Based on the total required SN for the entire pavement, suitable design is obtained by the following equation:

$$SN = a1D1 + a2D2 + a3D3$$

Where, a1,a2,a3 = layer coefficients representative of surface,base and subbase.

D1,D2,D3 = actual thickness, in inches, of surface, base, subbase.

#### (1) SN = 2.9

	(cm)	D (inches)	a	a x D		
	5	1.97	0.44	0.87	Surface course	Plant mix
	15	5.91	0.135	0.80	Base course	CBR80
	30	11.81	0.11	1.30	Sub-base course	CBR30
Total	50	19.69		2.96		

#### (2) SN = 3.0

<del></del>	(cm)	D (inches)	a	a x D		
	5	1.97	0.44	0.87	Surface course	Plant mix
	16	6.30	0.135	0.85	Base course	CBR80
	30	11.81	0.11	1.30	Sub-base course	CBR30
Total	51	20.08		3.02		

#### (3) SN = 3.2

		D	a	a x D		
	(cm)	(inches)			<del></del> ,	
	5	1.97	0.44	0.87	Surface course	Plant mix
	20	7.87	0.135	1.06	Base course	CBR80
	30	11.81	0.11	1.30	Sub-base course	CBR30
Total	55	21.65		3.23		

(4)	SN = 3.3		_				
	-	(cm)	D (inches)	a	a x D		
		5 -	. 1.97	0.44	0.87	Surface course	Plant mix
		22	8.66	0.135	1.17	Base course	CBR80
		30.	11.81	0.11	1.30	Sub-base course	CBR30
	Total	57	22.44		3.33		
(5)	SN = 3.6						
	_	(cm)	D (inches)	a	axD		
		5	1.97	0.44	0.87	Surface course	Plant mix
		27	10.63	0.135	1.44	Base course	CBR80
		30	11.81	0.11	1.30	Sub-base course	CBR30
	Total	62	24.41		3.60		
(6)	SN = 2.9						
	511 - 2.7	(cm)	D (inches)	a	a x D		
		5	1.97	0.2	0.39	Surface course	. Road mix
		19	7.48	0.135	1.01	Base course	CBR80
		35	13.78	0.11	1.52	Sub-base course	CBR30
	Total	59	23.23		2.92		
. (7)	SN = 3.0				•		
(1)	314 – 3.0	(cm)	D (inches)	a	a x D		
	a de la companya dela companya dela companya dela companya de la c	5	1.97	0.2	0.39	Surface course	Road mix
		21	8.27	0.135	1.12	Base course	CBR80
		35	13.78	0.11	1.52	Sub-base course	CBR30
	Total	61	24.02		3.03		

(8)	SN = 3.2		D	a	a x D		
	-	(cm)	(inches)	a	axD	, rankaje	
		5	1.97	0.2	0.39	Surface course	Road mix
		25	9.84	0.135	1.33	Base course	CBR80
		-35	13.78	0.11	1.52	Sub-base course	CBR30
	Total	65	25.59		3.24		
(8-2)	SN = 3.2						
(0 2)	- 5.5	(cm)	D (inches)	a	a x D		
		5	1.97	0.2	0.39	Surface course	Road mix
		17	6.69	0.135	0.90	Base course	CBR80
		45	17.72	0.11	1.95	Sub-base course	CBR30
	Total	67	26.38		3.25		
(9)	SN = 3.3		D	a	a x D		
		(cm)	(inches)		·		
•		5	1.97	0.2	0.39	Surface course	Road mix
		18	7.09	0.135	0.96	Base course	CBR80
		45	17.72	0.11	1.95	Sub-base course	CBR30
	Total	68	26.77		3.30		
(10)	SN = 3.6						
		(cm)	D (inches)	a	a x D	<del></del>	
		5	1.97	0.2	0.39	Surface course	Road mix
		24	9.45	0.135	1.28	Base course	CBR80
		45	17.72	0.11	1.95	Sub-base course	CBR30
	Total	74	29.13		3.62		

### Comparison of Unit rates for plant-mix and Road-mix Pavement

CASE -2 Section-I

Plant	mix		Road r	nix	
	Thickness	Cost		Thickness	Cost
	(cm)	(yen/m2)		(cm)	(yen/m2)
	5	738		5	370
	16	431		21	566
	30	567		35	661
Total =	51	1,736		61	1,597

CASE -2 Section-II

Plant	mix	•	Road n	nix	
	Thickness	Cost		Thickness	Cost
	(cm)	(yen/m2)		(cm)	(yen/m2)
	5	738		5	370
	22	593		18	485
	30	567		45	850
Total =	57	1,898		68	1,705

CASE -3 Section-I

Plant	mix		Road r	nix	
	Thickness	Cost		Thickness	Cost
	(cm)	(yen/m2)		(cm)	(yen/m2)
	5	738		5	370
	15	404		19	512
	30	567		35	661
Total =	50	1,709		59	1,543

CASE -3 Section-II

Plant	mix		Road	mix	
	Thickness (cm)	Cost (yen/m2)		Thickness (cm)	Cost (yen/m2)
	20	738 539		5 17	370 458
	30	567		45	850
Total =	55	1,844		67	1,678

CASE -4 Section-I

Plant	mix		Road r	nix	
	Thickness C	Cost		Thickness	Cost
	(cm) (ye	n/m2)		(cm)	(yen/m2)
	5 7	738		5	370
<del>(1 </del>	20 5	539		25	674
	30	567		35	661
Total =	55 1,	844		65	1,705

CASE -4 Section-II

Plant	mix		Road	mix	
	Thickness	Cost	9	Thickness	Cost
	(cm)	(yen/m2)		(cm)	(yen/m2)
	5	738		5	370
	27	728		24	647
	30	567		45	850
Total =	62	2,032		74	1,867

#### Minimum Thickness (inches)

Traffic, ESAL'S	Asphalt Concrete	Aggregate Base
Less than 50,000	1.0 (or surface treatment)	4
50,001 - 150,000	2.0	4
150,001 - 500,000	2.5	4
500,001 - 2,000,000	3.0	6
2,000,001 - 7,000,000	3.5	6
Greater than 7,000,000	4.0	6

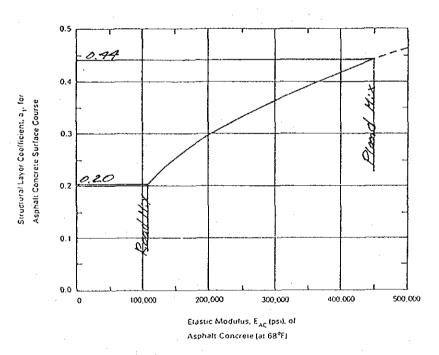
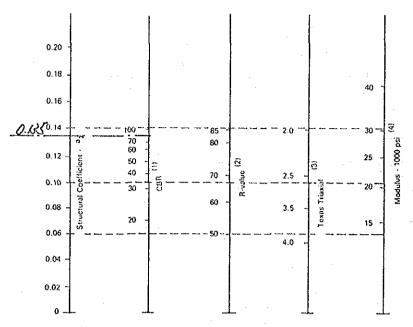
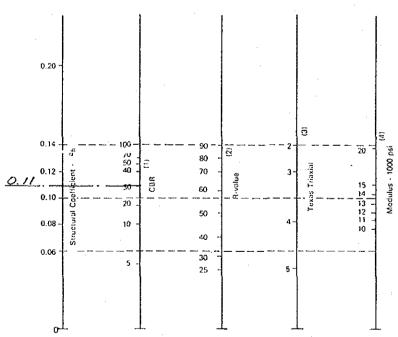


Figure 2.5. Chart for estimating structural layer coefficient of dense-graded asphalt concrete based on the elastic (resitient) modulus (3).



- (1)
- Scale derived by averaging correlations obtained from Illinois Scale derived by averaging correlations obtained from California, New Mexico and Wyoming. Scale derived by averaging correlations obtained from Texas Scale derived on NCHRP project (3).

Figure 2.6. Variation in granular base layer coefficient (a 2 ) with various base strength parameters (3).



- (1) Scale derived from correlations from Illinois.
- Scale derived from correlations obtained from the Asphalt Institute, California, New Mexico and Wyoming.
- (3) Scale derived from correlations obtained from Texas
- (4) Scale derived on NCHRP project (3).

Figure 2.7. Variation in granular subhase layer coefficient (a<sub>3</sub>) with various subbase strength parameters (3).

Design chart for flexible pavements Figure

Design Structural Number, SN

و م ايار

Design Serviceability Loss, Effective Roodbed Soil Resilient Modulds, M<sub>R</sub> (psi) 1,550,116 80% 0.45 10,600 2.5 (i) The estimated future traffic, W18
(ii) The reliability, R
(iii) The overall standard drviation, S0
(iv) The effective resilient modulus of roadbed material, MR
(v) The design serviceability loss, d PSI=Po-Pt Standard Deviation, S. Reliobility, R (%)

The estimated future traffic, W18 The reliability, R

CASE-2 Alternative 3.4 1lane

Section - 1 Specific conditions

APSI

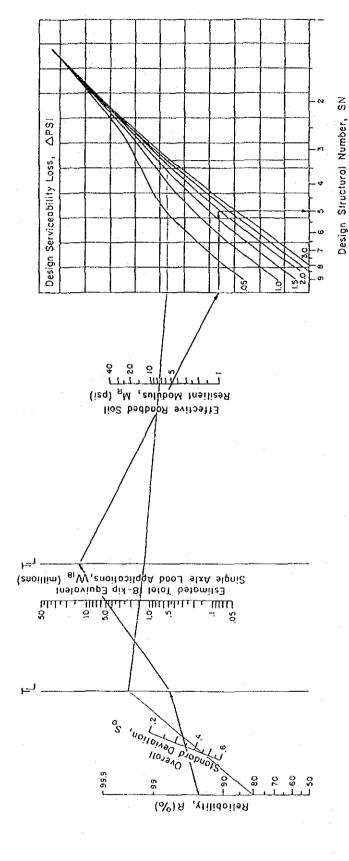
Section - II	Specific conditions
Sec	Sp

1,468,775 80% 0.45 7,300 2.5

(i) The estimated future traffic, W18
(ii) The reliability,R
(iii) The overall standard drviation,S0
(iv) The effective resilient modulus of roadbed material, MR
(v) The design serviceability loss, d PSI=Po-Pt

N.S

3.3



F - 12

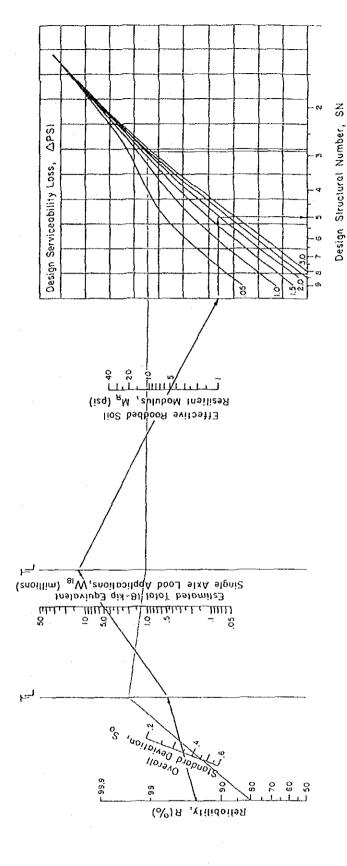
CASE-3 Alternative 5 2lane

Section - I Specific conditions		
	Section - I	oecific conditio

1,299,122 80% 0,45 10,600 2.5

(i) The estimated future traffic, W18
(ii) The reliability, R
(iii) The overall standard driviation, S0
(iv) The effective resilient modulus of roadbed material. MR
(v) The design serviceability loss, d PSI=Po-Pt

2.9



CASE-3 Alternative 5 2lane Section - II Specific conditions

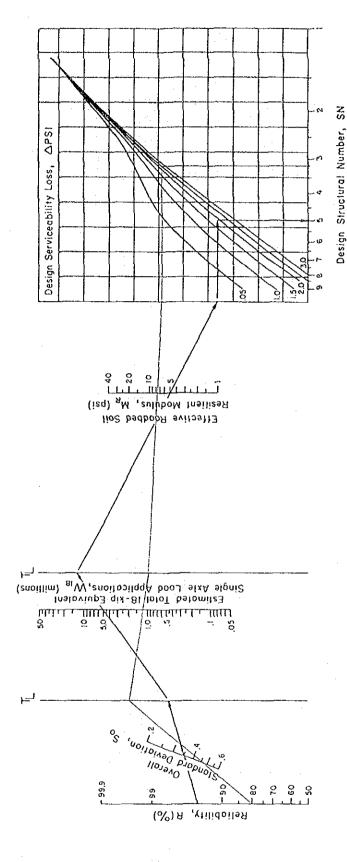
	The estimated future traffic, W18
	d future tra
	estimate
	The
į	Ξ

1,229,402 80% 0.45 7,300 2.5

(ii) The reliability.R
 (iii) The overall standard drviation,S0
 (iv) The effective resilient modulus of roadbed material,MR
 (v) The design serviceability loss, d PSI=Po-Pt

SNE

3.2



F - 14

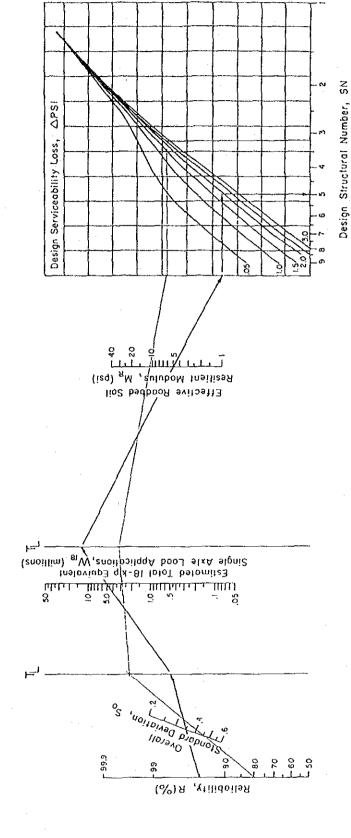
CASE-4 Second stage widdening 2lane

•	Section - I	Specific conditions	

The estimated future traffic, W18

2,964,277 80% 0.45 10,600 2.5

(i) The estimated future traffic.W18
(ii) The reliability.R
(iii) The overall standard drviation,S0
(iv) The effective resilient modulus of roadbed material,MR
(v) The design serviceability loss, d PSI=Po-Pt



E - 15

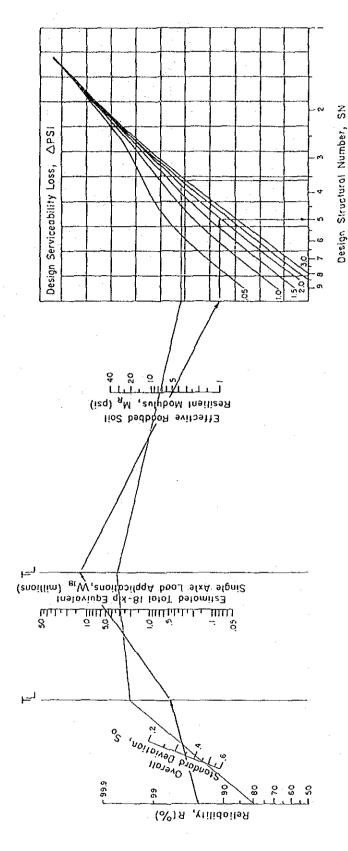
CASE-4 Second stage widdening 2lane

Section - II		
Specific conditions		
•	1	

2,975,897 80% 0.45 7,300 2.5

(i) The estimated future traffic, W18
(ii) The reliability, R
(iii) The overall standard drviation, S0
(iv) The effective resilient modulus of roadbed material, MR
(v) The design serviceability loss, d PSI=Po-Pt

SNE



Design chart for flexible pavements Figure

Table 2.2. Suggested levels of reliability for various functional classifications.

	Recommended Level of Reliability				
Functional Classification	Urban	Rural			
nterstate and other					
reeways	85 - 99.9	80 - 99.9			
Principal		•			
Arterials	80 - 99	75 - 95			
Collectors	80 - 95	75 - 95			
_ocal	50 - 80	50 - 80			

Note: Results based on a survey of the AASHTO Pavement Design Task Force

Table 4.1. Suggested seasons length (months) for the six U.S. climatic regions.

	Season (Roadbad Soil Moisture Condition)					
U.S. Climatic Ragion	Winter (Roadbed Frozen)	Spring-Thaw (Roadbed Saturated)	Spring/Fell (Roadbed Wet)	Summer (Roadbac Dry)		
	0.0*	0.0	7.5	4.5		
11	1.0	0.5	7.0	3.5		
III	2.5	1.5	4.0	4.0		
	0.0	0.0	4.0	8.0		
V	1.0	0.5	3.0	7.5		
VI	3.0	1.5	3.0	4.5		

<sup>\*</sup>Number of months for the season.

