

**FAP24**

Government of  
the People's  
Republic of  
Bangladesh

Water Resources  
Planning  
Organization

European  
Commission

Delft  
Hydraulics



Danish  
Hydraulic  
Institute



Hydroland  
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Osiris

Call - 952  
FAP-24

(59)

BN-801  
A-952

**RIVER  
SURVEY  
PROJECT**

**Special  
Report  
No.23**

**River Data Book  
April 1995 - May 1996**

**Part B.8: Tilly**

**October 1996**



**Special Report 23**

**River Data Book  
April 1995 - March 1996**

**Part B.8: Tilly**

**October 1996**



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**Part B:****Routine gauging April 1995 - March 1996**

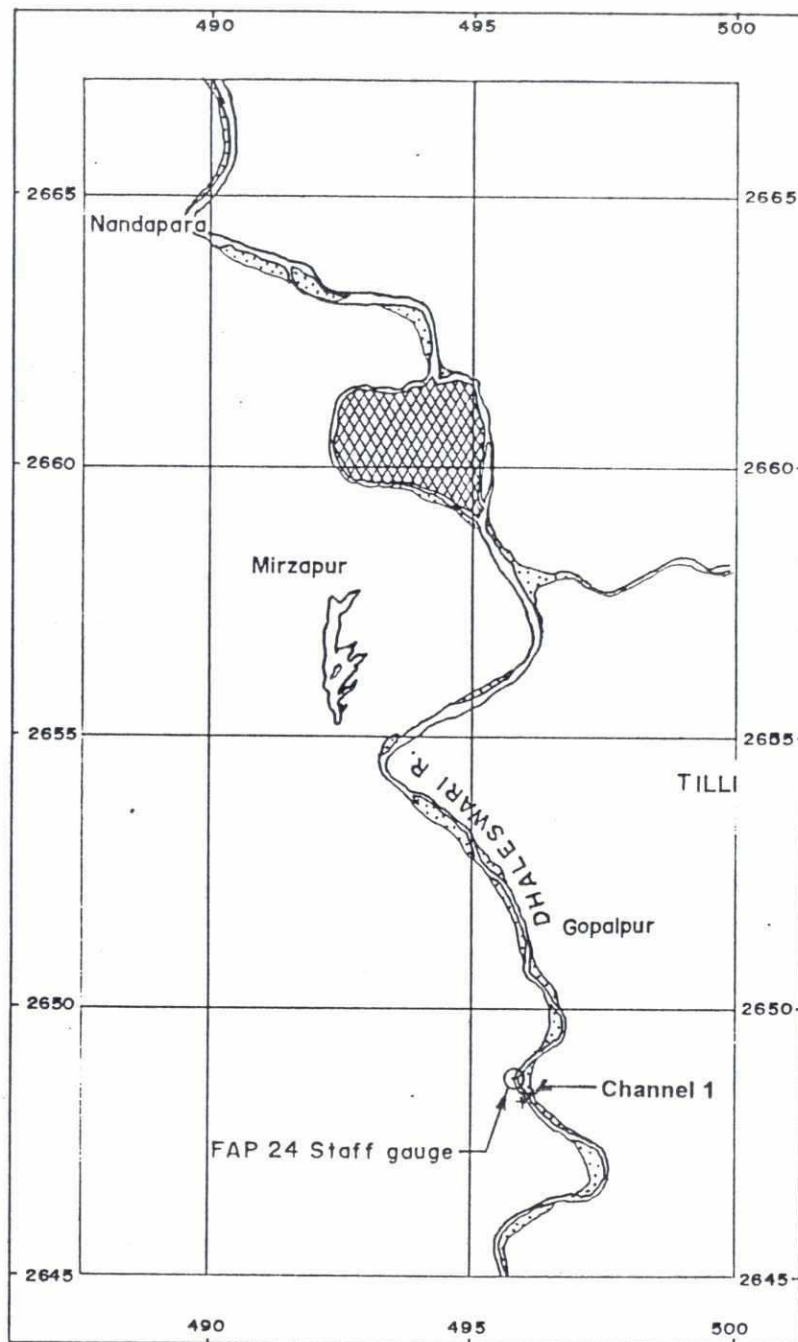
- B.1 Bahadurabad
- B.2 Sirajganj
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- B.5 Baruria
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- B.7 Mymensingh
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**Part C:****Special surveys April 1995 - March 1996**

**Contents of Part B.8**

<b>Survey No.</b>	<b>Time</b>
155	19/5 95
165	19/6 95
178	2/8 95
184	27/8 95
198	27/9 95
214	25/10 95
223	7/11 95
241	18/12 95
249	16/1 96





# LEGEND:



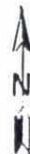
High land



Unstable/low char



FAP 24 Staff gauge



Map is based on satellite  
images of March 1995

5000m 2500m 0



FAP 24



DELFT - DHI

RIVER SURVEY-PROJECT

Flood Plan Coordination Organization  
Commission of the European Communities

Survey Bulletin 155 : 19 May, 1995

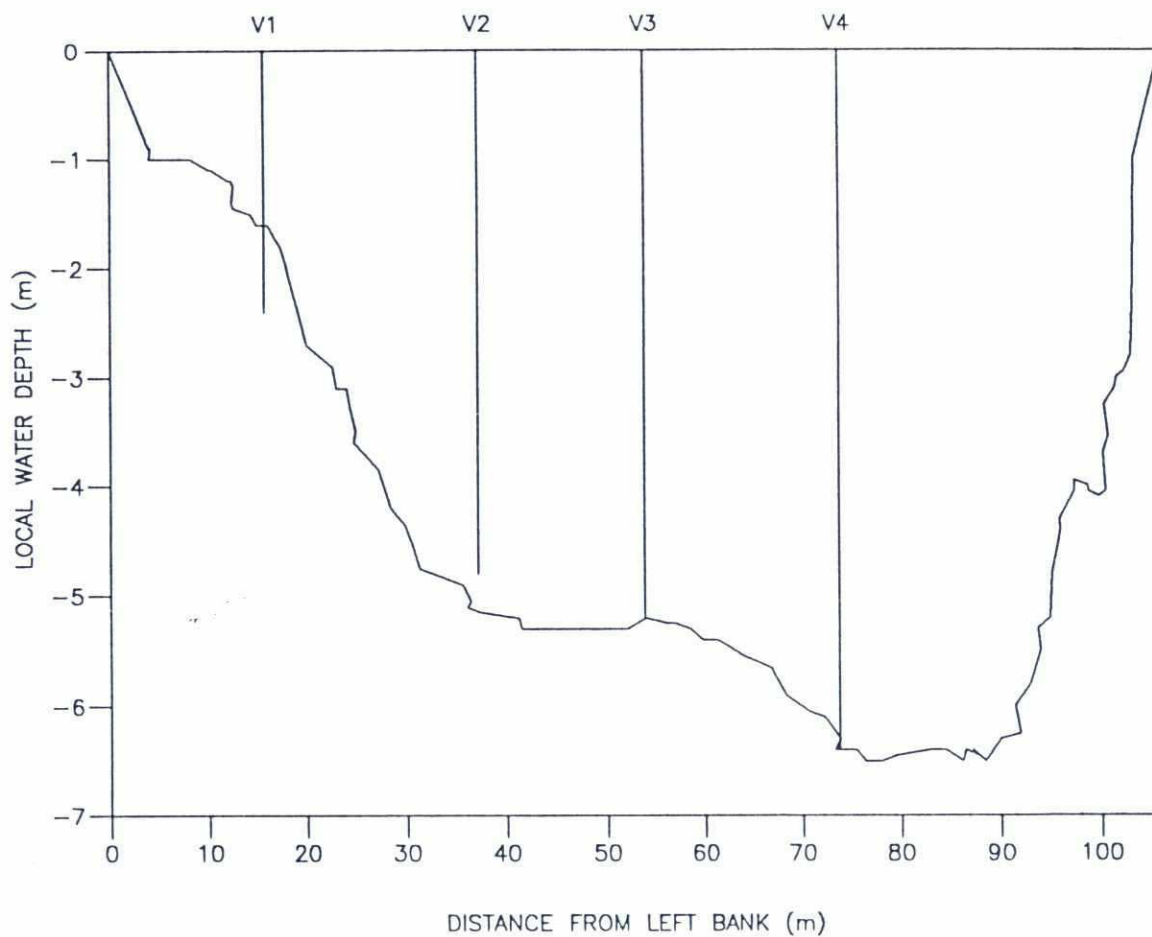
Location 8 : Dhaleswari River, Tilly

Date : 24 Sep 1995


Init : sjr

Location map

page  
1.1



Water level : 5.51 m + PWD measured at the station indicated on page 1.1

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 155 : 19 May, 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T55J9T03	Date : 24 Sep 1995	Cross-sections and measured verticals  Channel 1	page
	Init : sjr		1.2

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Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	-	-	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	2	-	-	-
Vertical current profile	No. of verticals in channel	4	-	-	-
	ADCP	-	-	-	-
	S4 current meter	4	-	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	21	-	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	-	-	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	4	-	-	-
	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 <sup>2</sup> )	Stage h (m+PWD)	Discharge Q (m <sup>3</sup> /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	106	475	5.51	146	0.00	58.12

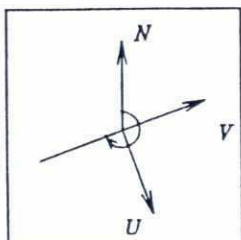
Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Tilly	Channel 1	19 May 95	5.51	FAP 24

Table 2.3: Water-levels

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 155 : 19 May, 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T55J9T03	Date : 24 Sep 1995	Survey programme as made and key figure	page  2.1
	Init : sjr		



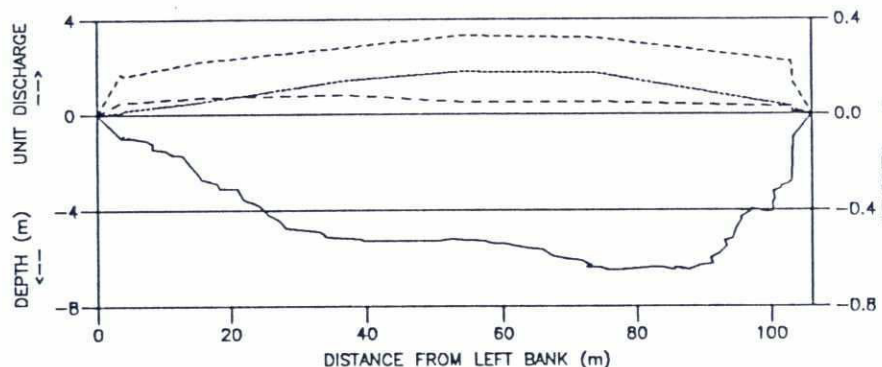


TRANSECT AZIMUTH = 250°

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)

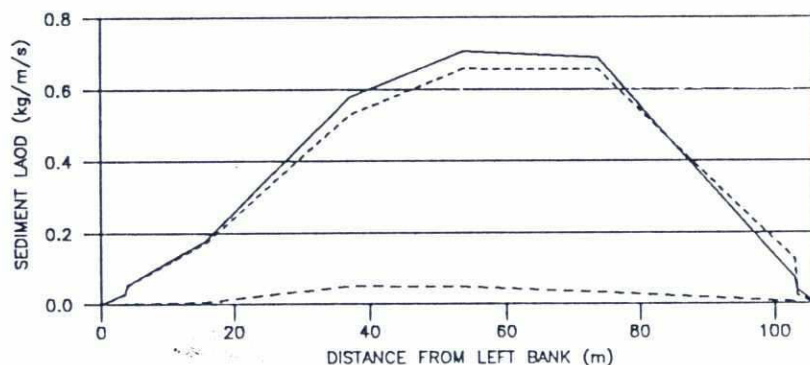
... U (m/s)

-.- V (m/s)

STAGE = 5.51 (m+PWD)

A = 475 (m²)

Q = 146 (m³/s)



SEDIMENT TRANSPORT

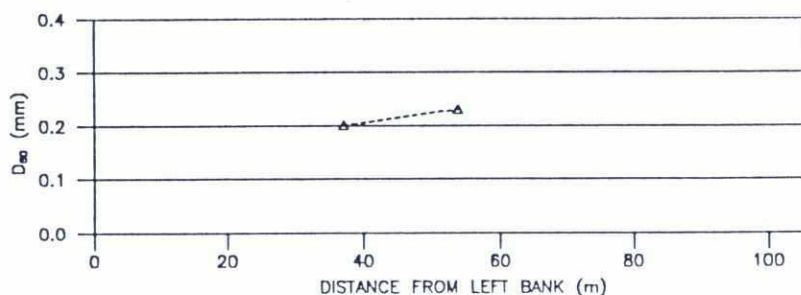
LEGEND :

—  $S_{TOTAL}$  58.12 (kg/s)

---  $S_{WASH\ LOAD}$  54.67 (kg/s)

...  $S_{SUSP.\ BED}$  3.45 (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



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

Survey Bulletin 155 : 19 May, 1995

Location 8 : Dhaleswari River, Tilly

File : T55J9T03

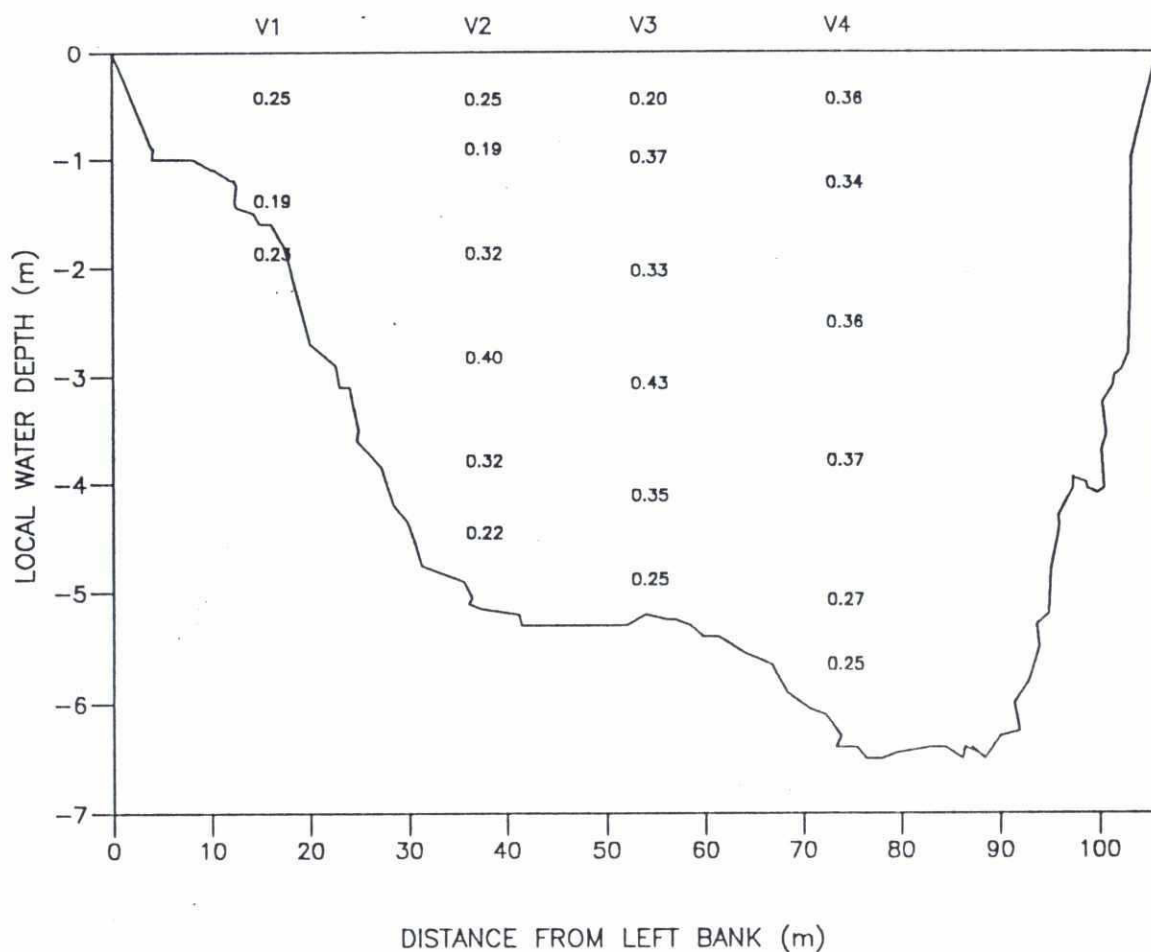
Date : 24 Sep 1995

Init : sjr

Horizontal distribution of flow and sediments  
Channel 1


page

3.1



Water-level : 5.51 m + PWD measured at the station indicated on Page 1.1

Helley-Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
1	2	9505191330-1353	4.80	13.83	86.17	0.16	0.21	0.27
	3	9505191244-1309	5.20	7.29	92.71	0.19	0.25	0.32
	2	9505191330-1353	4.80	19.77	80.23	0.15	0.19	0.24
	3	9505191244-1309	5.20	14.76	85.24	0.15	0.21	0.28
Table 5.1 : Grain sizes of bed load								

 <b>FAP 24</b> DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 155 : 19 May, 1995	
	Location 8 : Dhaleswari River, Tilly		
	Date : 24 Sep 1995	Grain size distributions	page
	Init : sjr		51



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Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
Echo-sounding	1	9505191134-1135 9505191137-1139	T55J9T02 T55J9T03 *

Table 6.1: Echo-sounding

\* : echo-sounding 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	9505191400-1418	496076	647713	2.40	T55J9P04 *
		2	9505191330-1353	496061	647702	4.80	T55J9P03 *
		3	9505191244-1309	496041	647702	5.20	T55J9P02 *
		4	9505191210-1234	496024	647696	6.40	T55J9P01 *

Table 6.2: Vertical profiles


\* ADCP & MEX not available

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1	3	9505191400-1418	496076	647713	2.40
		2	6	9505191330-1353	496061	647702	4.80
		3	6	9505191244-1309	496041	647702	5.20
		4	6	9505191210-1234	496024	647696	6.40

Table 6.3: Suspended sediment - point sampled


Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	2	9505191330-1353	496061	647702	4.80	C001
		3	9505191244-1309	496041	647702	5.20	A1157
	1	2	9505191330-1353	496061	647702	4.80	A63
		3	9505191244-1309	496041	647702	5.20	A1163

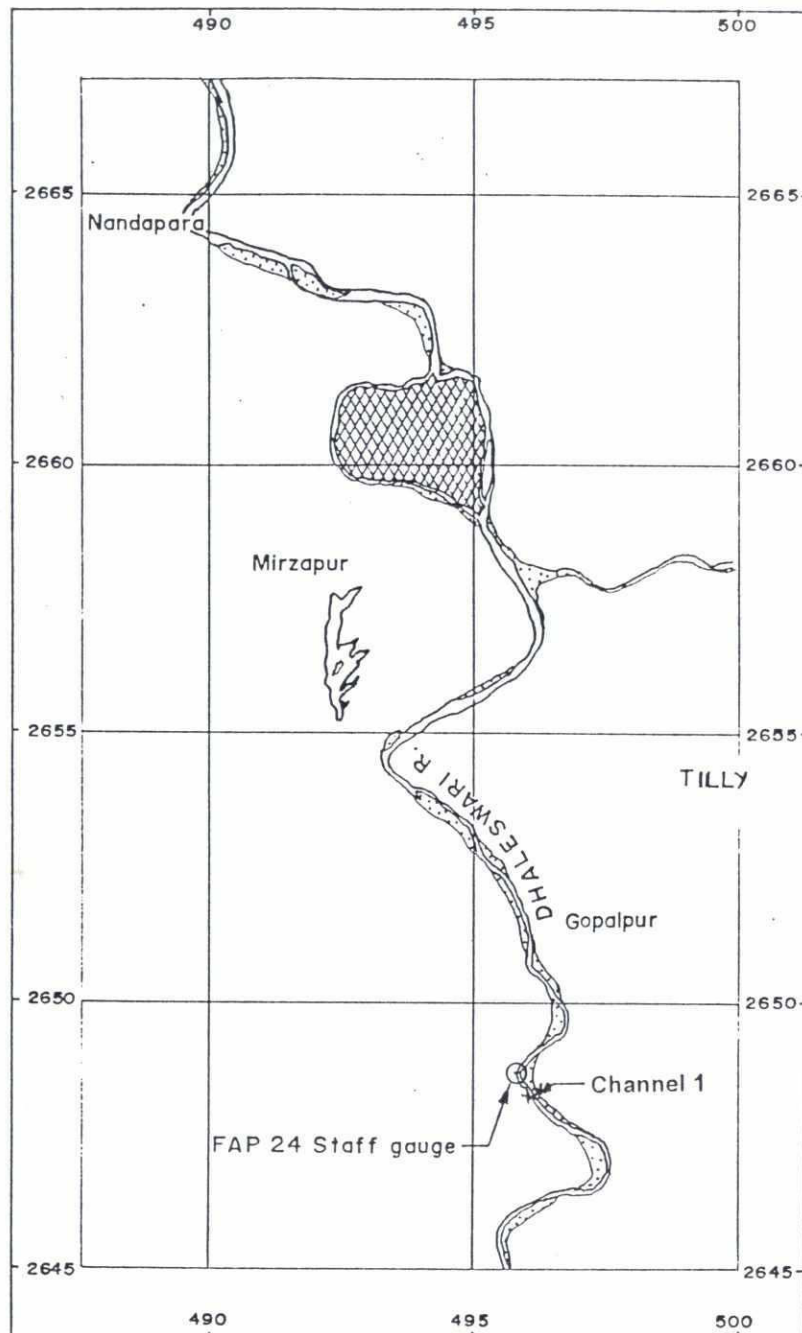
Table 6.4: Bed load

		<b>Survey Bulletin 155 : 19 May, 1995</b>	
<b>RIVER SURVEY PROJECT</b> <small>Flood Plan Coordination Organization</small> <small>Commission of the European Communities</small>		<b>Location 8 : Dhaleswari River, Tilly</b>	
	Date : 24 Sep 1995	<b>Collected data and their storage (1)</b>	page 6.1
	Init : sjr		

