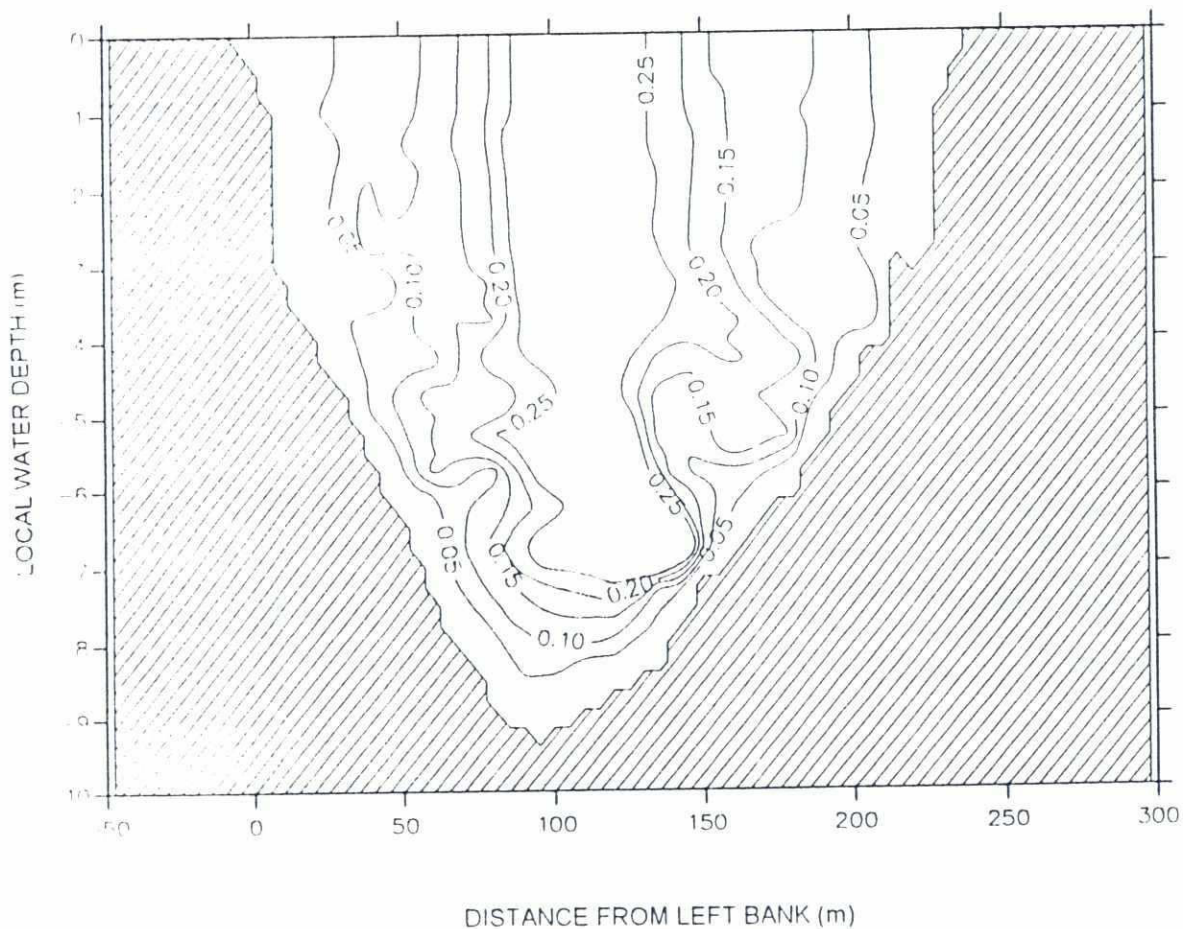
Init : mzh/sjr

Cross-sectional distribution of flow velocity
Channel 1

page

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Iso-velocity contours (m/s)

Water level : 12.91 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 132 : 08 - 09 February, 1995	
		Location 1 : Jamuna River, Bahadurabad	
File B5281T02	Date : 24 Aug 1995	Cross-sectional distribution of flow velocity Channel 2	page
	Init : mzh/sjr		42

Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
1	1	9502091146-1155	3.20	8.829	91.171	0.172	0.229	0.29
	2	9502091125-1134	7.00	1.688	98.312	0.192	0.236	0.29
	3	9502091001-1106	10.00	1.747	98.253	0.282	0.322	0.36
	4	9502091203-1218	6.30	0.092	99.908	0.278	0.319	0.36
	5	9502091232-1243	4.50	4.767	95.233	0.208	0.269	0.32
	1	9502091146-1155	3.20	2.154	97.846	0.250	0.294	0.34
	2	9502091125-1134	7.00	0.116	99.884	0.280	0.321	0.36
	3	9502091001-1106	10.00	0.368	99.632	0.365	0.438	0.54
	4	9502091203-1218	6.30	0.101	99.899	0.287	0.327	0.37
	5	9502091232-1243	4.50	4.329	95.671	0.160	0.190	0.22
2	2	9502081316-1352	8.60	40.331	59.669	-	0.072	0.08
	3	9502081421-1426	5.50	56.655	43.345	-	-	0.07
	2	9502081316-1352	8.60	42.310	57.690	-	0.071	0.08
	3	9502081421-1426	5.50	42.510	57.490	-	0.071	0.09

Table 5.1 : Grain sizes of bed load

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 132 : 08 - 09 February, 1995	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 24 Aug 1995	Grain size distributions	page 51
	Init : mzh/sjr		

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Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9502090823-0829 9502090834-0841 9502091256-1302 9502091304-1349	B5291T01 B5291T02 * B5291T04 B5291T05
	2	9502081042-1045	B5281T02 *

Table 6.1: ADCP & EMF transects

* : transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9502091146-1155	470466	777502	3 20	B5291P04
		2	9502091125-1134	470397	777507	7 00	B5291P03
		3	9502091001-1106	470240	777507	10 00	B5291P02
		4	9502091203-1218	469975	777501	6 30	B5291P05
		5	9502091232-1243	469875	777501	4 50	B5291P06
	2	1	9502081458-1502	464037	795381	3 80	B5281P09
		2	9502081316-1352	463948	795419	8 60	B5281P03
		3	9502081421-1426	463895	795473	5 50	B5281P07
		4	9502081439-1446	463849	795428	3 20	B5281P08

Table 6.2 Vertical profiles

* S4 & MEX not available

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	3	6	9502091001-1106	470240	777507	10 00
	1	3	6	9502081316-1352	463948	795419	8 60

Table 6.3: Suspended sediment - point sampled

 FAP 24 DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organisation Commission of the European Communities	Survey Bulletin 132 : 08 - 09 February, 1995	
	Date : 24 Aug 1995	Location 1 : Jamuna River, Bahadurabad	
	Init : mzh/sjr	Collected data and their storage (1)	page 61

Method	Channel	Vertical	No of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
ended sediments	1	1	1	9502091146-1155	470466	777502	3.20
		2	1	9502091125-1134	470397	777507	7.00
		3	1	9502091001-1106	470240	777507	10.00
		4	1	9502091203-1218	469975	777501	6.30
		5	1	9502091232-1243	469875	777501	4.50
	2	1	1	9502081458-1502	464037	795381	3.80
		2	1	9502081316-1352	463948	795419	8.60
		3	1	9502081421-1426	463895	795473	5.50
		4	1	9502081439-1446	463849	795428	3.20
6.4 Suspended sediment - depth integrated							

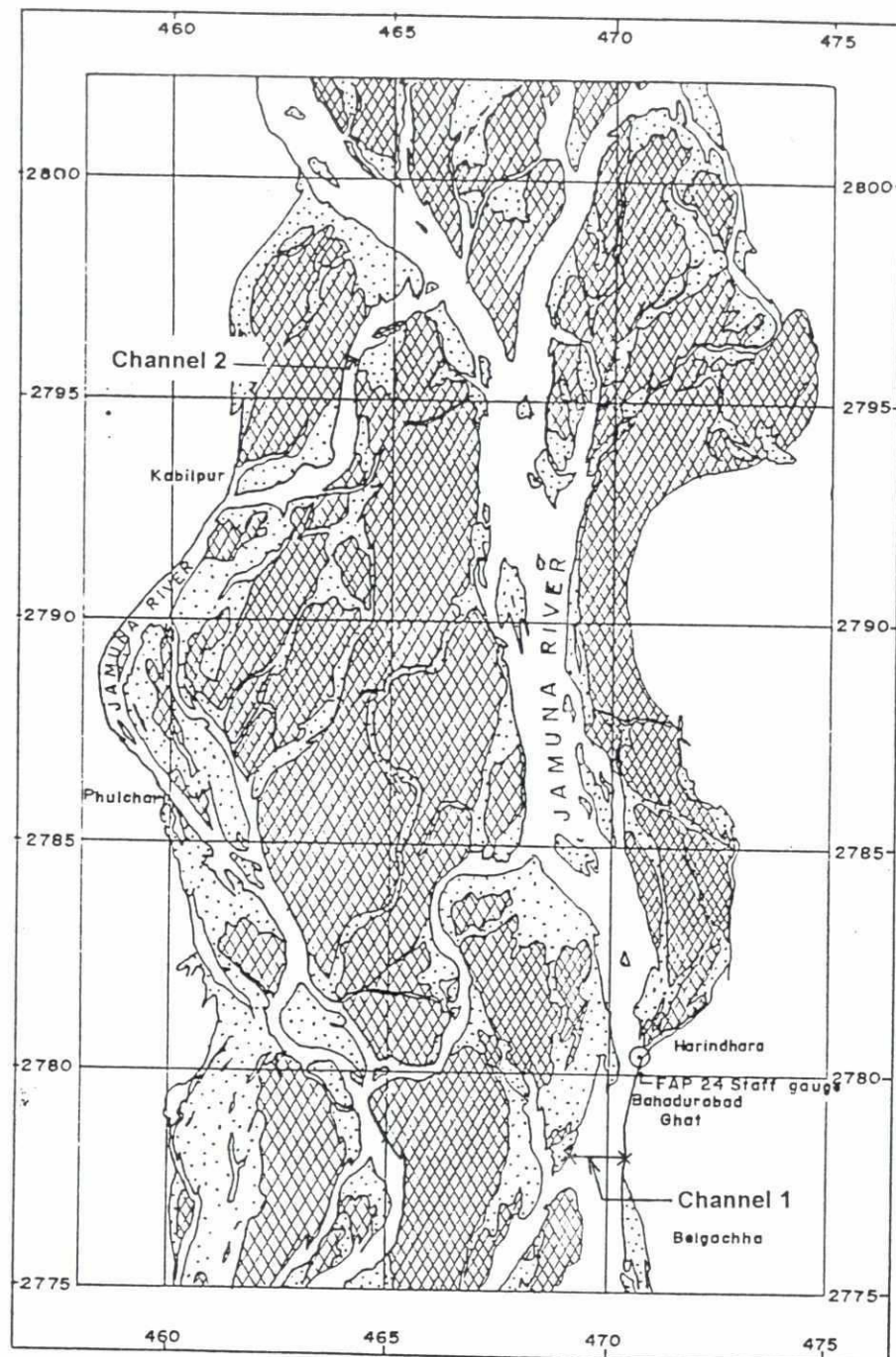
Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
y-Smith Sample	1	1	9502091146-1155	470466	777502	3.20	A2337
		2	9502091125-1134	470397	777507	7.00	A3042
		3	9502091001-1106	470240	777507	10.00	A2153
		4	9502091203-1218	469975	777501	6.30	A2163
		5	9502091232-1243	469875	777501	4.50	A2282
	2	1	9502091146-1155	470466	777502	3.20	A1627
		2	9502091125-1134	470397	777507	7.00	A2302
		3	9502091001-1106	470240	777507	10.00	A2306
		4	9502091203-1218	469975	777501	6.30	A884
		5	9502091232-1243	469875	777501	4.50	A2033
		2	9502081316-1352	463948	795419	8.60	A1155
		3	9502081421-1426	463895	795473	5.50	A883
		2	9502081316-1352	463948	795419	8.60	A464
		3	9502081421-1426	463895	795473	5.50	A2167
6.5 Bed load							

