

Table - f.2(1) Summary of traffic survey on Dec. 19(Thursday)-20(Friday)

Thursday From PP	PP - SHV		SHV - Oil		In		
	Location A	Location B	Location A	Location B	Location C		
	Number	%	Number	%	Number	%	
Trailer	Loaded	60	5.8	10	1.8	14	87.5
	Empty	70	7.3	7	1.0	0	0.0
	Sub-total	133	13.8	17	2.9	14	87.5
Tank	Oil	27	2.8	27	5.1	0	0.0
	Water	0	0.0	0	1.1	0	0.0
	Sub-total	27	2.8	27	5.3	0	0.0
Truck (large)	Loaded	26	2.7	7	1.3	2	12.5
	Empty	9	0.9	5	1.0	0	0.0
	Sub-total	35	3.6	12	2.3	2	12.5
Truck (Small)	Loaded	33	3.4	35	6.7	3	18.8
	Empty	11	1.1	7	1.3	0	0.0
	Sub-total	44	4.6	42	8.0	3	18.8
Pickup	Loaded	155	16.1	90	17.1	0	0.0
	Empty	330	34.2	326	62.1	0	0.0
	Sub-total	485	50.3	416	79.2	0	0.0
Bus	Loaded	34	3.5	7	1.3	0	0.0
	Empty	719	74.8	423	80.6	0	0.0
	Sub-total	753	78.3	430	81.9	0	0.0
Other	Loaded	3	0.3	0	0.0	0	0.0
	Empty	961	100.0	525	100.0	15	100.0
	Sub-total	964	100.0	525	100.0	15	100.0
%					54.8	1.7	

To PP	SHV PP		Oil - SHV		Out		
	Location A	Location B	Location A	Location B	Location C		
	Number	%	Number	%	Number	%	
Trailer	Loaded	22	7.9	9	1.8	34	85.0
	Empty	24	8.5	10	2.0	31	85.0
	Sub-total	46	16.5	19	3.9	65	170.0
Tank	Oil	2	0.7	4	0.8	0	0.0
	Water	0	0.0	0	0.0	0	0.0
	Sub-total	2	0.7	4	0.8	0	0.0
Truck (large)	Loaded	10	2.1	17	3.5	6	15.0
	Empty	19	4.0	9	1.8	0	0.0
	Sub-total	29	6.1	26	5.3	6	15.0
Truck (Small)	Loaded	17	3.6	36	7.3	0	0.0
	Empty	20	4.3	7	1.4	0	0.0
	Sub-total	37	7.9	43	8.8	0	0.0
Pickup	Loaded	63	13.0	82	16.7	0	0.0
	Empty	521	107.0	303	61.7	0	0.0
	Sub-total	584	120.0	385	78.4	0	0.0
Bus	Loaded	32	6.7	8	1.6	0	0.0
	Empty	716	146.9	403	82.1	0	0.0
	Sub-total	748	153.6	411	83.7	0	0.0
Other	Loaded	3	0.6	0	0.0	0	0.0
	Empty	906	184.6	491	100.0	40	100.0
	Sub-total	909	185.2	491	100.0	40	100.0
%					54.2	4.4	

Total	Location A		Location B		Location C	
	Number	%	Number	%	Number	%
	Loaded	135	7.2	19	3.9	48
Empty	93	5.0	13	2.6	48	85.7
Sub-total	228	12.2	32	6.5	96	169.4
Oil	44	2.4	40	8.0	0	0.0
Water	0	0.0	0	0.0	0	0.0
Sub-total	44	2.4	40	8.0	0	0.0
Truck (large)	45	2.4	16	3.3	8	14.3
Empty	26	1.4	7	1.4	0	0.0
Sub-total	71	3.8	23	4.7	8	14.3
Truck (Small)	90	4.8	71	14.1	7	12.5
Empty	81	4.3	85	17.0	0	0.0
Sub-total	171	8.1	156	31.1	7	12.5
Pickup	1081	56.3	182	36.4	0	0.0
Empty	303	15.7	303	60.6	0	0.0
Sub-total	1384	62.0	485	97.0	0	0.0
Bus	68	3.5	15	3.0	0	0.0
Empty	1438	75.9	826	165.2	0	0.0
Sub-total	1506	79.4	841	168.2	0	0.0
Other	6	0.3	3	0.6	56	100.0
Sub-total	1867	100.0	1016	100.0	56	100.0
%					54.4	3.0