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	T55J9T03 .ase
Echosounder data	1	QUATTRO	T55J9T03 .ech
Sediment transport data	1	QUATTRO	T55J9T03 .sed
Bed load sed. analysis	1	QUATTRO	T55J9T03 .bdl
Susp. sed. conc. analysis	1	QUATTRO	T55J9T03 .ssc
Transect plot data	1	QUATTRO	T55J9T03 .trs

Table 7.1 PSD 24 Database file description

 <b>FAP 24</b> <small>DELFT - DHI</small>		Survey Bulletin 155 : 19 May, 1995	
<b>RIVER SURVEY PROJECT</b> <small>Flood Plan Coordination Organization</small> <small>Commission of the European Communities</small>		Location 8 : Dhaleswari River, Tilly	
	Date : 24 Sep 1995	PSD 24 Database file description	page
	Init : sjr		7.1



**LEGEND:**



High land

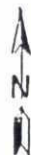


Unstable/low char



FAP 24 Staff gauge

x—x Cross section



Map is based on satellite images of March 1995

5000m 2500m 0

**FAP 24**



DELFT - DHI

**RIVER SURVEY PROJECT**

Flood Plan Coordination Organization  
Commission of the European Communities

**Survey Bulletin 165 : 19 June, 1995**

**Location 8 : Dhaleswari River, Tilly**

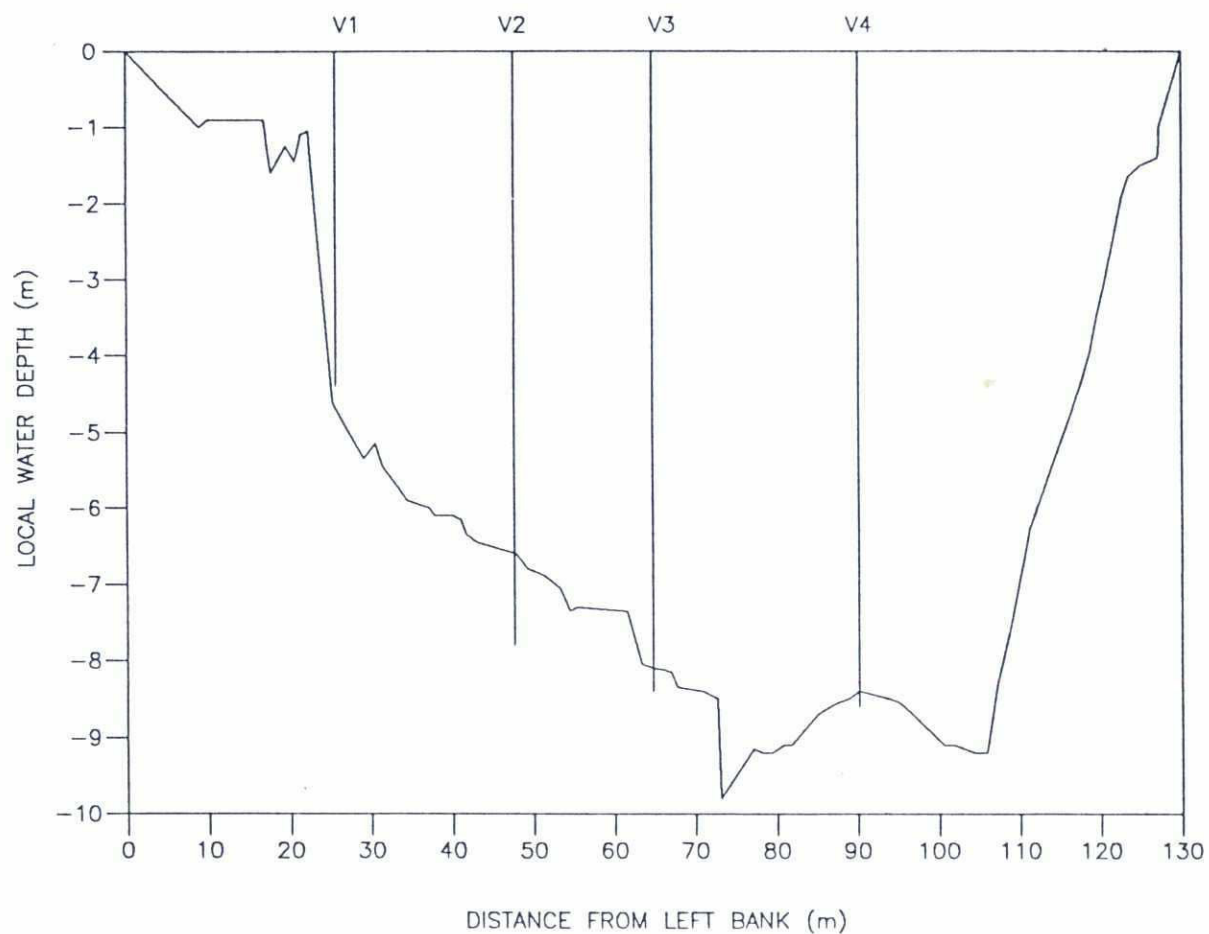
Date : 22 Oct 1995

Init : ss

**Location map**

page  
1.1





Water level : 7.94 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	-	-	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	2	-	-	-
Vertical current profile	No. of verticals in channel	4	-	-	-
	ADCP	-	-	-	-
	S4 current meter	4	-	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	24	-	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	-	-	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	8	-	-	-
	Delft Bottle	-	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-


Table 2.1: Survey programme as made

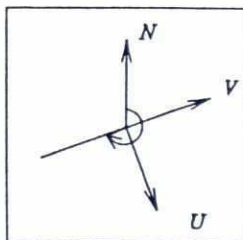
Channel	Width (m)	Area (m <sup>2</sup> )	Stage h (m+PWD)	Discharge Q (m <sup>3</sup> /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	129	765	7.94	634	4	1249

Table 2.2 : Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Tilly	Channel 1	19 Jun 95	7.94	FAP 24

Table 2.3 : Water-levels

<div><div><div>FAP 24</div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 165 : 19 June, 1995	
		Location 8 : Dhaleswary River, Tilly	
File : T56J0T02	Date : 22 Oct 1995	Survey programme as made and key figures	page
	Init : ss		2.1

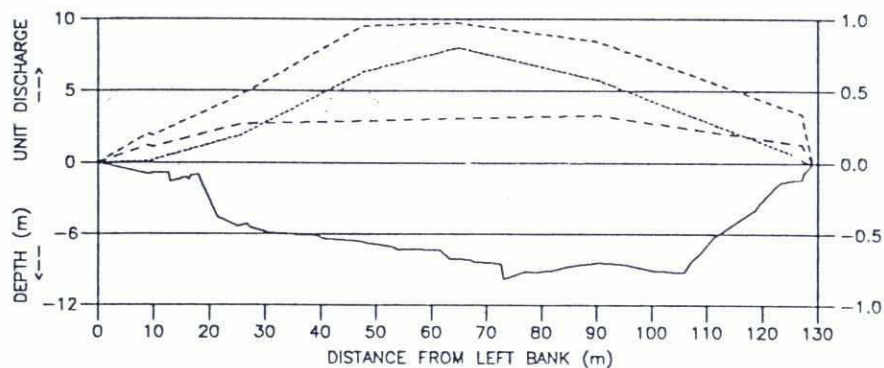


TRANSECT AZIMUTH =  $250^\circ$

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 ( $\text{m}^3/\text{s.m}$ )

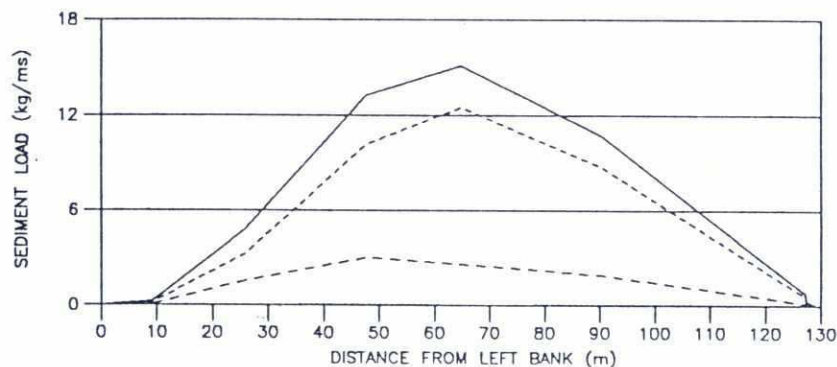
--- U - (m/s)

- . - V - (m/s)

STAGE = 7.94 (m+PWD)

A = 765 ( $\text{m}^2$ )

Q = 634 ( $\text{m}^3/\text{s}$ )



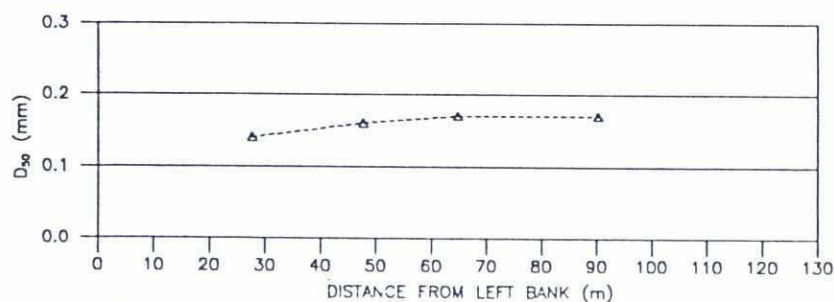
LEGEND :

—  $S_{\text{TOTAL}}$  1253 (kg/s)

---  $S_{\text{WASH LOAD}}$  995 (kg/s)

- . -  $S_{\text{SUSP. BED}}$  254 (kg/s)

.....  $S_{\text{BED LOAD}}$  4.0 (kg/s)



LEGEND :

♦♦♦♦♦  $D_{50 \text{ SUSP.}}$  (mm)

△△△△△  $D_{50 \text{ BED LOAD}}$  (mm)

□□□□□  $D_{50 \text{ BED MAT.}}$  (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT  
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 165 : 19 June, 1995

Location 8 : Dhaleswary River, Tilly

File : T56J0T02

Date : 22 Oct 1995

Init : ss

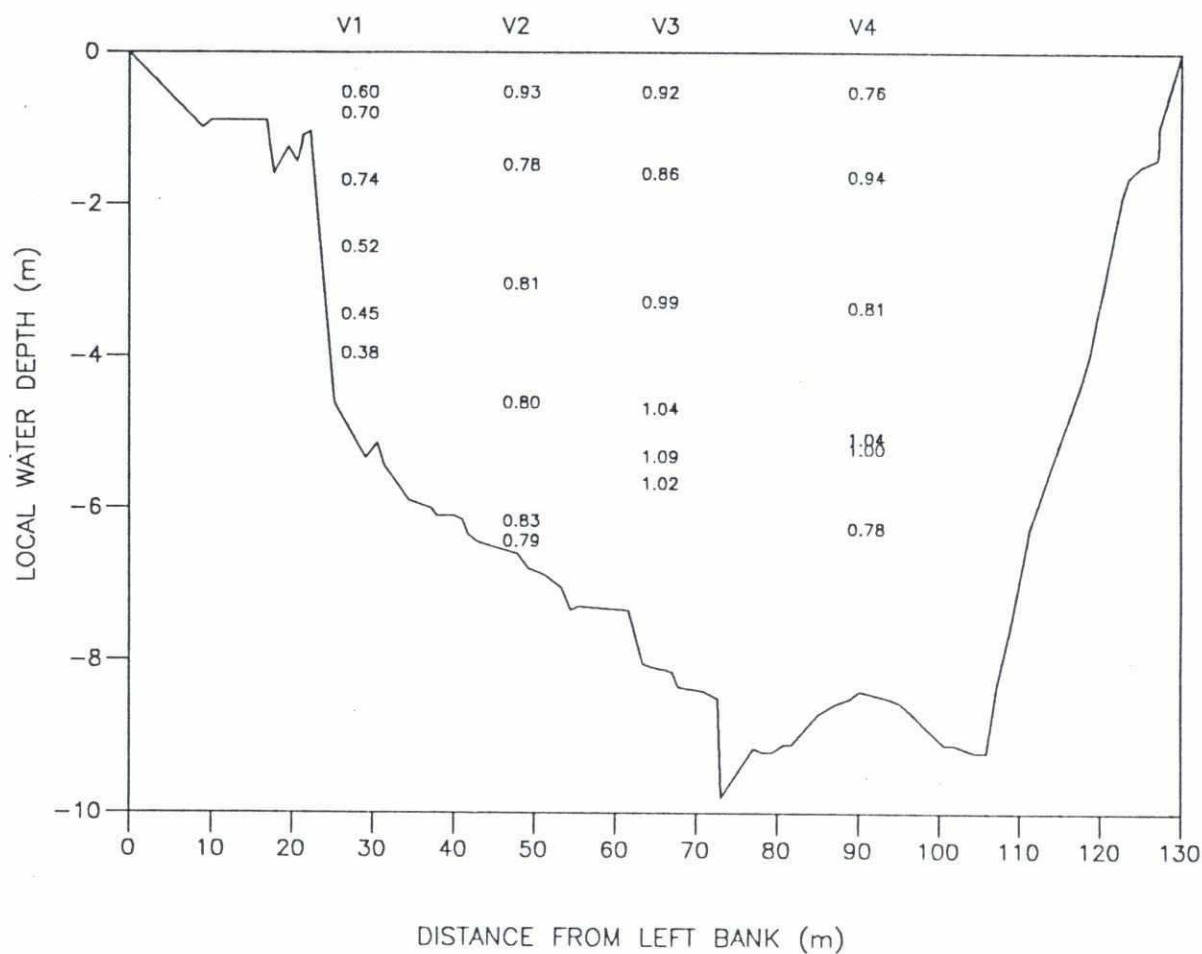
Horizontal distribution of flow and sediments

Channel 1


page

3.1






Water level : 7.94 m + PWD measured at the station indicated on page 1.1

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 165 : 19 June, 1995	
		Location 8 : Dhaleswary River, Tilly	
File : T56J0T02	Date : 22 Oct 1995	Cross-sectional distribution of flow velocity Channel 1	page 4.1
	Init : ss		

Helley-Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
Channel 1	1	9506191724-1750	4.40	3.429	96.571	0.124	0.155	0.193
	2	9506191633-1700	7.80	1.357	98.643	0.142	0.163	0.186
	3	9506191534-1619	8.40	2.198	97.802	0.144	0.170	0.199
	4	9506191436-1503	8.60	1.170	98.830	0.148	0.173	0.201
	1	9506191724-1750	4.40	4.743	95.257	0.102	0.129	0.166
	2	9506191633-1700	7.80	1.292	98.708	0.143	0.163	0.186
	3	9506191534-1619	8.40	2.738	97.262	0.142	0.167	0.197
	4	9506191436-1503	8.60	1.174	98.826	0.149	0.170	0.193
Table 5.1 : Grain sizes of bed load								

 <p>FAP 24 DELFT - DHI</p>	<p>RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities</p>	Survey Bulletin 165 : 19 June, 1995	
		Location 8 : Dhaleswary River, Tilly	
	Date : 22 Oct 1995	Grain size distributions	page 5.1
	Init : ss		

m

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
Echo-sounding	1	9506191354-1355 9506191357-1358	T56J0T01 T56J0T02 *

Table 6.1: Echo-sounding \* : echo-sounding 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 2 3 4	9506191724-1750 9506191633-1700 9506191534-1619 9506191436-1503	496082 496059 496048 496021	647725 647716 647700 647696	4.40 7.80 8.40 8.60	T56J0P04 * T56J0P03 * T56J0P02 * T56J0P01 *


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

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1 2 3 4	6 6 6 6	9506191724-1750 9506191633-1700 9506191534-1619 9506191436-1503	496082 496059 496048 496021	647725 647716 647700 647696	4.40 7.80 8.40 8.60

Table 6.3: Suspended sediment - point sample

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1 2 3 4  1 2 3 4	9506191724-1750 9506191633-1700 9506191534-1619 9506191436-1503  9506191724-1750 9506191633-1700 9506191534-1619 9506191436-1503	496082 496059 496048 496021  496082 496059 496048 496021	647725 647716 647700 647696  647725 647716 647700 647696	4.40 7.80 8.40 8.60  4.40 7.80 8.40 8.60	C109 C103 A920 A127  A2142 C261 A690 A702


Table 6.4: Bed load

 <b>FAP 24</b> DELFT - DHI	RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 165 : 19 June, 1995	
	Location 8 : Dhaeswary River, Tilly		
	Date : 22 Oct 1995	Collected data and their storage (1)	page 6.1
	Init : ss		

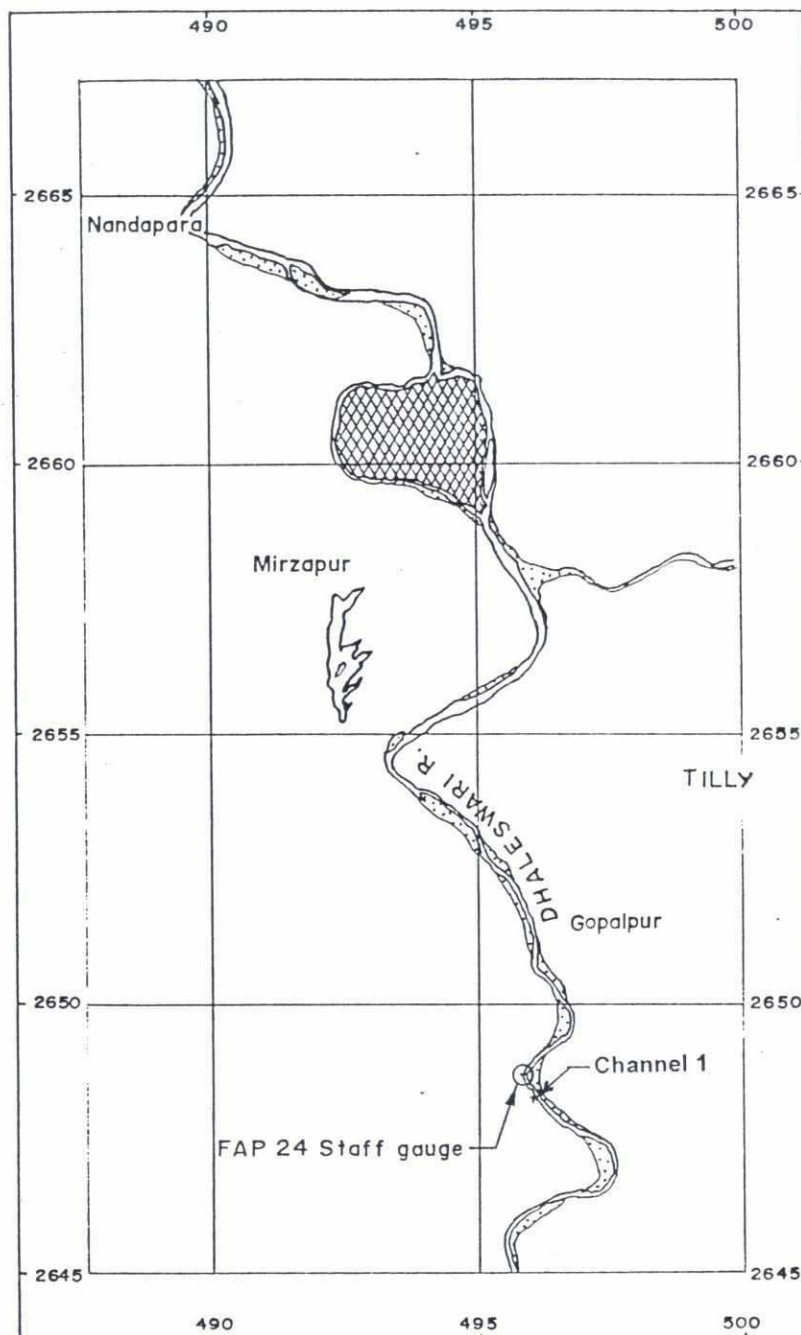
29

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	T56J0T02 .ase
Echosounder data	1	QUATTRO	T56J0T02 .ech
Sediment transport data	1	QUATTRO	T56J0T02 .sed
Susp. sed. conc. analysis	1	QUATTRO	T56J0T02 .ssc
Bedload sediment analysis	1	QUATTRO	T56J0T02 .bdl
Transect plot data	1	QUATTRO	T56J0T02 .trs





Table 7.1 PSD 24 Database file description

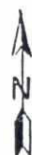
 <p><b>FAP 24</b> DELFT - DHI</p>	<p><b>RIVER SURVEY PROJECT</b> Flood Plan Coordination Organization Commission of the European Communities</p>	Survey Bulletin 165 : 19 June, 1995	
		Location 8 : Dhaleswary River, Tilly	
	Date : 22 Oct 1995	PSD 24 Database file description	page
	Init : ss		7.1





LEGEND:

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



Map is based on satellite images of March 1995

5000m 2500m 0

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization  
Commission of the European Communities