FAP 24  RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 132 : 08 - 09 February, 1995	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 24 Aug 1995	Collected data and their storage (2)	page
	Init : mzh/sjr		62

Types of Data	Channel	Format	Filename 800
ADCP/S4/EMF data	1	QUATTRO	B5291T02 ase
ADCP/S4/EMF data	2	QUATTRO	B5281T02 ase
Echosounder data	1	QUATTRO	B5291T02 ech
Echosounder data	2	QUATTRO	B5281T02 ech
Sediment transport data	1	QUATTRO	B5291T02 sed
Sediment transport data	2	QUATTRO	B5281T02 sed
Bed load sed. analysis	1	QUATTRO	B5291T02 bdl
Bed load sed. analysis	2	QUATTRO	B5281T02 bdl
Suspended sed. conc. analysis	1	QUATTRO	B5291T02 ssc
Suspended sed. conc. analysis	2	QUATTRO	B5281T02 ssc
Transect plot data	1	QUATTRO	B5291T02 .trs
Transect plot data	2	QUATTRO	B5281T02 .trs
Iso-velocity plot data	1	MIKE 21	B5291T02 .cl2
		MIKE 21	B5291T02 .dl2
Iso-velocity plot data	2	MIKE 21	B5281T02 .cl2
		MIKE 21	B5281T02 .dl2

Table 7.1 PSD 24 Database file description

FAP 24  DELETT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 132 : 08 - 09 February, 1995	
Date : 24 Aug 1995 Init : mzh/sjr		Location 1 : Jamuna River, Bahadurabad		PSD 24 Database file description	
				page	7.1



LEGEND:

-  High land
-  Unstable/low char
-  FAP 24 Staff gauge



5000m 2500m 0

Map is based on satellite images of March 1995

FAP 24

 DELFT - DHI

RIVER SURVEY PROJECT
 Flood Plan Coordination Organization
 Commission of the European Communities

Survey Bulletin 138 : 11 - 12 March, 1995

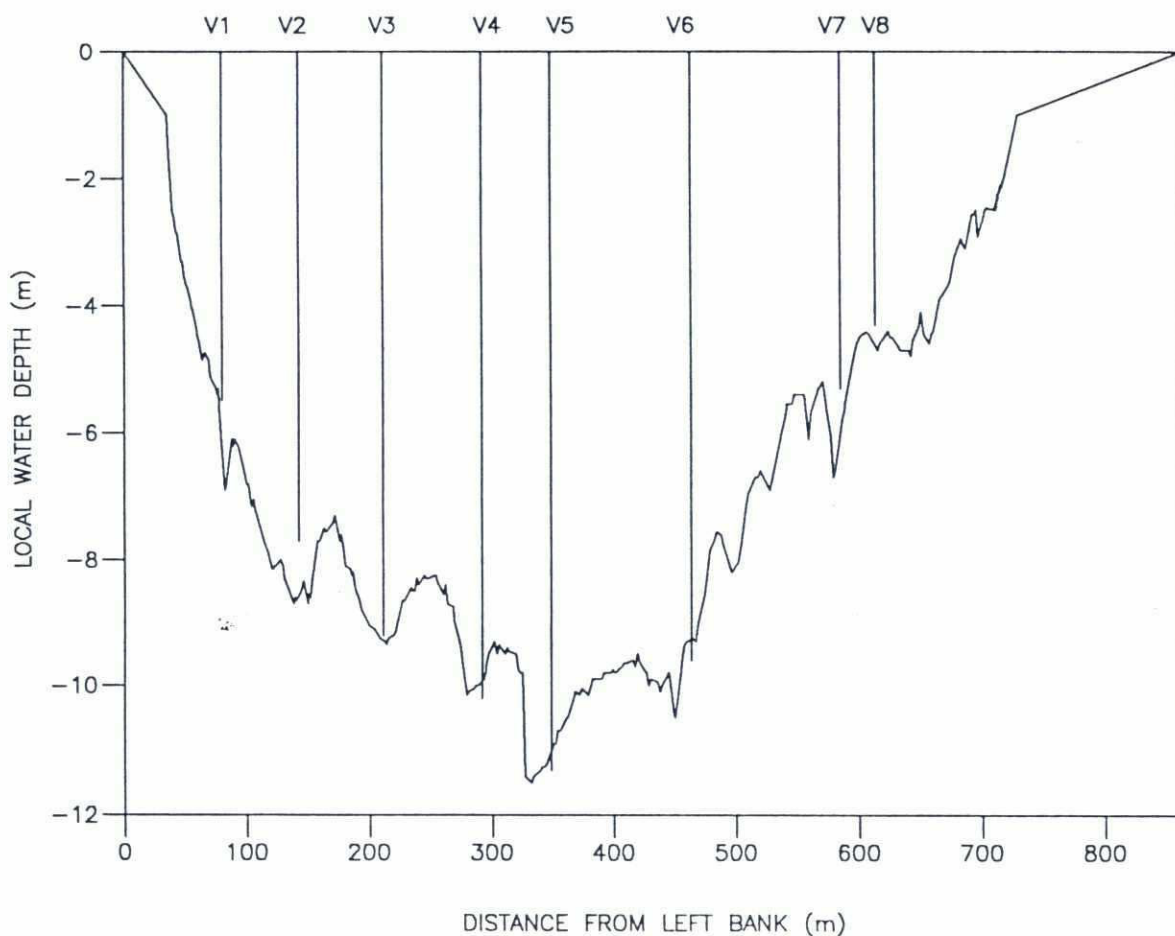
Location 1 : Jamuna River, Bahadurabad

Date : 24 Aug 1995

Init : mzh/sjr

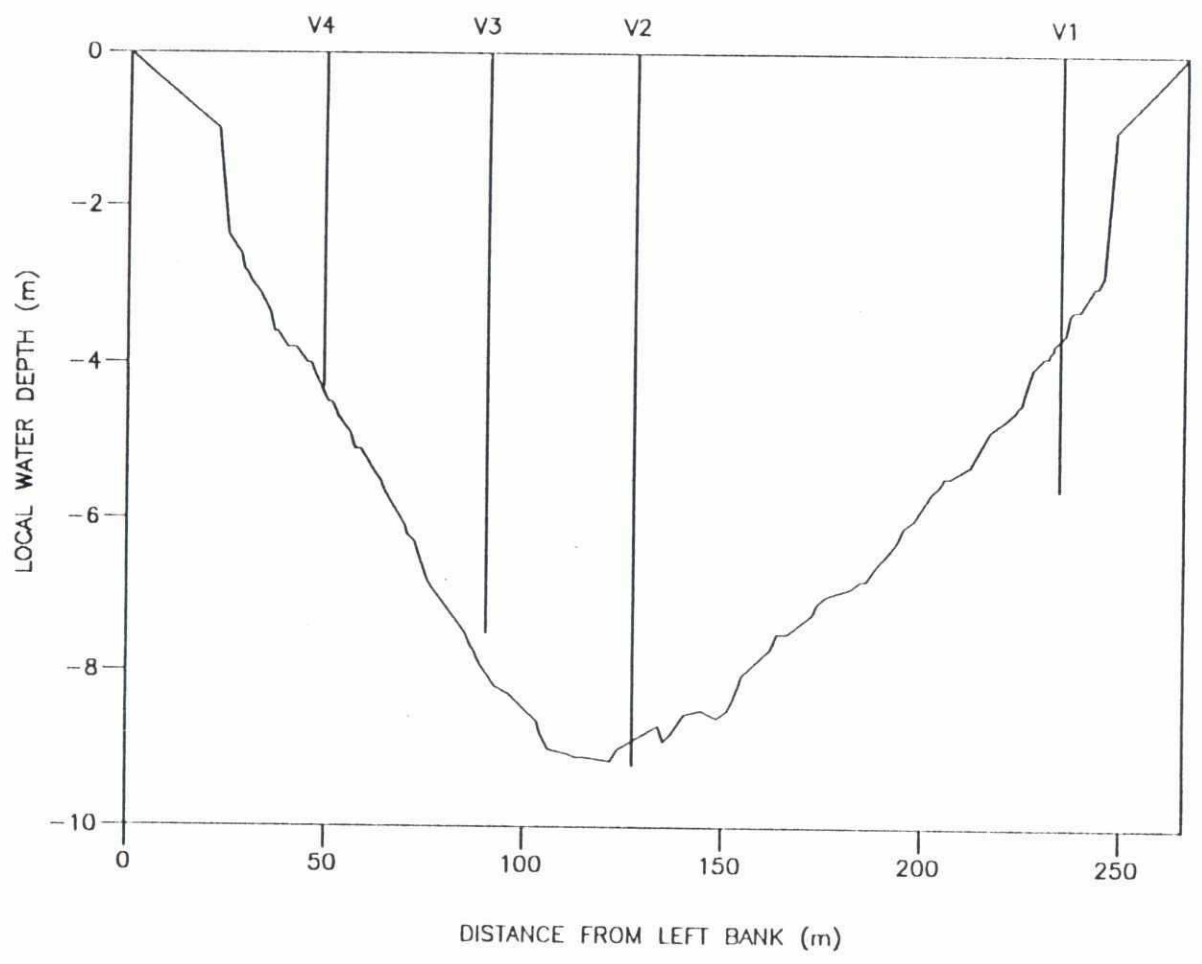
Location map

page
1.1



Water level : 13.10 m + PWD measured at the station indicated on Page 1.1

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Water level : 13.10 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 138 : 11 - 12 March, 1995	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
File : B53B1T13	Date : 24 Aug 1995 Init : mzh/sjr	Cross-sections and measured verticals Channel 2	page 13