Table 4.3. Effective roadbed soil resilient modulus values, M<sub>R</sub> (psi), that may be used in the design of flexible pavements for low-volume roads. Suggested values depend on the U.S. climatic region and the relative quality of the roadbed soil.

u.s.	Relative Quality of Roadbed Sail							
Climatic Region	Very Poor	Poor	Fair	Good	Very Good			
	2,800*	3,700	5,000	6.800	9,500			
Ш	2,700	3,400	4,500	5,500	7,300			
Ш	2,700	3,000	4,000	4,400	5,700			
IV	3,200	4,100	5,600	7,900	11,700			
٧	3,100	3,700	5,000	6,000	8,200			
Vi	2,800	3,100	4,100	4,500	5,700			
ctive Resilie	nt Modulus in psi		Ave.	7,300. Sec. II.	10,600 Sec. I			

Section I CBR NS x 1520 = 22,500 (MR)

II CBR 8 x 1500 = 12,000 (MR)

Table 4.10. Aggregate surfaced road design catalog: recommended aggregate base thickness (in inches) for the six U.S. climatic regions, five relative qualities of roadbed soil and three levels of traffic.

Relative Quality	Tratfic			U.S. Climatic Region			
of Roadbod Soil	Level	1	11	ш	IV	V	VI
	High	8	10	15	7	9	15
Very Good	Medium	6	8	11	5	7	11
	Low	4	4	6	4	4	6
	High	11	12	17	10	11	17
Good	Medium	8	9	12	7	9	12
	Low	4	5	7	4	5	7
	High	13	14	17	12	13	17
Fair	Medium	11	11	12	10	10	12
	Low	6	6	7	5	5	7
	High	•••	**	••	••	••	
Poor	Medium	••]	••	**	15	15	••
	Low	9	10	9	8	8	9
	High		••			**	
Very Poor	Medium	•••	••	**	••	**	
•	Low	11	11	10.	8	8	9

<sup>\*</sup> Thicknesses of aggregate base required (in inches).

<sup>\*\*</sup>Higher type pavement design recommended.

Table Worksheet for caluculating 18-kip equivalent single axle load(ESAL) applications.

CASE-2 Alternative-3,4 1 lane		An	alysis Period =	10	Year
Section - I	ADT=	667		<u> </u>	
Vehicle Types	Current	Growth	Design	E.S.A.L.	Design
	Trafic	Factors	Traffic	Factor	E.S.A.L.
	both direction	7.80%			
2300	100	14.35	524,026	0.0065	3,406
2700	150	14.35	786,039	0.0124	9,747
3300	10	14.35	52,403	0.0274	1,436
4700	240	14.35	1,257,662	0.1116	140,355
5300	150	14.35	786,039	0.1798	141,330
6700	10	14.35	52,403	0.4561	23,901
9300	140	14.35	733,636	1.6765	1,229,94
All Vehicles	800		4,192,207		1,550,116
			:		
CASE-2 Alternative-3,	4 1 lane	An	alysis Period =	10	Year
Section - II	ADT=	632			<del></del>
Vehicle Types	Current	Growth	Design	E.S.A.L.	Design
	Trafic	Factors	Traffic	Factor	E.S.A.L.
	both direction	7.80%	<u>.</u>		
2300	95	14.35	496,528	0.0065	3,227
2700	142	14.35	744,792	0.0124	9,235
3300	. 9	14.35	49,653	0.0274	1,360
4700	228	14.35	1,191,668	0.1116	132,990
5300	142	14.35	744,792	0.1798	133,91
6700	9	14.35	49,653	0.4561	22,64
9300	133	14.35	695,140	1.6765	1,165,40
All Vehicles	758		3,972,226		1,468,775

CASE-3 Alternative-5	2 lane	A	Analysis Period =	10	l'ear
Section - I	ADT=	1118	considering stage	construction(ove	rlay)
Vehicle Types	Current	Growth	Design	E.S.A.L.	Design
	Trafic	Factors	Traffic	Factor	E.S.A.L.
	one direction	7.80%		· .	
2300	84	14.35	439,176	0.0065	2,855
2700	126	14.35	658,764	0.0124	8,169
3300	8	14.35	43,918	0.0274	1,203
4700	201	14.35	1,054,023	0.1116	117,629
5300	126	14.35	658,764	0.1798	118,446
6700	8	14.35	43,918	0.4561	20,031
9300	117	14.35	614,847	1.6765	1,030,790
All Vehicles	671		3,513,409		1,299,122
		:			
CASE-3 Alternative-5	2 lane		\nalysis Period =	10	(ear
Section - II	ADT=	1058	considering stage	construction(ove	rlay)
Vehicle Types	Current	Growth	Design	E.S.A.L.	Design
	Trafic	Factors	Traffic	Factor	E.S.A.L.
	one direction	7.80%			
2300	79	14.35	415,607	0.0065	2,701
2700	119	14.35	623,410	0.0124	7,730
3300	8	14.35	41,561	0.0274	1,139
4700	190	14.35	997,456	0.1116	111,316
5300	119	14.35	623,410	0.1798	112,089
6700	8	14.35	41,561	0.4561	18,956
9300	-111	14.35	581,849	1.6765	975,471

635

All Vehicles

3,324,854

1,229,402

	2 lane	. An	alysis Period =	10	Year
Section - I	ADT=	2551			
Vehicle Types	Current	Growth	Design	E.S.A.L.	Design
	Trafic	Factors	Traffic	Factor	E.S.A.L.
	one direction	7.80%		<del></del>	
2300	191	14.35	1,002,091	0.0065	6,51
2700	287	14.35	1,503,137	0.0124	18,63
3300	19	14.35	100,209	0.0274	2,74
4700	459	14.35	2,405,019	0,1116	268,40
5300	287	14.35	1,503,137	0.1798	270,26
6700	19	14.35	100,209	0.4561	45,70
9300	268	14.35	1,402,928	1,6765	2,352,00
All Vehicles	1,531		8,016,731	<del></del>	2,964,27
CASE-4 widdening to	2 lane	Ana	alysis Period =	10	Year
ection - II					
	ADT=	2561			
Vehicle Types	ADT= Current	2561 Growth	Design	E.S.A.L.	Design
Vehicle Types			Design Traffic	E.S.A.L. Factor	Design E.S.A.L.
Vehicle Types	Current	Growth	_		-
Vehicle Types	Current Trafic	Growth Factors	_		E.S.A.L.
	Current Trafic one direction	Growth Factors 7.80%	Traffic	Factor	E.S.A.L.
2300	Current Trafic one direction 192	Growth Factors 7.80%	1,006,020	Factor 0.0065	E.S.A.L. 6,53
2300 2700	Current Trafic one direction 192 288	Growth Factors 7.80% 14.35	1,006,020 1,509,029	0.0065 0.0124	E.S.A.L. 6,53 18,71 2,75
2300 2700 3300	Current Trafic one direction 192 288	Growth Factors 7.80% 14.35 14.35 14.35	1,006,020 1,509,029 100,602	0.0065 0.0124 0.0274	6,53° 18,71° 2,75° 269,45°
2300 2700 3300 4700	Current Trafic one direction 192 288 19 461	Growth Factors 7.80%  14.35 14.35 14.35 14.35	1,006,020 1,509,029 100,602 2,414,447	0.0065 0.0124 0.0274 0.1116	E.S.A.L.  6,53  18,71  2,75  269,45  271,32
2300 2700 3300 4700 5300	Current Trafic one direction 192 288 19 461	Growth Factors 7.80% 14.35 14.35 14.35 14.35 14.35	1,006,020 1,509,029 100,602 2,414,447 1,509,029	0.0065 0.0124 0.0274 0.1116 0.1798	-

22.5%(A) 21.0%(A) 15.0%(A) 1.5%(A) Back (ton) 4.7 5.3 9.3 6.7 axle load Front (ton) 2.7 4.7 3.3 2.3 Weight 10 ton 8 ton 14 ton Assumed 7 ton . } 40%(C) Full load 56%(C) F 50%load 4%(C) L Empty L Truck 62.5%(B) — 37.5%(B) 0 L Heavy vehicle 60%(A)—— Bus Caluculation of the current traffic for the each axle loads Total traffic volume T Light vehicle 40%(A) (B  $\mathcal{E}$ 

The rate was obtain from the previous F/S study report

#### Equivalence factor of axle loads

3.97 Equivalence factor = (Pi / 8.165)Pi = axle load (ton)

Damaging effect of different axle loads (AASHO Road Test)

Axl	e load	Equivalence factor
kg	lb	,
910	2000	0.0002
1810	4000	0.0025
2720	6000	0.01
3630	8000	0.03
4540	10000	0.09
5440	12000	0.19
6350	14000	0.35
7260	16000	0.61
8160	18000 Standard	l
9070	20000	1.5
9980	22000	2.3
10890	24000	3.2
11790	26000	4.4
12700	28000	5.8
13610	30000	7.6
14520	32000	9.7
15420	34000	12.1
16320	36000	15.0
17230	38000	18.6
18140	40000	22.8

## APPENDIX - F-2

# **QUANTITIES CALCULATION**

Table 1 Work Quantities of Alternative-1 First stage

Item No.	Description	Unit		Alte	mative-1 First st	age	
<u> </u>		· .	Section I	Section II-1	Section II-2	Section II-3	Total
A	GENERAL.						- <del></del>
	Erection, accomodation and maintain of Engineer's staff	ļ		OLH	o	OLH	
	houses(H),offices(O) and laboratories(L)	L.S.		0.45	0.10	0.45	1.
100	EARTH WORKS						<del></del> -
101	Clearing in open area	m2		387,600	577,000	912,000	1,876,6
102	Clearingin forest area	m2		356,000			356,0
103	Removal of top soil t=20cm	m3		51,400	39,200	61,800	152,4
104	Excavation ,common, side spoil	m3		4,048	48,406	41,911	94,3
105	Excavation, rock, side spoil	m3		1,454	8,758	12,269	22,4
106	Excavation .common, spoil bank l=1000m	m3		216,008			216,0
107	Excavation,rock,spoil bank t=1000m	m3		77,610			77,6
108	Cutting and filling,common,cross filling	m3		108,944	55,409	108,960	273,3
109	Cutting and filling, rock, cross filling	m3		39,143	10,025	31,897	81.0
110	Cutting and filling,common,l=1000m	m3		354,219	205,317	333,137	892,6
111	Cutting and filling,rock,l=1000m	m3	10,000	126,958	37,147	97,524	271,6
112	Borrow filling,l=500m	m3	300		344,282	200,758	545,3
200	PAVEMENT WORKS						
201	Subgrade preparation	m2	5,700	194,900	158,100	250,600	609,3
202	Subbase course	m3	1,710	58,500	47,500	75,200	182,9
203	Base course	m3		,	47,566	70,200	102,5
204	Surface course, penetration macadam, t=3cm	m2		81,100	47,900	50,500	179,5
205	Surface course, penetration macadam, t=5cm	m2		01,100	47,500	,500	1,0,0
206	Surface course, asphalt concrete, t=3cm	m2					
-							
300	DRAINAGE WORKS						
	Side drain, stone masonry with 1:6 martal, 0.75x0.50	m					
	Side drain, stone masonry with 1.6 martal, 0.50x0.30	m		32,500	21,700	41,300	95,50
	Side drain, stone masonry with 1:6 martal, 0.40x0.30	m		5,000	10,000	5,000	20,00
	Grouted riprap lined ditch	m	2,400	10,500	20,000	18,000	50,90
-	Channel, stone mansonry with 1:4 martal, type A	m		2,150	20,000	10,500	2,1:
	Channel, stone mansonry with 1:4 martal type B	m		940			9
	Channel,gabion wall,type A	m		600			6(
	Channel,gabion wall,type B	m		600			60
- 1	Subsoil drain,0.3x0.6	m		8,000	3,000	22,000	33,00
	R.C.C. pipe culvert D=0.6m	pcs.		16	70	181	20
	R.C.C. pipe culvert D=0.9m	pcs.		2	6	45	
	Corrugated pipe culvert D=0.6m	pcs.		176	69	47	
	Corrugated pipe culvert D=1.0m	pcs.		22	21	12	
	Corrugated arch culvert R=2.5m	pcs.		11	7	4	
	Slab culvert S=5m	pcs.		12	15	28	
	Slab culvert S=10m	pcs.			1	4	
	Box culvert 3.0x3.0	pcs.				1	
	Check dam,type-A	pcs.		25	25	70	13
T	Check dam,type-B	pcs.		24	6	6	1
	1	1200.		24	0,		
400	SLOPE PROTECTION WORKS						·
	Dry stone wall	m2					

Table 1 Work Quantities of Alternative-1 First stage

Item No.	Description	Unit	Afternative-1 First stage					
· · · · · · · · · · · · · · · · · · ·			Section I	Section II-1	Section II-2	Section II-3	Total	
402	Banded dry stone wall	m2			3,000		3,00	
403	Stone cement mansonry wall	m2			18,800	40,700	59,50	
404	Pluged stone concrete wall	m3			12,300	21,300	33,60	
405	Gabion wall	m3		93,400	47,400	58,700	199,50	
406	Gabion matress	m3			8,400	13,100	21,50	
407	Boulder protection	m3			16,800	26,200	43,00	
408	Sodding	m2		188,100	183,500	260,900	632,50	
409	Concrete spray	m2						
410	Concrete spray with rock bolt	- m2						
411	Concrete frame with anchor	m2			. :			
412	Stone masonry parapet	- m3		6,200	3,600	4,500	14,36	
	Land-slide protection Large scale	pcs.		1				
414	Land-slide protection small scale	pcs.		15	4	27		
500	ROAD FURNITURE							
501	Stone masonry guard block type-A	m	-	13,000	7,500	9,400	29.90	
	Stone masonry guard block type-B	m		10,000	10,000	15,000	35,0	
503	Road traffic sign typeA	pes.		30	30	30		
504	Road traffic sign typeB	pcs.		30	30	30		
505	Distance sign 1km	pcs.	*	31	25	40		
506	Distance sign 5km	pcs.		8	6	10	······································	
600	RIVER CROSSING STRUCTURES					· · ·		
601	Bed level causeway	m	850	175	811	545	2,38	
602	Vented causeway	m		35	44	66	14	
603	Submersible bridge	m				115	1	
700	MAJOR BRIDGES (1 lanes)							
701	Bhogate bridge (PCB)	L.S	1					
702	Ratu bridge (PCB)	LS	1					
703	Kamala bridge (PCB)	L.S	1					
704	Phittang bridge (PCB)	L.S	1					
705	Buka bridge (PCB)	L.S	1					
706	Gadeuli bridge (PCB)	L.S	1				-	
707	Daune bridge (DECK TRUSS)	L.S				1		
708	Narke bridge (DECK TRUSS)	L.S				1		
709	Rosi bridge (TRUSS)	L.S				1		
800	MINNER BRIDGES (Hanc)							
801	Prestressed concrete Tshaped beam ,20m span	m2	160			80	2.	
802	Steel H shaped beam, 20m span	m2		400		. 80	. 4	
803	Steel H shaped beam, 25m span	m2				100	1	
804	Restoration of existing suspension bridge	L.S				1		
000	MISCELL ANEOUS							
900 901	MISCELLANEOUS maintain of access road	km		19	19	19		
	Removal of debris	km		34	22	41		

Table 2 Work Quantities of Alternative-1 Second stage

Item No.	Description	Unit	Alternative-1 Second stage					
· .			Section I	Section II-1	Section II-2	Section II-3	Total	
<u> </u>	GENERAL					·		
	Erection, accomodation and maintain of Engineer's staff	<del>  </del>		OLH	0	OLH		
	houses(H),offices(O) and laboratories(L)	L.S.		0.45	0.10	0.45	1.0	
100	EARTH WORKS	<del> </del>			·			
101	Clearing in open area	m2	677,700	50,300	90,800	153,500	972,30	
102	Clearingin forest area	m2		46,200			46,20	
103	Removal of top soil t=20cm	m3	22,900	4,800	4,500	7,700	39,90	
104	Excavation common, side spoil	m3	<del></del>					
105	Excavation,rock,side spoil	m3						
106	Excavation common, spoil bank l=1000m	<u>m3</u>	185,838	184,900	15,900	34,400	421,03	
107	Excavation,rock,spoil bank l=1000m	m3	65,300	247,600	169,200	353,500	835,60	
108_	Cutting and filling common cross filling	m3	37,500				37,50	
109	Cutting and filling,rock,cross filling	m3	13,200		<u> </u>		13,20	
110	Cutting and filling,common,l=1000m	m3	79,600	18,100	32,700	52,300	182,70	
111	Cutting and filling,rock,l=1000m	m3	27,900	24,200			52,10	
112	Borrow filling,1=500m	m3						
112-2	Realignment of causeway sections	km	0.50	0.50	7.50	3.20	1	
200	PAVEMENT WORKS							
201	Subgrade preparation	m2	277,400	292,100	237,000	375,600	1,182,10	
202	Subbase course	m3	97,090	48,500	39,300	62,300	247,19	
203	Base course	m3	52,706	49,657	40,290	63,852	206,50	
204	Surface course, penetration macadam, t=3cm	m2						
205	Surface course, penetration macadam, t=5cm	m2	277,400	292,100	237,000	375,600	1,182,10	
206	Surface course, asphalt concrete, t=3cm	m2						
300	DRAINAGE WORKS							
301	Side drain,stone masonry with 1:6 martal, 0.75x0.50	m	26,400	34,850	24,650	45,000	130,90	
302	Side drain, stone masonry with 1:6 martal, 0.50x0.30	m						
303	Side drain, stone masonry with 1:6 martal, 0.40x0.30	m						
304	Grouted riprap lined ditch	m	21,400				21,40	
305	Channel, stone mansonry with 1:4 martal, type A	m						
306	Channel,stone mansonry with 1:4 martal,type B	m						
307	Channel,gabion wall,type A	m						
308	Channel,gabion wall,type B	m						
309	Subsoil drain,0.3x0.6	ın						
	R.C.C. pipe culvert D=0.6m	pcs.	180				18	
311	R.C.C. pipe culvers D=0.9m	pcs.						
312	Corrugated pipe culvert D=0.6m	pcs.						
313	Corrugated pipe culvert D=1.0m	pcs.						
314	Corrugated arch culvert R=2.5m	pcs.					· · · · · · · · · · · · · · · · · · ·	
314	Slab culvert S=5m	-						
		pcs.			-			
316	Slab culvert S=10m						· <del>-</del>	
317	Box culvert 3.0x3.0	pcs.					<del></del>	
318	Check dam type-A	pcs.				<del></del>		
319	Check dam,type-B	pcs.						
400	SLOPE PROTECTION WORKS					<del></del>		