Survey Bulletin 178 : 02 August, 1995

Location 8 : Dhaleswari River, Tilly

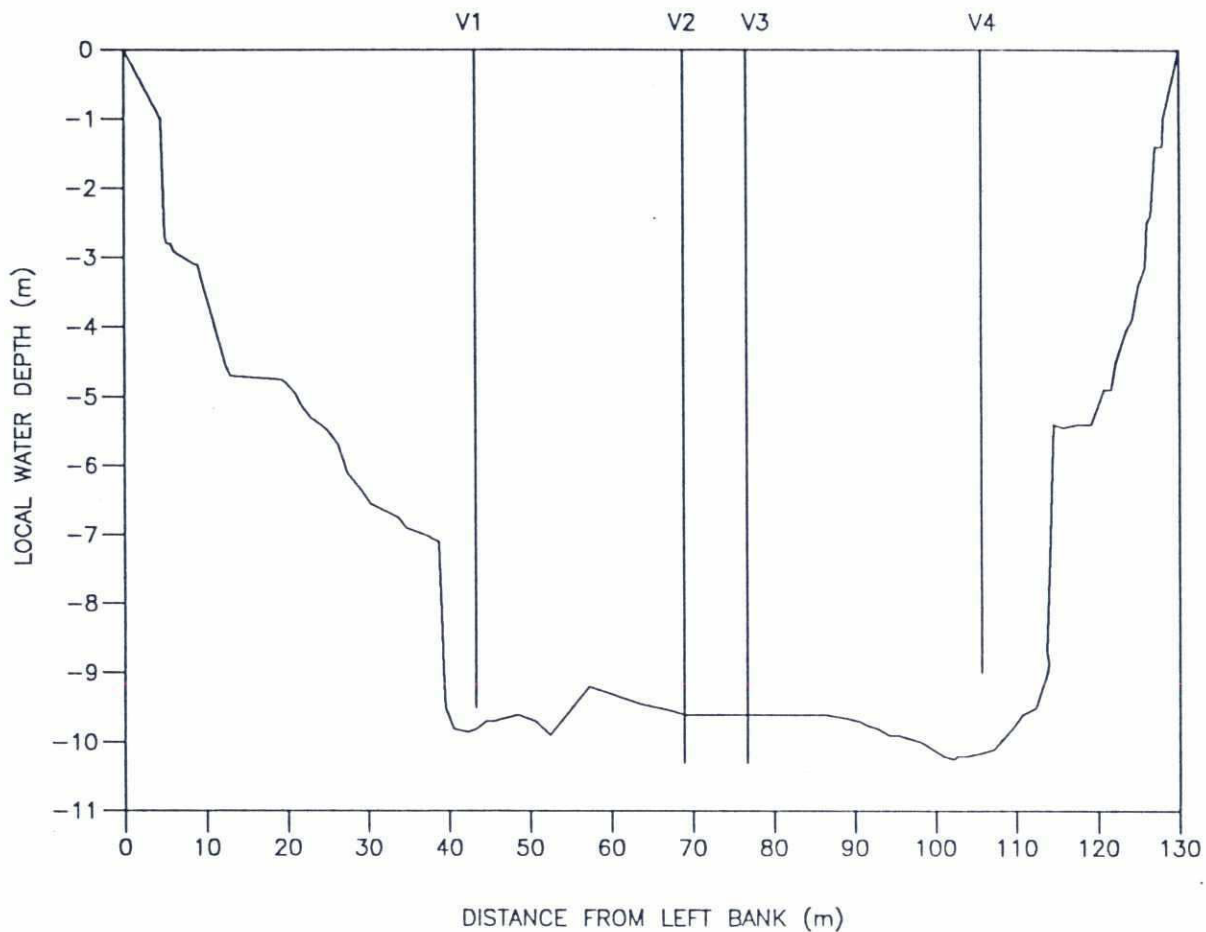
Date : 03 Dec 1995

Init : ss


Location map

page  
1.1

22



Water level : 8.21 m + PWD measured at the station indicated on page 1.1

<b>FAP 24</b>  <b>DELFT - DHI</b>		Survey Bulletin 178 : 02 August , 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T5829T01	Date : 03 Dec 1995	Cross-sections and measured verticals Channel 1	page
	Init : ss		1.2

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	-	-	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	3	-	-	-
Vertical current profile	No. of verticals in channel	4	-	-	-
	ADCP	-	-	-	-
	S4 current meter	4	-	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	28	-	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	-	-	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	2	-	-	-
	Delft Bottle	-	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-



Table 2.1: Survey programme as made

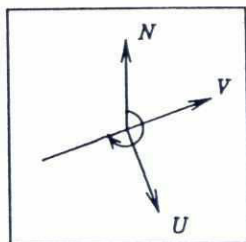
Channel	Width (m)	Area (m <sup>2</sup> )	Stage h (m+PWD)	Discharge Q (m <sup>3</sup> /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	130	975	8.21	234	0	99

Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Tilly	Channel 1	02 Aug 95	8.21	FAP 24

Table 2.3: Water-levels

<div><div><div>FAP 24</div><div>DELFT - DHI</div></div><div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div></div>		Survey Bulletin 178 : 02 August , 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T5829T01	Date : 03 Dec 1995	Survey programme as made and key figures	page
	Init : ss		2.1

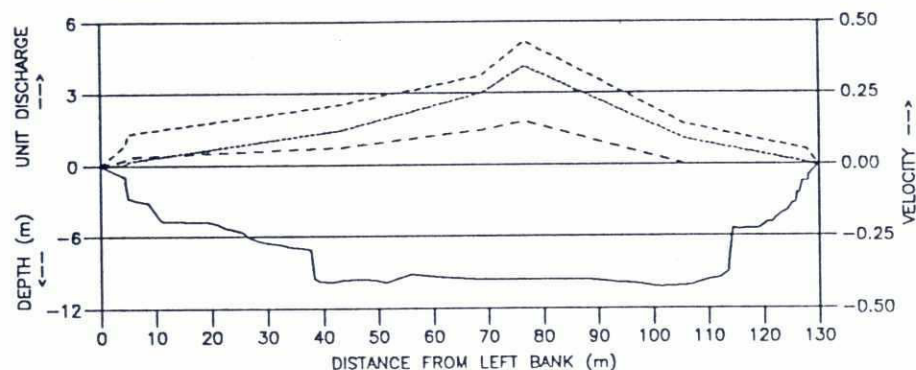


TRANSECT AZIMUTH = 250°

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)

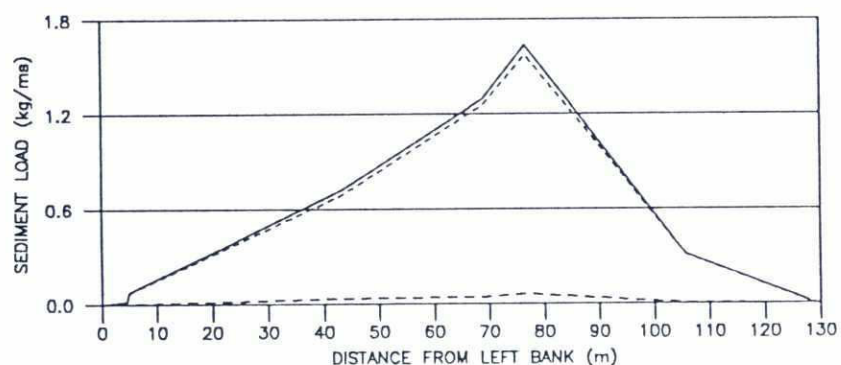
U - (m/s)

V - (m/s)

STAGE = 8.21 (m+PWD)

A = 975 (m²)

Q = 234 (m³/s)



SEDIMENT TRANSPORT

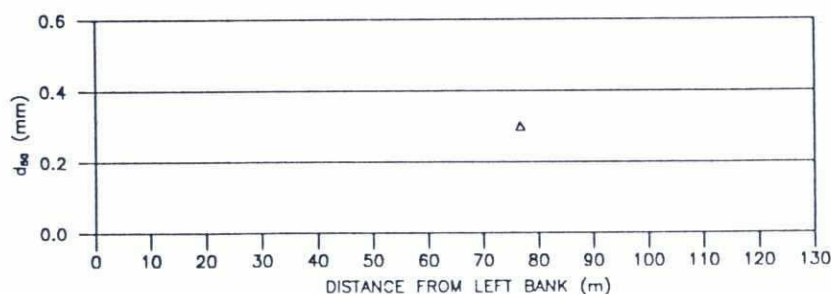
LEGEND :

S<sub>TOTAL</sub> 99 (kg/s)

S<sub>WASH LOAD</sub> 95 (kg/s)

S<sub>SUSP. BED</sub> 4 (kg/s)

S<sub>BED LOAD</sub> 0 (kg/s)



GRAIN SIZE

LEGEND :

◇◇◇◇◇ D<sub>50</sub> SUSP. (mm)

△△△△△ D<sub>50</sub> BED LOAD (mm)

□□□□□ D<sub>50</sub> BED MAT. (mm)

FAP 24



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

Survey Bulletin 178 : 02 August , 1995

Location 8 : Dhaleswari River, Tilly

File : T5829T01

Date : 03 Dec 1995

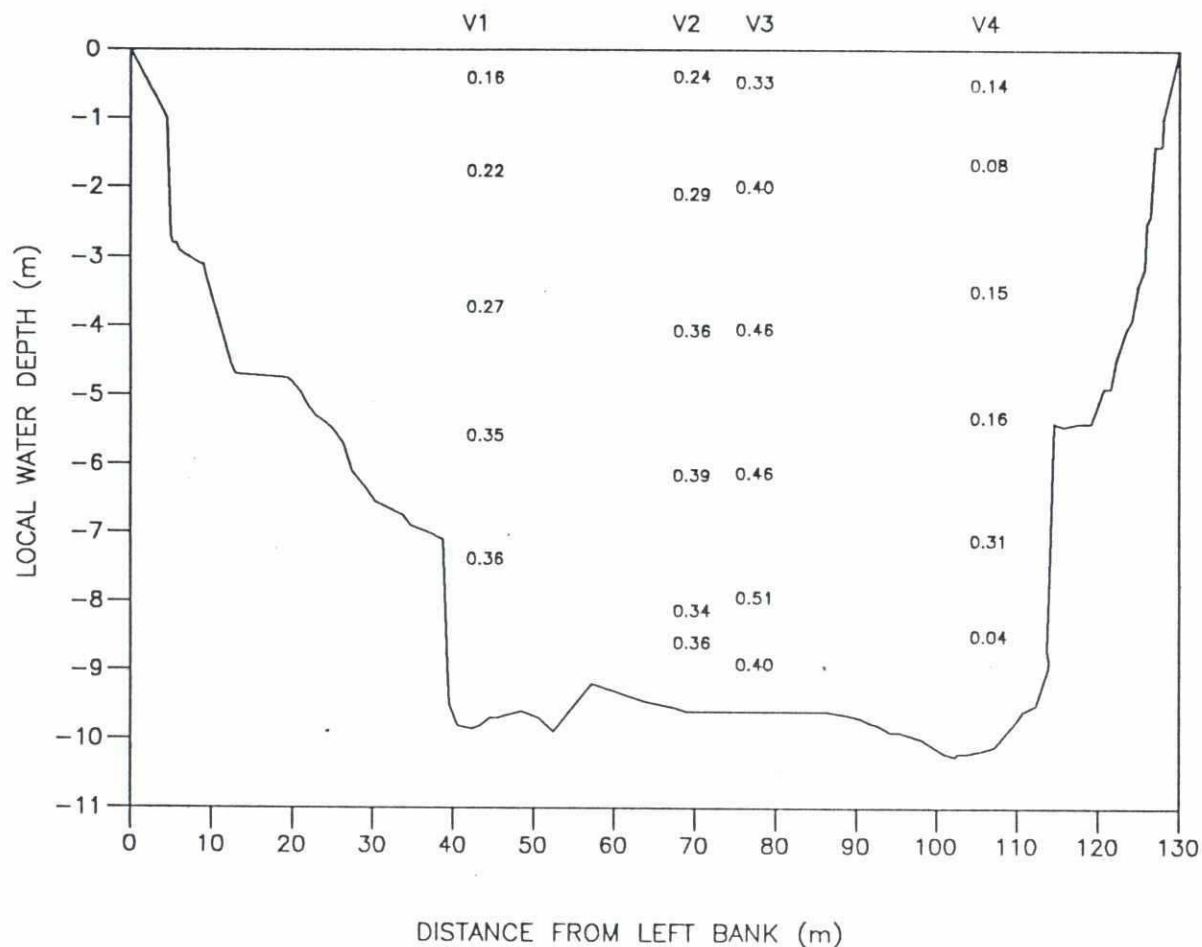
Init : ss

Horizontal distribution of flow and sediments  
Channel 1


page

3.1






Water level : 8.21 m + PWD measured at the station indicated on page 1.1

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>	Survey Bulletin 178 : 02 August , 1995		
	Location 8 : Dhaleswari River, Tilly		
File : T5829T01	Date : 03 Dec 1995	Cross-sectional distribution of flow velocity  Channel 1	page
	Init : ss		4.1

Helley-Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35	D50	D65
				< 0.06 mm	> 0.06 mm	(mm)	(mm)	(mm)
1	3	9508021539-1604	10.30	0.16	99.84	0.271	0.313	0.361
		9508021539-1604	10.30	0.46	99.54	0.239	0.289	0.344

Table 5.1 : Grain sizes of bed load

Point Sample - near bed								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent < 0.06 mm > 0.06 mm		D35 (mm)	D50 (mm)	D65 (mm)
1	1	9508021419-1445	9.50	92.62	7.38	0.009	0.014	0.026
	2	9508021500-1527	10.30	94.73	5.27	0.007	0.013	0.020
	3	9508021539-1604	10.30	94.64	5.36	0.005	0.010	0.016
	4	9508021256-1320	9.00	96.45	3.55	0.005	0.009	0.015
Table 5.2 : Grain sizes								

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>	Survey Bulletin 178 : 02 August , 1995		
	Location 8 : Dhaleswari River, Tilly		
	Date : 03 Dec 1995	Grain size distributions	page 5.1
	Init : ss		

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
Echo-sounding	1	9508021204-1206 9508021208-1210 9508021215-1216	T5829T01 * T5829T02 T5829T03

Table 6.1: Echo-sounding

\* : echo-sounding 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	9508021419-1445	496070	647712	9.50	T5829P02 *
		2	9508021500-1527	496053	647704	10.30	T5829P03 *
		3	9508021539-1604	496046	647688	10.30	T5829P04 *
		4	9508021256-1320	496018	647693	9.00	T5829P01 *

Table 6.2: Vertical profiles

\* ADCP & MEX not available

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1	6	9508021419-1445	496070	647712	9.50
		2	6	9508021500-1527	496053	647704	10.30
		3	6	9508021539-1604	496046	647688	10.30
		4	6	9508021256-1320	496018	647693	9.00


Table 6.3: Suspended sediment - point sample

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	3	9508021539-1604	496046	647688	10.30	C528
			9508021539-1604	496046	647688	10.30	C582



Table 6.4: Bed load

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Point Sample	1	1	9508021419-1445	496070	647712	9.50	C608
		2	9508021500-1527	496053	647704	10.30	C775
		3	9508021539-1604	496046	647688	10.30	C686
		4	9508021256-1320	496018	647693	9.00	C683

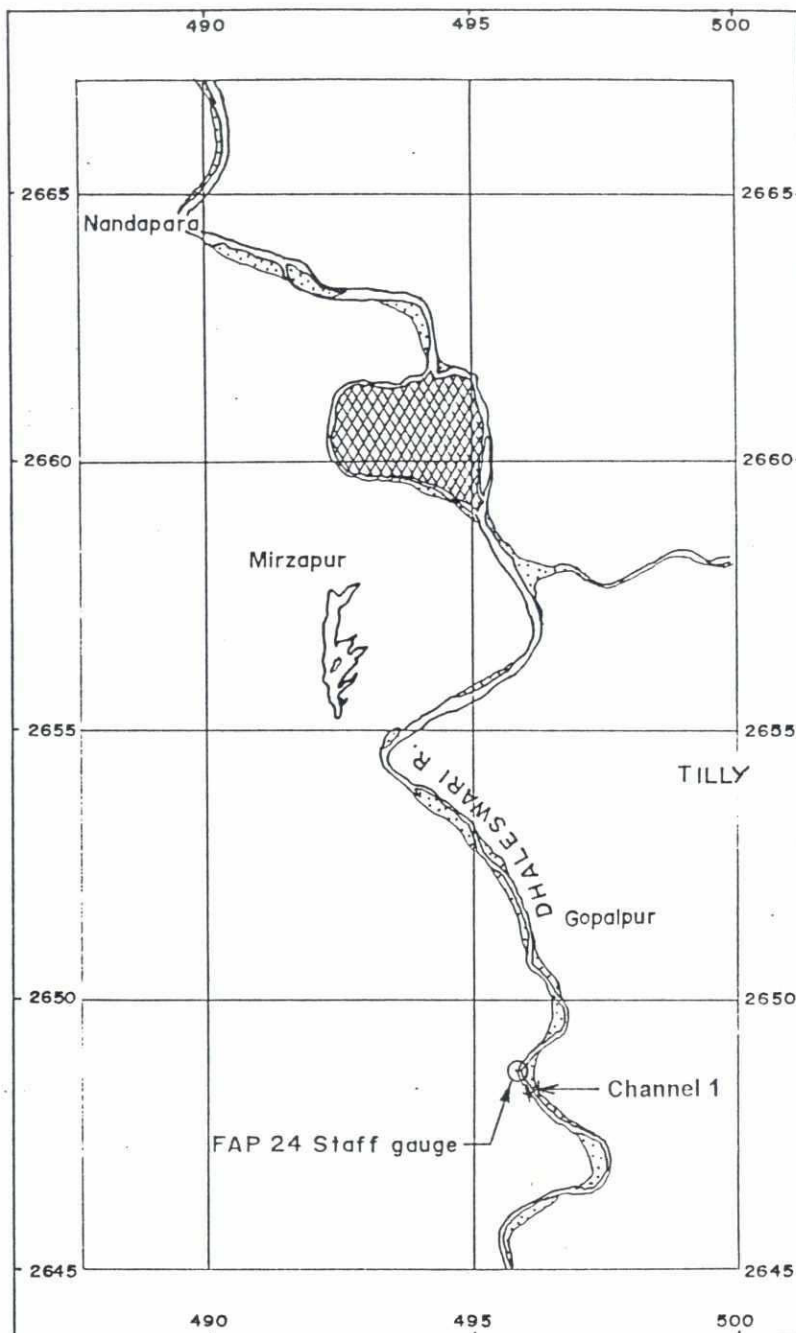
Table 6.5: Near bed

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 178 : 02 August , 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 03 Dec 1995	Collected data and their storage (1)	page 6.1
	Init : ss		

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	T5829T01 .ase
Echosounder data	1	QUATTRO	T5829T01 .ech
Sediment transport data	1	QUATTRO	T5829T01 .sed
Susp. sed. conc. analysis	1	QUATTRO	T5829T01 .ssc
Bedload sediment analysis	1	QUATTRO	T5829T01 .bdl
Transect plot data	1	QUATTRO	T5829T01 .trs
Table 7.1 PSD 24 Database file description			

 <p><b>FAP 24</b> DELFT - DHI</p>	 <p><b>RIVER SURVEY PROJECT</b> Flood Plan Coordination Organization Commission of the European Communities</p>	Survey Bulletin 178 : 02 August , 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 03 Dec 1995	PSD 24 Database file description	page
	Init : ss		7.1





# LEGEND:

- ×—× Cross section
- ▨ High land
- ░ Unstable/low char
- FAP 24 Staff gauge



Map is based on satellite images of March 1995

5000m 2500m 0

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization  
Commission of the European Communities

Survey Bulletin 184 : 27 August, 1995

Location 8 : Dhaleswari River, Tilly

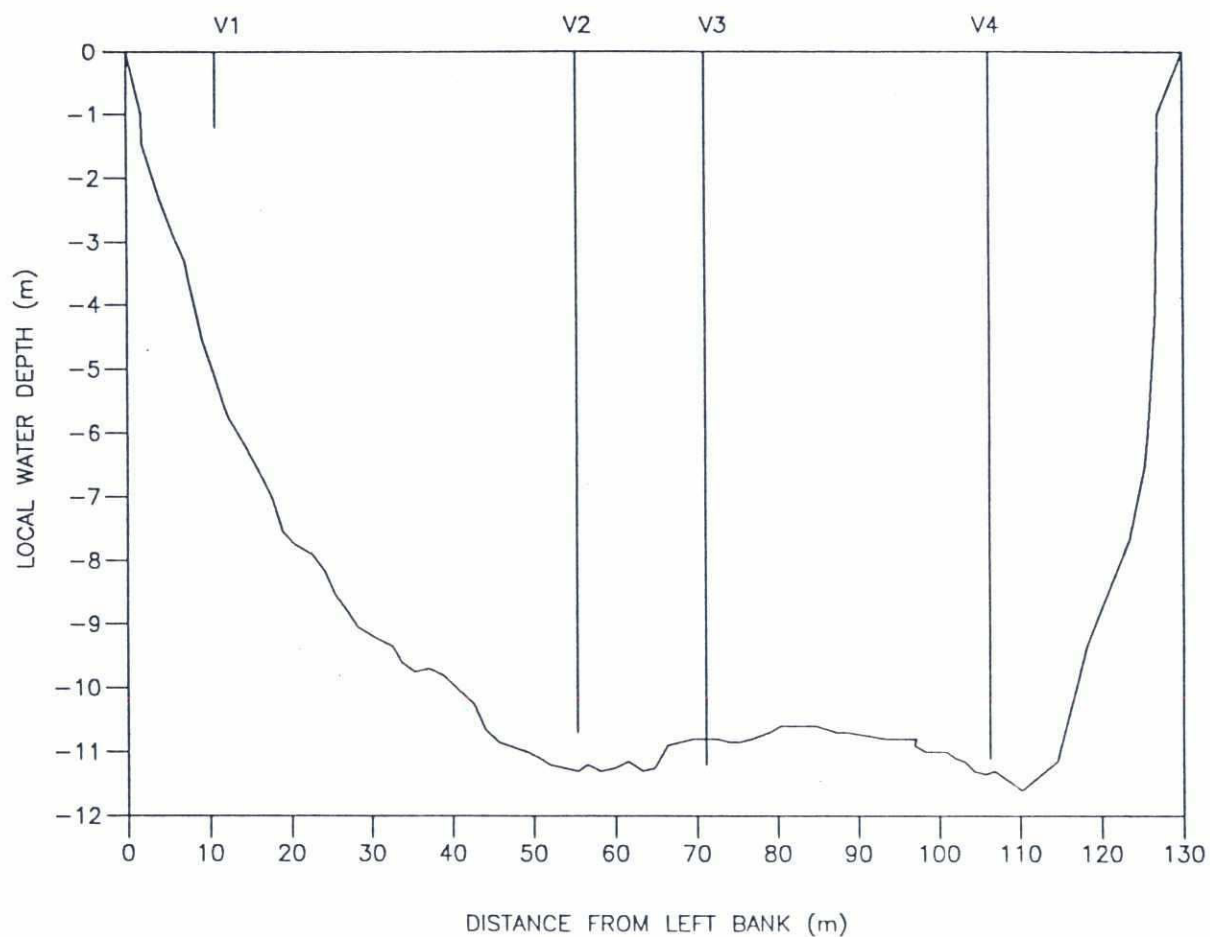
Date : 18 Dec 1995

Init : ss


Location map

page  
1.1

90



Water level : 9.05 m + PWD measured at the station indicated on page 1.1

<b>FAP 24</b>  DELFT - DHI		Survey Bulletin 184 : 27 August , 1995	
RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Location 8 : Dhaleswari River, Tilly	
File : T58R9T01	Date : 18 Dec 1995 Init : ss	<b>Cross-sections and measured verticals</b> <b>Channel 1</b>	page 1.2