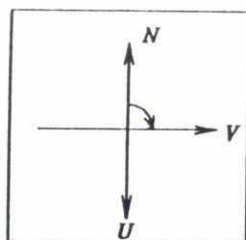
Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	6	4	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No of verticals in channel	8	4	-	-
	ADCP	8	4	-	-
	S4 current meter	1	1	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	6	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	8	4	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	16	-	-	-
	Delft Bottle	-	2	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-
Table 2 1: Survey programme as made					

	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	864	5113	13.10	3479	2.32	341.70
Channel 2	266	1447	13.10	338	-	9.57
Table 2.2: Key figures						

Gauge location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	12 Mar 95	13.10	FAP 24
	Channel 2	11 Mar 95	13.10	

Table 2 3: Water-levels

FAP 24  DELFT - DHI		Survey Bulletin 138 : 11 - 12 March, 1995	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
Files : B53C1T02 B53B1T13	Date : 24 Aug 1995 Init : mzh/sjr	Survey programme as made and key figures	page 21

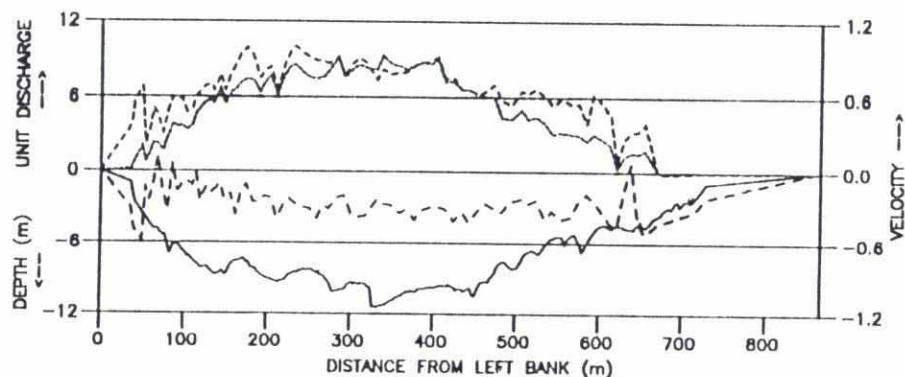


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STACK)

- - - UNIT DISCHARGE (m³/s.m)

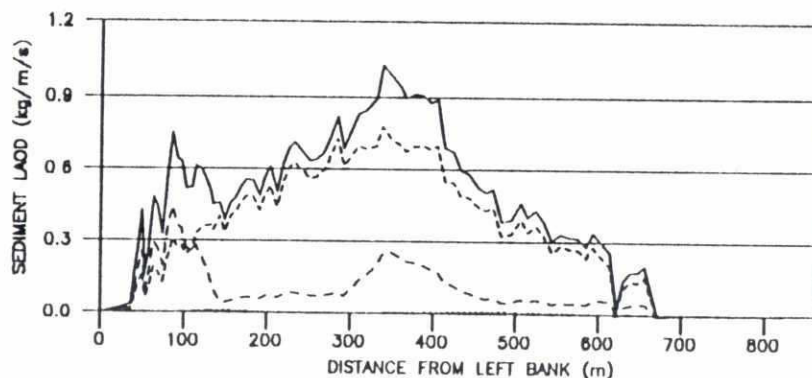
... U (m/s)

- . - V (m/s)

STACK = 13.10 (m+PWD)

A = 5113 (m²)

Q = 3479 (m³/s)



SEDIMENT TRANSPORT

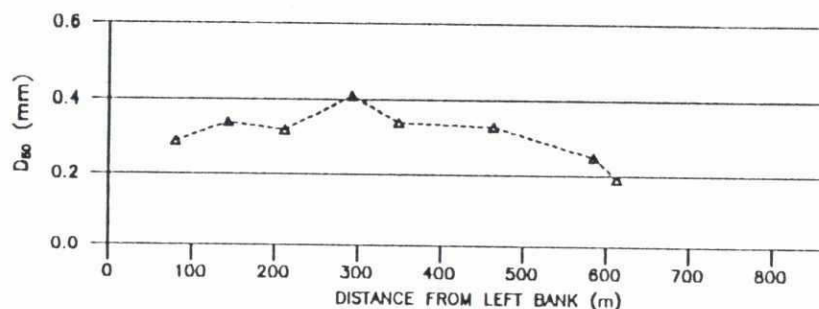
LEGEND :

— S_{TOTAL} 344.03 (kg/s)

- - - S_{WASH LOAD} 287.15 (kg/s)

... S_{SUMP. BED} 74.65 (kg/s)

- . - S_{BED LOAD} 2.32 (kg/s)



GRAIN SIZE

LEGEND :

♦♦♦♦♦ D₅₀ SUSP. (mm)

△△△△△ D₅₀ BED LOAD (mm)

□□□□□ D₅₀ BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 138 : 11 - 12 March, 1995

Location 1 : Jamuna River, Bahadurabad

File : B53C1T02

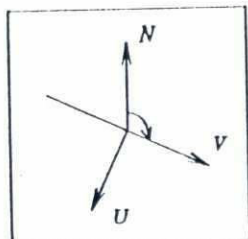
Date : 24 Aug 1995

Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 1

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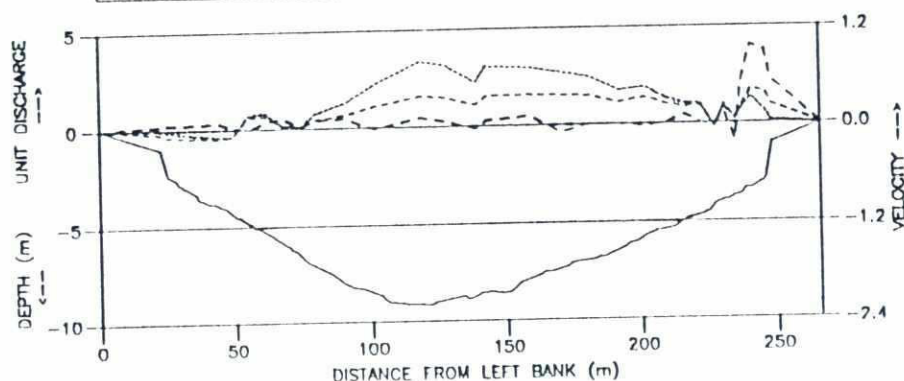


TRANSECT AZIMUTH = 115°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

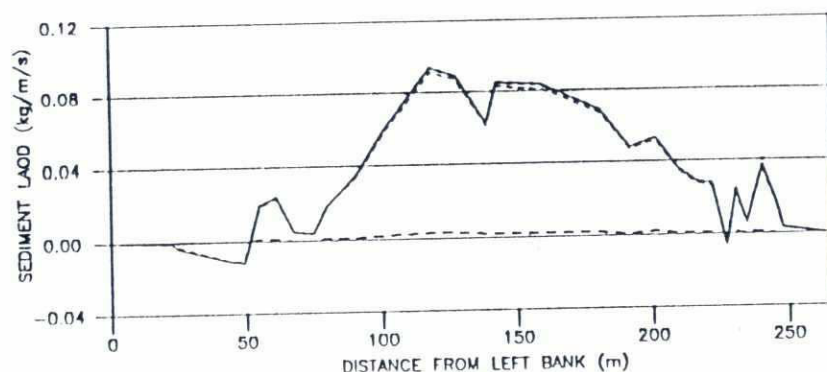
N - MAGNETIC NORTH



FLOW

LEGEND :

- WATER DEPTH (m below STACK)
- UNIT DISCHARGE ($\text{m}^3/\text{s.m}$)
- U (m/s)
- V (m/s)
- STACK = 13.10 (m FWD)
- A = 1447 (m^3)
- Q = 338 (m^3/s)



SEDIMENT TRANSPORT

LEGEND :

- S_{TOTAL} 9.67 (kg/s)
- $S_{\text{WASH LOAD}}$ 9.30 (kg/s)
- $S_{\text{SUSP. BED}}$ 0.27 (kg/s)
- $S_{\text{BED LOAD}}$ - (kg/s)

Sample not collected

GRAIN SIZE

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 138 : 11 - 12 March, 1995

Location 1 : Jamuna River, Bahadurabad

File : B53B1T13

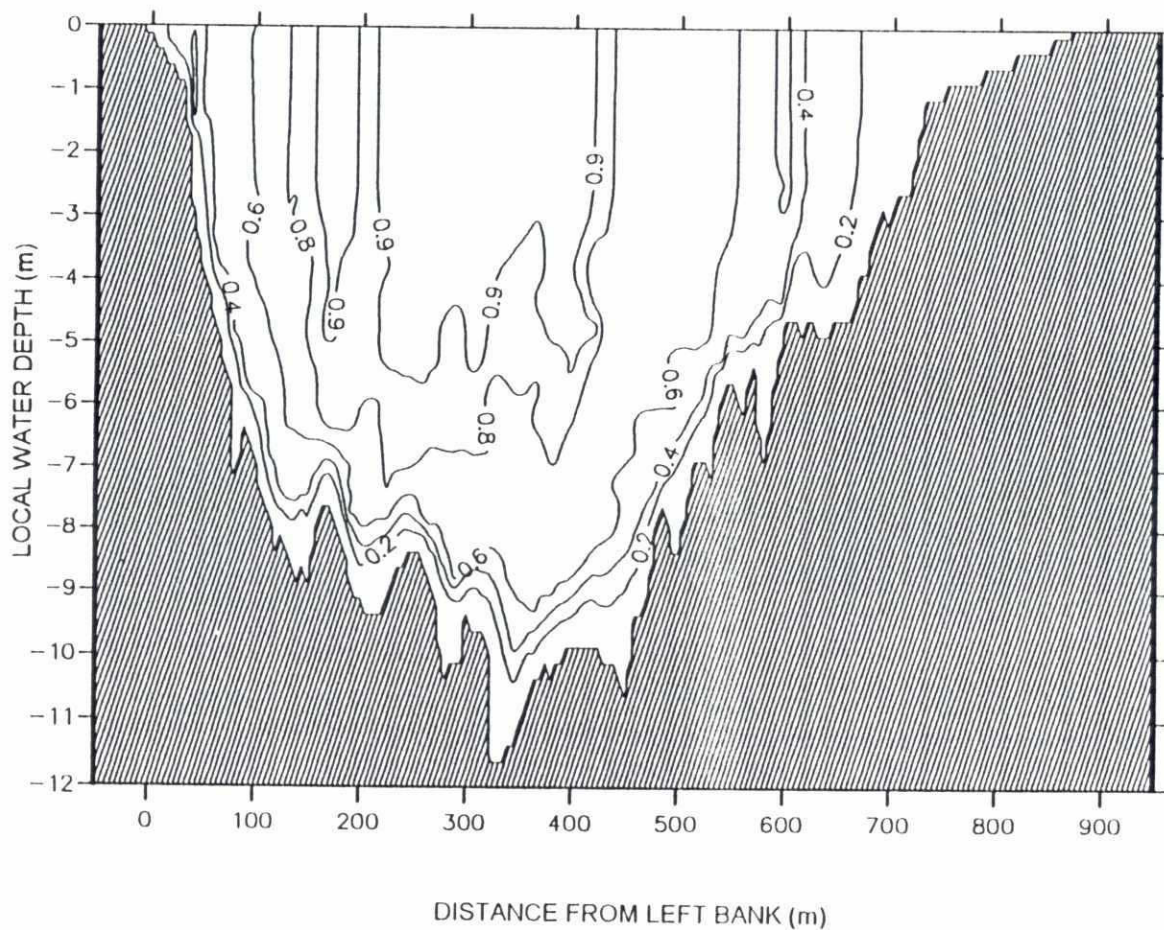
Date : 24 Aug 1995

Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 2

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Iso-velocity contours (m/s)