Table 2 Work Quantities of Alternative-1 Second stage

Item No.	Description	Unit		Altern	native-1 Second	stage	
			Section I	Section II-1	Section II-2	Section II-3	Total
401	Dry stone wall	<b>192</b>	27,200	12,700	13,100	18,800	71,800
402	Banded dry stone wall	m2	41,500	192,600	89,400	172,200	495,700
403	Stone cement mansonry wall	m2					
404	Pluged stone concrete wall	m3					
405	Gabion wall	m3	7,600				
406	Gabion matress	m3					
407	Boulder protection	m3					
408	Sodding	m2	146,600	12,000	3,000	11,900	173,500
409	Concrete spray	m2	6,600	53,000	26,100	43,800	129,500
410	Concrete spray with rock bolt	m2			2,000		2,000
411	Concrete frame with anchor	m2			2,000		2,000
412	Stone masonary parapet	m3	600	7,100	5,700	9,100	22,500
413	Land-slide protection Large scale	pcs.					
414	Land-slide protection small scale	pcs.		·			
	·						
500	ROAD FURNITURE						
501	Stone masonary guard block type-A	m	1,200				
502	Stone masonary guard block type-B	m	10,000				
503	Road traffic sign typeA	pcs.	30				30
504	Road traffic sign typeB	pcs.	30				30
505	Distance sign 1km	pcs.	29				29
- 506	Distance sign 5km	pcs.	8				8
600	RIVER CROSSING STRUCTURES						
601	Bed level causeway	m		:			
602	Vented causeway	m					0
603	Submersible bridge	m					0
700	MAJOR BRIDGES (2 lanes)						
701	Bhogate bridge (PCB)	L.S	1				. 1
702	Ratu bridge (PCB)	L.S	1				1
702-2	(New) Shindhuse Bridge (PCB) 2@25=50	m2	325				325
703	Kamala bridge (PCB)	L.S	1				1
704	Phittang bridge (PCB)	LS	1				1
	Buka bridge (PCB)	L.S	1				· 1
706	Gadeuli bridge (PCB)	L.S	1				1
706-2	(New) Andheriel bridge (PCB) 5@25=125	m2		813			813
706-3	(New) Nigauli bridge (PCB) 6@25=150	m2			975		975
706-4	(New) Arubote bridge (PCB) 5@25=100	m2			650		650
706-5	(New) Khakare bridge (PCB) 2@25=50	m2			325		325
706-6	(New) Bhote bridge (PCB) 3@25=75	m2.			488		488
706-7	(New) Gangate bridge (PCB) 2@25=50	m2			325		325
706-8	(New) Dhamile bridge (PCB) 3@25=75	m2			488		488
	(New) Sandi bridge (PCB) 4@25=100	m2			650		650
	(New) Ghyampe bridge (PCB) 10@30=300	m2				1,950	1,950
	(New) Mamti bridge (PCB) 4@25=100	m2				650	650
	(New) Bhyakure bridge (PCB) 4@25=100	m2				650	650
	Daune bridge (DECK TRUSS)	LS				1	1

Table 2 Work Quantities of Alternative-1 Second stage

Item No.	Description	Unit	Alternative-1 Second stage					
			Section I	Section II-1	Section II-2	Section II-3	Total	
708	Narke bridge (DECK TRUSS)	L.S				1		
709	Rosi bridge (TRUSS)	LS	·			t t		
800	MINNER BRIDGES (2lanc)							
801	Prestressed concrete Tshaped beam ,20m span	nı2	160			80	24	
802	Steel H shaped beam, 20m span	m2		400		80	48	
803	Steel H shaped beam, 25m span	m2				100	10	
804	Restoration of existing suspension bridge	LS			<u></u>			
900	MISCELLANEOUS							
901	maintain of access road	km						
902	Removal of debris	km		34	22	41	(	

Table 3 Work Quantities of Alternative-2 First stage

				lage			
<u></u>			Section I	Section II-1	Section II-2	Section II-3	Total
A	GENERAL	<b> </b>					· · · · · · · · · · · · · · · · · · ·
	Erection, accomodation and maintain of Engineer's staff			OLH	0	OLH	
	houses(H),offices(O) and laboratories(L)	L.S.		0.45	0.10	0.45	1.0
	EARTH WORKS						<del></del>
101	Clearing in open area	m2		387,600	577,000	912,000	1,876,60
102	Clearingin forest area	m2		356,000			356,00
103	Removal of top soil t=20cm	m3		51,400	39,200	61,800	152,40
104	Excavation ,common, side spoil	m3		4,048	48,406	41,911	94,36
105	Excavation,rock,side spoil	m3		1,454	8,758	12,269	22.48
106	Excavation common, spoil bank l=1000m	m3		216,008			216,00
107	Excavation,rock,spoil bank l=1000m	m3		77,610			77,61
108	Cutting and filling,common,cross filling	m3		108,944	55,409	108,960	273,31
109	Custing and filling, rock, cross filling	m3		39,143	10,025	31,897	81,06
110	Cutting and filling.common,l=1000m	m3		354,219	205,317	333,137	892,67
111	Cutting and filling, rock, I=1000m	m3	10,000	126,958	37,147	97,524	271,62
112	Borrow filling,l=500m	m3	300		344,282	200,758	545,34
200	PAVEMENT WORKS						
201	Subgrade preparation	m2	5,700	194,900	158,100	250,600	609,30
202	Subbase course	m3	1,710	58,500	47,500	75,200	182,910
203	Base course	m3					
204	Surface course, penetration macadam, 1=3cm	m2		81,100	47,900	50,500	179,50
205	Surface course, penetration macadam, t=5cm	m2					
206	Surface course, asphalt concrete, t=3cm	m2					
300	DRAINAGE WORKS						
301	Side drain, stone masoury with 1:6 martal, 0.75x0.50	m					. (
302	Side drain, stone masonry with 1:6 martal, 0.50x0.30	m		32,500	21,700	41,300	95,50
303	Side drain, stone masonry with 1:6 martal, 0.40x0.30	m		5,000	10,000	5,000	20,00
304	Grouted riprap lined ditch	m	2,400	10,500	20,000	18,000	50,90
305	Channel,stone mansonry with 1:4 martal,type A	m		2,150			2,150
306	Channel,stone mansonry with 1:4 martal,type B	m		940			94
307	Channel,gabion wall,type A	m		600			60
308	Channel,gabion wall,type B	m		600			60
309	Subsoil drain,0.3x0.6	ın		8,000	3,000	22,000	33,00
310	R.C.C. pipe culvert D=0.6m	pcs.		16	70	181	26
311	R.C.C, pipe culvert D=0.9m	pcs.		2	6	45	5:
312	Corrugated pipe culvert D=0.6m	pcs.		176	69	47	29
313	Corrugated pipe culvert D=1.0m	pcs.		22	21	12	5.
314	Corrugated arch culvert R=2.5m	pcs.		11	7	4	2
315	Slab culvert S=5m	pcs.		12	15	28	. 5
316	Stab cutvert S=10m	pcs.			1	4	
317	Box culvert 3.0x3.0	pcs.				1	<u></u>
318	Check dam,type-A	pcs.		25	25	70	12
319	Check dam,type-B	pcs.		24	6	6	. 3
400 401	SLOPE PROTECTION WORKS  Dry stone wall	m2					

Table 3 Work Quantities of Alternative-2 First stage

Item No.	Description	Unit	Alternative-2 First stage					
			Section I	Section II-1	Section II-2	Section II-3	Total	
402	Banded dry stone wall	m2			3,000		3,00	
403	Stone cement mansonry wall	m2			18,800	40,700	59,50	
404	Pluged stone concrete wall	m3			12,300	21,300	33,60	
405	Gabion wall	m3		93,400	47,400	58,700	199,50	
406	Gabion matress	m3			8,400	13,100	21,50	
407	Boulder protection	m3			16,800	26,200	43,00	
408	Sodding	m2		188,100	183,500	260,900	632,50	
409	Concrete spray	m2						
410_	Concrete spray with rock bolt	m2						
411	Concrete frame with anchor	m2						
412	Stone masonary parapet	m3	_	6,200	3,600	4,500	14,30	
413	Land-slide protection Large scale	pcs.		1				
414	Land-slide protection small scale	pcs.		15	4	27	41	
		1.7						
500	ROAD FURNITURE							
501	Stone masonary guard block type-A	m		13,000	7,500	9,400	29,90	
502	Stone masonary guard block type-B	m		10,000	10,000	15,000	35,00	
503	Road traffic sign typeA	pcs.		30	30	30	9	
504	Road traffic sign typeB	pcs.		30	30	30	9	
505	Distance sign 1km	pcs.		31	25	40	9	
506	Distance sign 5km	pcs.	· · · · · · · · · · · · · · · · · · ·	8	6	10	2	
600	RIVER CROSSING STRUCTURES				:			
601	Bed level causeway	m	850	175	811	545	2,38	
602	Vented causeway	m		35	44	66	14	
603	Submersible bridge	m				115	11	
700	MAJOR BRIDGES (1 lanes considering widdening)							
701	Bhogate bridge (PCB)	L.S	1				· · · · · · · · · · · · · · · · · · ·	
702	Ratu bridge (PCB)	L.S	1					
703	Kamala bridge (PCB)	L.S	1					
704	Phittang bridge (PCB)	L.S						
705	Buka bridge (PCB)	LS						
	Gadeuli bridge (PCB)	LS	1					
706	Daune bridge (DECK TRUSS)	L.S				1		
707	T	L.S	<u>.</u>		<b>.</b>			
708	Narke bridge (DECK TRUSS)	L.S					<del></del>	
. 709	Rosi bridge (TRUSS)	<u> </u>						
800	MINNER BRIDGES (Ilane considering widdenig)	-						
	Prestressed concrete Tshaped beam ,20m span	m2	190			95	. 28	
801	Steel H shaped beam, 20m span	m2	190	475		95	57	
802	Steel H shaped beam, 25m span	m2		473		119	11	
	Restoration of existing suspension bridge	L.S		· · ·		1		
804	recordancii oi existing suspension orage	1 23				1		
900	MISCELLANEOUS							
901	maintain of access road	km		19	19	19	. 5	
902	Removal of debris	km		34	22	41	5	

Table 4 Work Quantities of Alternative-2 Second stage

Item No.	Description	Unit	t Alternative-2 Second stage					
·			Section I	Section II-1	Section II-2	Section II-3	Total	
A	GENERAL		·					
	Erection, accomodation and maintain of Engineer's staff	<b> </b>		OLH	0	OTH		
	houses(H),offices(O) and laboratories(L)	L.S.		0.45	0.10	0.45	1.0	
100	EARTH WORKS	ļ						
101	Clearing in open area	m2	677,700	50,300	90,800	153,500	972,30	
102	Clearingin forest area	m2		46,200		·	46,20	
103	Removal of top soil t=20cm	m3	22,900	4,800	4,500	7,700	39,90	
104	Excavation ,common, side spoil	m3				·	· · · · · · · · · · · · · · · · · · ·	
105	Excavation,rock,side spoil	m3						
106	Excavation common, spoil bank l=1000m	m3	185,838	184,900	15,900	34,400	421.03	
107	Excavation,rock,spoil bank l=1000m	m3	65,300	247,600	169,200	353,500	835,60	
108	Cutting and filling,common,cross filling	m3	37,500				37,50	
109	Cutting and filling, rock, cross filling	m3	13,200				13,20	
110	Cutting and filling,common,l=1000m	m3	79,600	18,100	32,700	52,300	182,70	
111	Cutting and filling,rock,l=1000m	m3	27,900	24,200			52,10	
112	Borrow filling,1=500m	m3					. (	
112-2	Realignment of causeway sections	km	0.50	0.50	7.50	3.20	1:	
200	PAVEMENT WORKS							
201	Subgrade preparation	m2	277,400	292,100	237,000	375,600	1,182,10	
202	Subbase course	m3	97,090	48,500	39,300	62,300	247,19	
203	Base course	m3	52,706	49,657	40,290	63,852	206,50	
204	Surface course, penetration macadam, t=3cm	m2						
205	Surface course, penetration macadam, t=5cm	m2	277,400	292,100	237,000	375,600	1,182,10	
206	Surface course, asphalt concrete, t=3cm	m2						
300	DRAINAGE WORKS					·		
301	Side drain, stone masonry with 1:6 martal, 0.75x0.50	m	26,400	34,850	24,650	45,000	130,900	
302	Side drain, stone masonry with 1:6 martal, 0.50x0.30	m	20,400	040,040	24,030	45,000	130,300	
303	Side drain, stone masonry with 1:6 martal, 0.40x0.30	m				~		
304	Grouted riprap lined ditch	m	21,400				21,400	
	Channel stone mansonry with 1:4 martal type A	ın	21,400					
	Channel, stone mansonry with 1:4 martal, type B					1. 1.		
	Channel, gabion wall, type A	m					(	
	Channel,gabion wall,type B	m						
	Subsoil drain,0.3x0.6	m						
	R.C.C. pipe culvert D=0.6m	m	180				100	
	R.C.C. pipe culvert D=0.9m	pcs.	100				180	
312	Corrugated pipe culvert D=0.6m	pcs.						
	Corrugated pipe culvert D=1.0m	pcs.				:		
314	Corrugated arch culvert D=1.0m  Corrugated arch culvert R=2.5m	pcs.						
	Slab culvert S=5m	pcs.					<u></u>	
	Slab culvert S=3m Slab culvert S=10m	pcs.				<del></del>	(	
		pcs.					• • • • • •	
	Box culvert 3.0x3.0	pcs.						
	Check dam, type-A	pcs.						
319	Check dam,type-B	pcs.					· (	
400	SLOPE PROTECTION WORKS	<del> </del>						

Table 4 Work Quantities of Alternative-2 Second stage

Item No.	Description	Unit	Alternative-2 Second stage					
			Section 1	Section II-1	Section II-2	Section 11-3	Total	
401	Dry stone wall	m2	27,200	12,700	13,100	18,800	71,800	
402	Banded dry stone wall	m2	41,500	192,600	89,400	172,200	495,700	
403	Stone cement mansonry wall	m2						
404	Pluged stone concrete walt	m3						
405	Gabion wall	m3	7,600					
406	Gabion matress	m3						
407	Boulder protection	m3						
408	Sodding	m2	146,600	12,000	3,000	11,900	173,508	
409	Concrete spray	m2	6,600	53,000	26,100	43,800	129,500	
410	Concrete spray with rock bolt	m2			2,000		2,000	
411	Concrete frame with anchor	m2			2,000		2,000	
412	Suone masonary parapet	m3	600	7,100	5,700	9,100	22,50	
413	Land-slide protection Large scale	pcs.	000	7,100	2,700	2,100		
414	Land-slide protection small scale	pes.						
	Earld Shap protection Shan again	pcs.						
500	ROAD FURNITURE	· · · · · · · · · · · · · · · · · · ·						
501	Stone masonary guard block type-A	m	1,200					
502	Stone masonary guard block type-B	m	10,000					
503	Road traffic sign typeA	pcs.	30	-			30	
504	Road traffic sign typeB	pcs.	30				30	
505	Distance sign 1km	pcs.	29				29	
506	Distance sign 5km		8					
300	Distance sign Juli	pcs.						
600	RIVER CROSSING STRUCTURES							
601	<u> </u>							
602	Bed level causeway	m						
	Vented causeway	nı						
603	Submersible bridge	m						
700	MA TOD DAILYGEG OF THE							
700	MAJOR BRIDGES (2 lanes)							
	Bhogate bridge (PCB)	L.S					<u>-</u>	
	Ratu bridge (PCB)	L.S					1	
	(New) Shindhuse Bridge (PCB) 2@25=50	m2	325	<del></del>			325	
	Kamala bridge (PCB)	L.S	!				!	
	Phittang bridge (PCB)	L.S						
	Buka bridge (PCB)	LS			·		<u>_</u>	
	Gadeuli bridge (PCB)	L.S	- 1					
706-2	(New) Andheriel bridge (PCB) 5@25=125	m2	· ·	813			813	
706-3	(New) Nigauli bridge (PCB) 6@25=150	m2			975		975	
706-4	(New) Arubote bridge (PCB) 5@25=100	m2			650		650	
706-5	(New) Khakare bridge (PCB) 2@25=50	m2			325		325	
706-6	(New) Bhote bridge (PCB) 3@25=75	m2			488		488	
	(New) Gangate bridge (PCB) 2@25=50	m2			325		325	
	(New) Dhamile bridge (PCB) 3@25=75	m2			488		488	
	(New) Sandi bridge (PCB) 4@25=100	m2			650		650	
	(New) Ghyampe bridge (PCB) 10@30=300	m2				1,950	1,950	
706-11	(New) Mamti bridge (PCB) 4@25=100	m2				650	650	
706-12	(New) Bhyakure bridge (PCB) 4@25=100	m2				650	650	
707	Daune bridge (DECK TRUSS)	L.S				1		