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	-	-	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	2	-	-	-
Vertical current profile	No. of verticals in channel	4	-	-	-
	ADCP	-	-	-	-
	S4 current meter	4	-	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	24	-	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	-	-	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	4	-	-	-
	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 <sup>2</sup> )	Stage h (m+PWD)	Discharge Q (m <sup>3</sup> /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	130	1196	9.05	482	0.1	126.7

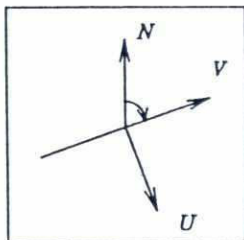
Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Tilly	Channel 1	27 Aug 95	9.05	FAP 24

Table 2.3: Water-levels

<div><p>FAP 24</p><p>DELFT - DHI</p></div> <div><p>RIVER SURVEY PROJECT</p><p>Flood Plan Coordination Organization</p><p>Commission of the European Communities</p></div>		Survey Bulletin 184 : 27 August , 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T58R9T01	Date : 18 Dec 1995	Survey programme as made and key figures	page
	Init : ss		2.1

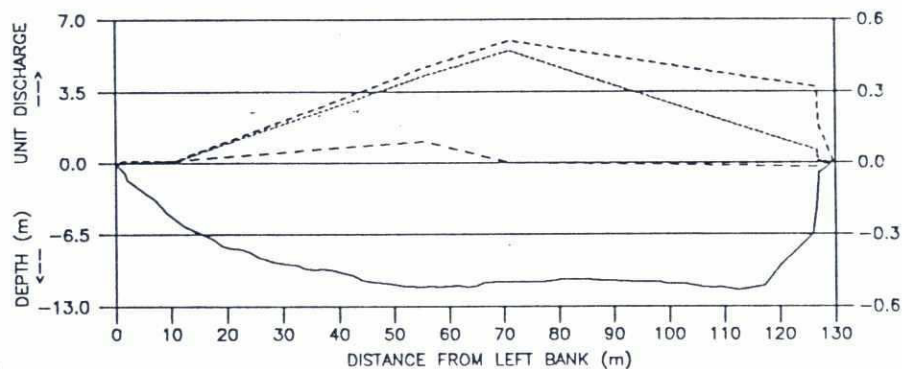
92

TRANSECT AZIMUTH =  $73^\circ$ 

U - VELOCITY NORMAL TO TRANSECT (m/s)

V - VELOCITY PARALLEL TO TRANSECT (m/s)

N - MAGNETIC NORTH



FLOW

LEGEND :

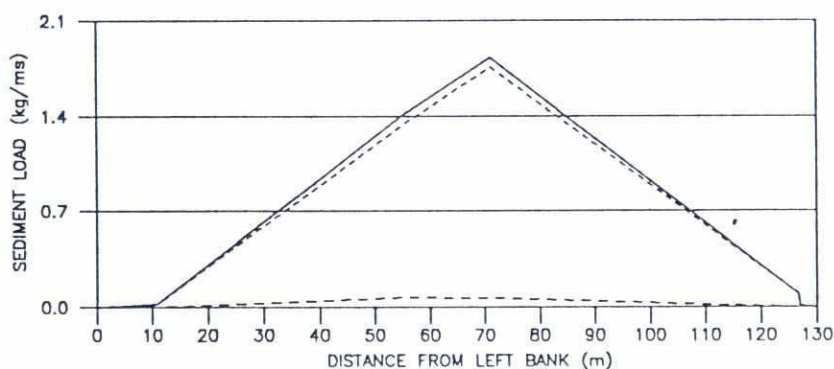
WATER DEPTH (m below STAGE)

UNIT DISCHARGE ( $\text{m}^3/\text{s.m}$ )

U - (m/s)

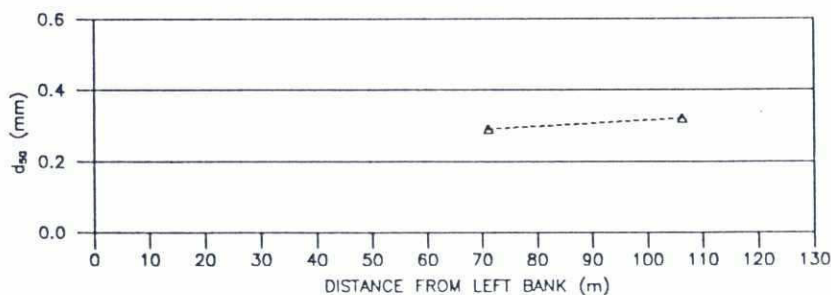
V - (m/s)

STAGE = 9.05 (m+PWD)

A = 1196 ( $\text{m}^2$ )Q = 482 ( $\text{m}^3/\text{s}$ )

SEDIMENT TRANSPORT

LEGEND :

S<sub>TOTAL</sub> 126.8 (kg/s)S<sub>WASH LOAD</sub> 122.4 (kg/s)S<sub>SUSP. BED</sub> 4.3 (kg/s)S<sub>BED LOAD</sub> 0.1 (kg/s)

GRAIN SIZE

LEGEND :

D<sub>50</sub> SUSP. (mm)D<sub>50</sub> BED LOAD (mm)D<sub>50</sub> BED MAT. (mm)

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT  
Flood Plan Coordination Organization

Commission of the European Communities

Survey Bulletin 184 : 27 August , 1995

Location 8 : Dhaleswari River, Tilly

File : T58R9T01

Date : 18 Dec 1995

Init : ss

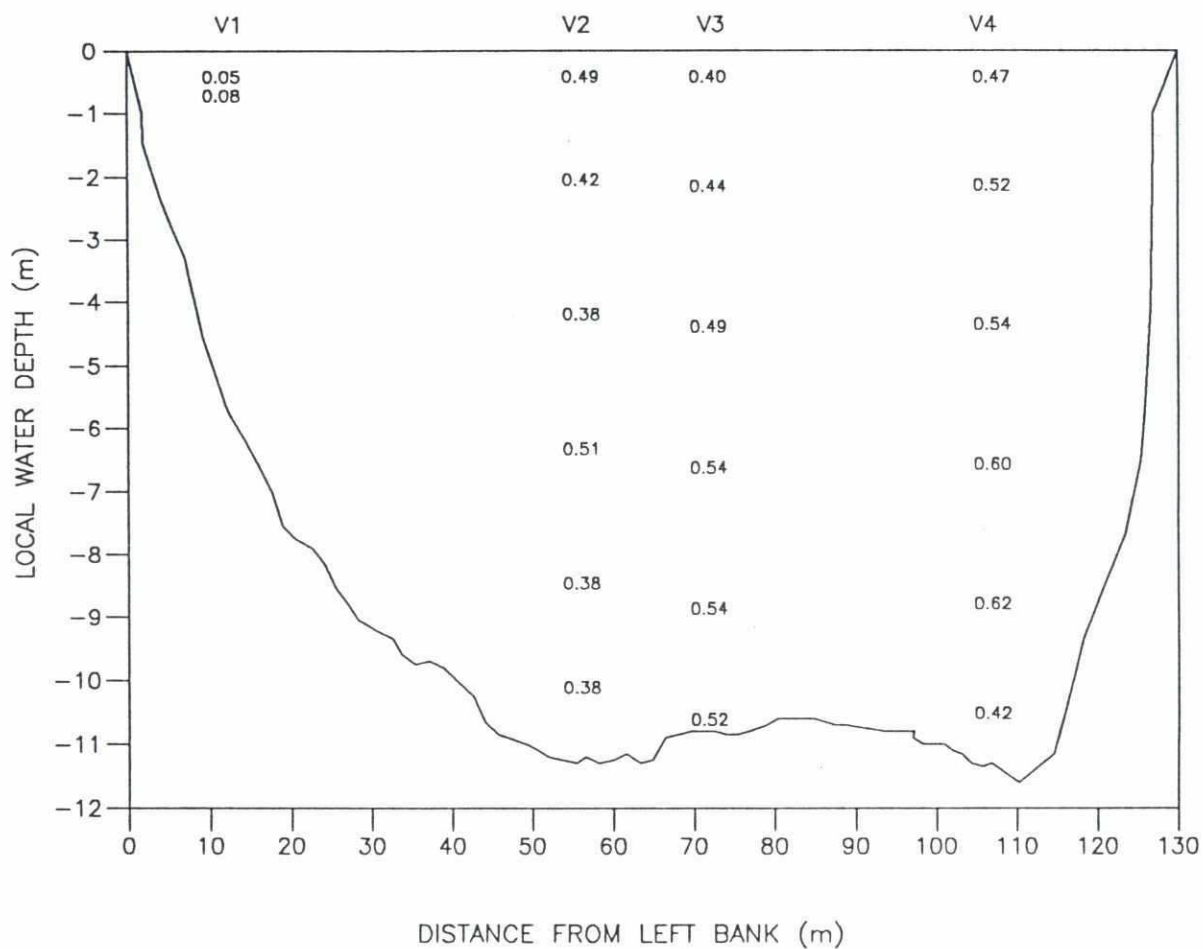
Horizontal distribution of flow and sediments

Channel 1

page

3.1





Water level : 9.05 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 184 : 27 August , 1995

Location 8 : Dhaleswari River, Tilly

File : T58R9T01

Date : 18 Dec 1995

Init : ss

Cross-sectional distribution of flow velocity  
Channel 1



page

4.1

8

Helley-Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
1	3	9508271358-1433	11.20	3.57	96.43	0.208	0.264	0.323
	4	9508271230-1348	11.10	0.47	99.53	0.286	0.327	0.373
	3	9508271358-1433	11.20	0.25	99.75	0.267	0.310	0.359
	4	9508271230-1348	11.10	5.62	94.38	0.269	0.312	0.362
Table 5.1 : Grain sizes of bed load								

Point Sample - near bed								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
1	1	9508271533-1544	1.20	97.51	2.49	-	0.005	0.011
	2	9508271445-1513	10.70	95.46	4.54	0.003	0.008	0.018
	3	9508271358-1433	11.20	94.41	5.59	0.014	0.027	0.041
	4	9508271230-1348	11.10	97.41	2.59	0.003	0.005	0.013
Table 5.2 : Grain sizes								

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div></div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 184 : 27 August , 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 18 Dec 1995	Grain size distributions	page
	Init : ss		5.1

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
Echo-sounding	1	9508271146-1148 9508271152-1154	T58R9T01 * T58R9T02

Table 6.1: Echo-sounding \* : echo-sounding in PSD 24 data base and presented in Sections 3 and 4


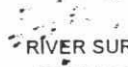
Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	File name
Vertical current & turbidity profiles (ADCP/S4/MEX)	1	1	9508271533-1544	496100	647727	1.20	T58R9P06 *
		2	9508271445-1513	496060	647713	10.70	T58R9P05 *
		3	9508271358-1433	496043	647704	11.20	T58R9P03 *
		4	9508271230-1348	496017	647678	11.10	T58R9P04 *

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

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1	2	9508271533-1544	496100	647727	1.20
		2	6	9508271445-1513	496060	647713	10.70
		3	6	9508271358-1433	496043	647704	11.20
		4	6	9508271230-1348	496017	647678	11.10

Table 6.3: Suspended sediment - point sample



 <b>FAP 24</b> DELFT - DHI	 <b>RIVER SURVEY PROJECT</b> Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 184 : 27 August , 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 18 Dec 1995	Collected data and their storage (1)	page
	Init : ss		6.1


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Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	3	9508271358-1433	496043	647704	11.20	C341
		4	9508271230-1348	496017	647678	11.10	C260
		3	9508271358-1433	496043	647704	11.20	A46
		4	9508271230-1348	496017	647678	11.10	A1590

Table 6.4: Bed load

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Point Sample	1	1	9508271533-1544	496100	647727	1.20	C254
		2	9508271445-1513	496060	647713	10.70	A58
		3	9508271358-1433	496043	647704	11.20	A1362
		4	9508271230-1348	496017	647678	11.10	C40


Table 6.5: Near bed

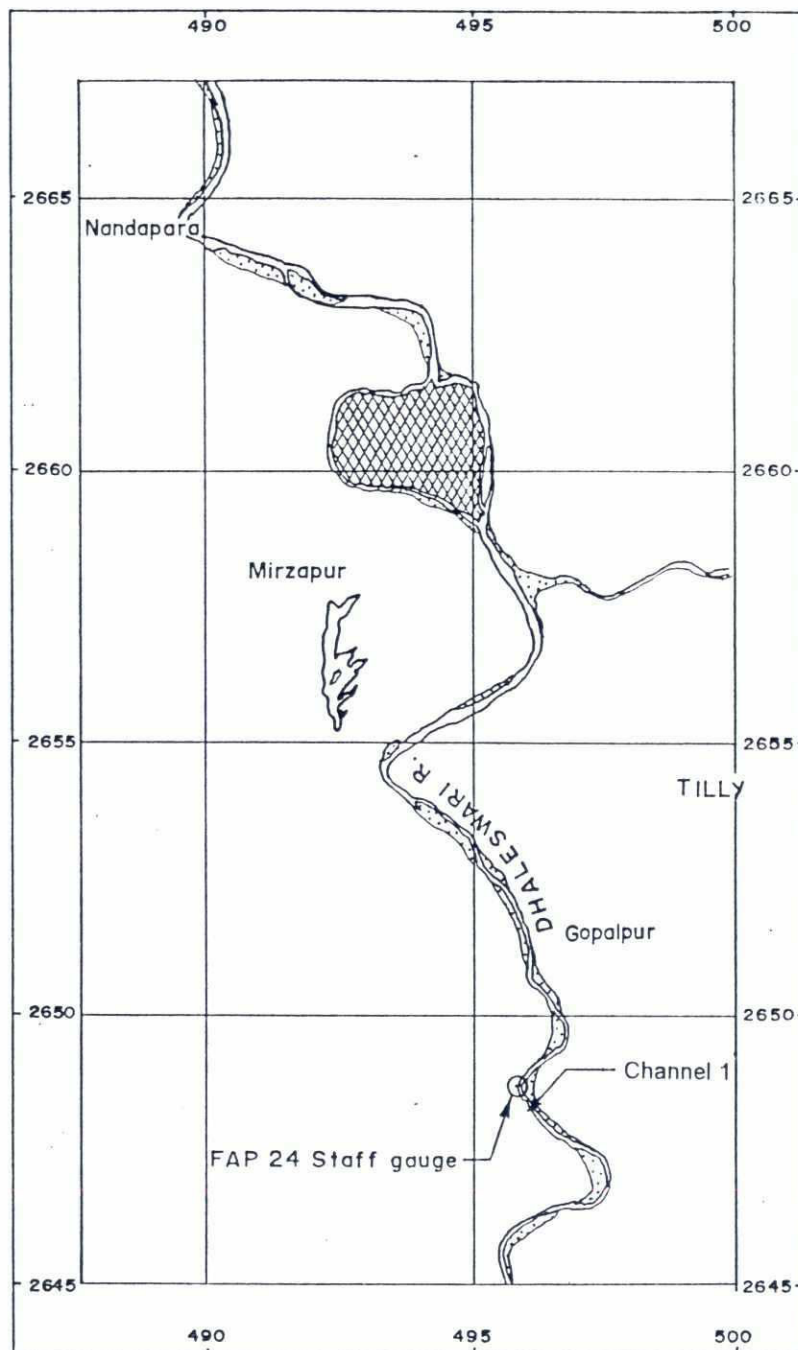
<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 184 : 27 August , 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 18 Dec 1995	Collected data and their storage (2)	page  6.2
	Init : ss		



09

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	T58R9T01 .ase
Echosounder data	1	QUATTRO	T58R9T01 .ech
Sediment transport data	1	QUATTRO	T58R9T01 .sed
Susp. sed. conc. analysis	1	QUATTRO	T58R9T01 .ssc
Bedload sediment analysis	1	QUATTRO	T58R9T01 .bdl
Transect plot data	1	QUATTRO	T58R9T01 .trs
Table 7.1 PSD 24 Database file description			

 <p><b>FAP 24</b> DELFT - DHI</p>		Survey Bulletin 184 : 27 August , 1995	
<p>RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities</p>		Location 8 : Dhaleswari River, Tilly	
	Date : 18 Dec 1995	PSD 24 Database file description	page
	Init : ss		7.1



#### LEGEND:

High land

Unstable/low char

FAP 24 Staff gauge

Measurement cross-section.



Map is based on satellite images of March 1995

5000m 2500m 0

**FAP 24**



DELFT - DHI

**RIVER SURVEY PROJECT**

Flood Plan Coordination Organization  
Commission of the European Communities

**Survey Bulletin 198 : 27 September, 1995**

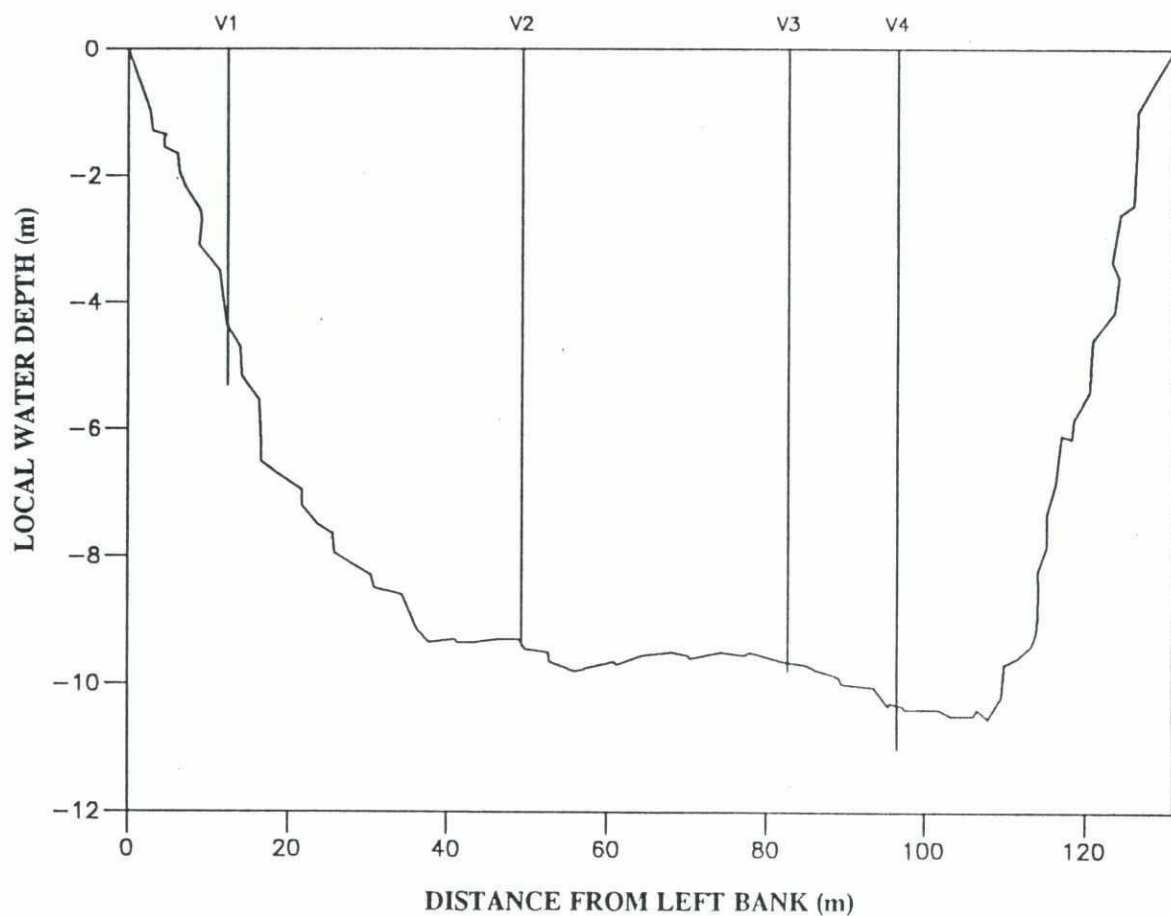
**Location 8 : Dhaleswari River, Tilly**