Water level : 13.10 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 138 : 11 - 12 March, 1995

Location 1 : Jamuna River, Bahadurabad

File : B53C1T02

Date : 24 Aug 1995

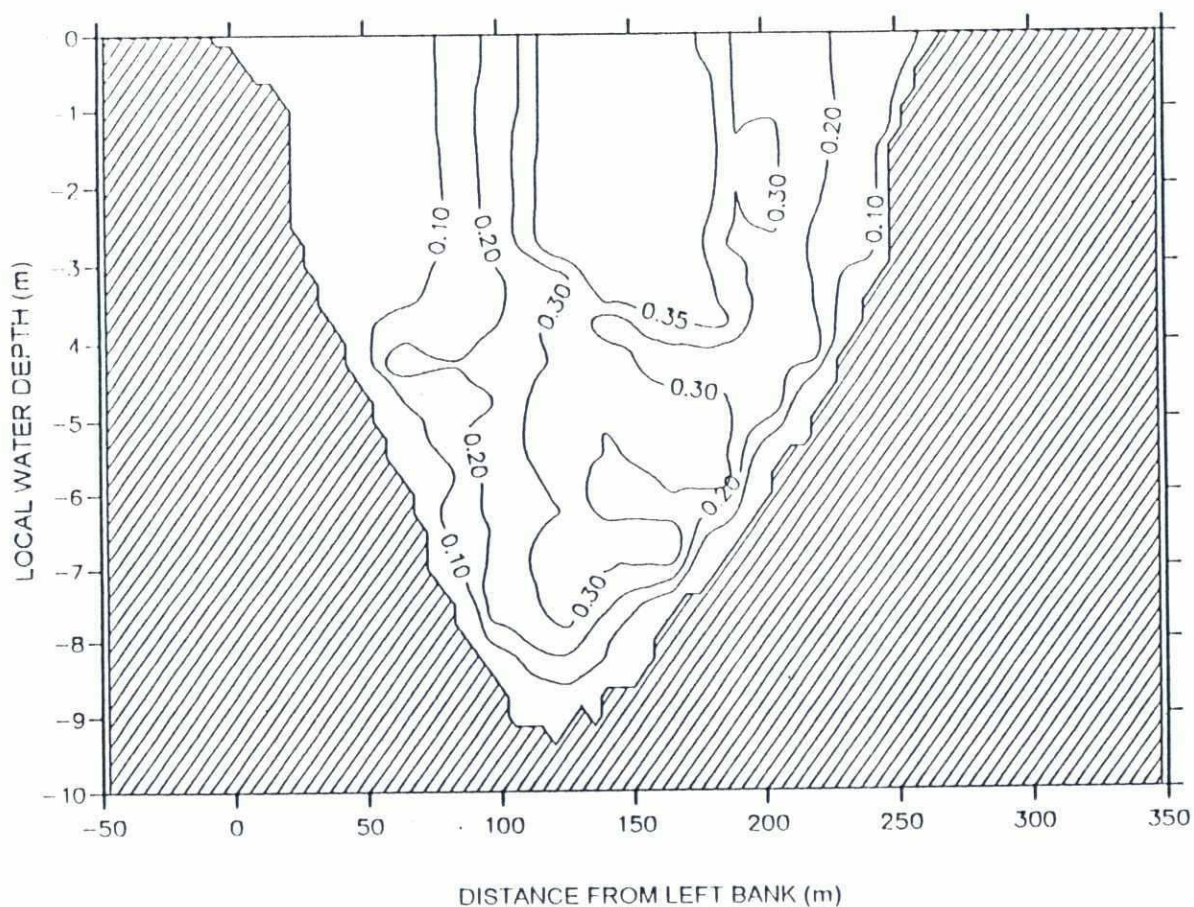
Init : mzh/sjr

Cross-sectional distribution of flow velocity
Channel 1

page

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Iso-velocity contours (m/s)

Water level : 13.10 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 138 : 11 - 12 March, 1995

Location 1 : Jamuna River, Bahadurabad

File : B53B1T13

Date : 24 Aug 1995

Init : mzh/sjr

Cross-sectional distribution of flow velocity
Channel 2

page

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Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35	D50	D65
				< 0.06 mm	> 0.06 mm	(mm)	(mm)	(mm)
1	1	9503121038-1045	5.50	1.508	98.492	0.218	0.274	0.332
	2	9503121059-1118	7.70	0.048	99.952	0.301	0.341	0.385
	3	9503121037-1146	9.20	0.248	99.752	0.294	0.337	0.386
	4	9503121205-1212	10.20	0.128	99.872	0.376	0.459	0.578
	5	9503121223-1336	11.30	0.057	99.943	0.304	0.343	0.387
	6	9503121416-1430	9.60	0.067	99.933	0.278	0.319	0.365
	7	9503121439-1452	5.30	0.178	99.822	0.199	0.244	0.303
	8	9503121504-1513	4.30	0.992	99.008	0.221	0.275	0.331
	1	9503121038-1045	5.50	0.148	99.852	0.255	0.300	0.352
	3	9503121059-1118	7.70	0.035	99.965	0.299	0.339	0.384
	3	9503121037-1146	9.20	0.373	99.627	0.263	0.310	0.365
	4	9503121205-1212	10.20	0.178	99.822	0.318	0.366	0.421
	5	9503121223-1336	11.30	0.149	99.851	0.295	0.335	0.379
	6	9503121416-1430	9.60	0.039	99.961	0.294	0.333	0.376
	7	9503121439-1452	5.30	0.255	99.745	0.204	0.253	0.310
	8	9503121504-1513	4.30	0.098	99.902	0.094	0.111	0.136

Table 5.1 Grain sizes of bed load

Delft Bottle								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35	D50	D65
				< 0.06 mm	> 0.06 mm	(mm)	(mm)	(mm)
2	2	950311230-1315	9.20	15.418	84.582	0.076	0.089	0.103
		950311230-1315	9.20	-	-	-	-	-

Table 5.2 : Grain sizes of bed load

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 138 : 11 - 12 March, 1995	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 24 Aug 1995	Grain size distributions	page 5.1
	Init : mzh/sjr		

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name 828
ADCP & EMF transect	1	9503110820-0828	B53B1T02
		9503110830-0838	B53B1T03
		9503120847-0853	B53C1T01
		9503120901-0908	B53C1T02 *
		9503121529-1539	B53C1T07
		9503121545-1552	B53C1T08
	2	9503111054-1058	B53B1T04
		9503111108-1110	B53B1T08
		9503111512-1516	B53B1T12
		9503111518-1521	B53B1T13 *

Table 6.1: ADCP & EMF transects

* : transect in PSD 24 data base and presented in Sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9503121038-1045	470436	777504	5 50	B53C1P01 *
		2	9503121059-1118	470377	777505	7 70	B53C1P02 *
		3	9503121037-1146	470306	777504	9 20	B53C1P03 *
		4	9503121205-1212	470225	777501	10 20	B53C1P07 *
		5	9503121223-1336	470170	777502	11 30	B53C1P08
		6	9503121416-1430	470057	777498	9 60	B53C1P10 *
		7	9503121439-1452	469935	777498	5 30	B53C1P11 *
		8	9503121504-1513	469902	777503	4 30	B53C1P12 *
	2	1	9503111417-1430	463886	795474	5 60	B53B1P02 *
		2	9503111230-1315	463964	795411	9 20	B53B1P01
		3	9503111502-1503	464000	795404	7 50	B53B1P03 *
		4	9503111506-1510	464031	795372	4 30	B53B1P04 *

Table 6.2 Vertical profiles

* S4 & MEX not available

Method	Channel	Vertical	No of samples	Time (YYMMDDHHMM HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	5	6	9503121223-1336	470170	777502	11 30
	2	2	6	9503111230-1315	463964	795411	9 20

Table 6.3. Suspended sediment - point sampled

FAP 24  DEIFT - DHI		RIVER SURVEY PROJECT		Survey Bulletin 138 : 11 - 12 March, 1995	
		Flood Plan Coordination Organization			
		Commission of the European Communities		Location 1 : Jamuna River, Bahadurabad	
		Date : 24 Aug 1995		Collected data and their storage (1)	
		Init : mzh/sjr			
				page	
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Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	1	1	1	9503121038-1045	470436	777504	5.40
		2	1	9503121059-1118	470377	777505	7.70
		3	1	9503121037-1146	470306	777504	9.20
		4	1	9503121205-1212	470225	777501	10.20
		5	1	9503121223-1336	470170	777502	11.30
		6	1	9503121416-1430	470057	777498	9.60
		7	1	9503121439-1452	469935	777498	5.30
		8	1	9503121504-1513	469902	777503	4.30
	2	1	1	950311417-1430	463886	795474	5.60
		2	1	950311230-1315	463964	795411	9.20
		3	1	950311502-1503	464000	795404	7.50
		4	1	950311506-1510	464031	795372	4.30

Table 6.4 Suspended sediment - depth integrated

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1	9503121038-1045	470436	777504	5.50	A1877
		2	9503121059-1118	470377	777505	7.70	A1831
		3	9503121037-1146	470306	777504	9.20	A1861
		4	9503121205-1212	470225	777501	10.20	A2264
		5	9503121223-1336	470170	777502	11.30	A1382
		6	9503121416-1430	470057	777498	9.60	A1830
		7	9503121439-1452	469935	777498	5.30	A1962
		8	9503121504-1513	469902	777503	4.30	A100
		1	9503121038-1045	470436	777504	5.50	A1811
		2	9503121059-1118	470377	777505	7.70	A3022
		3	9503121037-1146	470306	777504	9.20	A2247
		4	9503121205-1212	470225	777501	10.20	A1901
		5	9503121223-1336	470170	777502	11.30	A1874
		6	9503121416-1430	470057	777498	9.60	A1996
		7	9503121439-1452	469935	777498	5.30	A2015
		8	9503121504-1513	469902	777503	4.30	A1986

Table 6.5 Bed load

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Delft Bottle Sample	2	2	950311230-1315	463964	795411	9.20	A151
			950311230-1315	463964	795411	9.20	A625

Table 6.6 Bed load

FAP 24  RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 138 : 11 - 12 March, 1995	
		Location 1 : Jamuna River, Bahadurabad	
Date : 24 Aug 1995		Collected data and their storage (2)	page 62
Init : mzh/sjr			