Table 4 Work Quantities of Alternative-2 Second stage

Item No.	Description	Unit	Alternative-2 Second stage					
: -			Section I	Section II-1	Section II-2	Section II-3	Total	
708	Narke bridge (DECK TRUSS)	L.S				1	. 1	
709	Rosi bridge (TRUSS)	lS				1	. 1	
800	MINNER BRIDGES (2lanc)							
801	Prestressed concrete Tshaped beam ,20m span	m2	160			80	240	
802	Steel H shaped beam, 20m span	m2		400		80	480	
803	Steel H shaped beam, 25m span	m2		., ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		100	100	
804	Restoration of existing suspension bridge	L.S					. 0	
900	MISCELLANEOUS				* .			
901	maintain of access road	km					. 0	
902	Removal of debris	km		34	22	- 41	97	

Table 5 Work Quantities of Alternative-3 First stage

Item No.	Description	Unit	Alternative-3 First stage					
			Section I	Section II-1	Section II-2	Section II-3	Total	
<u> </u>	GENERAL							
·	Erection, accomodation and maintain of Engineer's staff			OLH	0	OLH		
	houses(H),offices(O) and laboratories(L)	L.S.		0.45	0.10	0.45	1.0	
100	EARTH WORKS							
101	Clearing in open area	m2		387,600	577,000	912,000	1,876,60	
102	Clearingin forest area	m2		356,000			356,00	
103	Removal of top soil t=20cm	m3		51,400	39,200	61,800	152,40	
104	Excavation ,common, side spoil	m3		4,048	48,406	41,911	94,36	
105	Excavation,rock,side spoil	m3		1,454	8,758	12,269	22,48	
106	Excavation ,common, spoil bank l=1000m	m3		216,008			216,00	
107	Excavation,rock,spoil bank l=1000m	m3		77,610			77,61	
108	Cutting and filling,common,cross filling	m3		108,944	55,409	108,960	273,31	
109	Cutting and filling, rock, cross filling	m3		39,143	10,025	31,897	81,06	
110	Cutting and filling.common,l=1000m	m3		354,219	205,317	333,137	892,67	
111	Cutting and filling,rock,l=1000m	m3	10,000	126,958	37,147	97,524	271,62	
112	Borrow filling,1=500m	m3	300		344,282	200,758	545,34	
200	PAVEMENT WORKS	ļ. 				:		
201	Subgrade preparation	m2	185,000	194,900	158,100	250,600	788,60	
202	Subbase course	m3	64,400	87,700	71,100	112,800	336,00	
203	Base course	m3	38,600	35,100	28,500	45,100	147,30	
204	Surface course, penetration macadam, t=3cm	m2						
205	Surface course, penetration macadam, t=5cm	m2	185,000	194,900	158,100	250,600	788,60	
206	Surface course, asphalt concrete, t=3cm	m2	100,1000		130,100	250,000		
300	DD 4 DL 4 C WODKS							
300	DRAINAGE WORKS	<del>   </del>			<del></del>			
301	Side drain, stone masonry with 1:6 martal, 0.75x0.50	m		22.500	01.700	11.200	05.50	
302	Side drain, stone masonry with 1:6 martal, 0.50x0.30	m		32,500	21,700	41,300	95,50	
303	Side drain, stone masonry with 1:6 martal, 0.40x0.30	m	37,100	5,000	10,000	5,000	57,10	
304	Grouted riprap lined ditch	m	2,400	10,500	20,000	18,000	50,90	
305	Channel,stone mansonry with 1:4 martal,type A	m		2,150			2,15	
306	Channel, stone mansonry with 1:4 martal, type B	m	· · · · · ·	940		<del></del>	94	
307	Channel,gabion wall,type A	m		600			60	
308	Channel,gabion wall,type B	m		600			60	
309	Subsoil drain,0.3x0.6	<u>m</u>		8,000	3,000	22,000	33,00	
310	R.C.C. pipe culvert D=0.6m	pcs.	<del></del>	16	70	181	26	
311	R.C.C. pipe culvert D=0.9m	pcs.		2	- 6	45	5	
312	Corrugated pipe culvert D=0.6m	pcs.		176	69	47	29	
313	Corrugated pipe culvert D=1.0m	pcs.		22	21	12	5	
314	Corrugated arch culvert R=2.5m	pcs.		11	7	4	2	
315	Slab culvert S≃5m	pcs.		12	15	28	S.	
316	Slab culvert S=10m	pcs.	<del></del>		1	4	<u> </u>	
317	Box culvert 3.0x3.0	pcs.				l		
318	Check dam,type-A	pcs.		25	25	70	12	
319	Check dam,type-B	pcs.		24	6	6	3	
						·	<u>.</u>	
400	SLOPE PROTECTION WORKS							
401	Dry stone wall	m2	i			[		

Table 5 Work Quantities of Alternative-3 First stage

Item No.	Description	Unit	Alternative-3 First stage					
			Section I	Section II-1	Section II-2	Section II-3	Total	
402	Banded dry stone wall	m2			3,000		3,00	
403	Stone cement mansonry wall	m2			18,800	40,700	59,50	
401	Pluged stone concrete wall	m3			12,300	21,300	33,60	
405	Gabion wall	m3		93,400	47,400	58,700	199,50	
406	Gabion matress	m3			8,400	13,100	21,50	
407	Boulder protection	m3			16,800	26,200	43,000	
408	Sodding	m2		188,100	183,500	260,900	632,50	
409	Concrete spray	m2					(	
410	Concrete spray with rock bolt	m2					(	
411	Concrete frame with anchor	m2						
412	Stone masonary parapet	m3	1	6,200	3,600	4,500	14,300	
413	Land-slide protection Large scale	pcs.	_:	. 1				
414	Land-slide protection small scale	pcs.		15	4	27	46	
500	ROAD FURNITURE		· · · · · · · · · · · · · · · · · · ·					
501	Stone masonary guard block type-A			13,000	7,500	9,400	29,900	
502	Stone masonary guard block type-B	m						
503	Road traffic sign typeA	m		10,000	10,000	15,000	35,000	
504	Road traffic sign typeB	pcs.		30	30	30	9(	
505	Distance sign Ikm	pcs.	-	30	30	30	90	
506	Distance sign 5km	pcs.		31 8	25	40_	96	
	Distance Sign JAM	pcs.			. 61	10	24	
600	RIVER CROSSING STRUCTURES							
601	Bed level causeway	m	850	175	811	545	2,38	
602	Vented causeway	m		35	44	65	145	
603	Submersible bridge	m				115	115	
	:							
700	MAJOR BRIDGES (1 lanes)						· · ·	
701	Bhogate bridge (PCB)	L.S	1				: 1	
702	Ratu bridge (PCB)	LS	1				]	
703	Kamala bridge (PCB)	LS	1				1	
704	Phittang bridge (PCB)	LS	1					
705	Buka bridge (PCB)	L.S	1				1	
706	Gadeuli bridge (PCB)	LS	1				1	
707	Daune bridge (DECK TRUSS)	L.S				<u></u>		
708	Narke bridge (DECK TRUSS)	LS				11	1	
709	Rosi bridge (TRUSS)	LS					1	
800	MINNER BRIDGES (Hane)						<u> </u>	
801	Prestressed concrete Tshaped beam ,20m span	m2	160			80	240	
802	Steel H shaped beam, 20m span	m2		400		80	480	
	Steel H shaped beam, 25m span	m2		··· •		100	100	
	Restoration of existing suspension bridge	L.S				1	. 1	
050	MOSTILANDONS							
	MISCELLANEOUS				<del></del>	<del></del>	<del></del>	
	maintain of access road	km		19	19	19	57	
902	Removal of debris	km		34	22	41	9	

Table 6 Work Quantities of Alternative-3 Second stage

Item No.	Description		Alternative-3 Second stage					
		ļ	Section 1	Section II-1	Section II-2	Section II-3	Total	
A	GENERAL		·					
	Brection, accomodation and maintain of Engineer's staff			OLH	0	OLH		
	houses(H),offices(O) and laboratories(L)	L.S.	·	0.45	0.10	0.45	1.0	
100	EARTH WORKS							
101	Clearing in open area	m2	677,700	50,300	90,800	153,500	972,30	
102	Clearingin forest area	m2		46,200			46,20	
103	Removal of top soil t=20cm	m3	22,900	4,800	4,500	7,700	39,90	
104	Excavation ,common, side spoil	m3						
105	Excavation,rock,side spoil	m3						
106	Excavation ,common, spoil bank l=1000m	m3	185,838	184,900	15,900	34,400	421.03	
107	Excavation,rock,spoil bank l=1000m	m3	65,300	247,600	169,200	353,500	835,60	
108	Cutting and filling, common, cross filling	m3	37,500				37,50	
109	Cutting and filling, rock, cross filling	_m3	13,200				13,200	
110	Cutting and filling,common,l=1000m	m3	79,600	18,100	32,700	52,300	182,70	
111	Cutting and filling,rock,!=1000m	m3	27,900	24,200			52,10	
112	Borrow filling,l≈500m	nı3						
112-2	Realignment of causeway sections	km	0.50	0.50	7.50	3.20	. 1	
200	PAVEMENT WORKS							
201	Subgrade preparation	m2	277,400	292,100	237,000	375,600	1,182,10	
202	Subbase course	m3	23,400	24,600	20,000	31,700	99,700	
203	Base course	m3	15,400	16,200	13,100	20,800	65,50	
204	Surface course, penetration macadam, t=3cm	m2						
205	Surface course, penetration macadam, t=5cm	m2	277,400	292,100	237,000	375,600	1,182,10	
206	Surface course, asphalt concrete, t=3cm	ın2						
300	DRAINAGE WORKS							
301	Side drain,stone masonry with 1:6 martal, 0.75x0.50	m	26,400	34,850	24,650	45,000	130,90	
302	Side drain, stone masonry with 1:6 martal, 0.50x0.30	m						
303	Side drain, stone masoury with 1:6 martal, 0.40x0.30	m					(	
304	Grouted riprap lined ditch	m						
305	Channel, stone mansonry with 1:4 manal, type A	m						
306	Channel, stone mansonry with 1:4 martal, type B	m						
307	Channel,gabion wall,type A	m						
308	Channel,gabion wall,type B	m						
309	Subsoil drain,0.3x0.6	m						
310	R.C.C. pipe culvert D=0.6m	pcs.						
311	R.C.C. pipe culvert D=0.9m	pcs.					1	
312	Corrugated pipe culvert D=0.6m	pcs.			· · · · · ·			
313	Corrugated pipe culvert D=1.0m	pcs.	:					
314	Corrugated arch culvert R=2.5m	pcs.					<del></del>	
315	Slab culvert S=5m	pcs.						
316	Slab culvert S=10m	pcs.						
317	Box culvert 3.0x3.0	pes.						
318	Check dam,type-A	pcs.						
319	Check dam,type-A Check dam,type-B	pcs.		····				
	Circui usun,cype-u	ρυ					,u	
400	SLOPE PROTECTION WORKS							