Date : 19 Feb 1996


Init : sjr

**Location map**

page  
1.1



Water level : 8.58 m+PWD measured at the station indicated on page 1.1

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 198 : 27 September, 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T59R9T02	Date : 19 Feb 1996	Cross-sections and measured verticals Channel 1	page 1.2
	Init : sjr		

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	-	-	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	2	-	-	-
Vertical current profile	No. of verticals in channel	4	-	-	-
	ADCP	-	-	-	-
	S4 current meter	4	-	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	24	-	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	-	-	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	8	-	-	-
	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 <sup>2</sup> )	Stage h(m + PWD)	Discharge Q(m <sup>3</sup> /s)	Bed load transport Sb(kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	131	1023	8.58	615	0.71	755.88

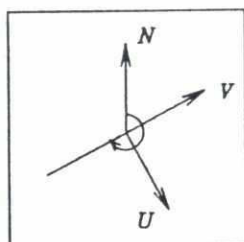
Table 2.2: Key figures

Gauge Location	Channel	Date	Water level (Daily average) (m + PWD)	Gauge
Tilly	Channel 1	27 Sep 95	8.58	FAP24

Table 2.3: Water-levels

 <b>FAP 24</b> RIVER SURVEY PROJECT Fluvial Plan Coordination Organization Commission of the European Communities DELFT - DHI		Survey Bulletin 198 : 27 September, 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T59R9T02	Date : 19 Feb 1996	Survey programme as made and key figures	page 2.1
	Init : sjr		



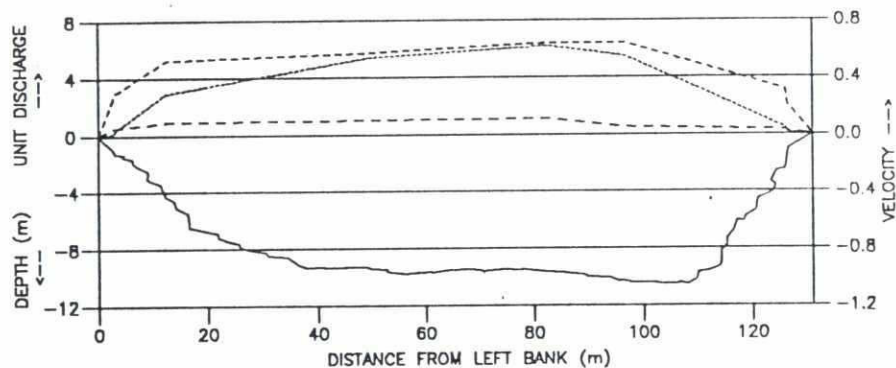


TRANSECT AZIMUTH =  $242^\circ$

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 ( $m^3/s.m$ )

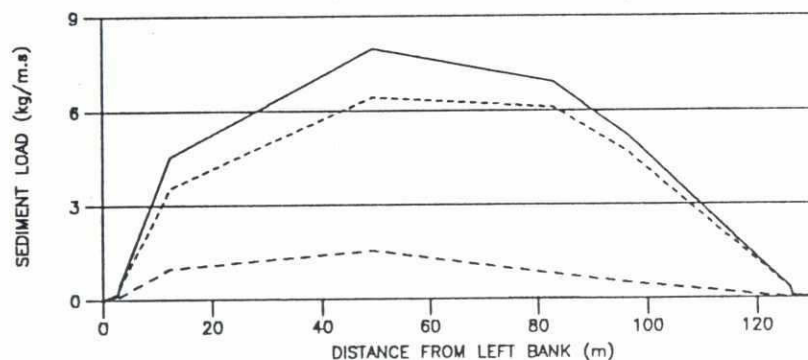
... U (m/s)

- . - V (m/s)

STAGE = 8.58 (m+PWD)

A = 1023 ( $m^3$ )

Q = 615 ( $m^3/s$ )



SEDIMENT TRANSPORT

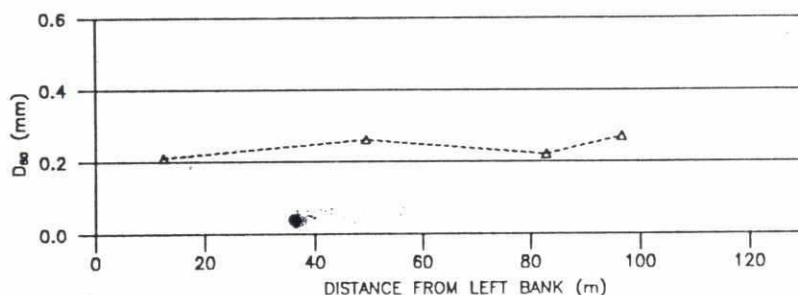
LEGEND :

—  $S_{TOTAL}$  756.59 (kg/s)

- - -  $S_{WASH LOAD}$  637.33 (kg/s)

...  $S_{SUSP. BED}$  118.55 (kg/s)

- . -  $S_{BED LOAD}$  0.71 (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 198 : 27 September, 1995

Location 8 : Dhaleswari River, Tilly

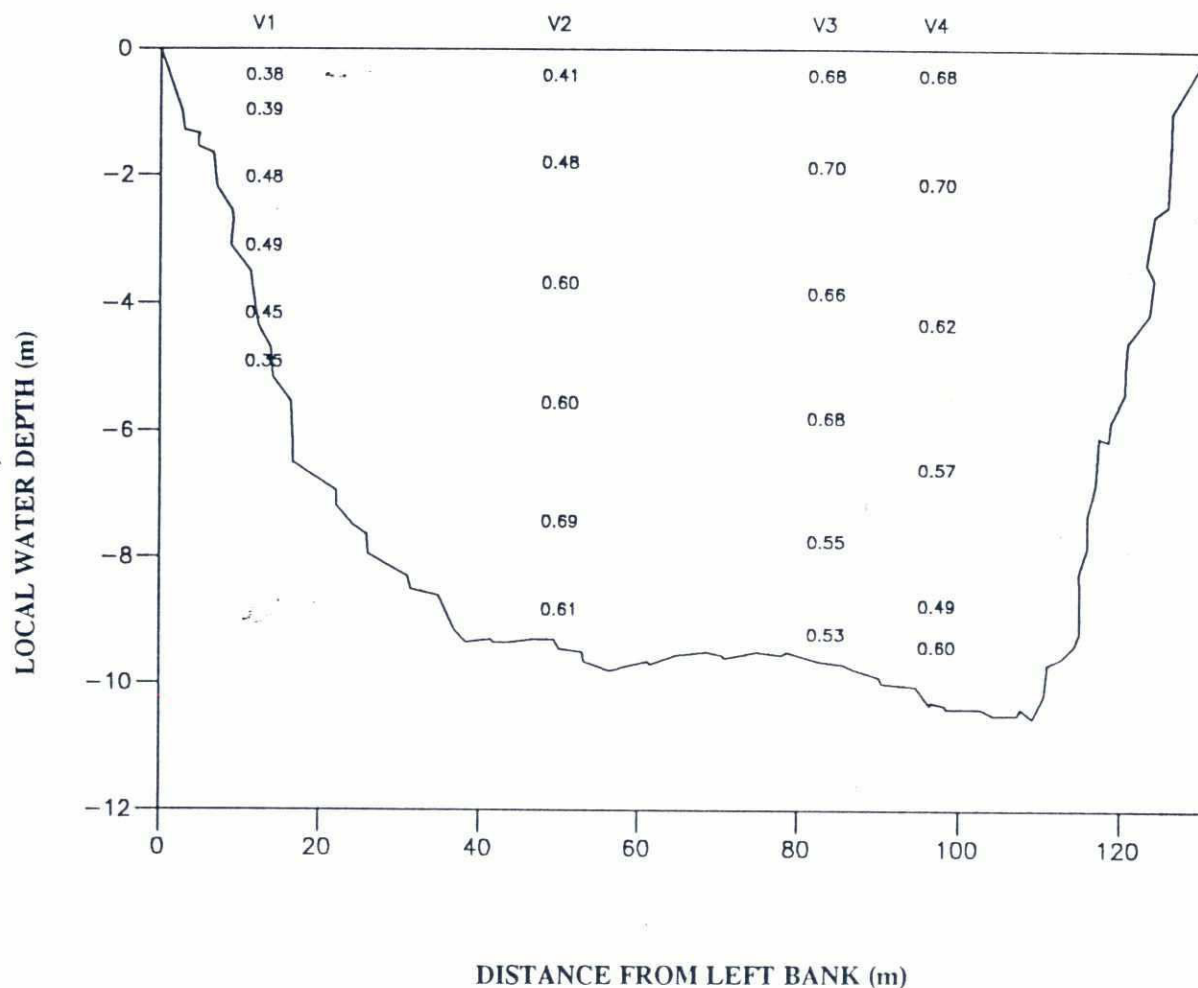
File : T59R9T02

Date : 19 Feb 1996

Init : sjr

Horizontal distribution of flow and sediments  
Channel 1

page  
3.1



Iso-velocity contours (m/s)

Water level : 8.58 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 198 : 27 September, 1995

Location 8 : Dhaleswari River, Tilly

File : T59R9T02

Date : 19 Feb 1996


Init : sjr

Cross-sectional distribution of flow velocity  
Channel 1

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4.1

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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	1	9509271530-1550	5.30	11.15	88.85	0.153	0.191	0.238
	2	9509271450-1514	9.40	10.87	89.13	0.196	0.266	0.326
	3	9509271356-1421	9.80	0.30	99.70	0.185	0.221	0.272
	4	9509271307-1350	11.00	0.55	99.45	0.268	0.310	0.359
	1	9509271530-1550	5.30	8.58	91.42	0.172	0.224	0.289
	2	9509271450-1514	9.40	3.27	96.73	0.197	0.248	0.310
	3	9509271356-1421	9.80	0.27	99.73	0.184	0.220	0.268
	4	9509271307-1350	11.00	5.72	94.28	0.180	0.226	0.286
Table 5.1 : Grain sizes of bed load								

 <p><b>FAP 24</b> DELFT - DHI</p>		<b>RIVER SURVEY PROJECT</b> Flood Plan Coordination Organization Commission of the European Communities		<b>Survey Bulletin 198 : 27 September, 1995</b>	
				<b>Location 8 : Dhaleswari River, Tilly</b>	
		<b>Date : 19 Feb 1995</b>		<b>Grain size distributions</b>	
		<b>Init : sjr</b>			
				<b>page</b> <b>51</b>	

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
Echo-sounding	1	9509271236-1238 9509271240-1242	T59R9T01 T59R9T02 *

Table 6.1: Echo-sounding \* : echo-sounding 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 2 3 4	9509271530-1550 9509271450-1514 9509271356-1421 9509271307-1350	496097 496060 496029 496009	647720 647711 647696 647700	5.30 9.40 9.80 11.00	T59R9P04 * T59R9P03 * T59R9P02 * T59R9P01 *


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

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1 2 3 4	6 6 6 6	9509271530-1550 9509271450-1514 9509271356-1421 9509271307-1350	496097 496060 496029 496009	647720 647711 647696 647700	5.30 9.40 9.80 11.00

Table 6.3: Suspended sediment - point sample

Method	Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)	Sample No.
Helley-Smith Sample	1	1 2 3 4  1 2 3 4	9509271530-1550 9509271450-1514 9509271356-1421 9509271307-1350  9509271530-1550 9509271450-1514 9509271356-1421 9509271307-1350	496097 496060 496029 496009  496097 496060 496029 496009	647720 647711 647696 647700  647720 647711 647696 647700	5.30 9.40 9.80 11.00  5.30 9.40 9.80 11.00	C668 C472 C550 C565  C526 C235 C644 C422


Table 6.4 : Bed load

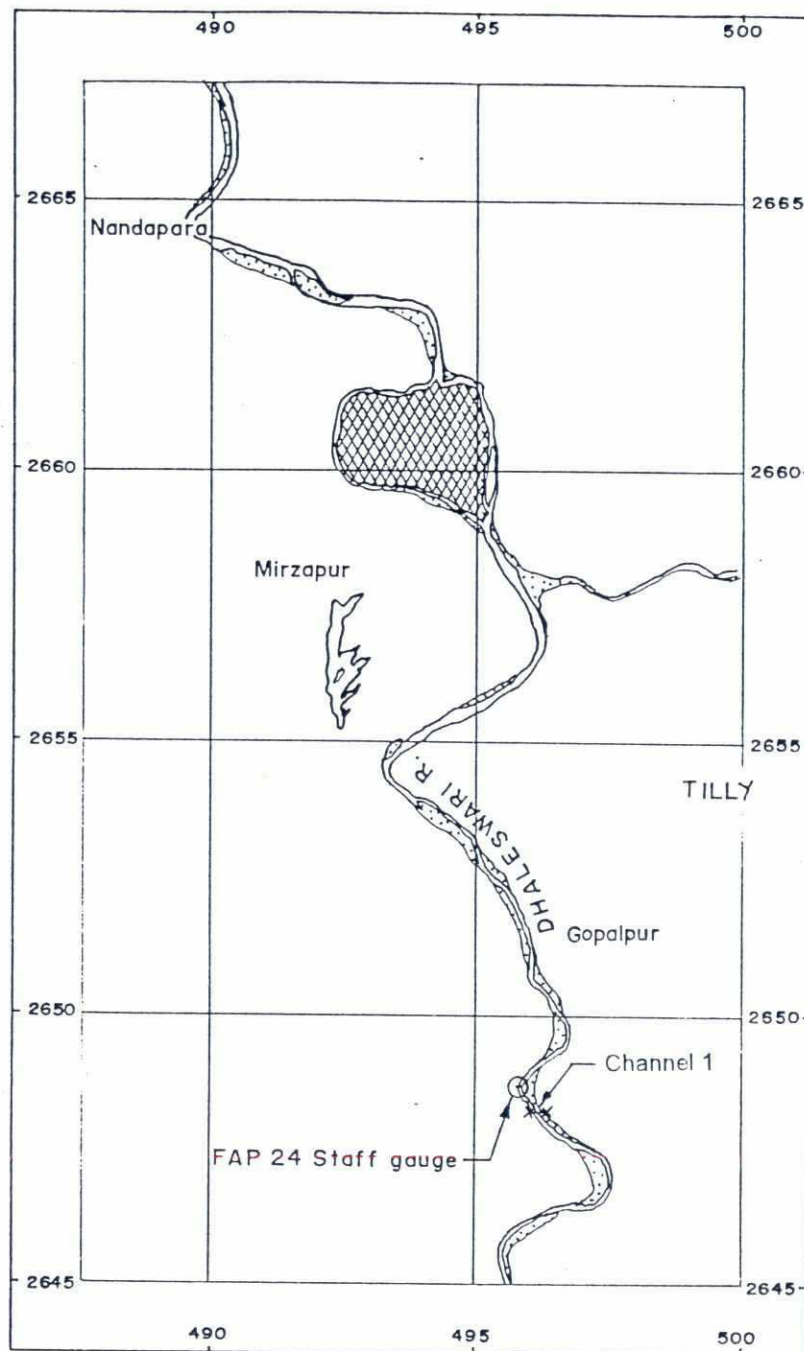
<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 198 : 27 September, 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 19 Feb 1995	Collected data and their storage (1)	page 6 1
	Init : sjr		







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Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	T59R9T02 .ase
Echosounder data	1	QUATTRO	T59R9T02 .ech
Sediment transport data	1	QUATTRO	T59R9T02 .sed
Susp. sed. conc. analysis	1	QUATTRO	T59R9T02 .ssc
Bed load sediment analysis	1	QUATTRO	T59R9T02 .bdl
Transect plot data	1	QUATTRO	T59R9T02 .trs
Table 7.1 PSD 24 Database file description			

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>	Survey Bulletin 198 : 27 September, 1995		
	Location 8 : Dhaleswari River, Tilly		
	Date : 19 Feb 1995	PSD 24 Database file description	page
	Init : sjr		7.1



# LEGEND:

-  High land.
-  Unstable/low char
-  Measurement cross-section.
-  FAP 24 Staff gauge.

Map is based on satellite images of March 1995

5000m 2500m 0

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization  
Commission of the European Communities

Survey Bulletin 214 : 25 October, 1995

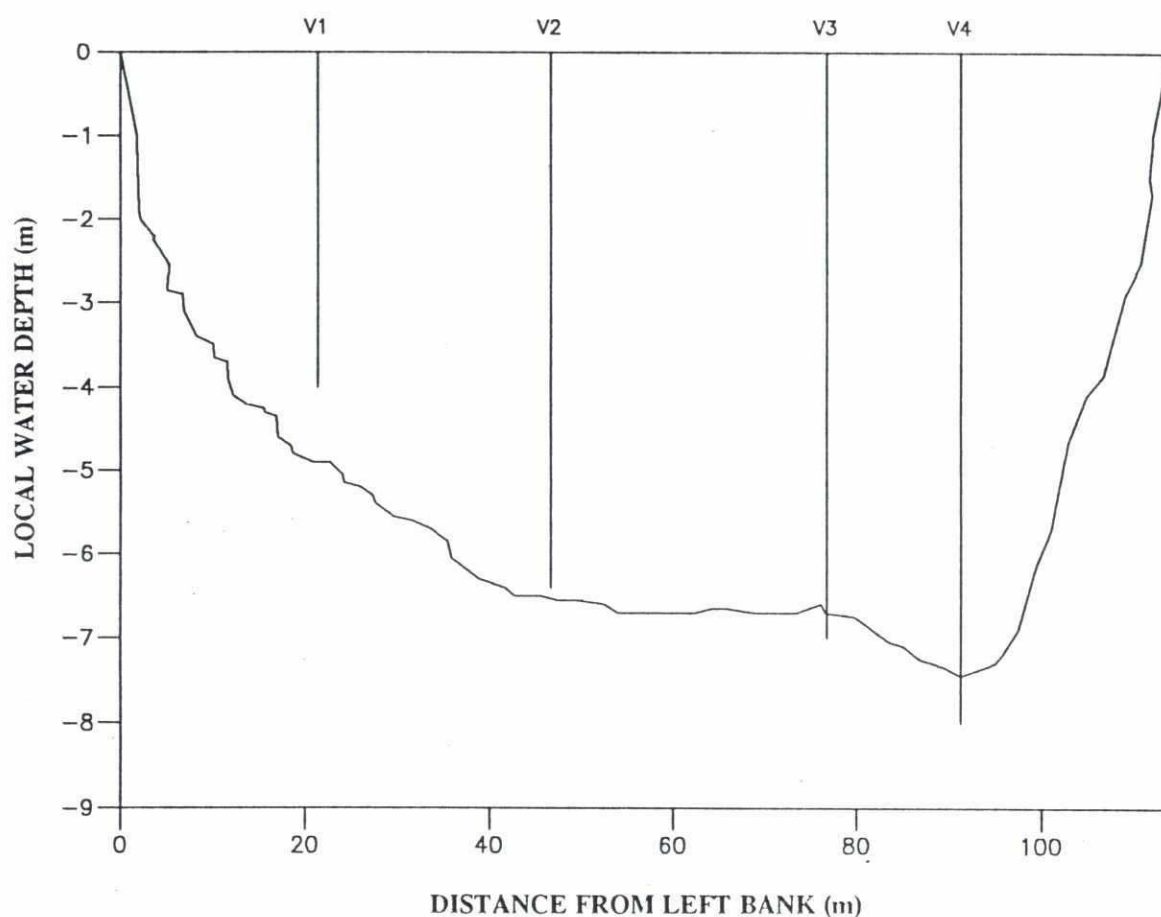
Location 8 : Dhaleswari River, Tilly

Date : 05 Mar 1996


Init : sjr

Location map

page  
1.1




Water level : 5.83 m+PWD measured at the station indicated on page 1.1

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		<div>Survey Bulletin 214 : 25 October, 1995</div>	
		<div>Location 8 : Dhaleswari River, Tilly</div>	
<div>File : T5AP9T02</div>	<div>Date : 05 Mar 1996</div>	<div>Cross-sections and measured verticals</div> <div>Channel 1</div>	<div>page</div> <div>1.2</div>
	<div>Init : sjr</div>		

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	-	-	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	2	-	-	-
Vertical current profile	No. of verticals in channel	4	-	-	-
	ADCP	-	-	-	-
	S4 current meter	4	-	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	24	-	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	-	-	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	-	-	-	-
	Delft Bottle	-	-	-	-
Bed material	US BM-54 bed sampler	-	-	-	-
	Van Veen bed sampler	-	-	-	-
Table 2.1: Survey programme as made					

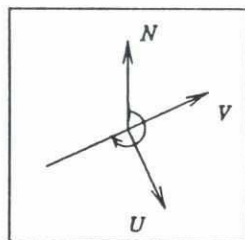
Channel	Width (m)	Area (m <sup>2</sup> )	Stage h(m + PWD)	Discharge Q(m <sup>3</sup> /s)	Bed load transport Sb(kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	114	632	5.83	124	-	44.12
Table 2.2: Key figures						

Gauge Location	Channel	Date	Water level (Daily average) (m + PWD)	Gauge
Tilly	Channel 1	25 Oct 95	5.83	FAP24
Table 2.3: Water-levels				

 <b>FAP 24</b> RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities		Survey Bulletin 214 : 25 October, 1995			
		Location 8 : Dhaleswari River, Tilly			
File : T5AP9T02	Date : 05 Mar 1996	Survey programme as made and key figures			page 2.1
	Init : sjr				