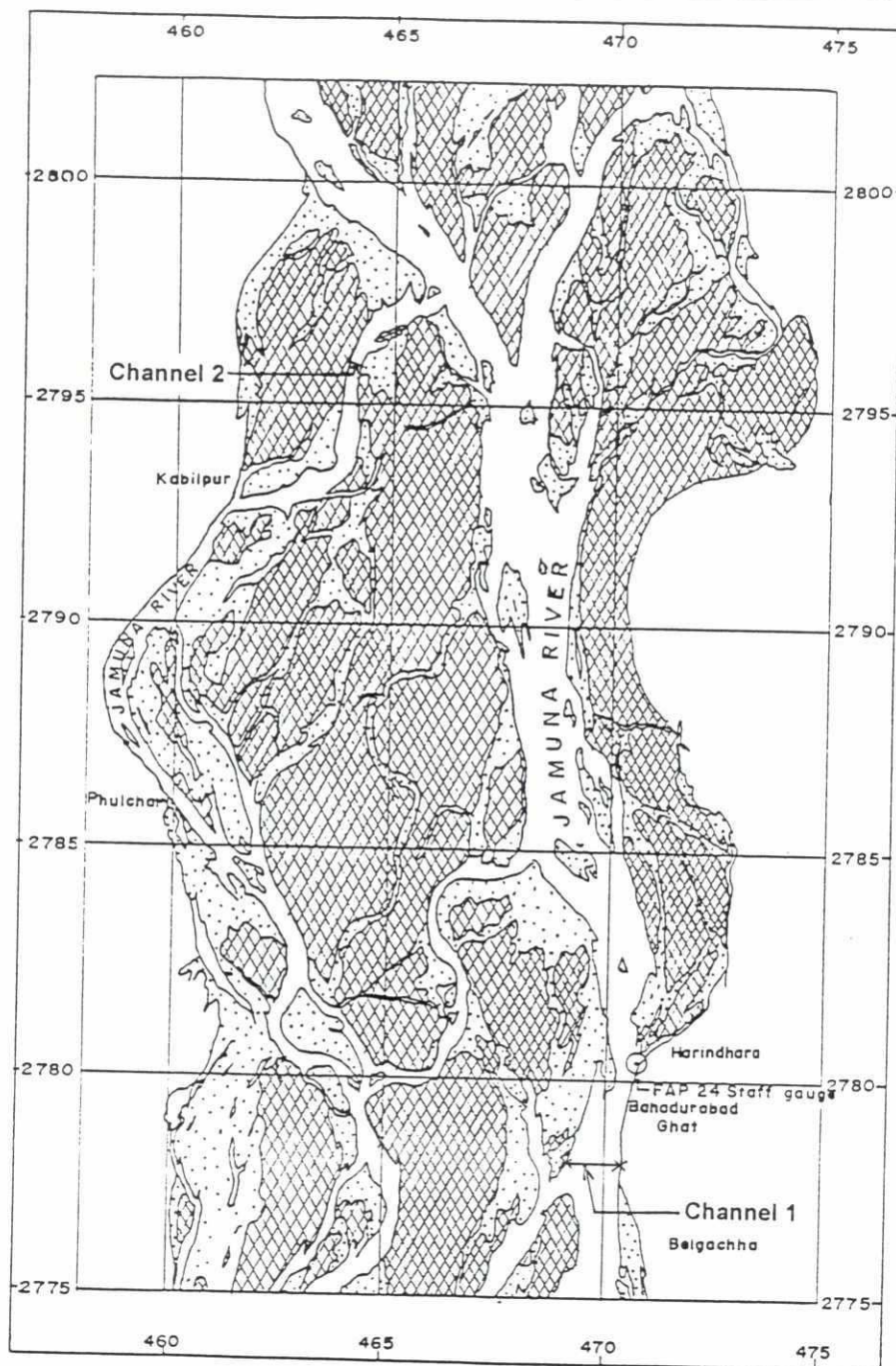
822

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	B53C1T02 .ase
ADCP/S4/EMF data	2	QUATTRO	B53B1T13 .ase
Echosounder data	1	QUATTRO	B53C1T02 .ech
Echosounder data	2	QUATTRO	B53B1T13 .ech
Sediment transport data	1	QUATTRO	B53C1T02 .sed
Sediment transport data	2	QUATTRO	B53B1T13 .sed
Bed load sed. analysis	1	QUATTRO	B53C1T02 .bdl
Bed load sed. analysis	2	QUATTRO	B53B1T13 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B53C1T02 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B53B1T13 .ssc
Transect plot data	1	QUATTRO	B53C1T02 .trs
Transect plot data	2	QUATTRO	B53B1T13 .trs
Iso-velocity plot data	1	MIKE 21	B53C1T02 .cl2
		MIKE 21	B53C1T02 .dl2
Iso-velocity plot data	2	MIKE 21	B53B1T13 .cl2
		MIKE 21	B53B1T13 .dl2

Table 7.1 PSD 24 Database file description



FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 138 : 11 - 12 March, 1995	
		Location 1 : Bahadurabad River, Jamuna	
	Date : 11 June 1995	PSD 24 Database file description	page 7.1
	Init : mzh/sjr		



LEGEND:

-  Highland
-  Unstable/low char
-  FAP 24 Staff gauge



5000m 2500m 0

Map is based on satellite images of March 1995



RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 144 : 28 - 29 March, 1995

Location 1 : Jamuna River, Bahadurabad

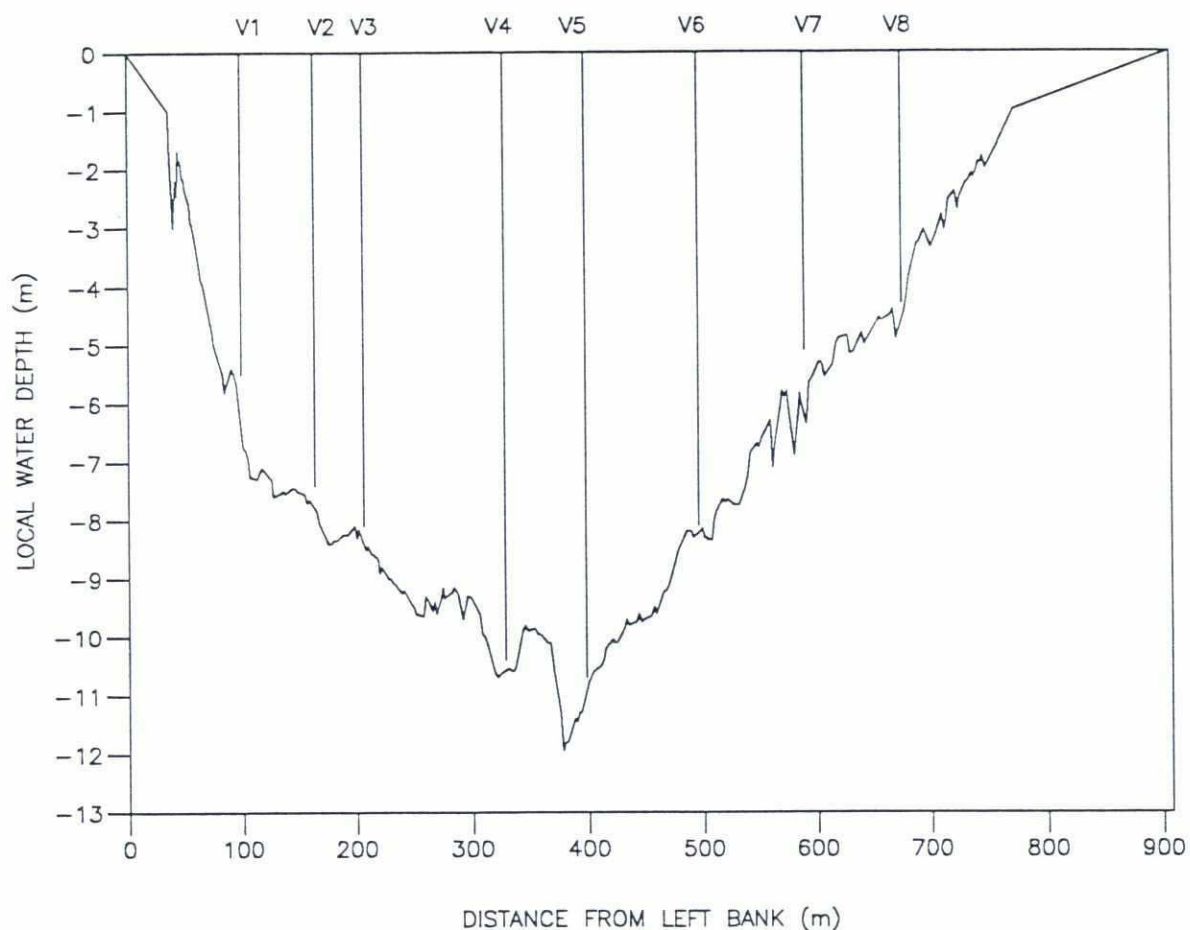
Date : 30 Aug 1995

Init : mzh/sjr

Location map

page
1.1

828



Water level : 13.32 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 144 : 28 - 29 March, 1995

