

MAJOR UNDERTAKINGS TO BE TAKEN BY EACH GOVERNMENT

NO	Items	To be covered by Grant Aid	To be covered by Recipient side
1	To secure land		●
2	To relocate public utilities such as power cable, telephone line and water pipe, prior to the construction of the Project		●
	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
3	1) Advising commission of A/P		●
	2) Payment commission		●
	To ensure prompt unloading and customs clearance at port of disembarkation in recipient country		
4	1) Marine(Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●
5	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
6	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		●
7	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
8	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities		●
9	To coordinate and solve any issues related to the Project which may be raised from third parties or inhabitants in the Project area		●

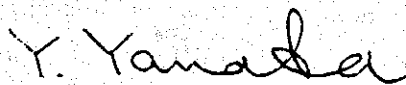
Minutes of Discussions
on
the Basic Design Study
on
the Project for Construction of Sindhuli Road
(Section II : Sindhuli Bazar - Khurkot)
in
the Kingdom of Nepal

In March 1999, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study team on the Project for Construction of Sindhuli Road (Section II : Sindhuli Bazar - Khurkot), to the Kingdom of Nepal, and through discussions and field survey in Nepal, and technical examination of the results in Japan, has prepared the Interim Report on the Study.


In order to explain and to consult His Majesty's Government of Nepal (hereinafter referred to as "HMG/N") on the components of the Interim Report and conduct the Second Field Survey, JICA sent to Nepal a study team (hereinafter referred to as "the Team"), which is headed by Mr. Yoshikazu Yamada, Director of Third Project Management Division, Grant Aid Management Department, JICA, and is scheduled to stay in Nepal from 28 June to 9 July.

As a result of discussions, both parties have confirmed the main items described on the attached sheets.

Kathmandu, July 7, 1999



Mr. Yoshikazu Yamada
Leader
Basic Design Study Team
Japan International Cooperation Agency
(JICA)



Mr. Niranjan P. Chalise
Director General
Department of Roads (DOR)
Ministry of Works and Transport
(MOWT)

ATTACHMENT

1. COMPONENTS OF THE INTERIM REPORT

The Nepalese side agreed and accepted in principle the components of the Interim Report proposed by the Team.

2. DESIGN POLICY

The Team explained the design policies described in the Discussion Paper. The Nepalese side accepted the contents of the Discussion Paper.

3. JAPAN'S GRANT AID SCHEME AND NECESSARY MEASURES TO BE TAKEN BY HMG/N

The Nepalese side understands the Japan's Grant Aid Scheme and necessary measures as explained by the Team and described in Annex-3 and 4 of the Minutes of Discussions signed by both parties on March 30, 1999.

4. FURTHER SCHEDULE OF THE STUDY

Based on the results of the Second Field Survey, JICA will prepare the Draft Basic Design Report and dispatch a team in October 1999 in order to consult with the Nepalese side on the outline of the Draft Basic Design.

5. OTHER RELEVANT ISSUES

5.1 Environmental Issues

The Nepalese side agreed and assured to finalize the necessary actions and measures for the environmental issues as referred in the environmental study data available in the Aftercare Study conducted by JICA 1993 and the Interim Report according to the rules of HMG/N by the end of October 1999.

5.2 Assessment and Countermeasures for the Influx of Labors into the Area and Means to Secure the Security in the Area.

Both sides recognized the issues to ensure the security of the project area affected by the influx of labors and present situation of the area. The Nepalese side agreed to take and make necessary actions and programs for the issues with consultation with concerned

ministries of HMG/N.

Both sides also realized the necessity of the provisions to provide ID cards to the labors engaged in the Project to regulate the control of unauthorized and unrelated entries for smooth implementation of the project.

5.3 Restriction of Public Traffic into the Construction Site

Both sides recognized the problem of the entering of private vehicles into the project site before completion of the entire works, and agreed in principle that the construction works would be implemented without partial taking-over, partial completion and partial traffic opening program.

5.4 Removal and Relocation of Obstacles

The Nepalese side realized the serious issues like obstacles, particularly the relocation of the power distribution line at Sindhuli Gadhi. Therefore, the Nepalese side agreed to start the consultation and negotiation with the concerned authorities and assured to inform the Team the result of the consultation and negotiation by the end of August 1999.

5.5 Forest Clearing

The Nepalese side agreed to manage the tree clearance works and to consult with concerned ministries as recommended by the Team.