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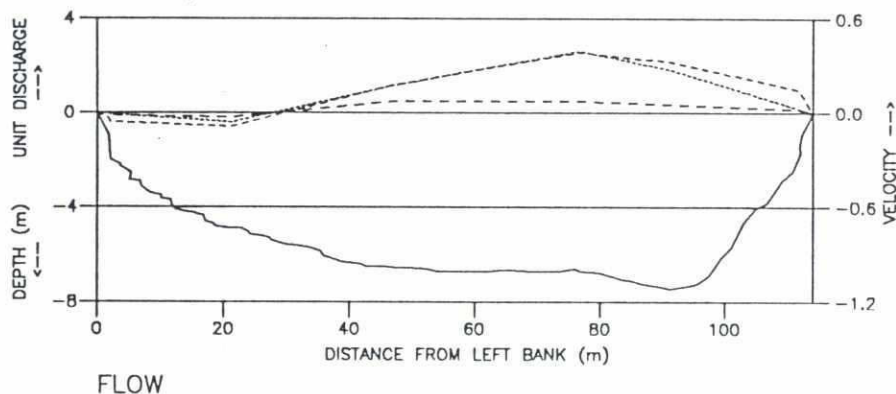


TRANSECT AZIMUTH =  $245^\circ$

U - VELOCITY NORMAL TO TRANSECT ( $m/s$ )

V - VELOCITY PARALLEL TO TRANSECT ( $m/s$ )

N - MAGNETIC NORTH



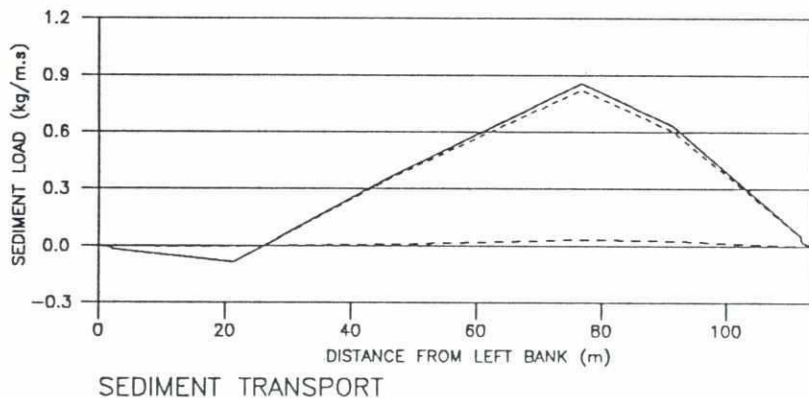
LEGEND :

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

STAGE = 5.83 (m+PWD)

A = 632 ( $m^2$ )

Q = 124 ( $m^3/s$ )



LEGEND :

—  $S_{TOTAL}$  44.12 (kg/s)  
 - - -  $S_{WASH\ LOAD}$  42.25 (kg/s)  
 . . .  $S_{SUSP.\ BED}$  1.87 (kg/s)  
 - . -  $S_{BED\ LOAD}$  - (kg/s)

SAMPLE NOT CCLECTED

GRAIN SIZE

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization  
 Commission of the European Communities

Survey Bulletin 214 : 25 October, 1995

Location 8 : Dhaleswari River, Tilly

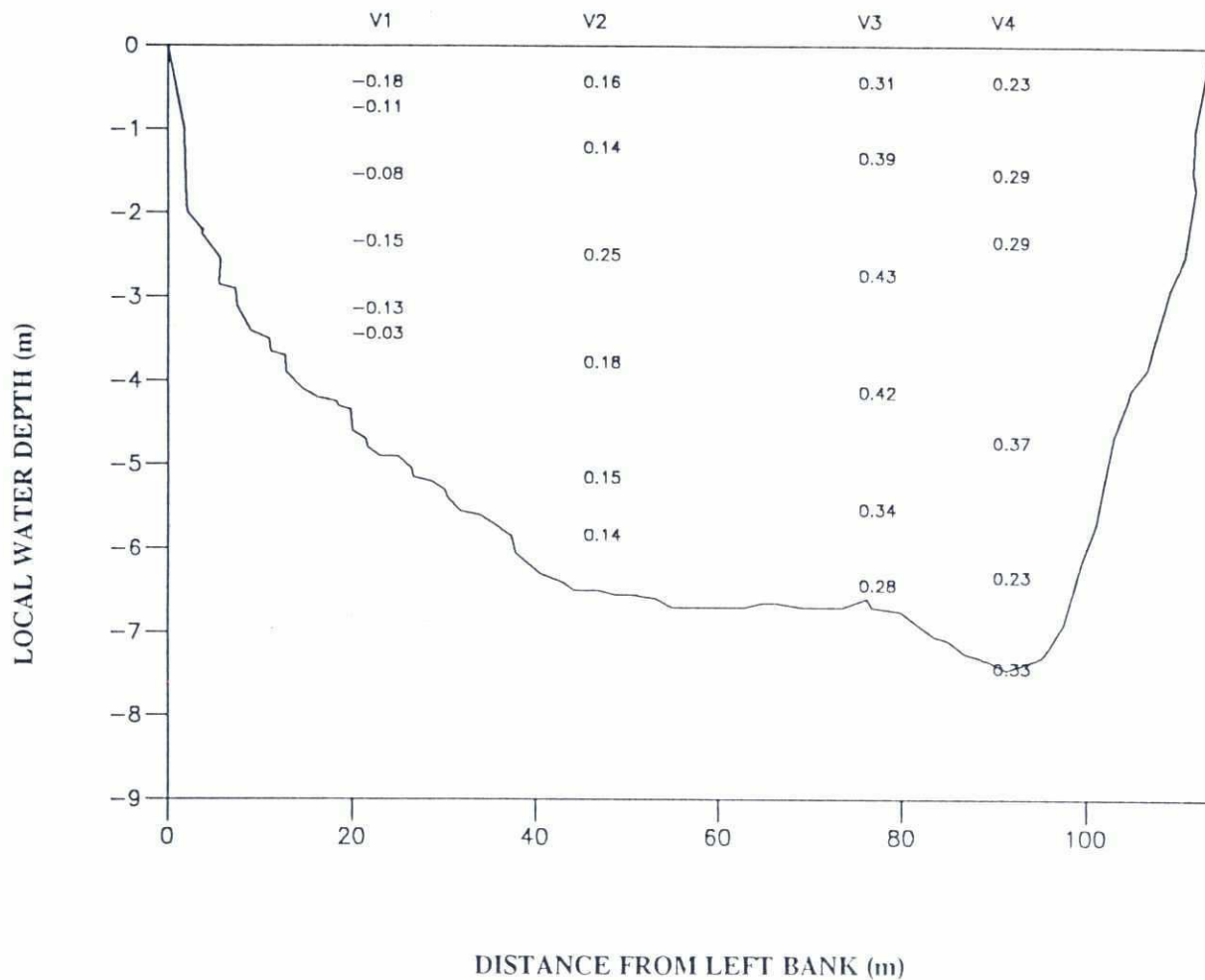
File : T5AP9T02

Date : 05 Mar 1996

Init : sjr

Horizontal distribution of flow and sediments  
 Channel 1

page  
 3.1



Water level : 5.83 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 214 : 25 October, 1995

Location 8 : Dhaleswari River, Tilly

File : T5AP9T02

Date : 05 Mar 1996

Init : sjr

Cross-sectional distribution of flow velocity  
Channel 1


page  
4.1

02

Andreasen settling tube								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D10 (mm)	D50 (mm)	D90 (mm)
				< 0.06 mm	> 0.06 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		D10 (mm)	D50 (mm)	D90 (mm)
				< 0.06 mm	> 0.06 mm			
Sample not collected								
Table 5.2 : Grain size of bed material								

Helley - Smith								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
Sample not collected								
Table 5.3 : Grain size of bed load								

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 214 : 25 October, 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 05 Mar 1995	Grain size distributions	page 5.1
	Init : sjr		

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
Echo-sounding	1	9510251148-1149 9510251155-1157	T5AP9T01 T5AP9T02 *

Table 6.1: Echo-sounding

\* : echo-sounding 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	9510251421-1440	496080	647726	4.00	T5AP9P01 *
		2	9510251343-1408	496061	647707	6.40	T5AP9P02 *
		3	9510251257-1322	496030	647698	7.00	T5AP9P03 *
		4	9510251217-1245	496010	647696	8.00	T5AP9P04 *

Table 6.2: Vertical profiles

\* ADCP & MEX not available

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1	6	9510251421-1440	496080	647726	4.00
		2	6	9510251343-1408	496061	647707	6.40
		3	6	9510251257-1322	496030	647698	7.00
		4	6	9510251217-1245	496010	647696	8.00


Table 6.3: Suspended sediment - point sample

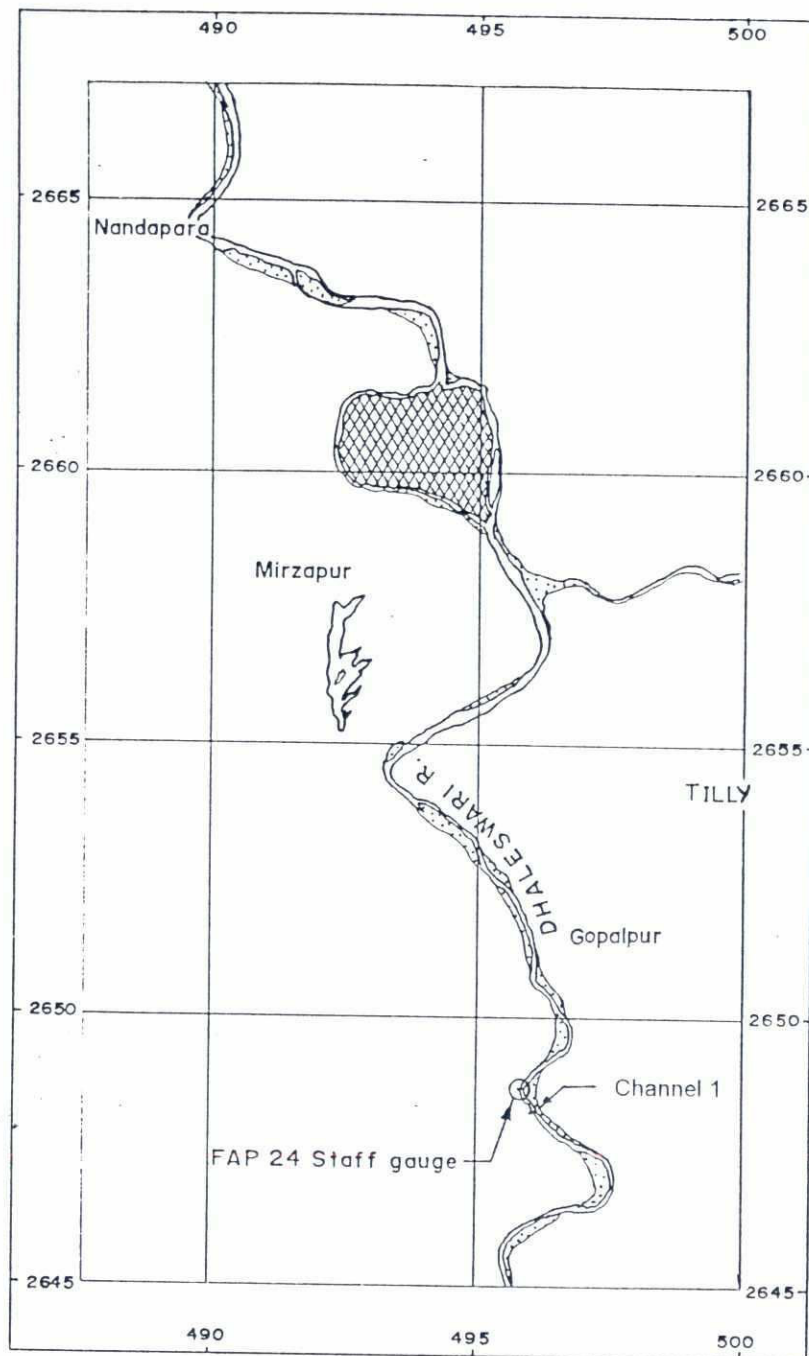
 <p><b>FAP 24</b> RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities</p>		Survey Bulletin 214 : 25 October, 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 05 Mar 1995	Collected data and their storage (1)	page 6.1
	Init : sjr		



Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	T5AP9T02 .ase
Echosounder data	1	QUATTRO	T5AP9T02 .ech
Sediment transport data	1	QUATTRO	T5AP9T02 .sed
Susp. sed. conc. analysis	1	QUATTRO	T5AP9T02 .ssc
Transect plot data	1	QUATTRO	T5AP9T02 .trs

Table 7.1 PSD 24 Database file description

 <p><b>FAP 24</b> DELFT - DHI</p>	<p><b>RIVER SURVEY PROJECT</b> Flood Plan Coordination Organization Commission of the European Communities</p>	Survey Bulletin 214 : 25 October, 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 05 Mar 1995	PSD 24 Database file description	page
	Init : sjr		7.1



# LEGEND:

- Highland
- Unstable / low char
- FAP 24 Staff gauge
- Measurement cross-section



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 223 : 07 November, 1995

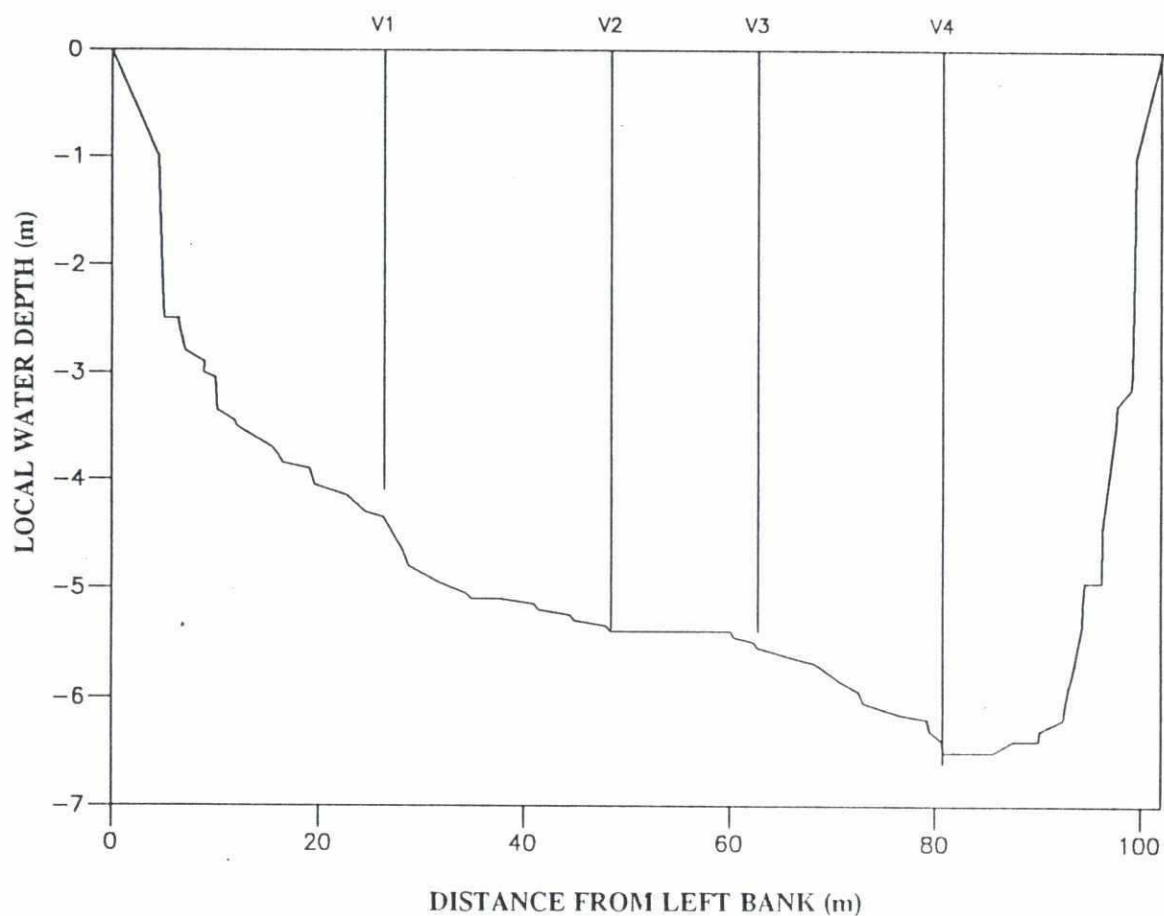
Location 8 : Dhaleswari River, Tilly

Date : 07 Mar 1996


Init : sjr

Location map

page  
1.1




Water level : 4.62 m+ PWD measured at the station indicated on page 1.1

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 223 : 07 November, 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T5B79T01	Date : 07 Mar 1996	Cross-sections and measured verticals Channel 1	page 1.2
	Init : sjr		

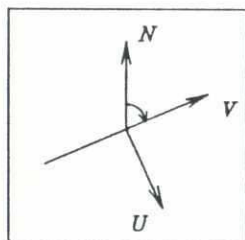
Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect EMF transect Echo-Sounding	- - 2	- - -	- - -	- - -
Vertical current profile	No. of verticals in channel ADCP S4 current meter Ott current meter	4 - 4 -	- - - -	- - - -	- - - -
Vertical sediment profile	Pump bottle sampling Andreasen settling tube MEX turbidity meter Integrated bottle sampling Collapsible bag	24 - - - -	- - - - -	- - - - -	- - - - -
Bed load	Dune tracking Helley-Smith sampler 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 <sup>2</sup> )	Stage h(m + PWD)	Discharge Q(m <sup>3</sup> /s)	Bed load transport Sb(kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	102	484	4.62	38	-	2.81
Table 2.2: Key figures						

Gauge Location	Channel	Date	Water level (Daily average) (m + PWD)	Gauge
Tilly	Channel 1	07 Nov 95	4.62	FAP24
Table 2.3: Water-levels				

 <b>FAP 24</b> RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities DELFT - DHI		Survey Bulletin 223 : 07 November, 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T5B79T01	Date : 07 Mar 1996	Survey programme as made and key figures	page 2.1
	Init : sjr		



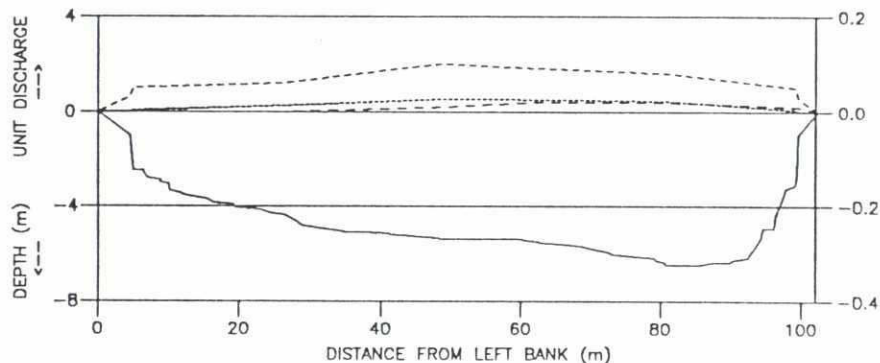


TRANSECT AZIMUTH =  $66^\circ$

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)

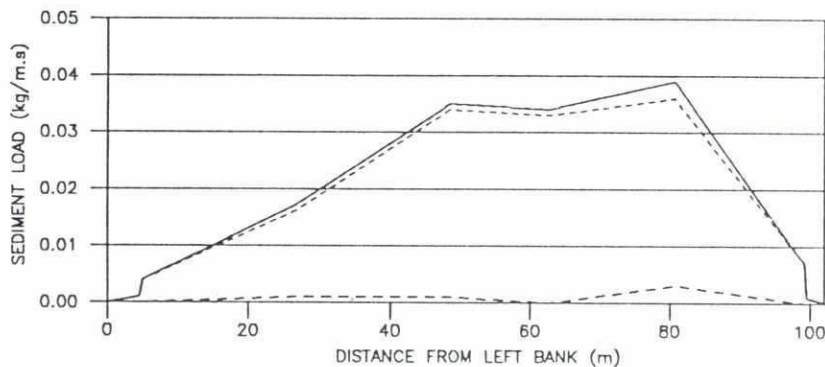
... U (m/s)

- . - V (m/s)

STAGE = 4.62 (m+PWD)

A = 484 (m³)

Q = 38 (m³/s)



LEGEND :

— S<sub>TOTAL</sub> 2.81 (kg/s)

--- S<sub>WASH LOAD</sub> 2.67 (kg/s)

... S<sub>SUSP. BED</sub> 0.14 (kg/s)

- . - S<sub>BED LOAD</sub> - (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 223 : 07 November, 1995