Location 1 : Jamuna River, Bahadurabad

File : B53S1T02

Date : 30 Aug 1995

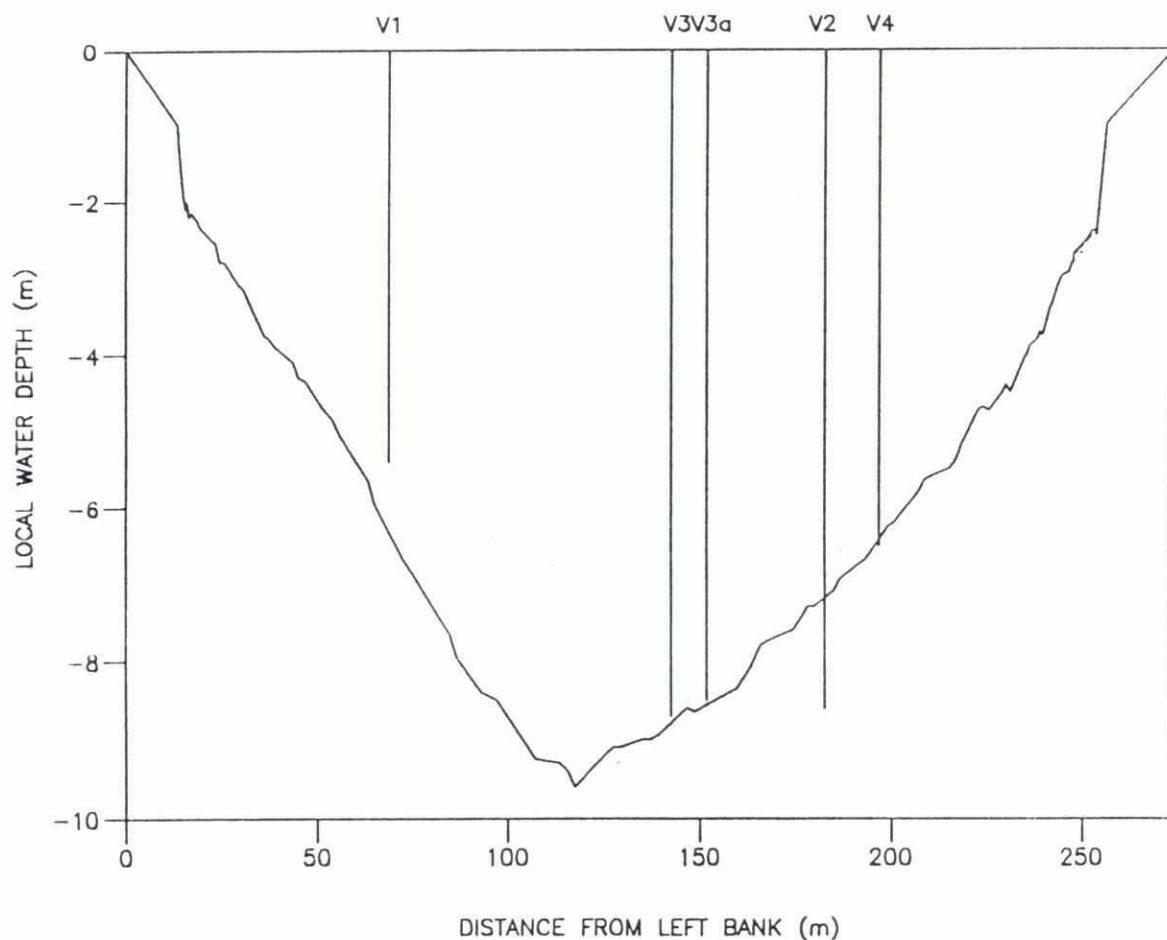
Init : mzh/sjr

Cross-sections and measured verticals
Channel 1

page

1.2

824



Water level : 13.38 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 144 : 28 - 29 March, 1995	
		Location 1 : Jamuna River, Bahadurabad	
File : B53T1T02	Date : 30 Aug 1995	Cross-sections and measured verticals Channel 2	page
	Init : mzh/sjr		13

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge 	ADCP transect	4	4	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	-	-	-	-
Vertical current profile	No. of verticals in channel	8	5	-	-
	ADCP	8	5	-	-
	S4 current meter	1	1	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	6	6	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	8	4	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	16	4	-	-
	Delft Bottle	16	8	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-

Table 2.1 Survey programme as made

	Width (m)	Area (m ²)	Stage h (m+PWD)	Discharge Q (m ³ /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	907	5336	13.32	3907	2.81	494.58
Channel 2	274	1548	13.38	438	0.00	16.41

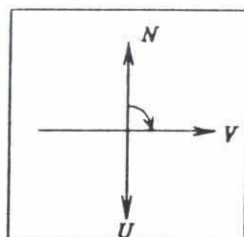
Table 2.2: Key figures

Gauge location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Bahadurabad	Channel 1	28 Mar 95	13.32	FAP 24
	Channel 2	29 Mar 95	13.38	

Table 2.3: Water-levels

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 144 : 28 - 29 March, 1995	
				Location 1 : Jamuna River, Bahadurabad	
Files :	Date : 30 Aug 1995	Survey programme as made and key figures			page
B53S1T02					2.1
B53T1T02	Init : mzh/sjr				

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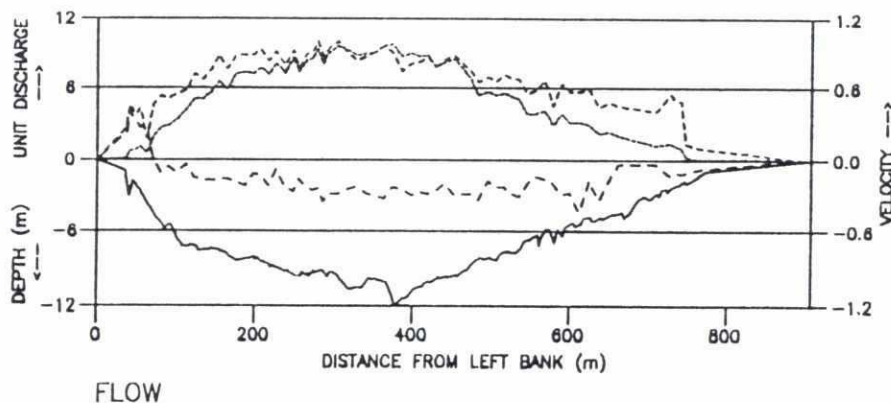


TRANSECT AZIMUTH = 90°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



LEGEND :

— WATER DEPTH (m below STAGE)

— UNIT DISCHARGE (m³/s.m)

--- U (m/s)

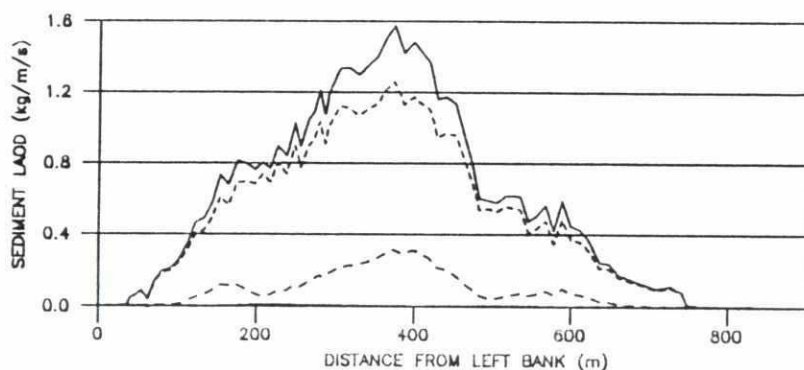
--- V (m/s)

STAGE = 13.32 (m+PND)

A = 5338 (m³)

Q = 3907 (m³/s)

FLOW



LEGEND :

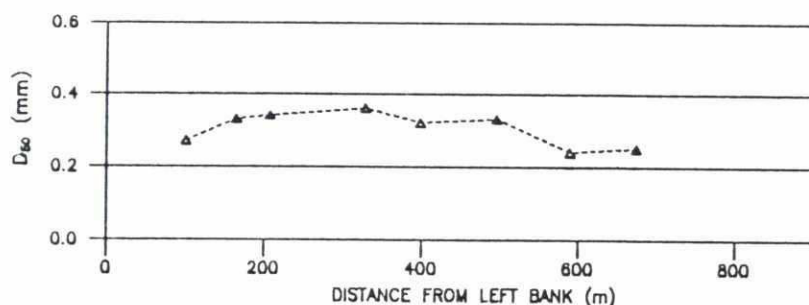
— S_{TOTAL} 497.39 (kg/s)

--- S_{WASH LOAD} 421.12 (kg/s)

--- S_{SUSP. BED} 73.46 (kg/s)

— S_{BED LOAD} 2.81 (kg/s)

SEDIMENT TRANSPORT



LEGEND :

♦♦♦♦♦ D₆₀ SUSP. (mm)

△△△△△ D₆₀ BED LOAD (mm)

□□□□□ D₆₀ BED MAT. (mm)

GRAIN SIZE

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 144 : 28 - 29 March, 1995

Location 1 : Jamuna River, Bahadurabad

File : B53S1T02

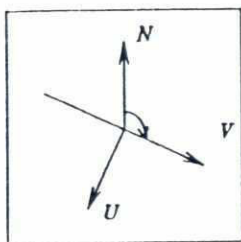
Date : 30 Aug 1995

Init : mzh/sjr

Horizontal distribution of flow and sediments
Channel 1

page

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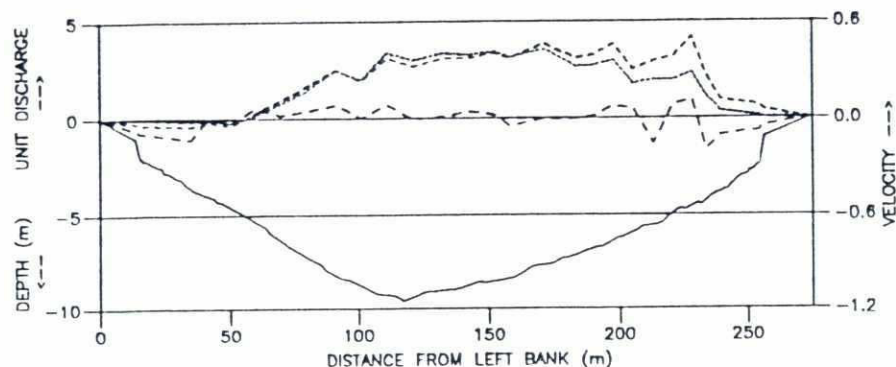


TRANSECT AZIMUTH = 115°

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

— WATER DEPTH (m below STACK)

--- UNIT DISCHARGE ($m^3/s.m$)

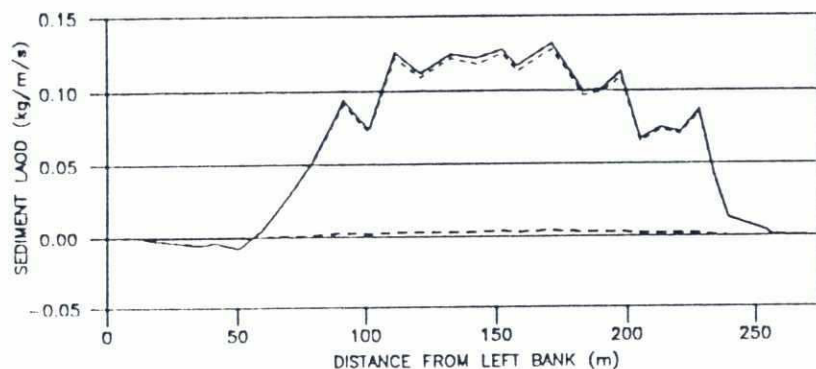
... U (m/s)

-.- V (m/s)

STACK = $13.38 (m + PWD)$

A = $1548 (m^2)$

Q = $498 (m^3/s)$



SEDIMENT TRANSPORT

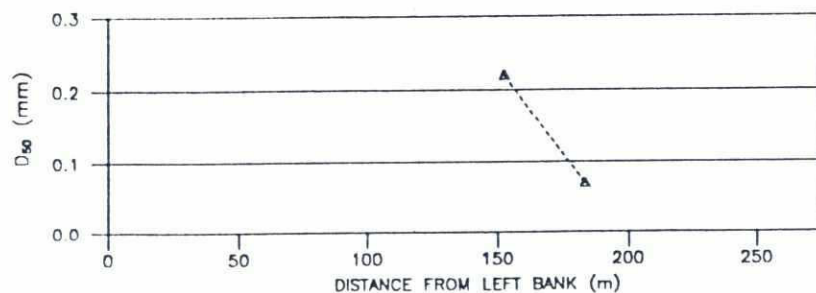
LEGEND :