Table - f.2(2) Summary of traffic survey on Dec. 28(Saturday)

Saturday From PP	PP - SHV		SHV - Oil		In		
	Location A	Location B	Location A	Location B	Location C		
	Number	%	Number	%	Number	%	
Trailer	Loaded	58	5.4	10	1.7	38	18.7
	Empty	7	0.7	12	2.0	30	14.8
	Sub-total	65	6.0	22	3.7	68	33.5
Tank	Oil	20	1.9	24	4.0	0	0.0
	Water	0	0.0	0	0.0	0	0.0
	Sub-total	20	1.9	24	4.0	0	0.0
Truck (large)	Loaded	51	4.7	12	2.0	0	0.0
	Empty	18	1.7	10	1.7	20	9.9
	Sub-total	69	6.4	22	3.7	20	9.9
Truck (Small)	Loaded	20	1.9	20	3.4	0	0.0
	Empty	9	0.8	12	2.0	0	0.0
	Sub-total	29	2.7	32	5.4	0	0.0
Pickup	Loaded	158	14.6	121	20.4	0	0.0
	Empty	720	66.7	366	61.6	62.1	30.0
	Sub-total	878	81.3	487	82.0	62.1	30.0
Bus	Loaded	14	1.3	3	0.5	0	0.0
	Empty	352	32.7	490	82.5	100	49.3
	Sub-total	366	34.0	493	83.0	100	49.3
Other	Loaded	4	0.4	1	0.2	0	0.0
	Empty	1079	100.0	594	100.0	203	100.0
	Sub-total	1083	100.0	595	100.0	203	100.0
%					56.1	18.8	

Saturday To PP	SHV - PP		Oil - SHV		Out		
	Location A	Location B	Location A	Location B	Location C		
	Number	%	Number	%	Number	%	
Trailer	Loaded	75	7.8	3	0.5	38	14.8
	Empty	3	0.3	12	1.2	38	18.7
	Sub-total	78	8.1	15	1.7	76	33.5
Tank	Oil	19	2.0	29	4.2	2	1.0
	Water	4	0.4	2	0.3	5	2.5
	Sub-total	23	2.4	31	4.5	7	3.4
Truck (large)	Loaded	15	1.6	17	2.8	20	9.9
	Empty	37	3.8	17	2.8	0	0.0
	Sub-total	52	5.4	34	5.7	20	9.9
Truck (Small)	Loaded	36	3.7	11	1.8	0	0.0
	Empty	19	1.9	2	0.3	0	0.0
	Sub-total	55	5.7	13	2.1	0	0.0
Pickup	Loaded	160	16.5	115	19.1	0	0.0
	Empty	586	60.8	373	62.1	0	0.0
	Sub-total	746	77.3	488	81.2	0	0.0
Bus	Loaded	5	0.5	2	0.3	0	0.0
	Empty	967	100.0	607	100.0	203	100.0
	Sub-total	972	100.0	609	100.0	203	100.0
%					62.2	21.0	

Saturday Total	Location A		Location B		Location C	
	Number	%	Number	%	Number	%
	Loaded	133	6.5	13	1.1	68
Empty	10	0.5	19	1.6	68	16.7
Sub-total	143	7.0	32	2.7	136	33.5
Oil	39	1.9	49	4.1	0	0.0
Water	4	0.2	5	0.4	10	2.5
Sub-total	43	2.1	54	4.5	10	2.5
Truck (large)	66	3.2	29	2.4	20	4.9
Empty	55	2.7	27	2.3	20	4.9
Sub-total	121	5.9	56	4.7	40	9.9
Truck (Small)	55	2.7	37	3.1	0	0.0
Empty	25	1.2	33	2.8	0	0.0
Sub-total	80	4.0	70	5.9	0	0.0
Pickup	318	15.9	238	19.7	0	0.0
Empty	1308	63.9	739	61.8	0	0.0
Sub-total	1626	79.8	977	81.5	0	0.0
Bus	23	1.1	5	0.4	0	0.0
Sub-total	1649	80.9	982	82.0	0	0.0
Other	9	0.4	3	0.3	16	3.9
Sub-total	2048	100.0	1195	100.0	408	100.0
%					58.4	19.8