Table 6 Work Quantities of Alternative-3 Second stage

Item No.	Description	Unit		Alterr	rative-3 Second	stage	
			Section I	Section II-1	Section II-2	Section II-3	Total
401	Dry stone wall	m2	27,200	12,700	. 13,100	18,800	71,80
402	Banded dry stone wall	m2	41,500	192,600	89,400	172,200	495,70
403	Stone centent mansonry wall	m2					
404	Pluged stone concrete wall	m3					
405	Gabion wall	m3	7,600				
406	Gabion matress	m3		·			
407	Boulder protection	nı3					
408	Sodding	m2	146,600	12,000	3,000	11,900	173,50
409	Concrete spray	m2	6,600	53,000	26,100	43,800	129,50
410	Concrete spray with rock bolt	m2			2,000		2,00
	Concrete frame with anchor	m2			2,000		2,00
	Stone masonary parapet	m3	600				
413	Land-slide protection Large scale	pes.					
	Land-slide protection small scale	pcs.					
**			İ				
500	ROAD FURNITURE			<del></del>			
	Stone masonary guard block type-A	m	1,200				
	Stone masonary guard block type-B	m	10,000			-	
<del></del>	Road traffic sign typeA	pcs.	30			,	30
	Road traffic sign typeB	pcs.	30				31
	Distance sign 1km	pcs.	29				2:
	Distance sign 5km		8				
500	Disease sign skill	pcs.					
600	RIVER CROSSING STRUCTURES						• • • • • • • • • • • • • • • • • • • •
			<del></del>		····		
	Bed level causeway	m				<del></del>	
602	Vented causeway	m					. (
603	Submersible bridge	-   m					
			——— <del>—</del>				
	MAJOR BRIDGES (2 lanes)	_			<del></del>		<del> </del>
	Bhogate bridge (PCB)	L.S					<u>1</u>
	Ratu bridge (PCB)	L.S			<del></del>		. 1
	(New) Shindhuse Bridge (PCB) 2@25=50	m2	325	*			325
	Kamala bridge (PCB)	L.S	1				
	Phittang bridge (PCB)	LS					
	Buka bridge (PCB)	L.S	1				
706	Gadeuli bridge (PCB)	L.S					1
706-2	(New) Andheriel bridge (PCB) S@25=125	m2		813			813
706-3	(New) Nigauli bridge (PCB) 6@25=150	m2			975		975
~~~	(New) Arubote bridge (PCB) 5@25=100	ın2			650		650
	(New) Khakare bridge (PCB) 2@25=50	m2			325		325
706-6	(New) Bhote bridge (PCB) 3@25=75	m2			488		488
706-7	(New) Gangate bridge (PCB) 2@25=50	m2			325		325
706-8	(New) Dhamile bridge (PCB) 3@25=75	m2			488		: 488
706-9	(New) Sandi bridge (PCB) 4@25=100	m2			650		650
706-10	(New) Ghyampe bridge (PCB) 1:2@30=300	m2				1,950	1,950
706-11	(New) Mamti bridge (PCB) 4@25=100	m2				650	650
706-12	(New) Bhyakure bridge (PCB) 4@25=100	m2				650	650
707	Daune bridge (DECK TRUSS)	l.s	Ţ	T		i	

Table 6 Work Quantities of Alternative-3 Second stage

Item No.	Description	Unit	Alternative-3 Second stage				
			Section I	Section II-1	Section II-2	Section II-3	Total
708	Narke bridge (DECK TRUSS)	L.S				1	1
709	Rosi bridge (TRUSS)	L.S				1	1
٠.			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
800	MINNER BRIDGES (2lane)		,				J
801	Prestressed concrete Tshaped beam 20m span	m2	160			80	240
802	Steel H shaped beam, 20m span	m2		400		80	480
803	Steel H shaped beam, 25m span	m2				100	100
804	Restoration of existing suspension bridge	L.S	,				0
900	MISCELLANEOUS						
901	maintain of access road	km					
902	Removal of debris	km		34	22	41	97

Table 7 Work Quantities of Alternative-4 First stage

hem No.	Description	Unit		Alte	rnative 4 First s	Inge	
~ <del>~~~</del>			Section I	Section II-1	Section II-2	Section II-3	Total
<u>A</u>	GENERAL	<del>  </del>					
<del></del>	Erection, accomodation and maintain of Engineer's staff			OLH	0	OLH	
<u>-</u>	houses(H),offices(O) and laboratories(L)	L.S.		0.45	0.10	0.45	1.0
100	EARTH WORKS						
101	Clearing in open area	m2		387,600	577,000	912,000	1,876,60
102	Clearingin forest area	m2		356,000			356,00
103	Removal of top soil t=20cm	m3		51,400	39,200	61,800	152,40
104	Excavation ,common, side spoil	m3		4,048	48,406	41,911	94,36
105	Excavation,rock,side spoil	m3	· .	1,454	8,758	12,269	22,48
106	Excavation ,common, spoil bank l=1000m	m3		216,008			216,00
107	Excavation, reck, spoil bank 1=1000m	m3		77,610			77,61
108	Cutting and filling, common cross filling	m3		108,944	55,409	108,960	273,31
109	Cutting and filling, rock, cross filling	m3		39,143	10,025	31,897	81,06
110	Cutting and filling,common,l=1000m	m3		354,219	205,317	333,137	892,67
111	Cutting and filling,rock,l=1000m	m3	10,000	126,958	37,147	97,524	271,62
112	Borrow filling, i=500m	m3	300		344,282	200,758	545,34
200	PAVEMENT WORKS						
201	Subgrade preparation	m2	185,000	194,900	158,100	250,600	788,60
202	Subbase course	m3	64,400	87,700	71,100	112,800	336,00
203	Base course	m3	38,600	35,100	28,500	45,100	147,30
204	Surface course, penetration macadam, t=3cm	m2					
205	Surface course, penetration macadam, t=5cm	m2	185,000	194,900	158,100	250,600	788,60
206	Surface course, asphalt concrete, t=3cm	m2		22.1,2011	130,100	251,000	100,00
300	DRAINAGE WORKS						
301	Side drain, stone masonry with 1:6 martal, 0.75x0.50	<del> </del>					
302	Side drain, stone masonry with 1.6 martal, 0.50x0.30	m		22 500	31.700	41,200	05.50
303	Side drain, stone masonry with 1:6 martal, 0.40x0.30	m	27 100	32,500	21,700	41,300	95,50
304	Grouted riprap lined ditch	m	37,100	5,000	10,000	5,000	57,10
305	Channel,stone mansonry with 1:4 martal,type A	m	2,400	10,500	20,000	18,000	50,90
306	Channel, stone mansonry with 1:4 martal, type B	m		2,150			2,15
307	Channel gabion wall type A	m		940			941
308	Channel gabion wall, type B	m		600			601
309	Subsoil drain,0.3x0.6	m		600	2 000		600
		m		8,000	3,000	22,000	33,00
	R.C.C. pipe culvert D=0.6m	pcs.		16	70	181	26
	R.C.C. pipe culvert D=0.9m	pcs.		2	6	45	5:
	Corrugated pipe culvert D=0.6m	pcs.		176	69	47	29:
	Corrugated pipe culvert D=1.0m	pcs.		22	21	12	5
314	Corrugated arch culvert R=2.5m	pcs.		11	7	4	2:
315	Slab culvert S=5m	pcs.		12	15	28	S
316	Slab culvert S=10m	pcs.			1	4	· · ·
	Box culvert 3.0x3.0	pcs.				1	
	Check dam,type-A	pcs.		25	25	70	12
319	Check dam, type-B	pcs.	· · · · · · · ·	24	6	6	30
400	SLOPE PROTECTION WORKS						
401	Dry stone wall	m2					

Table 7 Work Quantities of Alternative-4 First stage

Item No.	Description	Unit		Alte	rnative-4 First st	age	
			Section I	Section II-1	Section II-2	Section II-3	Total
402	Banded dry stone wall	m2			3,000		3,000
403	Stone cement mansoury wall	m2			18,800	40,700	59,500
404	Pluged stone concrete wall	m3			12,300	21,300	33,600
405	Gabion wall	m3		93,400	47,400	58,700	199,500
406	Gabion matress	m3			8,400	13,100	21,500
407	Boulder protection	m3			16,800	26,200	43,000
408	Sodding	m2		188,100	183,500	260,900	632,500
409	Concrete spray	m2					0
410	Concrete spray with rock bolt	m2					0
411	Concrete frame with anchor	m2					0
412	Stone masonary parapet	m3		6,200	3,600	4,500	14,300
413	Land-slide protection Large scale	pcs.		1			
414	Land-slide protection small scale	pcs.		15	4	27	46
500	ROAD FURNITURE	1					
501	Stone masonary guard block type-A	m		13,000	7,500	9,400	29,900
502	Stone masonary guard block type-B	m		10,000	10,000	15,000	35,000
503	Road traffic sign typeA	pcs.		30	30	30	90
504	Road traffic sign typeB	pcs.		30	30	30	90
	Distance sign 1km	pcs		31	25	40	96
506	Distance sign 5km	pcs.		8	6	10	24
					:		
600	RIVER CROSSING STRUCTURES						
601	Bed level causeway	m	850	175	811	545	2,381
602	Vented causeway	m		35	44	66	145
603	Submersible bridge	m	····			115	115
700	MAJOR BRIDGES (1 lanes considering widdening)	+					
701	Bhogate bridge (PCB)	L.S	1				1
702	Ratu bridge (PCB)	LS	ı				1
	Kamala bridge (PCB)	LS	1				1
704	Phittang bridge (PCB)	L.S	1				1
	Buka bridge (PCB)	L_S	1				1
706	Gadeuli bridge (PCB)	L.S	1				1
707	Daune bridge (DECK TRUSS)	IS				l	1
708	Narke bridge (DECK TRUSS)	LS				1	]
709	Rosi bridge (TRUSS)	L.S				1	ì
800	MINNER BRIDGES (llane considering widdenig)						
801	Prestressed concrete Tshaped beam ,20m span	m2	190			95	285
802	Steel H shaped beam, 20m span	m2		475		95	570
803	Steel H shaped beam, 25m span	m2				119	119
804	Restoration of existing suspension bridge	L.S				1	·
		$\bot$					
900	MISCELLANEOUS						
901	maintain of access road	km	·	19	19	19	. 57
902	Removal of debris	km_		34	22	41	97

Item No.	Description	Unit		Alter	native-4 Second	stage	
			Section I	Section II-1	Section II-2	Section II-3	Total
A	GENERAL	ļ					
· · · · · · · · · · · · · · · · · · ·	Erection, accomodation and maintain of Engineer's staff			OLH	0	OLH	
:	houses(H),offices(O) and laboratories(L)	L.S.		0.45	0.10	0.45	
100	EARTH WORKS	ļ					· · ·
101	Clearing in open area	m2	677,700	50,300	90,800	153,500	972
102	Clearingin forest area	m2		46,200			46
103	Removal of top soil t=20cm	m3	22,900	4,800	4,500	7,700	39.
104	Excavation common, side spoil	m3					
105	Excavation, rock, side spoil	m3					
106	Excavation common, spoil bank i=1000m	m3	185,838	184,900	15,900	34,400	421
107	Excavation,rock,spoil bank 1=1000m	m3	65,300	247,600	169,200	353,500	835
108	Cutting and filling, common, cross filling	m3	37,500				37
109	Cutting and filling,rock cross filling	m3	13,200				13
110	Cutting and filling,common,l=1000m	m3	79,600	18,100	32,700	52,300	182
111	Cutting and filling,rock,t=1000m	m3	27,900	24,200			52
112	Borrow filling,i=500m	тЗ					
112-2	Realignment of causeway sections	km	0.50	0.50	7.50	3.20	
200	PAVEMENT WORKS						
201	Subgrade preparation	m2	277,400	292,100	237,000	375,600	1,182
202	Subbase course	กเวิ	23,400	24,600	20,000	31,700	99
203	Base course	m3	15,400	16,200	13,100	20,800	65
204	Surface course, penetration macadam, t=3cm	m2				7 7 1	
205	Surface course, penetration macadam, t=5cm	m2	277,400	292,100	237,000	375,600	1,182
206	Surface course, asphalt concrete, 1=3cm	m2					
300	DRAINAGE WORKS						
30i	Side drain, stone masonry with 1:6 martal, 0.75x0.50	m	26,400	34,850	24,650	45,000	130
302	Side drain, stone masonry with 1:6 martal, 0.50x0.30	m					
303	Side drain, stone masonry with 1:6 martal, 0.40x0.30	m			. :		
304	Grouted riprap lined ditch	m	21,400				21
305	Channel, stone mansoary with 1:4 martal, type A	m					
306	Channel, stone mansonry with 1:4 martal, type B	m					
307	Channel, gabion wall, type A	m					
308	Channel, gabion wall, type B	m					
309	Subsoil drain, 0.3x0.6	m					
310	R.C.C. pipe culvert D=0.6m	pcs.	180				
311	R.C.C. pipe culvert D=0.9m		100				
312	Corrugated pipe culvert D=0.6m	pcs.			· · · · · · · · ·		
313	Corrugated pipe cuivert D=1.0m						
314	Corrugated arch culvert R=2.5m	pcs.					· · · · · · ·
315	Slab culvert S=5m	pcs.					
	Slab culvert S=10m	pcs.					
316		pcs.		· · ·			
317	Box culvert 3.0x3.0	pcs.					
318	Check dam,type-A	pcs.					· ———
319	Check dam,type-B	pcs.	<b> </b>		L	ļ ļ	

Table 8 Work Quantities of Alternative-4 Second stage

Item No.	Description	Unit		Alten	native-4 Second s	stage	
			Section I	Section II-1	Section 11-2	Section II-3	Total
401	Dry stone wall	m2	27,200	12,700	13,100	18,800	71,800
402	Banded dry stone wall	m2	41,500	192,600	89,400	172,200	495,700
403	Stone cement mansonry wall	m2					
404	Pluged stone concrete wall	m3					
405	Gabion wall	m3	7,600				
406	Gabion matress	m3					
407	Boulder protection	m3					
408	Sodding	m2	146,600	12,000	3,000	11,900	173,500
409	Concrete spray	m2	6,600	53,000	26,100	43,800	129,500
410	Concrete spray with rock bolt	ιπ2			2,000		2,000
411	Concrete frame with anchor	m2			2,000		2,000
412	Stone masonary parapet	m3	600				
	Land-slide protection Large scale	pcs.					
414	Land-slide protection small scale	pcs.					
500	DOAD ELIMITUDE						<del></del>
500	ROAD FURNITURE		1,200				· · · · · · · · · · · · · · · · · · ·
	Stone masonary guard block type-A	m					
	Stone masonary guard block type-B	m	10,000				
	Road traffic sign typeA	pcs.	30		-		30
	Road traffic sign typeB	pcs.	30				30
505	Distance sign 1km	pcs.	29				29
506	Distance sign 5km	pcs.	- 8				8
600	RIVER CROSSING STRUCTURES						
601	Bed level causeway	m					0
602	Vented causeway	m					
603	Submersible bridge	m					
							,,
700	MAJOR BRIDGES (2 lanes)						
701	Bhogate bridge (PCB)	LS	<u> </u>				1
702	Ratu bridge (PCB)	LS					
702-2	(New) Shindhuse Bridge (PCB) 2@25=50	m2	325				325
703	Kamala bridge (PCB)	L.S	1				l
704	Phittang bridge (PCB)	L.S	1				1
705	Buka bridge (PCB)	LS	1				1
706	Gadeuli bridge (PCB)	L.S	1				1
706-2	(New) Andheriel bridge (PCB) 5@25=125	m2		813			813
706-3	(New) Nigauli bridge (PCB) 6@25=150	m2			975		975
706-4	(New) Anabote bridge (PCB) 5@25=100	m2			650		650
	(New) Khakare bridge (PCB) 2@25=50	m2			325		325
706-6	(New) Bhote bridge (PCB) 3@25=75	m2			488		488
706-7	(New) Gangate bridge (PCB) 2@25=50	m2			325		325