— S_{TOTAL} 16.41 (kg/s)

--- $S_{WASH LOAD}$ 15.95 (kg/s)

-.- $S_{SUSP. BED}$ 0.46 (kg/s)

... $S_{BED LOAD}$ 0.00 (kg/s)



GRAIN SIZE

LEGEND :

◊◊◊◊◊ $D_{50 SUSP.} (mm)$

△△△△△ $D_{50 BED LOAD} (mm)$

□□□□□ $D_{50 BED MAT.} (mm)$

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 144 : 28 - 29 March, 1995

Location 1 : Jamuna River, Bahadurabad

Date : 30 Aug 1995

Init : mzh/sjr

Horizontal distribution of flow and sediments

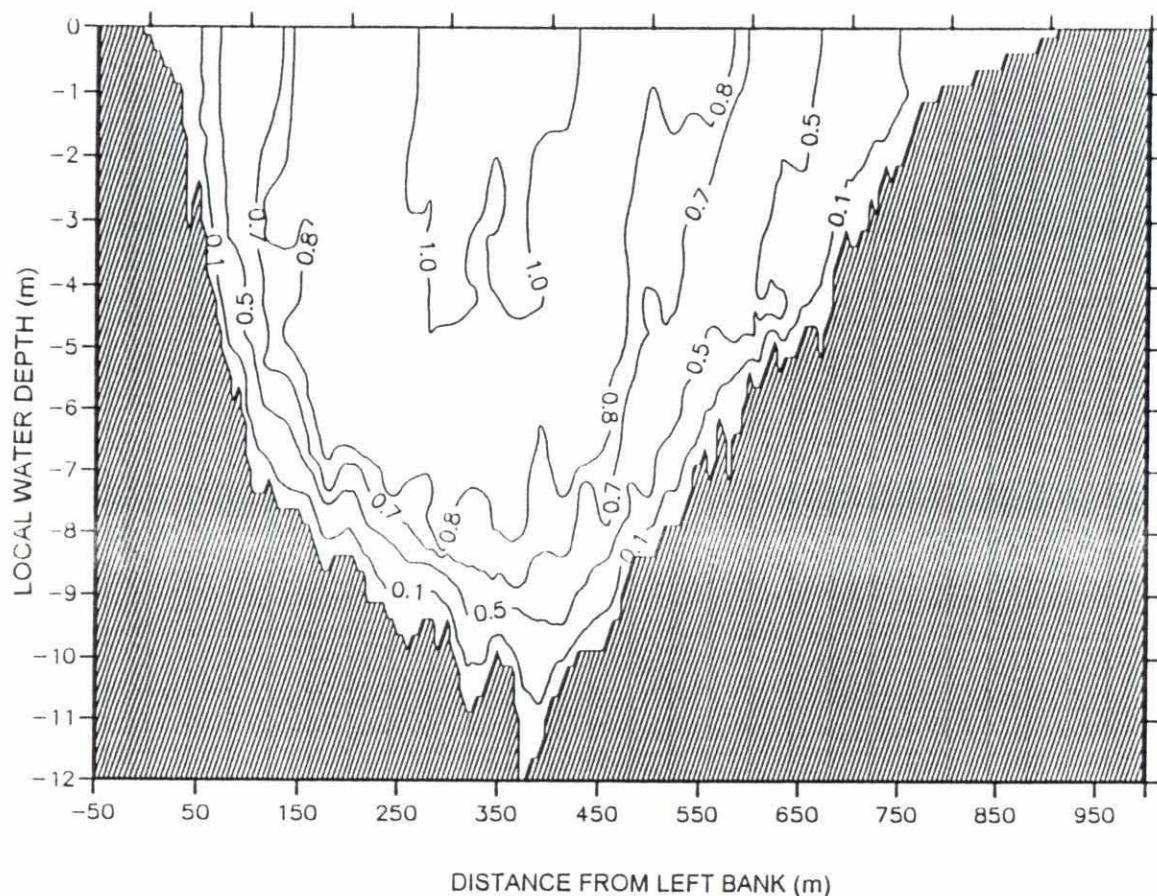
Channel 2

page

3.2

File : B53T1T02

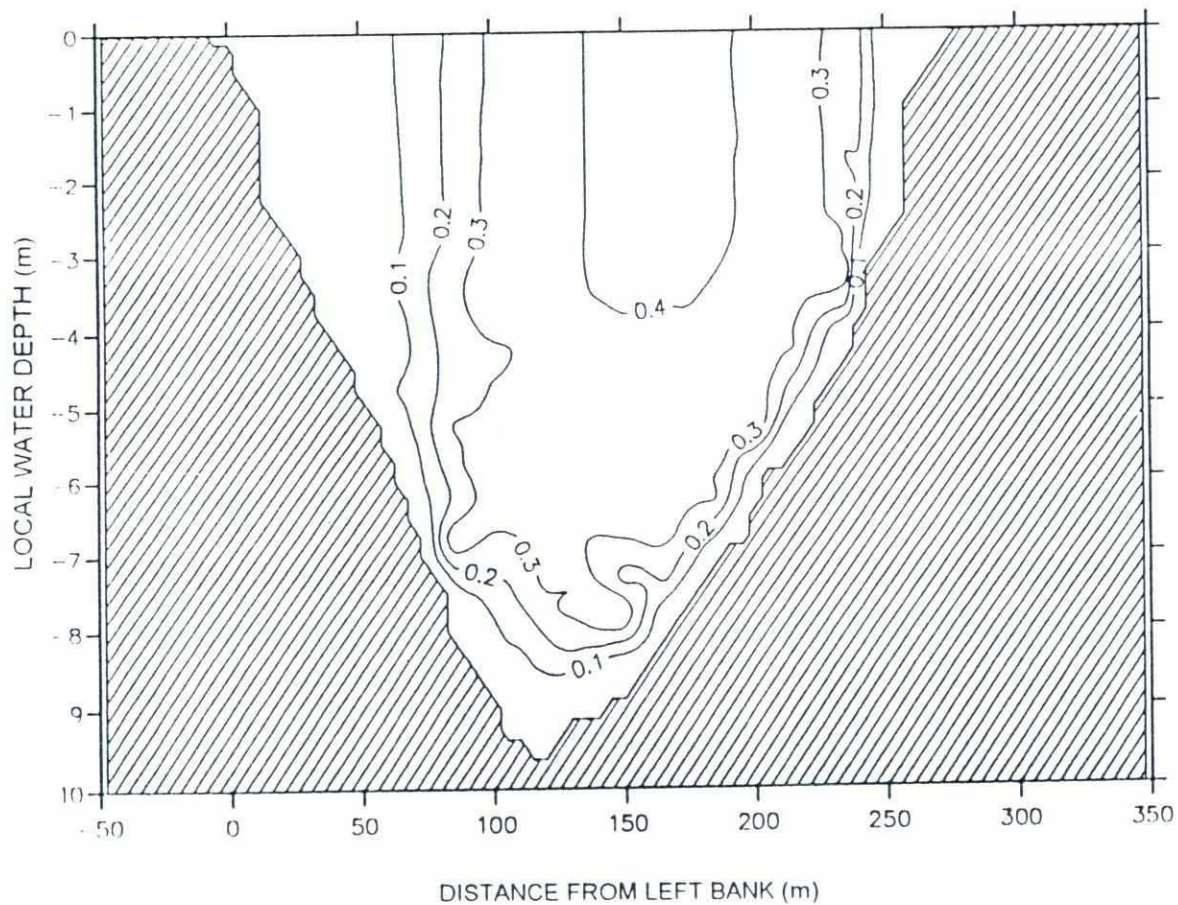
82



Iso-velocity contours (m/s)

Water level : 13.32 m + PWD measured at the station indicated on Page 1.1

FAP 24  DELFT - DHI		Survey Bulletin 144 : 28 - 29 March, 1995	
		Location 1 : Jamuna River, Bahadurabad	
File : B53S1T02	Date : 30 Aug 1995	Cross-sectional distribution of flow velocity Channel 1	page 41
	Init : mzh/sjr		



Iso-velocity contours (m/s)

Water level : 13.38 m + PWD measured at the station indicated on Page 1.1

FAP 24



DELFT · DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization
Commission of the European Communities

Survey Bulletin 144 : 28 - 29 March, 1995

Location 1 : Jamuna River, Bahadurabad

File : B53T1T02

Date : 30 Aug 1995

Init : mzh/sjr

Cross-sectional distribution of flow velocity
Channel 2

page

4.2

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Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm		D35 (mm)	D50 (mm)	D65 (mm)
1	1	9503281014-1042	5.50	0.685	99.315	0.187	0.224	0.277
	2	9503281054-1132	7.40	0.075	99.925	0.284	0.324	0.370
	3	9503281144-1209	8.10	0.077	99.923	0.285	0.325	0.370
	4	9503281223-1248	10.40	0.019	99.981	0.320	0.364	0.413
	5	9503281343-1439	10.70	0.174	99.826	0.280	0.320	0.367
	6	9503281509-1521	8.10	0.109	99.891	0.279	0.319	0.365
	7	9503281531-1609	5.10	0.465	99.535	0.208	0.260	0.317
	8	9503281619-1642	4.30	0.294	99.706	0.234	0.289	0.349
	1	9503281014-1042	5.50	0.297	99.703	0.270	0.312	0.360
	2	9503281054-1132	7.40	0.057	99.943	0.287	0.326	0.372
	3	9503281144-1209	8.10	0.069	99.931	0.313	0.353	0.397
	4	9503281223-1248	10.40	0.212	99.788	0.317	0.363	0.417
	5	9503281343-1439	10.70	0.525	99.475	0.285	0.325	0.372
	6	9503281509-1521	8.10	0.205	99.795	0.292	0.332	0.377
	7	9503281531-1609	5.10	3.310	96.690	0.177	0.213	0.260
	8	9503281619-1642	4.30	2.210	97.790	0.180	0.216	0.265
2	2	9503291145-1211	8.60	43.368	56.632	-	0.069	0.085
	3	9503291105-1129	8.50	3.428	96.572	0.187	0.233	0.294
	2	9503291145-1211	8.60	46.196	53.804	-	0.067	0.083
	3	9503291105-1129	8.50	4.646	95.354	0.171	0.208	0.253