Appendix G (Chapter 7.4):

Numerical simulation of the sedimentation at the fishing port in Village No. 2

1. Numerical model for sedimentation at the basin

The sedimentation at the basin between the New Quay and the Village was examined by a numerical model.

(1) The conditions and assumptions for the computation are as follow:

a. Discharge of the stream:

$$\begin{aligned}\text{Discharge of the stream} &= \text{Catchment area} \times \text{precipitation} \\ &= 4 \text{ km}^2 \times 600 \text{ mm/month} = 2,400,000 \text{ m}^3/\text{month} \\ &\approx 1.0 \text{ m}^3/\text{sec}\end{aligned}$$

Six hundred (600) mm of precipitation is correspond to about the maximum monthly precipitation over the wet season.

b. Sedimentation rate

Medium grain size 0.008 m (soil test of the sample)

Sedimentation Rate (v) = 0.023 cm/sec (given by the Stokes' Eq.)

c. Calculation of sediment volume per day

Density of Suspended Soil = S mg/l

Sediment volume (x) = $S \times v = 0.001987 \times S$ (g/cm² · day)

Taking account the increase of volume due to moisture content, Sediment volume in the water (y) is given by the Eq. $y = 1.56 x$

The sedimentation height is calculated by the following Eq.:

Sedimentation height (cm/day) = $x/\rho' + y/\rho$,

where ρ' denotes the density of soil and ρ denotes the density of water.

Let $\rho' = 2.65 \text{ g/cm}^3$ and $\rho = 1.0 \text{ cm}^3$, the Sedimentation height (cm/day) is given as follows:

$$\begin{aligned}\text{Sedimentation height (cm/day)} &= 1.93 \times 0.001987 \times S \text{ (cm/day)} \\ &= 0.03835 \times S \text{ (mm/day)}.\end{aligned}$$

(2) Calculation cases

Simulation was carried out for two cases:

Case - 1; Present layout of the facilities

Case - 2; Layout plan of the Short-term Development Plan.

2. Results

The results of simulations are shown in the following figures:

Fig. - g.1 : Daily mean density of suspended soil

(Present and Short-term Plan, Exhibit with values)

Fig. - g.2 : Daily mean density of suspended soil

(Present and Short-term Plan, Exhibit with density contour lines)

Fig. - g.3 : Rate of sedimentation (mm/day)

(Present and Short-term Plan, Exhibit with values)

Fig. - g.4 : Rate of sedimentation (mm/day)

(Present and Short-term Plan, Exhibit with contour lines)

3. Discussion

The difference in the rate of sedimentation between **Case - 1**(Present layout) and **Case - 2**(Layout of the Short-term Development Plan) turned out to be very small.