706-8	(New) Dhamile bridge (PCB) 3@25=75	m2			488		488
	(New) Sandi bridge (PCB) 4@25=100	m2	<del></del>	. 1	650		650
	(New) Ghyampe bridge (PCB) 10@30=300	m2	····			1,950	1,950
	(New) Mamti bridge (PCB) 4@25=100	m2				650	650
	(New) Bhyakure bridge (PCB) 4@25=100	m2				650	650
	Daune bridge (DECK TRUSS)	L.S				1	0.50

Table 8 Work Quantities of Alternative-4 Second stage

Item No.	Description	Unit		Alten	native-4 Second	stage	•
			Section I	Section II-1	Section II-2	Section II-3	- Total
708	Narke bridge (DECK TRUSS)	L.S				1	
709	Rosi bridge (TRUSS)	LS		***************************************		1	
							1
800	MINNER BRIDGES (2lane)						
801	Prestressed concrete Tshaped beam ,20m span	m2	160			80	240
802	Steel H shaped beam, 20m span	m2		400		80	480
803	Steel H shaped beam, 25m span	m2				100	100
804	Restoration of existing suspension bridge	L.S					100 100
900	MISCELLANEOUS						
901	maintain of access road	km				: :	. (
902	Removal of debris	km		34	22	41	97

Table 9 Work Quantities of Alternative-5

Item No.	Description	Unit			Alternative-5		
			Section 1	Section II-1	Section II-2	Section II-3	'Fotal
A	GENERAL.						
	Erection, accommodation and maintain of Engineer's staff			огн	0	OLH	
	houses(H),offices(O) and laboratories(L)	L.S.		. 0.45	0.10	0.45	1.00
100	EARTH WORKS	-					· · · · · · · · · · · · · · · · · · ·
101	Clearing in open area	m2	677,700	437,900	667,800	1,065,400	2,848,800
102	Clearingin forest area	m2		402,100			402,100
103	Removal of top soil t=20cm	m3	22,900	30,500	24,100	38,600	116,100
104	Excavation ,common, side spoil	-m3		19,800	81,100	101,000	201,900
105	Excavation,rock,side spoil	m3		11,800	37,800	35,300	84,900
106	Excavation ,common, spoil bank l=1000m	. m3	185,838	373,400		72,300	631,538
107	Excavation, rock, spoil bank l=1000m	m3	65,300	261,800		25,300	352,400
108	Cutting and filling, common, cross filling	m3	37,500	113,200	81,100	16,800	248,600
109	Cutting and filling,rock,cross filling	m3	13,200	79,300	37,800	58,700	189,000
110	Cutting and filling,common,t=1000m	m3	79,600	330,000	352,300	458,600	1,220,500
111	Cutting and filling,rock,t=1000m	m3	27,900	175,800	164,000	163,800	531,500
112	Borrow filling,1=500m	m3			188,500		188,500
200	PAVEMENT WORKS						
201	Subgrade preparation	m2	277,400	292,100	237,000	375,600	1,182,100
202	Subbase course	m3	97,090	131,445	106,650	169,020	504,205
203	Base course	m3	52,706	49,657	40,290	63,852	206,505
204	Surface course, penetration macadam, t=3cm	m2					0
205	Surface course, penetration macadam, t=5cm	m2	277,400	292,100	237,000	375,600	1,182,100
206	Surface course, asphalt concrete, t=3cm	m2					0
300	DRAINAGE WORKS		· · · · · · · · · · · · · · · · · · ·				
301	Side drain, stone masonry with 1:6 martal, 0.75x0.50	m	26,400	34,850	24,650	45,000	130,900
302	Side drain, stone masonry with 1:6 martal, 0.50x0.30	m					0
303	Side drain, stone masonry with 1:6 martal, 0.40x0.30	m		5,000	10,000	5,000	20,000
304	Grouted riprap lined ditch	m	21,400	8,400	10,000		39,800
305	Channel, stone mansonry with 1:4 martal, type A	m		2,150			2,150
306	Channel, stone mansonry with 1:4 martal, type B	m		940			940
307	Channel,gabion wall,type A	m	<del></del>	500			509
308	Channel,gabion wall,type B	m		500			500
309	Subsoil drain, 0.3x0.6	m		8,000	3,000	22,000	33,000
310	R.C.C. pipe culvert D=0.6m	pcs.	180	16	70	181	447
311	R.C.C. pipe culvert D=0.9m	pes.		2	6	45	53
312	Corrugated pipe culvert D=0.6m	pcs.		176	69	47	292
313	Corrugated pipe culvert D=1.0m	pcs.		22	21	9	. 52
314	Corrugated arch culvert R=2.5m	pcs.		11	7	4	22
315	Slab culvert S=5m			12	15	28	55
316	Slab culvert S=10m	pcs.			1	4	
317	Box culvert 3.0x3.0				<u>'</u>	1	
		pcs.	-	25	25	70	120
318	Check dam,type-A	pcs.		24		6	36
319	Check dam,type-B	pcs.		24	0	U <sub>1</sub>	
400	SLOPE PROTECTION WORKS	ļ					· · · · · · · · · · · · · · · · · · ·
401	Dry stone wall	m2	27,200	12,700	13,100	18,800	71,800

Table 9 Work Quantities of Alternative-5

Item No.	Description	Unit	. ,		Alternative-5		
<del></del>			Section I	Section II-1	Section II-2	Section II-3	Total
402	Banded dry stone wall	ın2	41,500	192,600	89,400	172,200	495,70
403	Stone cement mansonry wall	m2			18,800	40,700	59,50
404	Pluged stone concrete wall	m3_			12,300	21,300	33,60
405	Gabion wall	m3_	7,600	99,000	50,100	62,000	218,70
406	Gabion matress	m3			8,400	13,100	21,50
407	Boulder protection	m3			16,800	26,200	43,00
408	Sodding	m2	146,600	200,100	186,500	272,800	806,00
409	Concrete spray	m2	6,600	53,000	26,100	43,800	129,50
410	Concrete spray with rock bolt	m2	:		2,000		2,00
411	Concrete frame with anchor	m2			2,000		2.00
412	Stone masonary parapet	m3	600	6,200	3,600	4,500	14,90
413	Land-slide protection Large scale	pcs.		1			
414	Land-slide protection small scale	pcs.	:	15	4	27	. 46
				1.			
500	ROAD FURNITURE						
501	Stone masonary guard block type-A	m	1,200	13,000	7,500	9,400	31,10
502	Stone masonary guard block type-B	m	10,000	10,000	10,000	15,000	45,000
503	Road traffic sign typeA	pcs.	30	30	30	30	120
504	Road traffic sign typeB	pcs.	30	30	30	30	120
505	Distance sign 1km	pcs.	29	31	25	40	12:
506	Distance sign 5km	pcs.	. 8	8	6	10	32
_							
600	RIVER CROSSING STRUCTURES				:		· · · · · · · · · · · · · · · · · · ·
601	Bed level causeway	m	810	60	90	150	1,110
602	Vented causeway	m				36	36
603	Submersible bridge	m					
700	MAJOR BRIDGES (2 lanes)						
701	Bhogate bridge (PCB)	m2	325				325
702	Ratu bridge (PCB)	m2	1,138				1,138
702-2	(New) Shindhuse Bridge (PCB) 2@25=50	m2	325				325
703	Kamala bridge (PCB)	m2	780				780
	Phittang bridge (PCB)	m2	325				325
705	Buka bridge (PCB)	m2	325				32:
706	Gadeuli bridge (PCB)	m2	325				325
	(New) Andheriel bridge (PCB) 5@25=125	m2	523	813			813
	(New) Nigauli bridge (PCB) 6@25=150	m2		013	975		
	(New) Arubote bridge (PCB) 5@25=100	m2				<del></del>	975
	(New) Khakare bridge (PCB) 2@25=50				650		650
	(New) Bhote bridge (PCB) 3@25=75	m2			325		325
	(New) Gangate bridge (PCB) 2@25=50	m2 m2			488		488
1	(New) Dhamile bridge (PCB) 3@25=75	m2	:		325		325
	(New) Sandi bridge (PCB) 4@25=160				488		488
	(New) Ghyampe bridge (PCB) 10@30=300	m2			650		650
	(New) Mamti bridge (PCB) 4@25=100	m2	<del>-</del>			1,950	1,950
1	(New) Bhyakure bridge (PCB) 4@25=100	m2				650	650
		m2		-		650	650
	Daune bridge (DECK TRUSS)  Narke bridge (DECK TRUSS)	m2 m2				325 358	325

Table 9 Work Quantities of Alternative-5

Item No.	Description	Unit			Alternative-5		
			Section I	Section II-1	Section II-2	Section II-3	Total
709	Rosi bridgo (TRUSS)	m2				423	423
800	MINNER BRIDGES (2lane)						<del> </del>
801	Prestressed concrete Tshaped beam ,20m span	m2	260			130	- 390
802	Steel H shaped beam, 20m span	m2		650		130	780
803	Steel H shaped beam, 25m span	m2				163	163
804	Restoration of existing suspension bridge	L-S				1	1
900	MISCELLANEOUS						
901	maintain of access road	km		19	19	19	57
902	Removal of debris	km		34	22	41	97

Section I		Section II-1		Section II-2		Section 11-3				
No.	Arca (m2)		Arca (m2)		Arca (m2)		rea (m2)	No.	Area (m2)	
1	8,058	. 1	5,760	1	4,787	. 1	5,294	61	21,640	
2	8,158	2	8,790	2	3,820	2	15,182	62	15,029	
3	4,350	3	2,812	3	17,661	. 3	17,936	63	11,725	
4	5,096	4	5,458	4	3,205	4	9,789	64	15,428	
5	10,279	5	16,515	5	2,510	5	17,698	65	1,128	
6	10,510	6	13,060	6	5,869	6	1,061	66	840	
7	12,703	7	26,527	7	15,397	7	3,670	67	2,269	
8	13,178	8	22,302	8	11,175	8	999	68	10,269	
. 9	4,160	9	28,292	9	1,100	9	18,938	69	7,314	
10	2,890	10	16,129	10	4,885	10	4,522	70	3,037	
11	3,385	11 -	48,477	* 11	19,835	11	4,984	71	13,225	
12	3,328	12	13,057	12	17,140	12	20,160	72	9,684	
13	4,392	13	3,734	13	7,564	13	2,557	73	4,489	
14	11,534	14	3,017	14	2,559	14	6,225	74	1,922	
15	12,509	15	2,024	15	7,080	15	25,866	75	916	
16	2,078	16	11,500	16	2,929	16	8,616	76	2,642	
17	2,092	17	12,363	17	6,563	17	8,760	77	11,755	
18	2,827	18	8,221	18	3,156	18	4,338	78	6,581	
						19			17,937	
19	1,005	19	7,503	19	3,244		7,606	79 80		
20	14,546	20	12,986	20	1,436	20	16,538	80	15,515	
21	3,904	21	1,254	21	32,740	21	8,122	81	18,522	
22	2,377	22	1,320	22	5,601	22	11,379	82	4,560	
23	2,681	23	23,328	23	19,181	23	2,147	83	11,640	
24	1,239	24	3,282	24	17,296	24	6,682	84	6,105	
25	1,756	25	3,583	25 .	1,013	25	10,260	85	7,908	
26	3,358	26	17,834	26	19,638	26	14,692	86	6,340	
27	4,101	27	3,228	27	1,650	27	1,643	87	6,728	
28	1,665	28	3,107	28	6,470	28	13,156	88	12,004	
29	4,217	29	2,860	29	10,730	29	998	89	3,323	
30	4,859	30	1,454	30	1,376	30	6,196	90	2,915	
31	1,834	31	7,997	31	3,437	31	14,361	91	4,498	
32	1,712	32	5,582	32	2,494	32	4,982	92	1,510	
33	2,845	33	4,988	33	3,316	33	8,531	93	1,654	
34	2,593	34	17,475	34	10,567	34 :	4,129	94	1,554	
35	2,435	35	20,728	35	31,717	35	30,221	95	1,183	
36	3,563	36	6,110	36	8,028	36	15,965	96	1,077	
37	1,638	37	7,269	37	21,126	37	21,089	97	4,566	
38	8,446	38	9,919	38	30,493	38	12,377	98	9,809	
39	1,702	39	17,323	39	9,851	39	9,996	99	28,368	
40	6,401	40	6,681	40	3,293	40	19,603	100	6,752	
41	2,702	41	15,070	41	2,360	41	9,997	101	8,995	
42	2,047	42	18,360	42	8,710	42	26,852	102	5,749	
43	1,665	43	6,426	43	6,396	43	17,401	103	3,141	
44	22,783	44	2,283	44	16,797	44	21,169	104	4,165	
45	2,144	45	1,114	45	15,049	45	8,069	105	6,400	
46	9,830	46	14,510	46	14,748	46	12,359	106	11,326	
47	15,854	47	10,693	47	12,588	47	8,078	107	26,452	
48	5,609	48	8,907	48	6,180	48	14,131	108	27,157	
49	9,690	49	4,914	49	1,895	49	9,097	109	5,321	
50	675	50	6,389			50	2,117	110	1,218	
51	5,504	51	8,427			51	5,469	111	9,019	
52	1,270	52	12,301		•	52	2,220	112	6,095	
		53	21,312			53	5,518	113	13,572	
		54	20,305			54	987	114	2,581	
		55	19,946			55	656	115	12,103	
		56	10,513			56	4,946	116	2,818	
		57	3,904			57	2,075	1,17	32,573	
		58	3,351			58	7,984	118	5,757	
						59	35,927	119	16,953	
						60	30,685	120	17,737	
Total	280,177	Total	622,574	Total	466,655		7	rotal	1,176,498	
					Te	otal Land Acquisi	tion Area (n	n2) =	2,545,904	

#### Number of Houses to be compensated (ROW = 50m)

Section 1	380 nos.	Total	1,003 nos.
Section II-1	196 nos.		
Section 11-2	185 nos.		
Section II-3	242 nos.		

#### Land acquisition and house compensation cost

Section I	Land ac	equisition		House compensation				
	Area(m2)	280,177		Number	380			
	Rate(Nrs)	55		Rate(Nrs)	200,000			
	Cost	15,409,735		Cost	76,000,000			
				Total	91,409,735			
Section II-1	Land ac	equisition		House (	compensation			
	Area(m2)	622,574		Number	196			
	Rate(Nrs)	20		Rate(Nrs)	200,000			
	Cost	12,451,480		Cost	39,200,000			
**				Total	51,651,480			
Section II-2	Land ac	quisition		House (	compensation			
	Area(m2)	466,655		Number	185			
	Rate(Nrs)	20		Rate(Nrs)	200,000			
	Cost	9,333,100		Cost	37,000,000			
				Total	46,333,100			
Section II-3	Land ac	quisition		House o	compensation			
	Area(m2)	1,176,498		Number	242			
	Rate(Nrs)	35 (2/3	3-20,1/3-60)	Rate(Nrs)	200,000			
	Cost	41,177,430		Cost	48,400,000			
				Total	89,577,430			
			Section	II Total	187,562 (1,000NRs)			

## APPENDIX - G

## RESULT OF ECONOMIC EVALUATION

### Alternative 1 - Total Evaluation -

7777 7 177	F 6	CON COC	OM COC	TOW COC	DE VAC	DE MILAR	ma pan	NEW DES
YEAR	E.S.		0.0		BE VOC			NET BEN
1993	142.0	0.0 575.0	0.0	142.0	0.0	0.0	0.0	
1994	36.0		0.0	611.0	0.0		0.0	
1995	36.0	575.0	0.0	611.0	0.0	0.0	0.0	-611.0
1996	36.0	575.0	0.0	611.0	0.0	0.0	0.0	-611.0
1997	36.0	575.0			0.0		0.0	-611.0
1998	36.0	575.0	0.0	611.0	0.0	0.0	0.0	
1999	34.0	582.0	115.0		163.8	9.4	173.2	-557.8
2000	0.0	0.0	26.0	26.0	177.5	10.1	187.6	161.6
2001	0.0	0.0	26.0	26.0	192.5	10.8	203.3	
2002	0.0	0.0	26.0	26.0	208.6	11.4	220.0	194.0
2003	0.0	0.0	26.0	26.0	226.2	12.2	238.4	
2004	0.0	0.0	26.0	26.0		13.1	258.2	
2005	204.0	0.0	26.0	230.0	265.7	13.9	279.6	
2006	78.0	1245.0	26.0	1349.0	288.0	14.8		-1046.2
2007	78.0	1245.0	26.0	1349.0	312.2	15.8		-1021.0
2008	76.0	1244.0	15.0	1335.0	338.5	16.9		-979.6
2009	76.0	1244.0	10.0	1330.0	366.9	18.0	384.9	
2010	0.0	0.0	7.0	7.0	901.1	101.1	1002.2	995.2
2011	0.0	0.0		7.0	976.8	107.9	1084.7	
2012	0.0	0.0	7.0	7.0	1058.4	115.1	1173.5	1166.5
2013	0.0	0.0	7.0	7.0	1147.8	122.8	1270.6	1263.6
2014	0.0	0.0	7.0	7.0	1244.2	131.0	1375.2	
2015	0.0	0.0		7.0	1348.7	139.8	1488.5	1481.5
2016	0.0	0.0	221.0	221.0	1462.0	149.2	1611.2	1390.2
2017	0.0	0,0	7.0	7.0	1584.8	159.2	1744.0	1737.0
2018	0.0	0.0	7.0	7.0	1717.9	169.9	1887.8	1880.8