Location 8 : Dhaleswari River, Tilly

File : T5B79T01

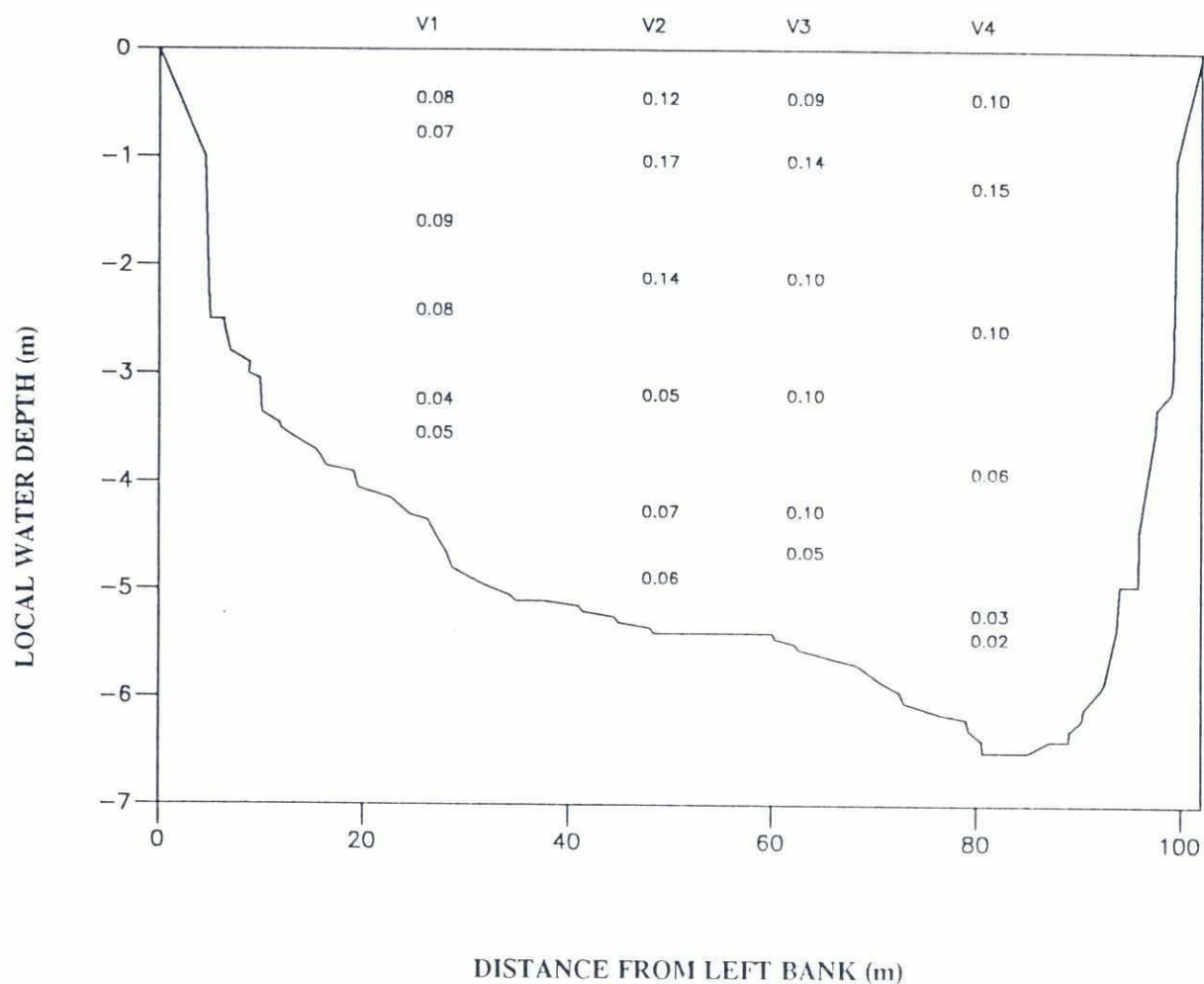
Date : 07 Mar 1996

Init : sjr


Horizontal distribution of flow and sediments  
Channel 1

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3.1

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Water level : 4.62 m+PWD measured at the station indicated on page 1.1

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div>		Survey Bulletin 223 : 07 November, 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T5B79T01	Date : 07 Mar 1996	Cross-sectional distribution of flow velocity Channel 1	page 4.1
	Init : sjr		

Andreasen settling tube								
Channel	Vertical	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D10 (mm)	D50 (mm)	D90 (mm)
				< 0.06 mm	> 0.06 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		D10 (mm)	D50 (mm)	D90 (mm)
				< 0.06 mm	> 0.06 mm			
Sample not collected								
Table 5.2 : Grain size of bed material								

Helley - Smith								
Channel	Vertical*	Time (YYMMDDHHMM-HHMM)	Depth (m)	Weight percent		D35 (mm)	D50 (mm)	D65 (mm)
				< 0.06 mm	> 0.06 mm			
Sample not collected								
Table 5.3 : Grain size of bed load								

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 223 : 07 November, 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 07 Mar 1995	Grain size distributions	page  5.1
	Init : sjr		

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
Echo-sounding	1	9511071417-1419 9511071420-1421	T5B79T01 * T5B79T02


Table 6.1: Echo-sounding \* : echo-sounding 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	9511071557-1618	496073	647702	4.10	T5B79P04 *
		2	9511071531-1552	496049	647696	5.40	T5B79P03 *
		3	9511071504-1525	496034	647691	5.40	T5B79P02 *
		4	9511071432-1457	496017	647694	6.60	T5B79P01 *

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

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1	6	9511071557-1618	496073	647702	4.10
		2	6	9511071531-1552	496049	647696	5.40
		3	6	9511071504-1525	496034	647691	5.40
		4	6	9511071432-1457	496017	647694	6.60

Table 6.3: Suspended sediment - point sample


 <b>FAP 24</b> DELFT - DHI	<b>RIVER SURVEY PROJECT</b> Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 223 : 07 November, 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 07 Mar 1995	Collected data and their storage (1)	page 6.1
	Init : sjr		

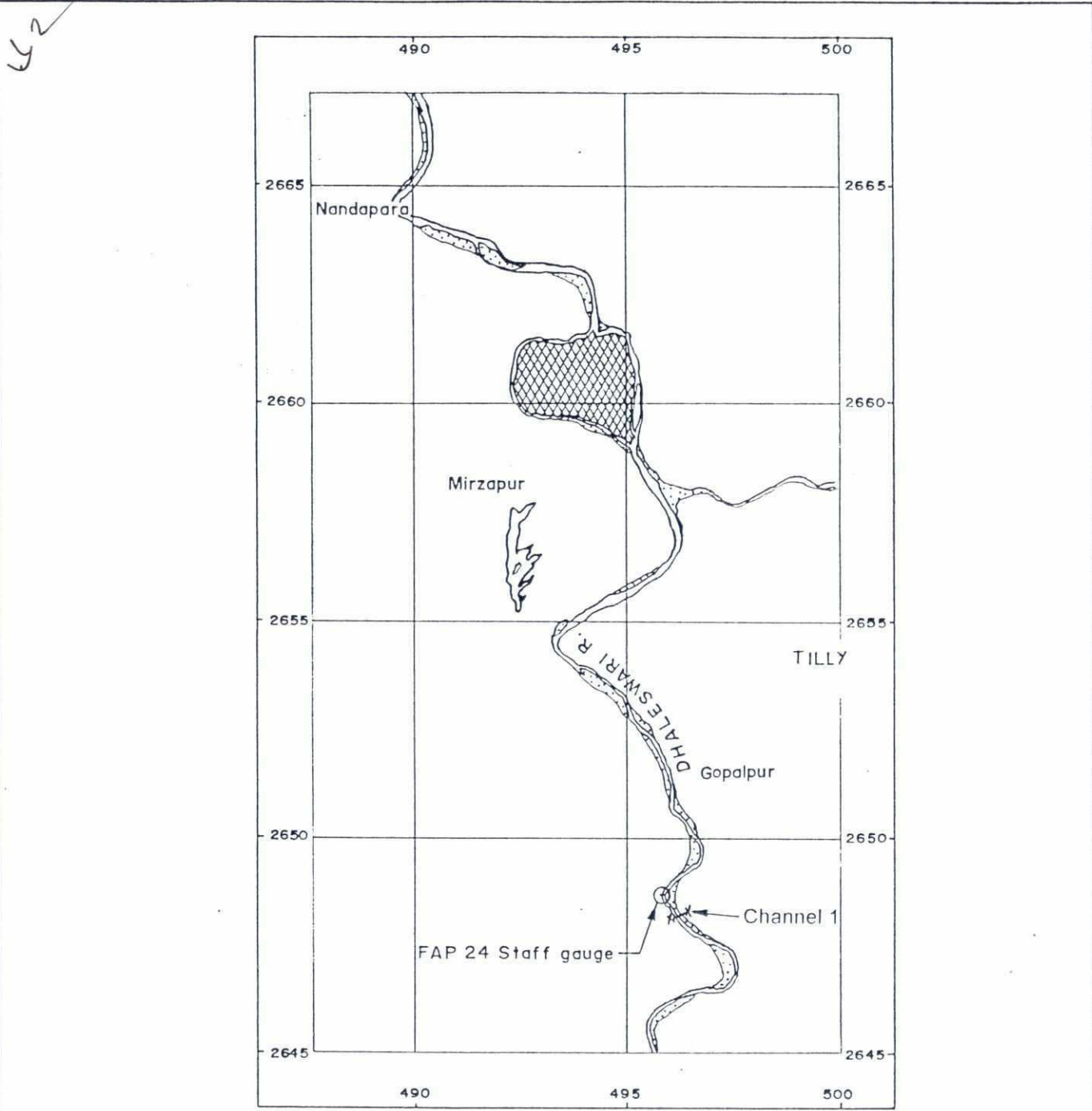


Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	T5B79T01.ase
Echosounder data	1	QUATTRO	T5B79T01.ech
Sediment transport data	1	QUATTRO	T5B79T01.sed
Susp. sed. conc. analysis	1	QUATTRO	T5B79T01.ssc
Transect plot data	1	QUATTRO	T5B79T01.trs

Table 7.1 PSD 24 Database file description



 <b>FAP 24</b> DELFT - DHI	<b>RIVER SURVEY PROJECT</b> Flood Plan Coordination Organization Commission of the European Communities	Survey Bulletin 223 : 07 November, 1995	
	Location 8 : Dhaleswari River, Tilly		
	Date : 07 Mar 1995 Init : sjr	PSD 24 Database file description	page 7.1



LEGEND:

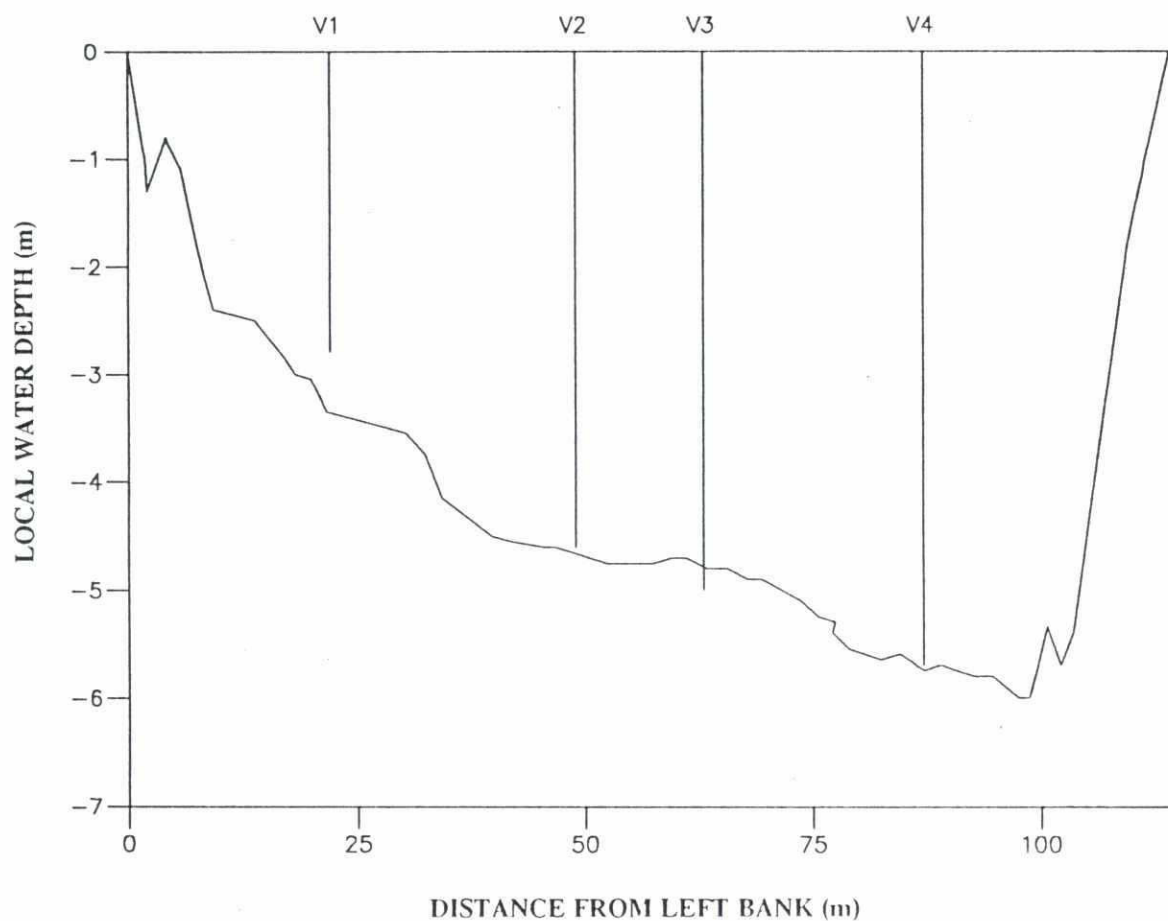
- High land
- Unstable/low char
- FAP 24 Staff gauge
- Cross section




Map is based on satellite images of March 1995

5000m 2500m 0

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Water level : 4.01 m+ PWD measured at the station indicated on page 1.1

<b>FAP 24</b>  <b>DELFT - DHI</b>		Survey Bulletin 241 : 18 December, 1995	
		Location 8 : Dhaleswari River, Tilly	
File : TSCI9T01	Date : 01 Apr 1996	Cross-sections and measured verticals Channel 1	page 1.2
	Init : mk/ss		

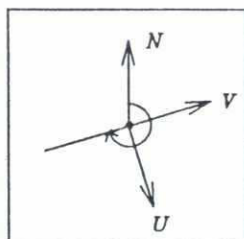
Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	-	-	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	2	-	-	-
Vertical current profile	No of verticals in channel	4	-	-	-
	ADCP	-	-	-	-
	S4 current meter	4	-	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	21	-	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	-	-	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	-	-	-	-
	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 <sup>2</sup> )	Stage h (m+PWD)	Discharge Q (m <sup>3</sup> /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	114	471	4.01	17	-	0.35
Table 2.2: Key figures						

Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Tilly	Channel 1	18 Dec 95	4.01	FAP 24
Table 2.3: Water-levels				

<div><div><div><div>FAP 24</div><div>DELFT - DHI</div></div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 241 : 18 December , 1995	
		Location 8 : Dhaleswari River, Tilly	
File : T5CI9T01	Date : 01 Apr 1996	Survey programme as made and key figures	page
	Init : mk/ss		2.1



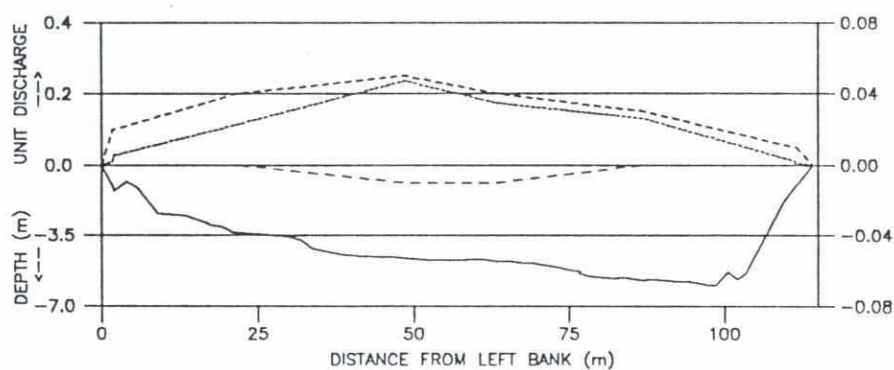


TRANSECT AZIMUTH = 253°

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)

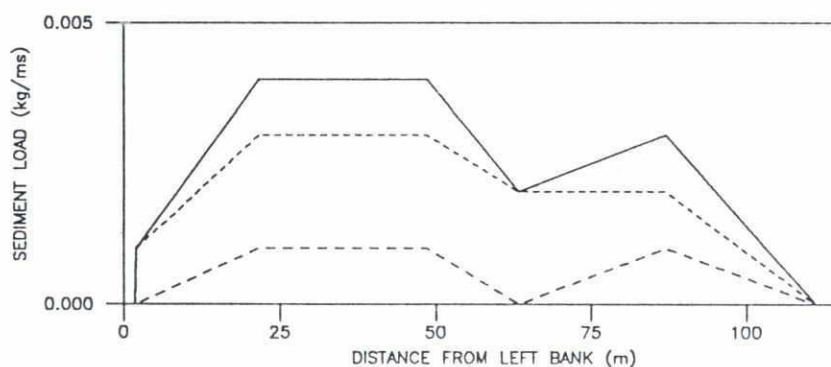
--- U - (m/s)

-.- V - (m/s)

STAGE = 4.01 (m+P.W.D.)

A = 471 (m²)

Q = 17 (m³/s)



SEDIMENT TRANSPORT

LEGEND :

— S<sub>TOTAL</sub> 0.35 (kg/s)

--- S<sub>WASH LOAD</sub> 0.28 (kg/s)

-.- S<sub>SUSP. BED</sub> 0.07 (kg/s)

..... S<sub>BED LOAD</sub> - (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 241 : 18 December, 1995

Location 8 : Dhaleswari River, Tilly

File : T5C19T01

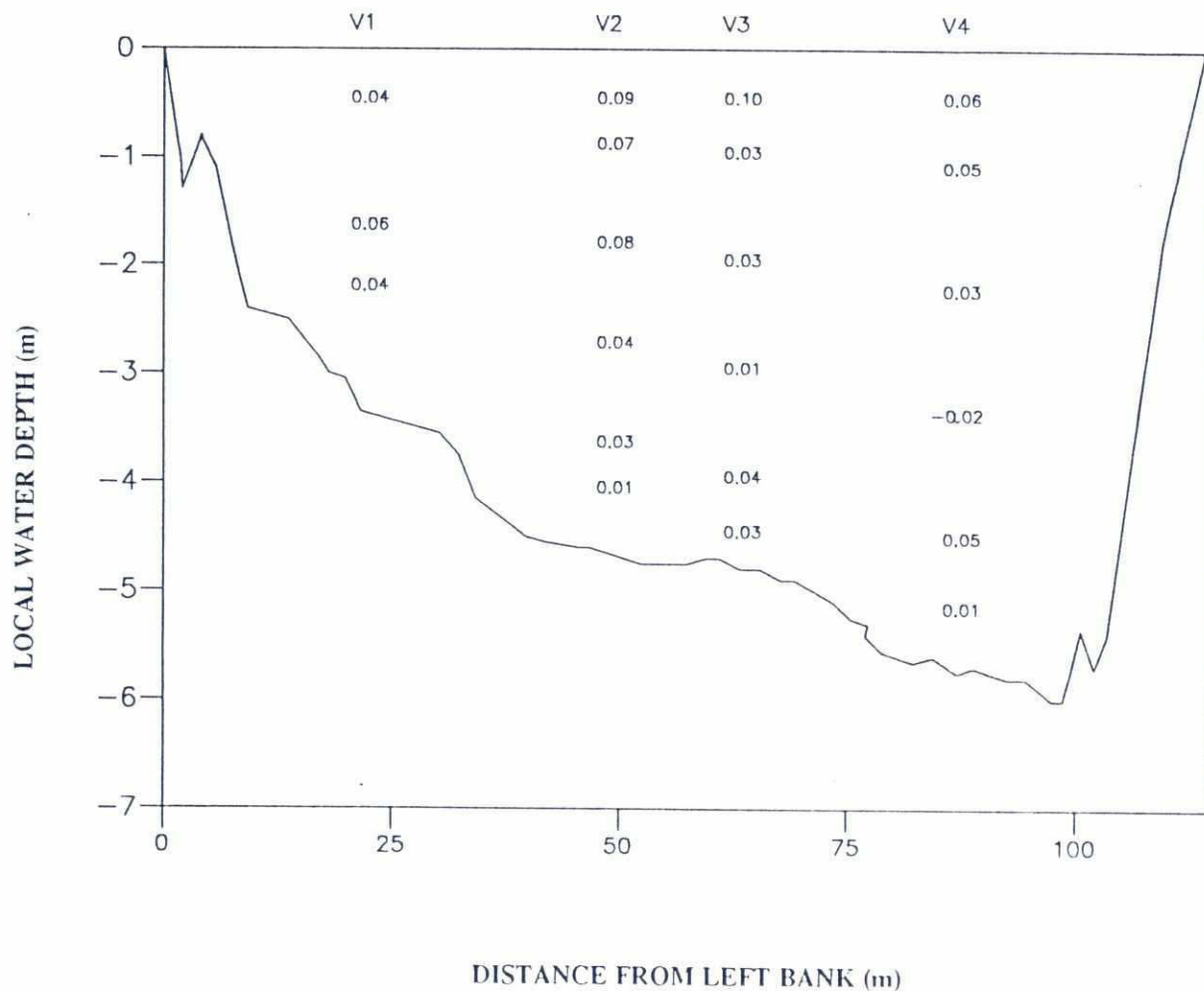
Date : 01 Apr 1996

Init : mk/ss


Horizontal distribution of flow and sediments  
Channel 1

page  
3.1

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Water level : 4.01 m+PWD measured at the station indicated on page 11


<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>	Survey Bulletin 241 : 18 December, 1995		
	Location 8 : Dhaleswari River, Tilly		
File : T5CI9T01	Date : 01 Apr 1996	Cross-sectional distribution of flow velocity Channel 1	page 4.1
	Unit : mk/ss		

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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)
Sample not collected							
Table 5.3 : Grain sizes of bed load							

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 241 : 18 December , 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 01 Apr 1996	Grain size distributions	page 5.1
	Init : mk/ss		