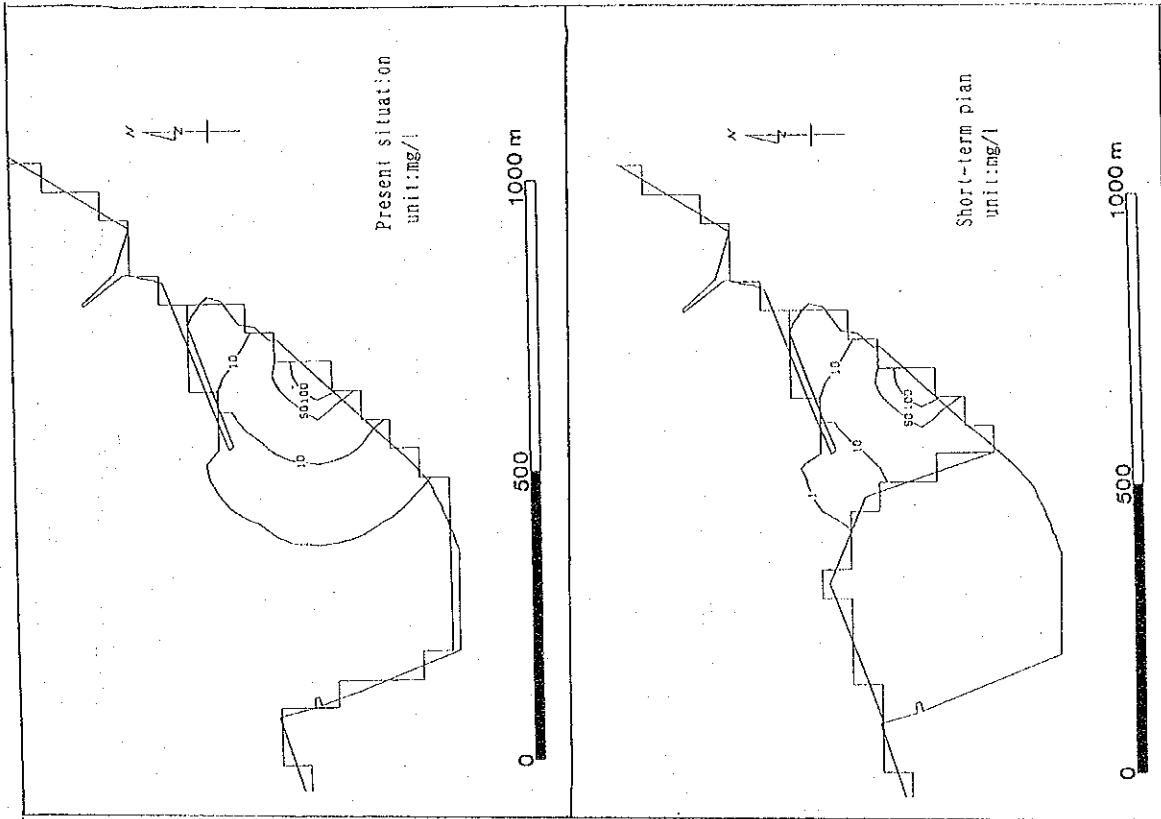


Fig. - g.2: Daily mean density of suspended soil
(Present and Short-term Plan, Exhibit with density contour lines)