2019	0.0	0.0	7.0	7.0	1862.2	181.2	2043.4	2036.4
2020	0.0	0.0	7.0	7.0	2018.7	193.4	2212.1	2205.1
2021	0.0	0.0	7.0	7.0	2188.2	206.3	2394.5	2387.5
2022	: 0.0	0.0	7.0	7.0	2372.1	220.2	2592.3	2585.3
2023	0.0	0.0	7.0	7.0	2571.3	234.9	2806.2	2799.2
							IRR	0.08079

#### Alternative 1 - Partial Evaluation -

		_				•		
YEAR	E.S.	CON COS	OM COS	TOT COS	BE VOC	BE TIME	TO BEN	NET BEN
1993	142.0	0.0	0.0	142.0	0.0	0.0	0.0	-142.0
1994	36.0	577.0	0.0	613.0	0.0	0.0	0.0	-613.0
1995	36.0	577.0	0.0	613.0	0.0	0.0	0.0	-613.0
1996	36.0	576.0	0.0	612.0	0.0	0.0	0.0	-612.0
1997	36.0	576.0	0.0	612.0	0.0	0.0	0.0	-612.0
1998	36.0	576.0	0.0	612.0	0.0	0.0	0.0	-612.0
1999	34.0	576.0	115.0	725.0	163.8	9.4	173.2	-551.8
2000	0.0	0.0	26.0	26.0	177.5	10.1	187.6	161.6
2001	0.0	0.0	26.0	26.0	192.5	10.8	203.3	177.3
2002	0.0	0.0	26.0	26.0	208.6	11.4	220.0	194.0
2003	0.0	0.0	178.0	178.0	226.2	12.2	238.4	60.4
2004	0.0	0.0	26.0	26.0	245.1	13.1	258.2	232.2
2005	0.0	0.0	26.0	26.0	265.7	13.9	279.6	253.6
2006	0.0	0.0	26.0	26.0	288.0	14.8	302.8	276.8
2007	0.0	0.0	26.0	26.0	312.2	15.8	328.0	302.0
2008	0.0	0.0	178.0	178.0	338.5	16.9	355.4	177.4
2009	0.0	0.0	26.0	26.0	366.9	18.0	384.9	358.9
2010	0.0	0.0	26.0	26.0	396.8	19.2	416.0	390.0
2011	0.0	0.0	26.0	26.0	396.8	19.2	416.0	390.0
2012	0.0	0.0	26.0	26.0	396.8	19.2	416.0	390.0
2013	0.0	0.0	178.0	178.0	396.8	19.2	416.0	238.0
2014	0.0	0.0	26.0	26.0	396.8	19.2	416.0	390.0
2015	0.0	0.0	26,0	26.0	396.8	19.2		390.0
2016	0.0	0.0	26.0	26.0	396.8	19.2	416.0	390.0
2017	0.0	0.0	26.0	26.0	396.8	19.2	416.0	390.0
2018	0.0	0.0	178.0	178.0	396.8	19.2	416.0	238.0
2019	0.0	0.0	26.0	26.0	396.8	19.2	416.0	390.0
2020	0.0	0.0	26.0	26.0	396.8	19.2	416.0	390.0
2021	0.0	0.0	26.0	26.0	396.8	19.2	416.0	390.0
2022	0.0	0.0	26.0	26.0	396.8	19.2	416.0	390.0
2023	0.0	0.0	178.0	178.0	396.8	19.2	416.0	238.0
			•				IRR	0.04187

#### Alternative 2 - Total Evaluation -

YEAR	E.S.	CON COS	OM COS	TOT COS	BE VOC	BE TIME	TOT BEN	NET BEN
1993	151.0	0.0	0.0	151.0	0.0	0.0	0.0	-151.0
1994	38.0	614.0	0.0		.0.0		0.0	· ·
1995	38.0		0.0		0.0			-652.0
1996	38.0	614.0	0.0		0.0			-652.0
1997		613.0	0.0		0.0			-651.0
1998	38.0		0.0		0.0			
1999		613.0	115.0	766.0				
2000		0.0	26.0	26.0				
2001		0.0	26.0		200.1	17.5	217.6	
2002	0.0	0.0	26.0		216.9		235.5	
2003		0.0	26.0			and the second s	255.1	
	0.0	0.0	26.0	26.0				250.2
2005				220.0				
2006						24.2		-962.4
2007						and the second s		
2008		1186.0	15.0	1273.0			379.2	
2009	· ·	1186.0		1268.0		29.4		
2010		0.0	7.0	7.0	901.1			995.2
2011		0.0	7.0	7.0	976.8			
2012		0.0	7.0		1058.4			1166.5
2013		0.0	7.0		1147.8			1263.6
	0.0	0.0	7.0		1244.2	131.0		1368.2
2015		0.0	7.0		1348.7			1481.5
2016		0.0	221.0		1462.0			
2017		0.0	7.0	7.0	1584.8			1737.0
2018		0.0	7.0		1717.9			1880.8
2019		0.0	7.0		1862.2	181.2	2043.4	2036.4
2020		0.0	7.0		2018.7	193.4		2205.1
2021		0.0	7.0		2188.2			
2022		0.0	7.0		2372.1			
2023	0.0	0.0	7.0	7.0	2571.3	234.9		
							IRR	0.08241

#### Alternative 2 - Partial Evaluation -

YEAR	FS	CON COS	om cos	TOT COS	BE VOC	BE TIME	TOT BEN	NET BEN
1993	151.0		0.0	151.0	0.0			-151.0
1994	38.0	614.0	0.0	652.0	0.0	0.0		
1995	38.0	614.0	0.0	652.0	0.0	0.0		-652.0
1996	38.0	614.0	0.0	652.0	0.0	0.0		-652.0
1997	38.0	613.0	0.0	651.0	0.0	0.0		-651.0
1998	38.0	613.0	0.0	651.0		0.0		-651.0
1999	38.0	613.0	115.0	766.0			185.7	
2000	0.0		26.0	26.0	184.5	16.4		174.9
2001	0.0	0.0	26.0	26.0	200.1	17.5	217.6	191.6
2002	0.0	0.0	26.0	26.0	216.9	18.6	235.6	209.6
2003	0.0	0.0	178.0	178.0	235.1	20.0	255.1	77.1
2004	0.0	0.0	26.0	26.0	254.9	21.3	276.2	250.2
2005	0.0	0.0	26.0	26.0	276.2	22.7	298.9	272.9
2006	0.0	0.0	26.0	26.0	299.4	24.2		297.6
2007	0.0	0.0	26.0	26.0	323.8	25.8		· ·
2008	0.0	0.0	178.0	178.0	351.6	27.6		
2009	0.0		26.0	26.0	381.4	29.4		384.8
2010	0.0	0.0	26.0	26.0	413.3	31.3		418.6
2011	0.0		26.0	26.0	413.3	31.3		
2012	0.0	0.0	26.0	26.0	413.3	31.3		
2013	0.0		178.0	178.0	413.3	31.3		266.6
2014	0.0	0.0	26.0	26.0	413.3	31.3		418.6
2015	0.0		26.0	26.0	413.3	31.3		418.6
2016			26.0	26.0		31.3		418.6
2017	0.0		26.0	26.0	413.3	31.3		418.6
2018	0.0		178.0	178.0	413.3	31.3		266.6
2019	0.0		26.0	26.0	413.3	31.3		418.6
2020	0.0		26.0	26.0	413.3	31.3		418.6
2021	0.0		26.0	26.0	413.3	31.3		and the second s
2022	0.0		26.0	26.0		31.3		
2023	0.0	0.0	178.0	178.0	413.3	31.3		
							IRR	0.04316

#### Alternative 3 – Total Evaluation –

YEAR	E.S.	CON COS	om cos	TOT COS	BE VOC	BE TIME	TOT BEN	NET BEN
1993	167.0	0.0	0.0	167.0	0.0	0,. 0	0.0	-167.0
1994	42.0	677.0	0.0	719.0	0.0	б.о	0.0	-719.0
1995	42.0	677.0	0.0	719.0	0.0	0.0	0.0	-719:0
1996	42.0	677 0	0.0	719.0	0.0	0.0	0.0	-719.0
1997	42.0	676.0	0.0	718.0	0.0	0.0	0.0	-718.0
1998	42.0	676.0	0.0	718.0	0.0	0.0	0.0	-718.0
1999	41.0	676.0	115.0	832.0	233.0	25.9	258.9	-573.1
2000	0.0	0.0	20.0	20.0	252.6	27.6	280.2	260.2
2001	0.0	0.0	20.0	20.0	273.8	29.5	303.3	283.3
2002	0.0	0.0	20.0	20.0	296.7	31.5	328.2	308.2
2003	0.0	0.0	20.0	20.0	321.7	33.6	355.3	335.3
2004	0.0	0.0	20.0	20.0	348.8	35.8	384.6	364.6
2005	184.0	0.0	20.0	204.0	378.0	38.2	416.2	212.2
2006	70.0	1125.0	20.0	1215.0	409.7	40.8	450.5	-764.5
2007	69.0	1124 0	20.0	1213.0	441.2	43.6	484.8	-728.2
2008	69.0	1124.0	15.0	1208.0	481.5	46.5	528.0	-680.0
2009	69.0	1124.0	10.0	1203.0	522.0	49.5	571.5	-631.5
2010	0.0	0.0	7.0	7.0	901.1	101.1	1002.2	995.2
2011	0,0	0.0	7.0	7.0	976.8	107.9	1084.7	1077.7
2012	0.0	0.0	7.0	7.0	1058.4	115.1	1173.5	1166.5
2013	0.0	0.0	7.0	7.0	1147.8	122.8	1270.6	1263.6
2014	0.0	0.0	7.0	7.0	1244.2	131.0	1375.2	1368.2
2015	0.0	0.0	7.0	7.0	1348.7	139.8	1488.5	1481.5
2016	0.0	0.0	221.0	221.0	1462.0	149.2	1611.2	1390.2
2017	0,.0	0.0	7.0	7.0	1584.8	159.2	1744.0	1737.0
2018	0.0	0.0	7.0	7.0	1717.9	169.9	1887.8	1880.8
2019	0.0	0.0	7.0	7.0	1862.2	181.2	2043.4	2036.4
2020	0.0	0.0	7.0	7.0	2018.7	193.4	2212.1	2205.1
2021	0.0	0.0	7.0	7.0	2188.2	206.3	2394.5	2387.5
2022	0.0	0.0	7.0	7.0	2372.1	220.2	2592.3	2585.3
2023	0.0	0.0	7.0	7.0	2571.3	234.9	2806.2	2799.2
•			•				IRR	0.08506

#### Alternative 3 - Partial Evaluation -

****	Y71 64	CON COC	OM COC	መለመ ድለድ	DR VOC	1317 DITAGE	MOM DEM	ariam taran
YEAR	E.S.	CON COS	0.0	TOT COS 167.0	0.0	0.0	TOT BEN	
1993	167.0	0.0					0.0	-167.0
1994	42.0	677.0	0.0	719.0	0.0	0.0	0.0	-719.0
1995	42.0	677.0	0.0	719.0	0.0	0.0	0.0	-719.0
1996	42.0	677.0	0.0	719.0	0.0	0.0	0.0	-719.0
1997	42.0	676.0		718.0	0.0	0.0	0.0	-718.0
1998	42.0	676.0	0.0	718.0	0.0	0.0	0.0	-718.0
1999	41.0	676.0	115.0	832.0	233.0	25.9	258.9	-573.1
2000	0.0	0.0	20.0	20.0	252.6	27.6	280.2	260.2
2001	0.0	0.0	20.0	20.0	273.8	29.5	303.3	283.3
2002	0.0	0.0	20.0	20.0	296.7	31.5	328.2	308.2
2003	0.0	0.0	20.0	20,.0	321.7	33.6	355.3	335.3
2004	0.0	0.0	20.0	20.0	348.8	35.8	384.6	364.6
2005	0.0	0.0	20.0	20.0	378.0	38.2	416.2	396.2
2006	0.0	0.0	195.0	195.0	409.7	40.8	450.5	255.5
2007	0.0	0.0	20.0	20.0	441.2	43.6	484.8	464.8
2008	0.0	0.0	20.0	20.0	481.5	46.5	528.0	508.0
2009	0.0	0.0	20.0	20.0	522.0	49.5	571.5	551.5
2010	0.0	0.0		20.0	565.8	52.9	618.7	598.7
2011	0.0		20.0	20.0	565.8	52.9	618.7	598.7
2012	0.0	0.0	20.0	20.0	565.8	52.9		598.7
2013	0.0	0.0	20.0	20.0	565.8	52.9	618.7	598.7
2014	0.0	0.0	195.0	195.0	565.8	52.9	618.7	423.7
2015	0.0	0.0	20.0	20.0	565.8	52.9	618.7	598.7
2016	0.0	0.0	20.0	20.0	565.8	52.9	618.7	598.7
2017	0.0	0.0	20.0	20.0	565.8	52.9	618.7	598.7
2018	0.0	0.0	20.0	20.0	565.8	52.9	618.7	598.7
2019	0.0	0.0	20.0	20.0	565.8	52.9	618.7	598.7
2020	0.0	0.0	20.0	20.0	565.8	52.9	618.7	598.7
2021	0.0	0.0	20.0	20.0	565.8	52.9	618.7	598.7
2022	0.0	0.0	195.0	195.0	565.8	52.9	618.7	423.7
2023	0.0	0.0	20.0	20.0	565.8	52.9	618.7	598.7
							IRR	0.06739

#### Alternative 4 – Total Evaluation –

YEAR	E.S.	CON COS	OM COS	ጥበሞ ሮብፍ	BE VOC	BE TIME	יוֹגים פון ייירייי	MET BEN
1993	and the second s	0.0	0.0	176.0	0.0	0.0	0.0	-176.0
1994	44.0	714.0	0.0	758.0	0.0	0.0	0.0	
1995	44.0	714.0	0.0	758.0	0.0	0.0	0.0	-758.0
1996		714.0	0.0	758.0	0.0	0.0	0.0	-758.0
1997	44.0	714.0	0.0	758.0	0.0	0.0	0.0	-758.0
1998	44.0	713.0	0.0	757.0	0.0	0.0	0.0	-757.0
1999	45.0	713.0	115.0		251.7		281.9	-591.1
2000	0.0	0.0	20.0	20.0	272.8	32.3	305.1	285.1
2001	0.0	0.0	20.0	20.0	295.8	34.5	330.3	310.3
2002	0.0	0.0	20.0	20.0	320.6		357.4	
2003	0.0	0.0	20.0	20.0	347.5	39.2	386.7	
2004	0.0	0.0	20.0	20.0	376.7		418.6	398.6
2005	179.0	0.0	20.0	199.0	408.4	44.6	453.0	254.0
2006	67.0	1080.0	20.0	1167.0	443.4	47.6	491.0	-676.0
2007	67.0	1080.0	20.0	1167.0	479.9	50.8	530.7	-636.3
2008	66.0	1080.0	15.0	1161.0	520.2	54.2	574.4	-586.6
2009	66.0	1079.0	10.0	1155.0	563.9	57.8	621.7	-533.3
2010	0.0	0.0	7.0	7.0	901.1	101.1	1002.2	995.2
2011	0.0	0.0	7.0	7.0	976.8	107.9	1084.7	1077.7
2012	0.0	0.0	7.0	7.0	1058.4	115.1	1173.5	1166.5
2013	0.0	0.0	7.0	7.0	1147.8	122.8	1270.6	1263.6
2014	0.0	0.0	7.0	7.0	1244.2	131.0	1375.2	1368.2
2015	0.0	0.0	7.0	7.0	1348.7	139.8	1488.5	1481.5
2016	0.0	0.0	221.0	221.0	1462.0		1611.2	1390.2
	0.0	0.0	7.0	7.0	1584.8	159.2	1744.0	1737.0
2018	0.0	0.0	7.0	7.0	1717.9	169.9	1887.8	1880.8
2019	0.0		7.0	7.0	1862.2	181.2	2043.4	2036.4
2020	0.0	0.0	7.0	7.0	2018.7	193.4	2212.1	2205.1
2021	0.0	0.0	7.0	7.0	2188.2	206.3	2394.5	2387.5
2022	0.0	0.0	7.0	7.0	2372.1	220.2	2592.3	2585.3
2023	0.0	0.0	7.0	7.0	2571.3	234.9	2806.2	2799.2
*							IRR	0.08779

#### Alternative 4 - Partial Evaluation -

YEAR	E.S.	CON. COS	OM COS	TOT COS	BE VOC	BE TIME	TOT BEN	NET BEN
1993	176.0	0.0	0.0	176.0	0.0	0.0		-176.0
1994	44.0	714.0	0.0	758.0	0.0	0.0	0.0	-758.0
1995	44.0	714.0	0.0	758.0	0.0	0.0		-758.0
1996	44.0	714.0	0.0	758.0	0.0	0.0	0.0	-758.0
1997	44.0	714.0	0.0	758.0	0.0	0.0	0.0	-758.0
1998	44.0	713.0	0.0	757.0	0.0	0.0	0.0	-757.0
1999	45.0	713.0	115.0	873.0	251.7	30.2	281.9	-591.1
2000	0.0	0.0	20.0	20.0	272.8	32.3	305.1	285.1
2001	0.0	0.0	20.0	20.0	295.8	34.5	330.3	310.3
2002	0.0	0.0	20.0	20.0	320.6	36.8	357.4	337.4
2003	0.0	0.0	20.0	20.0	347.5	39.2	386.7	
2004	0.0	0.0	20.0	20.0	376.7	41.9	418.6	398.6
2005	0.0	0.0	20.0	20.0	408.4	44.6	453.0	433.0
2006	0.0	0.0	195.0	195.0	443.4	47.6	491.0	296.0
2007	0.0	0.0	20.0	20.0	479.9	50.8	530.7	510.7
2008	0.0	0.0	20.0	20.0	520.2	54.2	574.4	554.4
2009	0.0	0.0	20.0	20.0	563.9	57.8	621.7	601.7
2010	0.0	0.0	20.0	20.0	611.2	61.7	672.9	652.9
2011	0.0		20.0	20.0	611.2	61.7	672.9	652.9
2012	0.0	0.0	20.0	20.0	611.2	61.7	672.9	652.9
2013	0.0	0.0	20.0	20.0	611.2	61.7	672.9	652.9
2014	0.0	0.0	195.0	195.0	611.2	61.7	672.9	477.9
2015	0.0	0.0	20.0	20.0	611.2	61.7	672.9	652.9
2016	0.0	0.0	20.0	20.0	611.2	61.7		652.9
2017	0.0	0.0	20.0		611.2	61.7	672.9	652.9
2018	0.0	0.0	20.0	20.0	611.2	61.7		652.9
2019	0.0	0.0	20.0	20.0	611.2	61.7	672.9	652.9
2020	0.0	0.0	20.0		611.2	61.7		652.9
2021	0.0	0.0	20.0	20.0	611.2	61.7	672.9	652.9
2022	0.0	0.0	195.0	195.0	611.2	61.7	672.9	477.9
2023	0.0	0.0	20.0	20.0	611.2	61.7	672.9	652.9
							IRR	0.07053

#### Alternative 5 - Total Evaluation -

YEAR	E.S.	con cos	OM COS	TOT COS	BE VOC	BE TIME	TOT BEN	NET BEN
1993	302.0	0.0	0.0	302.0	0.0	0.0	0.0	-302.0
1994	76.0	919.0	0.0	995.0	0.0	0.0	0.0	-995.0
1995	76.0	919.0	0.0	995.0	0.0	0.0	0.0	-995.0
1996	76.0	918.0	0.0	994.0	0.0	0.0	0.0	-994.0
1997	76.0	918.0	0.0	994.0	0.0	0.0	0.0	
1998	76.0	918.0	0.0	994.0	0.0	0.0	0.0	-994.0
1999	75.0	918.0	7.0	1000.0		0.0	0.0	-1000.0
2000	0.0	918.0	7.0	925.0	0.0	0.0	0.0	-925.0
2001	0.0	918.0	7.0	925.0	0.0	0.0	0.0	-925.0
2002	0.0	0.0	7.0	7.0	473.6	59.9	533.5	526.5
2003	0.0	0.0	7.0	7.0	513.3	63.9	577.2	570.2
2004	0.0	0.0	7.0	7.0	556.5	68.2	624.7	617.7
2005	0.0	0.0	7.0	7.0	603.2	72.8	676.0	669.0
2006	0.0	0.0	221.0	221.0	653.9	77.6	731.5	510.5
2007	0.0	0.0	7.0	7.0	708.8	82.8	791.6	784.6
2008	0.0	0.0	7.0	7.0	768.4	88.4	856.8	849.8
2009	0.0	0.0	7.0	7.0	832.9	94.3	927.2	920.2
2010	0.0	0.0	7.0	7.0	901.1	101.1	1002.2	995.2
2011	0.0	0.0	7.0	7.0	976.8	107.9	1084.7	1077.7
2012	0.0	0.0	7.0	7.0	1058.4	115.1	1173.5	1166.5
2013	0.0	0.0	7.0	7.0	1147.8	122.8		1263.6
2014	0.0	0.0	221.0	221.0	1244.2	131.0	1375.2	1154.2
2015	0.0	0.0	7.0	7.0	1348.7	139.8	1488.5	1481.5
2016	0.0	0.0	7.0	7.0	1462.0	149.2	1611.2	1604.2
2017	0.0	0.0	7.0	7.0	1584.8	159.2	1744.0	1737.0
2018	0.0	0.0	7.0	7.0	1717.9	169.9	1887.8	1880.8
2019	0.0	0.0	7.0	7.0	1862.2	181.2	2043.4	2036.4
2020	0.0	0.0	7.0	7.0	2018.7	193.4	2212.1	2205.1
2021	0.0	0.0	7.0	7.0	2188.2	206.3	2394.5	2387.5
2022	0.0	0.0	221.0	221.0	2372.1	220.2	2592.3	2371.3
2023	0.0	0.0	7.0	7.0	2571.3	234.9	2806.2	2799.2
2024	0.0	0.0	7.0	7.0	2787.3	250.6	3037.9	3030.9