5.6 Camp Yard for Construction

The Nepalese side recommended and agreed for the project to provide the Government land shown on the attached location map as the Construction Camp Yard.

5.7 House Compensation and Land Acquisition

The Nepalese side shall confirm the detailed disbursement of the compensation budget after obtaining the detailed topo-maps from the Team. The Nepalese side also agreed to implement the house compensation and land acquisition strictly following the rules of HMG/N as has been implemented in the Section IV Project.



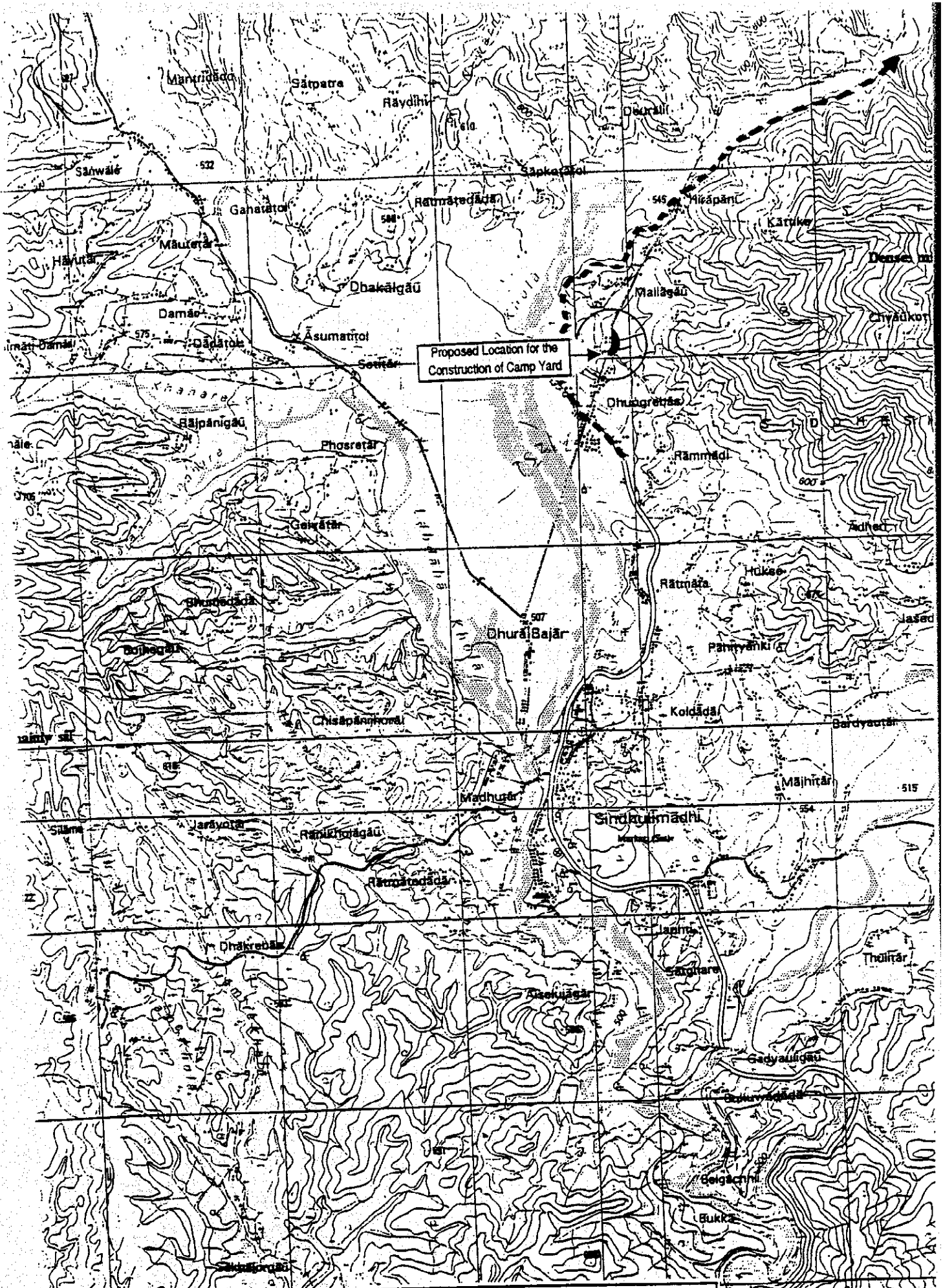
Y. Yandi

5.8 Guarantee of Free Collection of Aggregate

The Nepalese side agreed the free collection of aggregate, sand and boulders from the area of Ratu River and/or Kamala River.