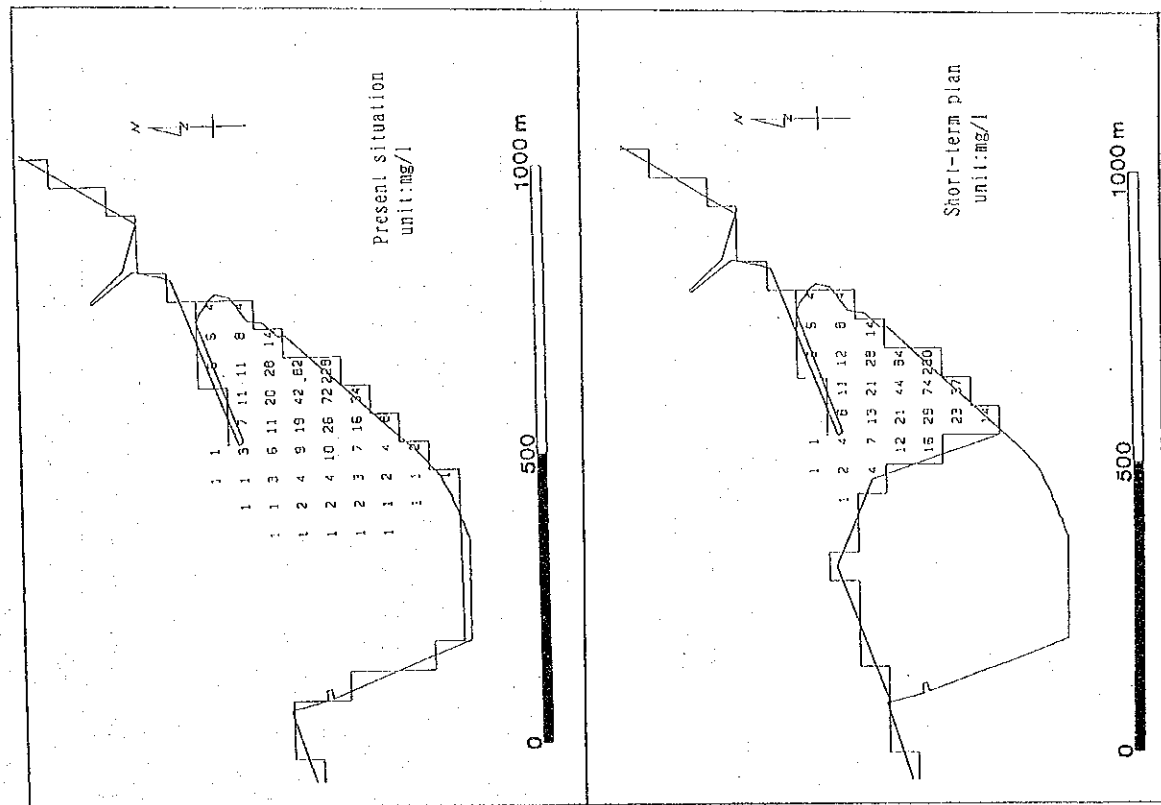


Fig. - g.1: Daily mean density of suspended soil
(Present and Short-term Plan, Exhibit with values)