Table 5.1 : Grain sizes of bed load

Delft Bottle								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm		D35 (mm)	D50 (mm)	D65 (mm)
1	1	9503281014-1042	5.50	11.109	88.891	0.086	0.105	0.131
	2	9503281054-1132	7.40	12.594	87.406	0.094	0.124	0.162
	3	9503281144-1209	8.10	0.157	99.843	0.171	0.219	0.312
	4	9503281223-1248	10.40	0.091	99.909	0.259	0.303	0.354
	5	9503281343-1439	10.70	7.641	92.359	0.168	0.264	0.321
	6	9503281509-1521	8.10	24.723	75.277	0.072	0.088	0.108
	7	9503281531-1609	5.10	15.624	84.376	0.094	0.127	0.161
	8	9503281619-1642	4.30	31.627	68.373	0.066	0.079	0.096
	1	9503281014-1042	5.50	23.750	76.250	0.075	0.095	0.120
	2	9503281054-1132	7.40	9.864	90.136	0.134	0.169	0.213
	3	9503281144-1209	8.10	21.011	78.989	0.077	0.095	0.118
	4	9503281223-1248	10.40	17.917	82.083	0.079	0.097	0.119
	5	9503281343-1439	10.70	4.865	95.135	0.255	0.298	0.349
	6	9503281509-1521	8.10	25.016	74.984	0.071	0.084	0.099
	7	9503281531-1609	5.10	15.864	84.136	0.090	0.119	0.155
	8	9503281619-1642	4.30	31.791	68.209	0.067	0.089	0.118

Table 5.2 : Grain sizes of bed load (continued)

FAP 24  DELFT - DHI RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 144 : 28 - 29 March, 1995	
		Location 1 : Jamuna River, Bahadurabad	
Date : 30 Aug 1995 Init : mzh/sjr		Grain size distributions	page
			51

Lift Bottle								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
2	1	9503291224-1234	5.40	73.682	26.318	-	-	-
	2	9503291145-1211	8.60	52.401	47.599	-	-	0.077
	3	9503291105-1129	8.50	16.953	83.047	0.075	0.087	0.100
	4	9503291032-1056	6.50	27.322	72.678	0.069	0.081	0.095
	1	9503291224-1234	5.40	59.389	40.611	-	-	0.070
	2	9503291145-1211	8.60	69.832	30.168	-	-	-
	3	9503291105-1129	8.50	20.037	79.963	0.074	0.086	0.101
	4	9503291032-1056	6.50	13.340	86.660	-	-	-

Table 5.2 : Grain sizes of bed load

FAP 24  DELFT - DHI		Survey Bulletin 144 : 28 - 29 March, 1995	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 30 Aug 1995	Grain size distributions	page
	Init mzh/sjr		5.2

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Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
ADCP & EMF transect	1	9503280810-0816 9503280827-0833 9503281706-1713 9503281716-1719	B53S1T01 B53S1T02 * B53S1T08 B53S1T09
	2	9503290910-0913 9503290920-0923 9503291424-1427 9503291431-1434	B53T1T01 B53T1T02 * B53T1T06 B53T1T07

Table 6.1: ADCP & EMF transects * : transect in PSD 24 data base and presented in sections 3 and 4

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9503281014-1042	470435	777504	5 50	B53S1P01
		2	9503281054-1132	470370	777498	7 40	B53S1P02
		3	9503281144-1209	470326	777503	8 10	B53S1P03
		4	9503281223-1248	470206	777496	10 40	B53S1P04
		5	9503281343-1439	470129	777496	10 70	B53S1P05
		6	9503281509-1521	470034	777508	8 10	B53S1P06
		7	9503281531-1609	469940	777512	5 10	B53S1P07
		8	9503281619-1642	469856	777517	4 30	B53S1P08
	2	1	9503291224-1234	464025	795395	5 40	B53T1P04
		2	9503291145-1211	463900	795395	8 60	B53T1P03
		3	9503291105-1129	463944	795420	8 50	B53T1P02
		3a	9503291325-1408	463948	795416	8 70	B53T1P05
		4	9503291032-1056	463901	795434	6 50	B53T1P01

Table 6.2 Vertical profiles * S4 & MEX not available

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments	1	5	6	9503281343-1439	470129	777496	10 70
	2	3a	6	9503291325-1408	463948	795416	8 70

Table 6.3: Suspended sediment - point sampled

 FAP 24 DELFT - DH1	RIVER SURVEY PROJECT Flood Plan Coordination Organization Contribution of the European Communities		Survey Bulletin 144 : 28 - 29 March, 1995	
	Date : 30 Aug 1995 Init : mzh/sjr		Location 1 : Jamuna River, Bahadurabad	
			Collected data and their storage (1)	page 61

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments 688	1	1	1	9503281014-1042	470435	777504	5.50
		2	1	9503281054-1132	470370	777498	7.40
		3	1	9503281144-1209	470326	777503	8.10
		4	1	9503281223-1248	470206	777496	10.40
		5	1	9503281343-1439	470129	777496	10.70
		6	1	9503281509-1521	470034	777508	8.10
		7	1	9503281531-1609	469940	777512	5.10
		8	1	9503281619-1642	469856	777517	4.30
	2	1	1	9503291224-1234	464025	795395	5.40
		2	1	9503291145-1211	463900	795395	8.60
		3	1	9503291105-1129	463944	795420	8.50
		4	1	9503291032-1056	463901	795434	6.50

Table 6.4: Suspended sediment - depth integrated

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1	9503281014-1042	470435	777504	5.50	A1157
		2	9503281054-1132	470370	777498	7.40	A64
		3	9503281144-1209	470326	777503	8.10	A43
		4	9503281223-1248	470206	777496	10.40	A718
		5	9503281343-1439	470129	777496	10.70	A125
		6	9503281509-1521	470034	777508	8.10	A45
		7	9503281531-1609	469940	777512	5.10	A1163
		8	9503281619-1642	469856	777517	4.30	A63
	2	1	9503281014-1042	470435	777504	5.50	A922
		2	9503281054-1132	470370	777498	7.40	A692
		3	9503281144-1209	470326	777503	8.10	A2143
		4	9503281223-1248	470206	777496	10.40	A51
		5	9503281343-1439	470129	777496	10.70	A924
		6	9503281509-1521	470034	777508	8.10	A34
		7	9503281531-1609	469940	777512	5.10	A901
		8	9503281619-1642	469856	777517	4.30	C064
	2	2	9503291145-1211	463900	795395	8.60	C058
		3	9503291105-1129	463944	795420	8.50	C059
		2	9503291145-1211	463900	795395	8.60	C062
		3	9503291105-1129	463944	795420	8.50	C065

Table 6.5: Red load

FAP 24  RIVER SURVEY PROJECT Flood Plain Coordination Organization Commission of the European Communities		Survey Bulletin 144 : 28 - 29 March, 1995	
		Location 1 : Jamuna River, Bahadurabad	
	Date : 30 Aug 1995	Collected data and their storage (2)	page
	Init : mzh/sjr		6.2

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No. <i>88</i>
Delft Bottle Sample	1	1	9503281014-1042	470435	777504	5 50	A843
		2	9503281054-1132	470370	777498	7 40	A157
		3	9503281144-1209	470326	777503	8 10	A446
		4	9503281223-1248	470206	777496	10 40	A608
		5	9503281343-1439	470129	777496	10 70	A514
		6	9503281509-1521	470034	777508	8 10	A601
		7	9503281531-1609	469940	777512	5 10	A427
		8	9503281619-1642	469856	777517	4 30	A397
		1	9503281014-1042	470435	777504	5 50	A396
		2	9503281054-1132	470370	777498	7 40	A169
		3	9503281144-1209	470326	777503	8 10	A393
		4	9503281223-1248	470206	777496	10 40	A390
		5	9503281343-1439	470129	777496	10 70	A597
		6	9503281509-1521	470034	777508	8 10	A158
		7	9503281531-1609	469940	777512	5 10	A156
		8	9503281619-1642	469856	777517	4 30	A203
	2	1	9503291224-1234	464025	795395	5 40	A192
		2	9503291145-1211	463900	795395	8 60	A176
		3	9503291105-1129	463944	795420	8 50	A511
		4	9503291032-1056	463901	795434	6 50	A525
		1	9503291224-1234	464025	795395	5 40	A166
		2	9503291145-1211	463900	795395	8 60	A149
		3	9503291105-1129	463944	795420	8 50	A515
		4	9503291032-1056	463901	795434	6 50	A442

Table 6 6: Bed load

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 144 : 28 - 29 March, 1995	
				Location 1 : Jamuna River, Bahadurabad	
		Date : 30 Aug 1995		Collected data and their storage (3)	page
		Init : mzh/sjr			

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	B53S1T02 .ase
ADCP/S4/EMF data	2	QUATTRO	B53T1T02 .ase
Echosounder data	1	QUATTRO	B53S1T02 .ech
Echosounder data	2	QUATTRO	B53T1T02 .ech
Sediment transport data	1	QUATTRO	B53S1T02 .sed
Sediment transport data	2	QUATTRO	B53T1T02 .sed
Bed load sed. analysis	1	QUATTRO	B53S1T02 .bdl
Bed load sed. analysis	2	QUATTRO	B53T1T02 .bdl
Suspended sed. conc. analysis	1	QUATTRO	B53S1T02 .ssc
Suspended sed. conc. analysis	2	QUATTRO	B53T1T02 .ssc
Transect plot data	1	QUATTRO	B53S1T02 .lrs
Transect plot data	2	QUATTRO	B53T1T02 .lrs
Iso-velocity plot data	1	MIKE 21	B53S1T02 .cl2
		MIKE 21	B53S1T02 .dl2
Iso-velocity plot data	2	MIKE 21	B53T1T02 .cl2
		MIKE 21	B53T1T02 .dl2

Table 7.1 PSD 24 Database file description

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 144 : 28 - 29 March, 1995

Location 1 : Bahadurabad River, Jamuna

Date : 10 June 1995

Init : mzh/sjr

PSD 24 Database file description

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7.1

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Delft Bottle Sample	1	1	9503281014-1042	470435	777504	5 50	A843
		2	9503281054-1132	470370	777498	7 40	A157
		3	9503281144-1209	470326	777503	8 10	A446
		4	9503281223-1248	470206	777496	10 40	A608
		5	9503281343-1439	470129	777496	10 70	A514
		6	9503281509-1521	470034	777508	8 10	A601
		7	9503281531-1609	469940	777512	5 10	A427
		8	9503281619-1642	469856	777517	4 30	A397
		1	9503281014-1042	470435	777504	5 50	A396
		2	9503281054-1132	470370	777498	7 40	A169
		3	9503281144-1209	470326	777503	8 10	A393
		4	9503281223-1248	470206	777496	10 40	A390
		5	9503281343-1439	470129	777496	10 70	A597
		6	9503281509-1521	470034	777508	8 10	A158
		7	9503281531-1609	469940	777512	5 10	A156
		8	9503281619-1642	469856	777517	4 30	A203
	2	1	9503291224-1234	464025	795395	5 40	A192
		2	9503291145-1211	463900	795395	8 60	A176
		3	9503291105-1129	463944	795420	8 50	A511
		4	9503291032-1056	463901	795434	6 50	A525
		1	9503291224-1234	464025	795395	5 40	A166
		2	9503291145-1211	463900	795395	8 60	A149
		3	9503291105-1129	463944	795420	8 50	A515
		4	9503291032-1056	463901	795434	6 50	A442

Table 6 6: Bed load

FAP 24  DELFT - DHI		RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 144 : 28 - 29 March, 1995	
				Location 1 : Jamuna River, Bahadurabad	
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