Both sides understood the importance and necessity of the considerations from the environmental viewpoints at the river quarry sites.





Location Map of Proposed Camp Yard

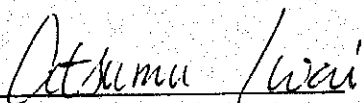
MINUTES OF DISCUSSIONS
ON BASIC DESIGN STUDY ON THE PROJECT FOR
CONSTRUCTION OF SINDHULI ROAD
(Section II : Sindhuli Bazar - Khurkot)
IN THE KINGDOM OF NEPAL
(EXPLANATION ON DRAFT REPORT)

In March and July, 1999, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched Basic Design Study Teams on the Project for Construction of Sindhuli Road (Section II : Sindhuli Bazar - Khurkot) (hereinafter referred to as "the Project") to The Kingdom of Nepal (hereinafter referred to as "Nepal"), and through discussion, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

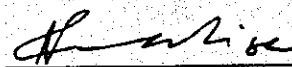
In order to explain and to consult His Majesty's Government of Nepal (hereinafter referred to as "HMG/N") on the components of the draft report, JICA sent to Nepal the Draft Report Explanation Team (hereinafter referred to as " the Team "), which is headed by Mr. Atsumu Iwai, Third Project Management Division, Grant Aid Management Department, JICA , from October 7 to October 15, 1999.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

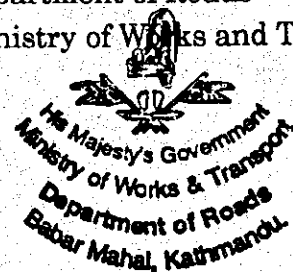
Kathmandu, October 13, 1999



Mr. Atsumu Iwai
Leader
Basic Design Study Team
Japan International Cooperation Agency



Mr. Niranjana P. Chalise
Director General
Department of Roads
Ministry of Works and Transport



ATTACHMENT

1. COMPONENTS OF THE DRAFT REPORT

HMG/N agreed and accepted in principle the components of the draft report explained by the Team.

2. JAPAN'S GRANT AID SCHEME

HMG/N understood the Japan's Grant Aid Scheme and the necessary measures to be taken by HMG/N as described in Annex-3 and Annex-4 of the Minutes of Discussions signed by both parties on March 30, 1999, and as described in the "Other Relevant Issues" of the Minutes of Discussions signed by both parties on July 7, 1999.

3. SCHEDULE OF THE STUDY :

JICA will complete the final report in accordance with the confirmed item and send it to HMG/N by the end of January, 2000.

4. OTHER RELEVANT ISSUES

4.1 Environmental Impact Assessment (EIA)

(1) Both sides recognized that proper mitigation measures have already been considered in the Draft Final Report explained by the Team.

(2) In accordance with the EIA procedure as per Annex-1, which is based on the Environmental Protection Act, 1996, and Environmental Protection Regulation, 1997 (Revised in 1999), HMG/N promised to issue the final approval of EIA Report by November 14, 1999. The result shall be informed to the Embassy of Japan and JICA

a. Iwai

[Signature]

Nepal office immediately after issuing the final approval.

(3) Both sides examined the mitigation measures written in the Draft EIA Report, and agreed that the work scope of the mitigation measures to be covered by Japanese side is as per Annex-2.

(4) HMG/N assured that if any additional mitigation works other than Annex-2 will be included in the Final EIA Report, such works and costs shall be borne by HMG/N.