2025	0.0	0.0	7.0	7.0	3021.4	267.4	3288.8	3281.8
							IRR	0.08452

# SUPPORTING DATA OF IMPLEMENTATION PROGRAM

Table H-1 Cost Breakdown of Equipment and Materials Supply

Equipments and Materials Supply Cost Case A,B (Section I)

Material supply		Quantity	Unit rate(NRs)	Amount(1000NRs)
Cement	ton	1,530	4,400	6,732
Reinforcement bar	ton	220	32,332	7,113
GI wire	ton	88	37,000	3,256
			Total	17,101
Equipment supply		Quantity	Unit rate(1000Yen)	Amount(1000NRs)
Backhoe 0.6m3	no.	1	14,600	6,403
Dump truck 11ton	no.	2	8,600	7,543
Truck 8ton	no.	1	4,700	2,061
Truck crane 20ton	no.	1	23,300	10,219
Diesel generator 10kva	no.	1	900	395
Breaker 1,300kg with base equipment	ņo.	1	6,000	2,631
Concrete mixer	no.	1	3,000	1,316
			Total	30,568
T	otal equi	pment and materials	supply cost	47,669

Equipments and Materials Supply Cost Case C (Section II-3)

Material supply		Quantity	Unit rate(NRs)	Amount(1000NRs)
Cement	ton	3,000	4,400	13,200
Asplialt emulsion	ton	740	14,150	10,471
Reinforcement bar	ton	420	32,332	13,579
GI wire	ton	2,000	37,000	74,000
Corrgated pipe dia.600	ធា	1,400	4,164	5,830
Corrgated pipe dia.1000	m	700	7,907	5,535
	 		Total	122,615
Equipment supply (Transportation cost 10% of	FOB)	Quantity	Unit rate(1000Yen)	Amount(1000NRs)
Bulldozer 15ton	no.	1	154,000	67,540
Bulldozer 21ton	no.	1	24,700	10,833
Backhoe 0.6m3	no.	6	14,600	38,419
Tractor shovel 1.4m3	no.	1	10,700	4,693
Dump truck 11ton	no.	. 11	8,670	41,826
Truck 8ton	no.	16	4,770	33,472
Truck crane 20ton	no.	1	8,600	3,772
Motor grader 3.1m	no.	1	10,700	4,693
Macadam roller 10ton	no.	1	6,960	3,052
Tire roller 8-20ton	· no.	1	7,800	3,421
Vibrating roller 1ton	no.	2	1,460	1,281
Asphalt sprayer 200litre	no.	1	163	71
Air compressor 10m3/min	no.	1	1,610	706
Diesel generator 10kva	no.	1	928	407
Diesel generator 45kva	no.	1	2290	1,004
Breaker 1,300kg with base equipment	no.	1	6090	2,671
		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Total	217,860
Т	otal equi	pment and materials	supply cost	340,475

Table H-2 Maintenance Office and Maintenance Equipment/Materials Supply

					-										1		
			Main M	Sec. 1	4.0	1000		4	Sec. 2		14 065:00	į	13 OFF.	1	-	IOIAL	
	Type	Unit Cost	Mann IV.	Main Maintenance of Bardibus	1100 200-1	Sindhuli Bazar		no-man	эпо-гланитенансе описе Вапера	igspace	Nepalthok	Ē	Khulkot	SEC.		SEC. 2	Total
	, ,	NRs. million	No.	Amount	Š		Amount	No.	Amount	No.	Amount	No	Amount	П			
Construction cost															-		
Office	Type A	10			0	1	10	1	1(		0			0	0	20	20
	Type B	5			0		0		)	)[	S			5	0	10	10
Residence	Type A	3			0	2	9	2		9	0			0	0	12	12
	Type B	2			0	60	9	33					61	4	0	20	20
	Type C	1			0	:	5	S	-3,		3 3		33	3	0	91	16
Total (A)							27		2.		12			12	0	78	78
Ń.										:							
ader	1.4 m3	9			9	1	9		*	7	9			9	9	24	30
w	0.6 m3	6	1		6	1	6	7	5		0			0	6	18	27
	2.5 m	9	14		9	7	9	1.1	*	3	9	,		9	9	-24	30
Dump Truck	8 ton	3	3		6	3	6	3	3	7	3			3	6	24	33
k	20009	2	3		9	3	9	3	7	3 1	2	]		7	9	16	22
Compactor	5-6 ton	2	1		2	1	2	Ţ	, 4	3	2			7	2	<b>«</b>	10
rusher	10 ton/hr	10	Ī		01	0	0	0	)	)	0			0	10	0	10
ixer	0.5 m3	2	1		2	1	2	1	. 4	2	0			0	2	4	9
Truckcrane	4ton	3	1		3	1	3	Ţ		3 1	3	]		3	3	12	15
	60KVA	1	2		2	2	2	2	7	2 1	1	1		1	2	9	8
		2	1		2	1	7		7	1	. 2	1		2	2	8	10
Spare parts (25% of equip.)	(uip.)	1			1		1	1	Ţ	[	1	1		1	1	4	5
Total (B)					58		48		48		26			26	58	148	206
					-												
vire	L.S	2	1		2		2		2	27	2			2	7	8	10
	Ľ.S	1	1		1	1	1	-	[		1			I	1	4	5
	L.S	2	F.4		2	-1	2	-	7	[2]	2			2	2	8	10
Total (C)					5		5		5		.5			5	5	50	25
Total of Materials/Equipment (B)+(	ipment (E	(C)+(C)			63		53		55		31			31	63	168	231
Grand Total (A)+(B+)+(C)	9				63		80		38		43		. :	43	63	246	309
												:					
and Maintenanc	e Cost													_			
Office	Type A	2			0	1	7	1	. 7	2	0			0	0	4	4
	Type B	1			0		0		)					1	0	2	2
Residence	Type A	1			0	2	2	2						2	0	80	80
	Type B	1			0	3	m	33	3	3	3	3		3	0	12	12
	Type C	T			0	5	5	5	4)					5	0	2	20
Total					<u>이</u>		121	-	12	- T	11			-11-1	ō	46	46

Table H-3 Summary of Construction Cost on Force Account Basis

Case- A,B

			Partial Force	Full Turn-key
	Description		Account Basis	Basis
			(1000NRs.)	(1000NRs.)
Section I	- Bridge	Turn-key Basis	308,730	308,730
	- Causeway & Earthwork	Force Account Basis	23,784	62,100
Section II-1		Turn-key Basis	1,164,316	1,164,316
Section II-2		Turn-key Basis	736,771	736,771
Section II-3		Turn-key Basis	1,290,142	1,290,142
Total construct	ion Cost		3,523,743	3,562,059
Equipment & n	naterial supply for Section I		47,700	
Total			3,571,443	3,562,059

Case- C

	Description		Partial Force Account Basis (1000NRs.)	Full Turn-key  Basis  (1000NRs.)
Section I	- Bridge	Turn-key Basis	308,730	308,730
	- Causeway & Earthwork	Force Account Basis	23,784	62,100
Section II-1		Turn-key Basis	1,164,316	1,164,316
Section II-2	e e	Turn-key Basis	736,771	736,771
Section II-3	- Bridge	Turn-key Basis	169,027	169,027
	- Causeway & Earthwork	Force Account Basis	572,727	1,121,115
Total construction	on Cost		2,975,355	3,562,059
Equipment & ma	aterial supply for Section I		47,700	
Equipment & ma	aterial supply for Section II-3	·	340,500	
Total			3,363,555	3,562,059

Table H-4 Construction Cost of Sec. 1 on Force Account Basis

																						CSSO	USS 1.6 a NRs,45.38 a Yea 115.08	5.38 a Yes	15.0%
1-			Section !				%	Section B-1				Sec	Section II-2				Seci	Section II-3				•	Total		
Вестрейн	Toreign	(nya)	Duya	Total	Philips.	Foreign	Listal	Day &	Tuent 1	lispite, 1	fereign	(Juck)	l arking	Tetal 1	Squiv.	Forcigo	Lucut D	Day & T	Timed 15	Esquiv. 16	l'inecipa L	C Jest	Daty &	Testad	days.
	construction	cumency	ž.		Yea	continue	к.нашен.к	Tas		7. E	о башин	сипенсу	Tax		Yen E	синция си	синенсу	Xe.J.		Yen	connectes cur	consency	Tan		, jo
	(L,DWINRA)	(LIGHANKA) (LIGHANKA) (LIGHANKA) (LIGHANKA) (LIGHAYAN)	(1,0000NXs)	(LOGNYK)	(1,000Yen)	(LICHINAS) (LICHNINAS) (LICHENES)	) (MANAMA) ()	(HRECHA)	(LORONNA) (L	(Lakeryon) (J	(LIPRINGA) (L.	(J. (Alvien)	(1,000/NRs) (1,0	(Litoricida) (Li	(1,9)(0)(en) (1,	(1,000NRs) (1,0	OUNES (1)	(LONDYN) (LONDYN) (LUNDYN) (LANYYON)	HUNNA) (1,4		(1,090NK4) f1,0	(1,000NRs) (1,5	(L)COONHA) (L)COONHA)		(1,0001Yes)
1 (1)						ş		4			1	VOICE &	:	9			:	(							
	<u></u>		•	=		X.	7.7	=	(Ku)*57	26.	,, (A)	(NI),	<b>3</b>	G H.C		8	061,21	=	4,300	76.00	17,981	037,030	0	74,000 1	6 6
KARTII WORKS	3,689	906	06	4,655	13,084	395,747	\$1,916	5,087	150,750	CW,ICI,I	144,144	24,596	2,7%6	185,752	570,726	284,190	36,985	3,778	324,953	515,632	881,595	114,403	11,741 1,	. 465,730,1	2,529,425
PAVIMANT WORKS	256 257	149	ž	1,078	2,008	72,163	7,622	51. 51.	<b>8</b> 1,102	203, 566	55,29R	689'9	61/6	62,136	155,961	32,902	8,902	80	93,134	233,766	211,269	22,562	3,616	237,447	595,942
DRAINAGB; WORKS	SYK.	723	7.2	1,610	150,	136,522	32,178	1,565	176,265	142,425	(61,974	25,484	5,943	133,401	334,837	151,446	777,00	10,0M9	201,272	\$05,193	390,882	98,162	23,584	512,548	1,236,695
SLANT PROTECTION WORKS		a	a ·	•	ā	168,753	79,893	14,586	263,232	(440,712	118,211	46,196	12,960	177, 467	445,442	193,209	73,210	21,450	287,869	122,551	480,273	199,299	48,996	722 568	322,706
ROAD FURNITURIS		<b>\$</b>		ò	•	6,478	7,952	φΩ¥	9,838	24,693	5,670	97546	328	8,568	21,506	8,081	2,662	570	12,263	30,780	920,229	9,154	1,236	699'00	916,97
RIVER CROSSING STRUCTURES	11,242	100,5	298	16,464	41,274	13,275	2,051	925	16,25	06, Oh	42,714	6,867	611.6	\$2,700	132,277	62,203	K,533.	31716	74,162	186,147	129,494	22,405	X,05X	725,921	4(K), 4KX
MAJOR BRIDGE	281,667	2,163	712	234,542	714,200		3	•	a		<b>2</b>	5	<b>3</b>	D	<del>-</del>		Š	236	122,138	308,566	102,831	2,851	. SP6	406,680	1,020,767
MINNER DRIDGE	22,755	324	<u>6</u>	24,188	214,712	50,300	1,007	372	\$1,739	29,865		9	2	9		43,574	2,642	. 639	46,889	117,691	117,689	4,013	1,114	122,816	308,268
Sinchalaneous	c	٥	0	c	0	80,436	701/6	\$146	90,839	228,006	61,039	7,418	3	817.69	174,492	167.16	10,568	51.5	103,162	258,937	233,606	27,393	2,720	417,502	\$56,193
(maintenance of access read																				**********					
TOFAL. Cuntration	v 305,422	2,487	X2.	308,730	774,912	933,932	199,176	31,20% I	1,164,316 2	2,922,433	588,305	121,090	26,776	736,771 1,849,295	349,295	1,050,510	196,807	42,825 1,7	1,290,142 3,238,256		2,878,169	520,160	656,664,8 060,101		8,784,897
IXX	16,669	6,682	CEV	23,784	59,69X	0	0	С	0	0	0	0	0	0	-8-	0	c	0	0	0	16,669	6,682	133	73,734	59,098

<sup>:</sup> Part of DOIR force account hasis worlk

Notes: The force account basis uses is caculated with following conditions.

To be apprised all equipments.

#2. To be applied ensumerian materials such as cement, asphalt emulsion, gahmat wire, corrugaled pipe, reinfurcement,

#3 Indirect cost is 10% of direct cost.

Table H-5 Construction cost of Sec. 2-3 on Force Account Basis

																Ì					-		CO.	US\$ 1.0 = NRs.45.88 = Yen 115.08	15,88 = Yen	115.08
			Section	2				Serti	Section II-1			-	Sect	Section II-2				Necia	Section II-3					Total		
Peculpion	udiano,i	red	Doty &	K Total	Spriv.	<u> </u>	Foreign La	Lonal Dad	Daty & Total		Squire. For	Euriga L	ot leset	Dony & Yo	Yotal 15	Islaine, 15	Faredyn t	twent Du	Ducy & T	Total !	Expute.	Veneign	? hear;	Dairy &	Tissuel	Equiv.
	Chimens	currency	Tax		, 3	Уев сывт	синаний сна	у учет т	Tax	-	Yeu	пинитеу съ	cuetrency 1	4		Yea .	нэ Дэндинг	cummey 1	Ta.		Yen	connecty of	currency	Thx		\$
	(1,000,NKs)	(Likkiy) Ks	(1,000)N	(LIGHTNES) (LIGHTNES) (LIGHTNES) (LIGHTNES)	Rs) (1,488)		(LIXVINKA) (LIM	ONRA) (1,00	(LINNNRA) (LUNNINRA) (LUNNINRA)		(1,0x8Yrs) (1,98	OLDHRINGS) (1,09	HTOMONIA) (1,4H	(1,0400VRs) (1,589	(1,980NRs) (1,0	(1,0001Yes) (1,0	(1,009UNRs) (1,000NRs)		(LIMONRS) (LIMONRS)		(1,000Ym) (1,	(1,000NKs) (1,	(1,0000NRs) (1,	(3,000,N3,) (1,000,N3,)	(000)N(4) (	(1,000Yen)
						-												-					ļ			
GENERAL.	e		c	ε.	¢	-	05.1.50	12,150	0	24,300	(10,00)	2,700	1,76,1	e	\$,408)	13,554	0,988)	9,960	ŧ	19,800	49,698	24,750	24,750	÷	49,500	124,245
EARTH WORKS	3,659	•	30%	906	4,655 11	11,684 39	393,747	51,916	5,087 45	4582750 1,13	1,131,383	666666	24,596	2,786 2	227,3Ki	\$70,726	143,132	33,520	3,427	140,079	451,998,	740,537	110,93%	11,390	X62,K65	2,165,791
PAVEMWET WORKS	80%		614	<u>*</u>	57,07.1	2,008	72,161	7,522	8 41£,1	201 K	205,70.6	\$5,298	2,889	6Pré	62,136	155,9%1	41,567	7,196	K35	K02,04-	124,491	169 934	20,856	3,121	1163541	486,717
DRAINAGE WORKS	NEG		52,	11 22	1,680	4,041	136,522	32,178	7,565 17	4 595'91.1	1 925,554	101,974	25,034	5,943	102,401	334,837	51,877	31,896	18.	85,584	214,816	291,233	182,0%	15,346	390,860	926,119
STOLE PROTECTION WORKS	a 		a	¢	c	- e	168,753	79,893	14,586 26	263,232 64	211.	118,311	46,196	12,960 L	177,467	445,442	60,362	59,927	1,539	121,828	305,788	347,426	186,016	29,085	562,527	1,411,943
AGAN PERNITURE	e		=	æ	=	<del></del>	470,0	2,952	X: 24	KE8'6	24,093	5,670	7,540	358	8,568	21.58 88.	3,433	2,963	102	6,498	16,310	15,581	8,455	, 86 86	24,904	62,500
RIVER CROSSING STRUCTURES	11,242	4,904		29% 16 <sub>v</sub>	16,4441	41,274	13,275	2,051	925	16,251	067,01	42,714	6,867	3,119	52,700	7,27,22,1	18,375	fr. 490	417	25,282	63,45×	85,606	20,312	4,759	110,677	277.798
MAKDR BRUKUI	281,667	2,163		712 284,542		714,200			c	o	-6	<b>c</b>	o	c	ū	<u>-</u>	121,214	88.8	236	122,138	30%,5%-6	402,£x1	1,851	448	0881905	1,620,767
MINNER HRIDGIE	23,735		726	100 24.	24.1KK CK	60,712	50,360	7(X),1	372 \$	\$1,739	129,865	\$	¢,	e	0	<del></del>	43,574	2,682	633	46,889	1697_11	117,089	4,013	7	122,816	308,26#
MISCHAANBOUS	C		a	D	0	^	×D,436	9,407	916	22 VEN, 122	228,030	61,639	7,418	199	×12'69	72,000,247	74,540	1 19'R	206	84,058	210,986	216,065	25,436	2,514	244,615	613,984
(tocastituanistic of access evaluations) R. Rentered of Gelvin.)																							:			
TUTAL, Contractor	rtur 3155,422	2 2.187		KDI WAK	44 007,800	774,912 47	1 200,000	199,176	M1 800'H	1,164,316 2,9.	2,922,4.13	588,305	121,690	26,776 7.	736,771 1,	2,449,295	164,788	3,370	KG9 1	150,027	124,25%	1 992 447	326,723	59,674	2,378,844	5,970,898
IXX	10,669	5,682		433 23,	23,784 \$	59,CF38	a	d .	O	0	0	o	0	0	0	o	403,1 HA	160,503	9,038 5	572,727	1,437,545	419,855	367,185	9,471	115,998	1,497,243

: I'an of DXIN force seconant basis work

Nerce; "The furce account basis cost is caculated with Inflowing conditions.

#1 To be supplied all equipments.

#2. To be applied emonacion amendals such as equata, appliak emitisma, gadion wire, compared pipe, minimement,

83 feelinger gost is 10% of direct cost.