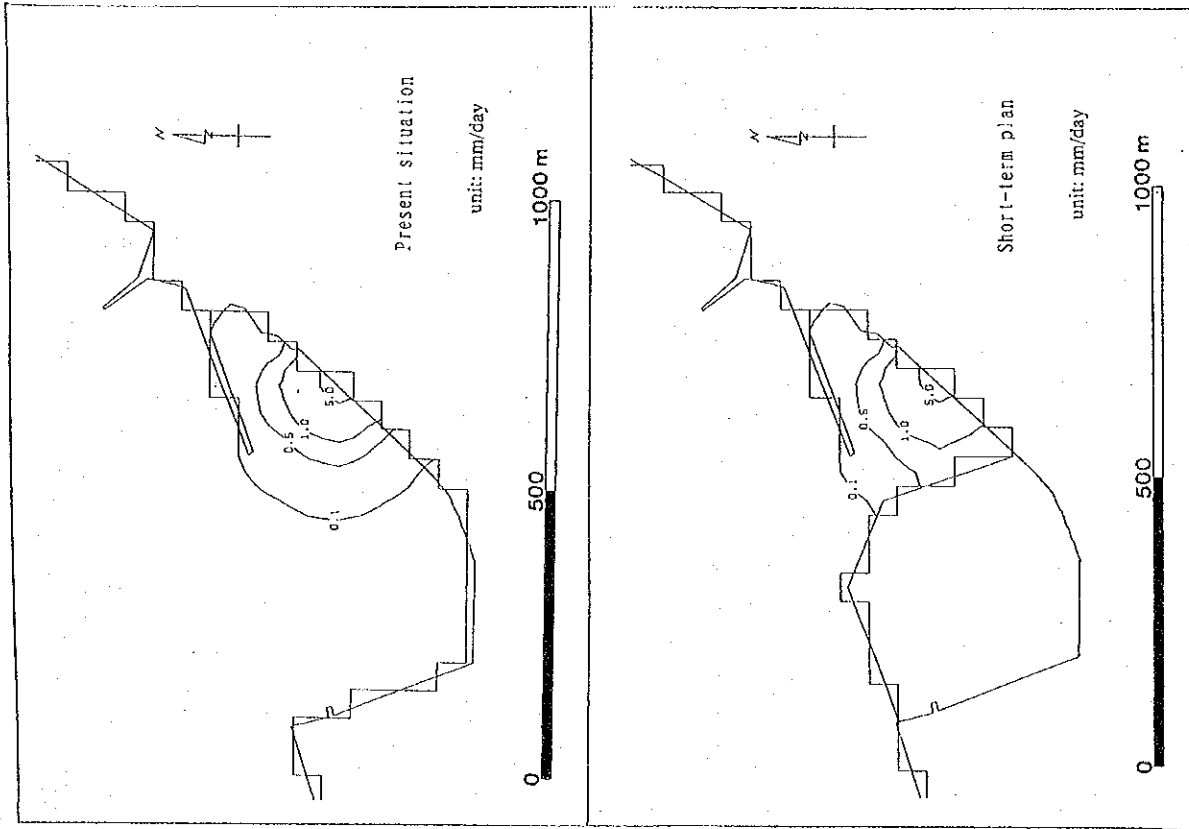


Fig. - g.4: Rate of sedimentation (mm/day)
(Present and Short-term Plan, Exhibit with contour lines)

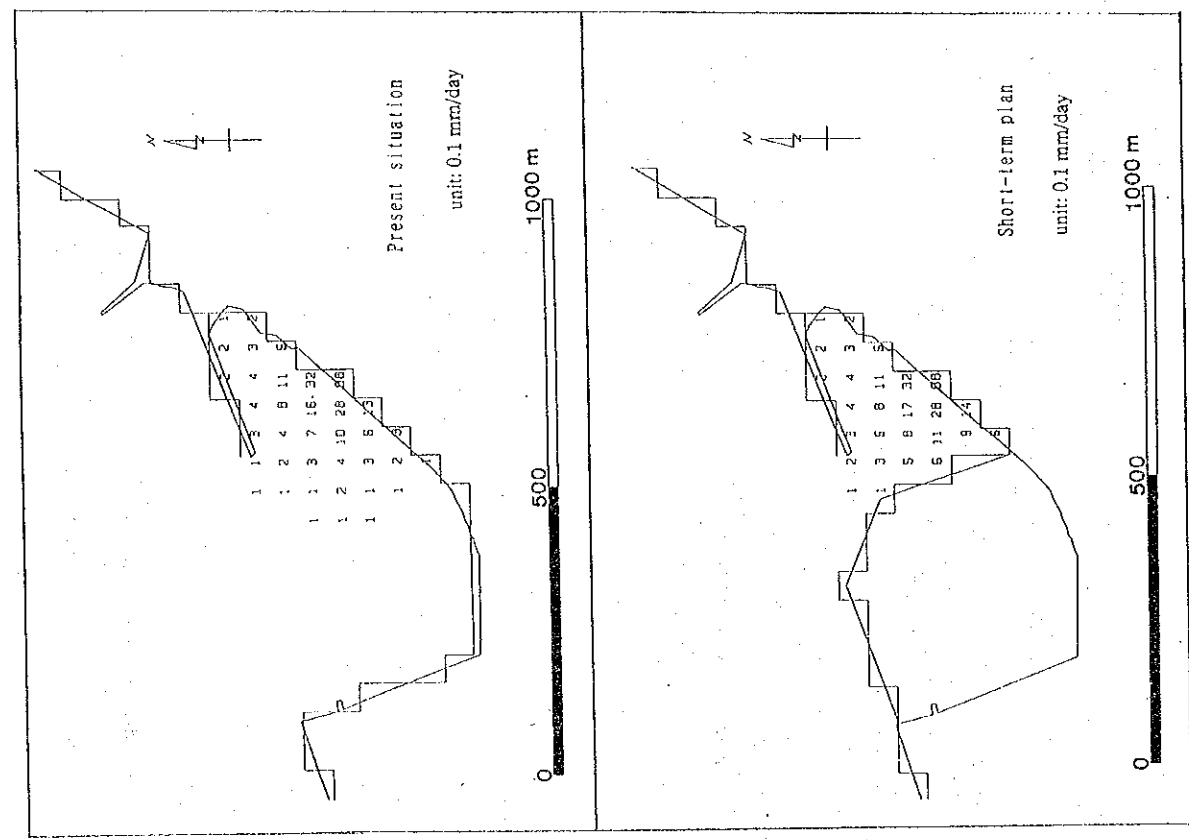


Fig. - g.3: Rate of sedimentation (mm/day)
(Present and Short-term Plan, Exhibit with values)

JICA