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
Echo-sounding	1	9512181233-1235 9512181236-1238	T5CI9T01 * T5CI9T02

Table 6.1: Echo-sounding

\* : echo-sounding 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	9512181246-1258	496078	647711	2.80	T5CI9P01 *
		2	9512181303-1329	496052	647708	4.60	T5CI9P02 *
		3	9512181337-1358	496035	647704	5.00	T5CI9P03 *
		4	9512181403-1426	496019	647689	5.70	T5CI9P04 *

Table 6.2: Vertical profiles

\* ADCP & MEX not available

Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1	3	9512181246-1258	496078	647711	2.80
		2	6	9512181303-1329	496052	647708	4.60
		3	6	9512181337-1358	496035	647704	5.00
		4	6	9512181403-1426	496019	647689	5.70

Table 6.3: Suspended sediment - point sample


<b>FAP 24</b>  <b>DELFT - DHI</b>		Survey Bulletin 241 : 18 December , 1995	
		Location 8 : Dhaleswari River, Tilly	
	Date : 01 Apr 1996	Collected data and their storage (1)	page 6.1
	Init : mk/ss		



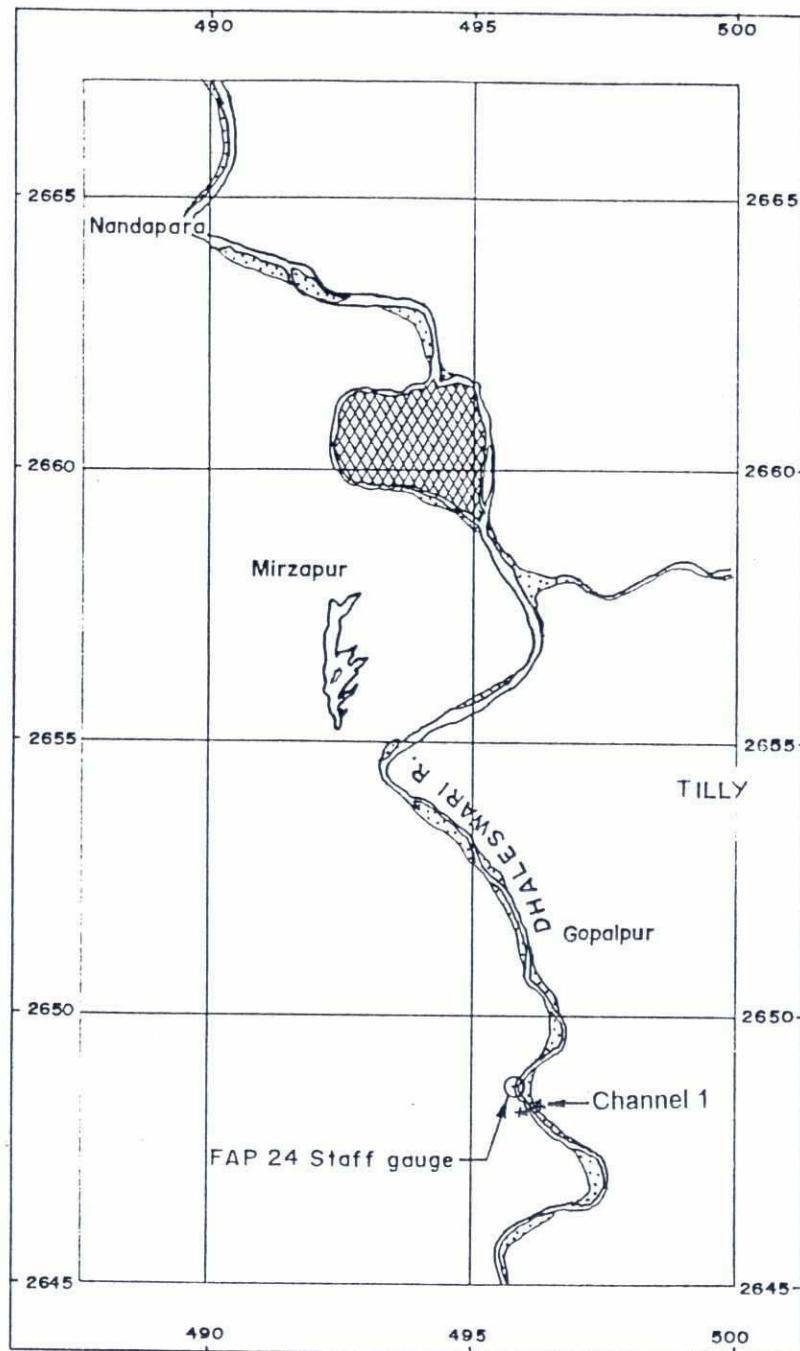
22

Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	T5CI9T01 .ase
Echosounder data	1	QUATTRO	T5CI9T01 .ech
Sediment transport data	1	QUATTRO	T5CI9T01 .sed
Susp. sed. conc. analysis	1	QUATTRO	T5CI9T01 .ssc
Transect plot data	1	QUATTRO	T5CI9T01 .trs

Table 7.1 PSD 24 Database file description

 <p><b>FAP 24</b> DELFT - DHI</p>		Survey Bulletin 241 : 18 December , 1995	
<p>RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities</p>		Location 8 : Dhaleswari River, Tilly	
	Date : 01 Apr 1996	PSD 24 Database file description	page
	Init : mk/ss		7.1

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**LEGEND:**

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



Map is based on satellite images of March 1995

5000m 2500m 0

**FAP 24**



**RIVER SURVEY PROJECT**

Flood Plan Coordination Organization  
Commission of the European Communities

**Survey Bulletin 249 : 16 January, 1996**

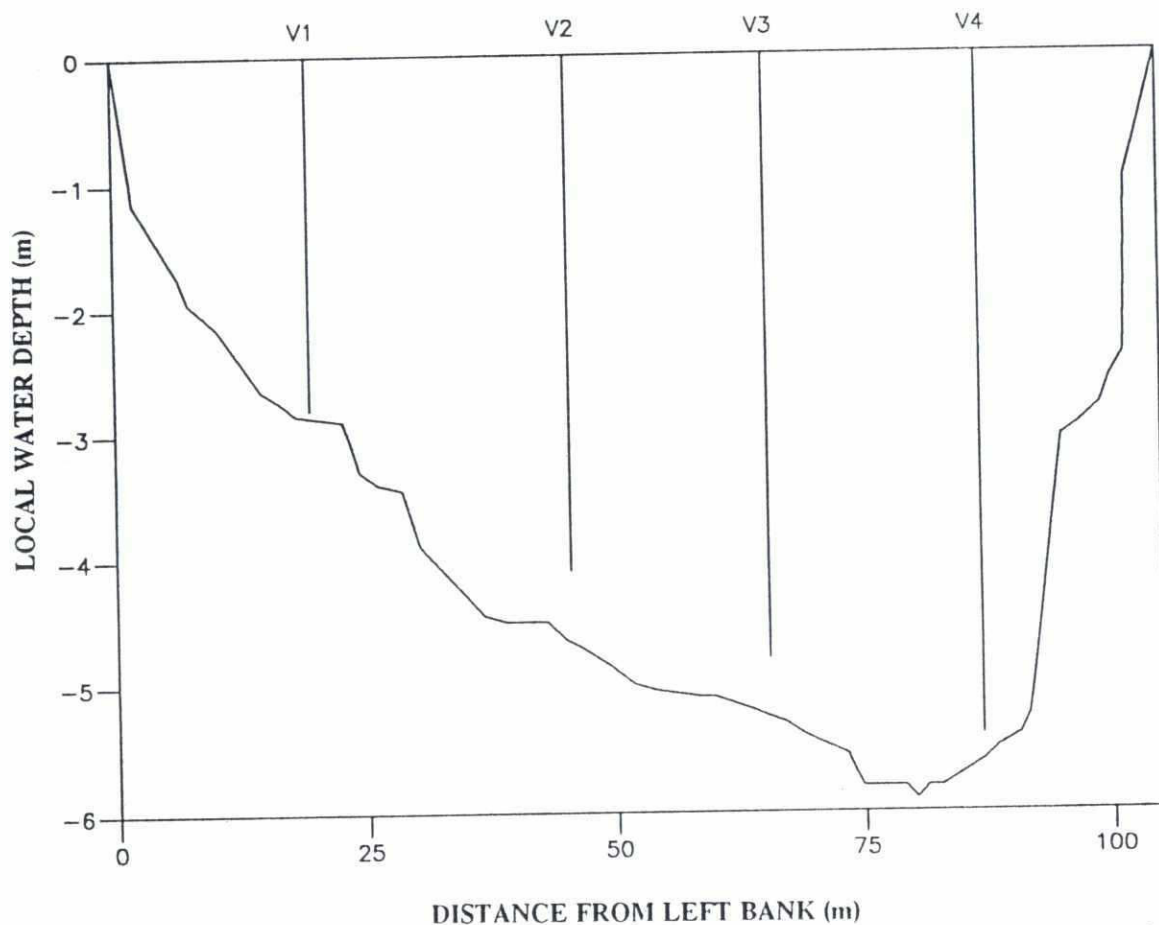
**Location 8 : Dhaleswari River, Tilly**

Date : 15 Apr 1996


Init : mk/ss

**Location map**

page  
1.1



Water level : 3.89 m+PWD measured at the station indicated on page 1.1

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 249 : 16 January, 1996	
		Location 8 : Dhaleswari River, Tilly	
File : T61G9T01	Date : 15 Apr 1996	Cross-sections and measured verticals Channel 1	page 1.2
	Init : mk/ss		

Type of measurement	Method	No. of measurements in channel			
		1	2	3	4
Discharge	ADCP transect	-	-	-	-
	EMF transect	-	-	-	-
	Echo-Sounding	2	-	-	-
Vertical current profile	No. of verticals in channel	4	-	-	-
	ADCP	-	-	-	-
	S4 current meter	4	-	-	-
	Ott current meter	-	-	-	-
Vertical sediment profile	Pump bottle sampling	21	-	-	-
	Andreasen settling tube	-	-	-	-
	MEX turbidity meter	-	-	-	-
	Integrated bottle sampling	-	-	-	-
	Collapsible bag	-	-	-	-
Bed load	Dune tracking	-	-	-	-
	Helley-Smith sampler	-	-	-	-
	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 <sup>2</sup> )	Stage h (m+PWD)	Discharge Q (m <sup>3</sup> /s)	Bed load transport Sb (kg/s)	Suspended Sediment transport Ss total (kg/s)
Channel 1	104	425	3.89	10	-	0.1

Table 2.2: Key figures

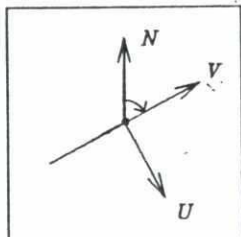
Gauge Location	Channel	Date	Water level (Daily average) (m+PWD)	Gauge
Tilly	Channel 1	16 Jan 96	3.89	FAP 24

Table 2.3: Water-levels

<div><div><div>FAP 24</div></div><div><div>DELFT - DHI</div></div></div>		<div>RIVER SURVEY PROJECT</div> <div>Flood Plan Coordination Organization</div> <div>Commission of the European Communities</div>	Survey Bulletin 249 : 16 January , 1996	
		Location 8 : Dhaleswari River, Tilly		
File : T61G9T01•	Date : 15 Apr 1996	Survey programme as made and key figures	page 21	
	Init : mk/ss.			



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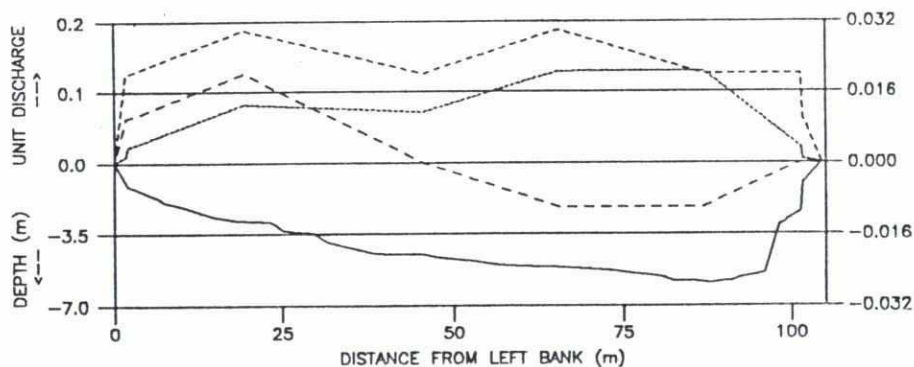


TRANSECT AZIMUTH = 62°

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)

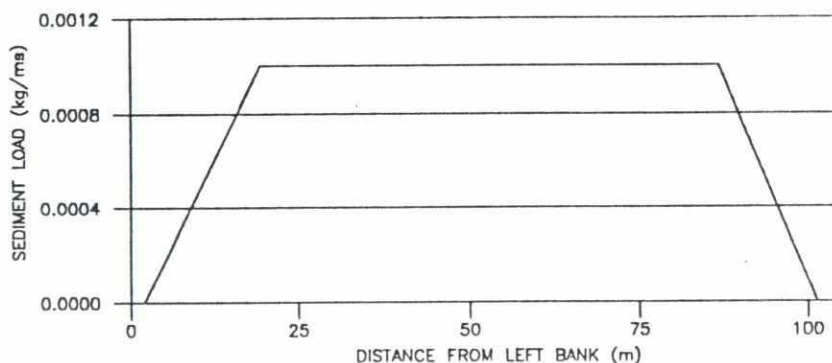
-.- V - (m/s)

STAGE = 3.89 (m+PWD)

A = 425 (m²)

Q = 10 (m³/s)

FLOW



LEGEND :

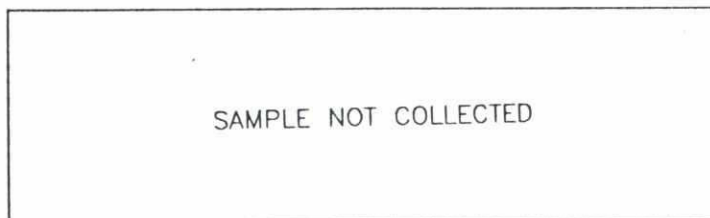
— S<sub>TOTAL</sub> 0.10 (kg/s)

--- S<sub>WASH LOAD</sub> 0.10 (kg/s)

... S<sub>SUSP. BED</sub> 0.00 (kg/s)

-.- S<sub>BED LOAD</sub> - (kg/s)

SEDIMENT TRANSPORT



GRAIN SIZE

FAP 24



DELFT - DHI

RIVER SURVEY PROJECT

Flood Plan Coordination Organization  
Commission of the European Communities

Survey Bulletin 249 : 16 January, 1996

Location 8 : Dhaleswari River, Tilly

File : T61G9T01

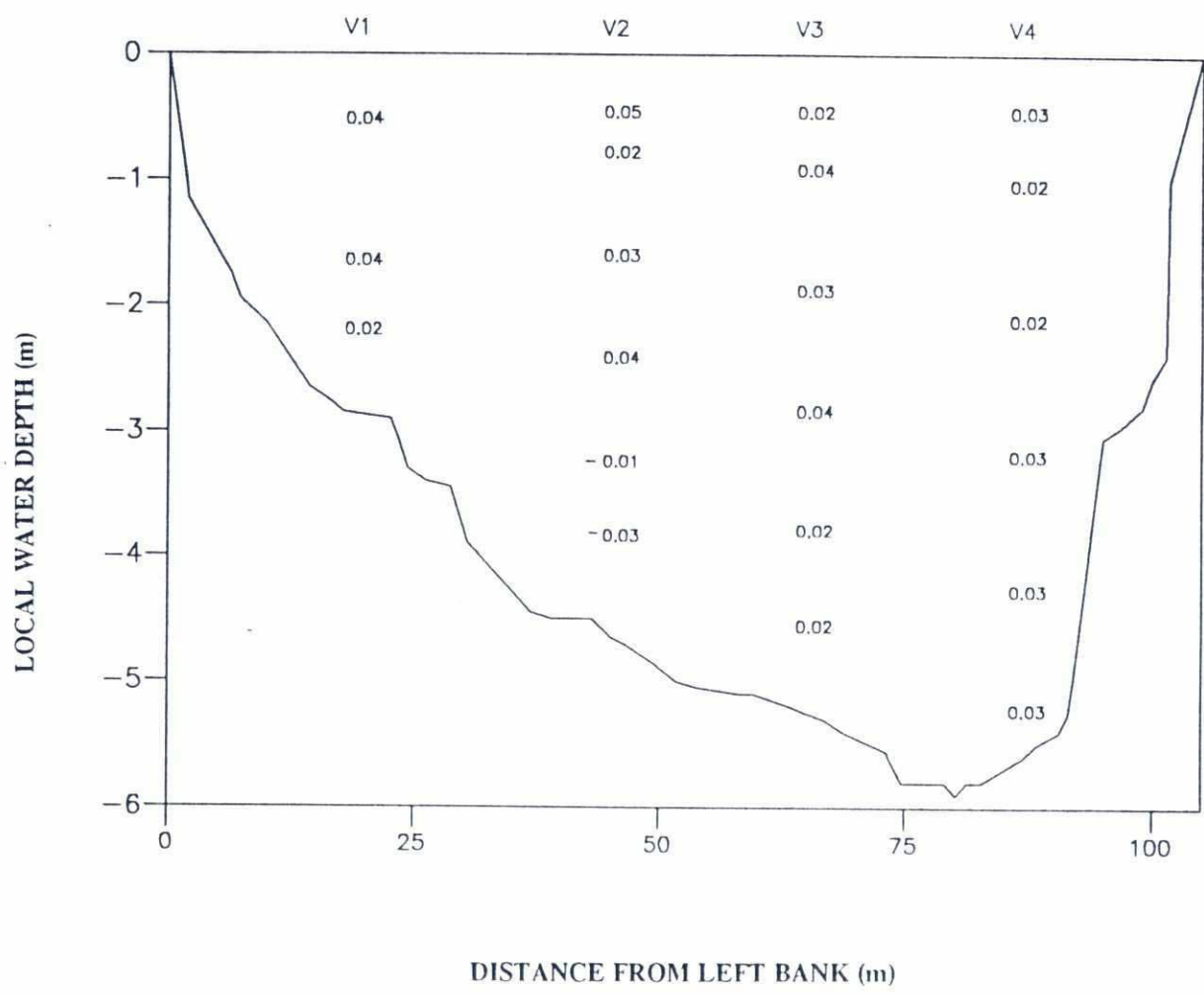
Date : 15 Apr 1996

Init : mk/ss


Horizontal distribution of flow and sediments  
Channel 1

page  
3.1

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Water level : 3.89 m+PWD measured at the station indicated on page 1.1


<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 249 : 16 January, 1996	
		Location 8 : Dhaleswari River, Tilly	
File : T61G9T01	Date : 15 Apr 1996	Cross-sectional distribution of flow velocity Channel 1	page 4.1
	Unit : m/s		

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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)
Sample not collected							
Table 5.3 : Grain sizes of bed load							

<div><div><div>FAP 24</div><div></div><div>DELFT - DHI</div></div><div><div>RIVER SURVEY PROJECT</div><div>Flood Plan Coordination Organization</div><div>Commission of the European Communities</div></div></div>		Survey Bulletin 249 : 16 January , 1996	
		Location 8 : Dhaleswari River, Tilly	
	Date : 15 Apr 1996	Grain size distributions	page  5.1
	Init : mk/ss		

Method	Channel	Time (YYMMDDHHMM-HHMM)	File name
Echo-sounding	1	9601161143-1145 9601161145-1147	T61G9T01 * T61G9T02


Table 6.1: Echo-sounding \* : echo-sounding 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	9601161350-1400	496076	647713	2.80	T61G9P04 *
		2	9601161323-1343	496054	647704	4.10	T61G9P03 *
		3	9601161243-1308	496036	647704	4.80	T61G9P02 *
		4	9601161205-1231	496021	647687	5.40	T61G9P01 *

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


Method	Channel	Vertical	No. of samples	Time (YYMMDDHHMM-HHMM)	Easting (m)	Northing (m)	Depth (m)
Suspended sediments (pump bottle)	1	1	3	9601161350-1400	496076	647713	2.80
		2	6	9601161323-1343	496054	647704	4.10
		3	6	9601161243-1308	496036	647704	4.80
		4	6	9601161205-1231	496021	647687	5.40

Table 6.3: Suspended sediment - point sample

<div>FAP 24</div> <div></div> <div>DELFT - DHI</div>		<div>RIVER SURVEY PROJECT</div> <div>Flood Plan Coordination Organization</div> <div>Commission of the European Communities</div>	<div>Survey Bulletin 249 : 16 January , 1996</div>	
			<div>Location 8 : Dhaleswari River, Tilly</div>	
	<div>Date : 15 Apr 1996</div>	<div>Collected data and their storage (1)</div>		<div>page</div> <div>61</div>
	<div>Init : mk/ss</div>			



Types of Data	Channel	Format	Filename
ADCP/S4/EMF data	1	QUATTRO	T61G9T01 .ase
Echosounder data	1	QUATTRO	T61G9T01 .ech
Sediment transport data	1	QUATTRO	T61G9T01 .sed
Susp. sed. conc. analysis	1	QUATTRO	T61G9T01 .ssc
Transect plot data	1	QUATTRO	T61G9T01 .trs
Table 7.1 PSD 24 Database file description			

 <p><b>FAP 24</b> DELFT - DHI</p>		Survey Bulletin 249 : 16 January , 1996	
<p>RIVER SURVEY PROJECT Flood Plan Coordination Organization Commission of the European Communities</p>		Location 8 : Dhaleswari River, Tilly	
	Date : 15 Apr 1996	PSD 24 Database file description	page
	Init : mk/ss		71