4.2 Removal and Relocation of Obstacles

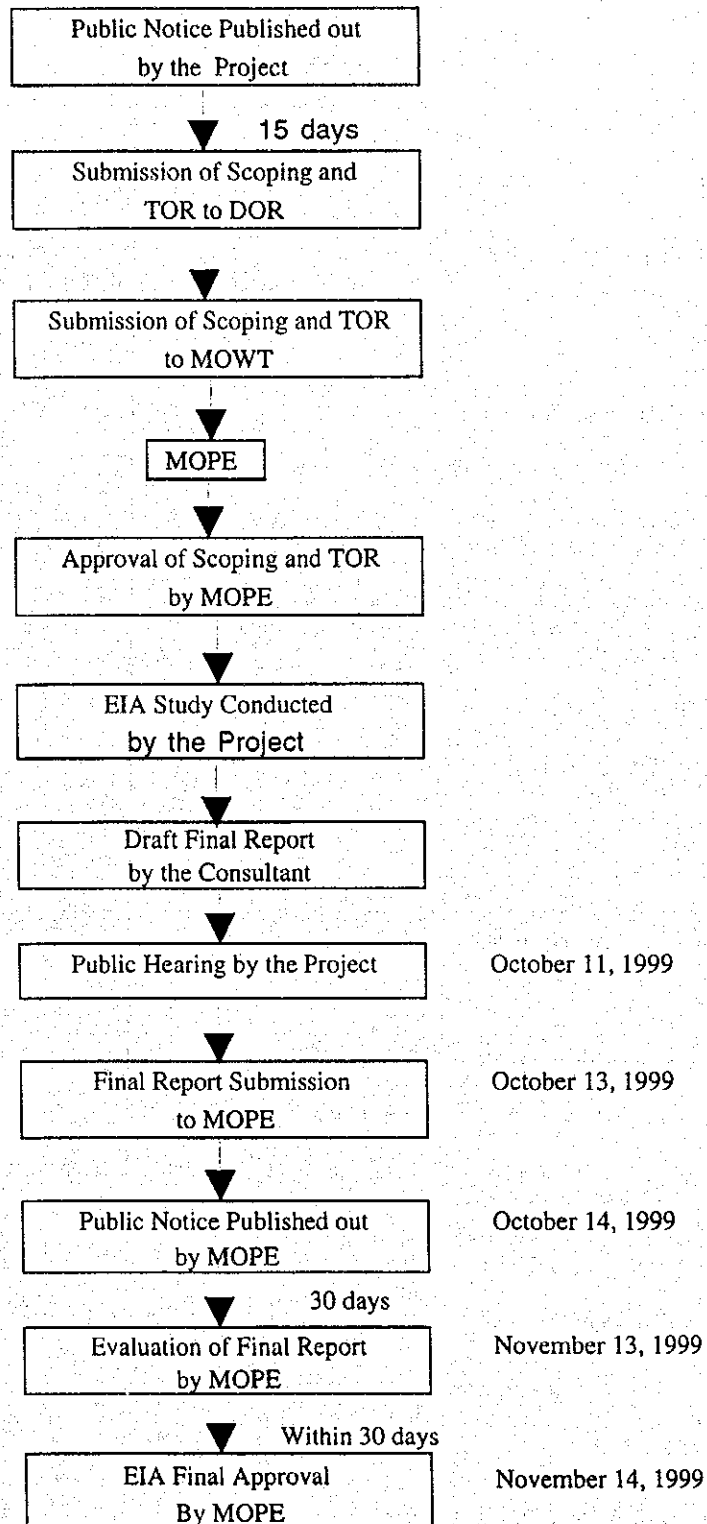
To ensure the smooth implementation of the Project, HMG/N confirmed to remove and/or relocate the power distribution line at Sindhuli Gadhi and other obstacles on the planned sites in accordance with the schedule which will be prepared by the Consultant in the detail design or the construction stage.

4.3 Preparation of the Lands for the Spoil Banks

Both sides understood the necessity to have the suitable and sufficient lands for the spoil banks. HMG/N promised to provide the necessary governmental and/or private lands for the spoil banks in accordance with the detail maps and schedule which will be proposed by the Consultant. The Team agreed to include the works of loading, transportation, unloading, leveling, compaction of surplus materials, and slope stabilization with minimum facilities as a part of Contractor's responsibility.

a. Jwan'



PROCEDURE OF EIA

Note : This flow chart is prepared in accordance with the (i) Environmental Protection Act, 1996 and (ii) Environmental Protection Regulation, 1997 (Revised 99)

Abbreviation:

DOR : Department of Roads
 MOWT : Ministry of Works and Transport
 MOPE : Ministry of Population and Environment

A. Iwan

Mitigation Measures Shown in Table 5.2 in Draft EIA Report	Work scope to be covered under Japan's Grant Aid Programme
<p>Design and Construction Stage</p> <p>Application of standard civil engineering norms</p> <p>Application of technical specifications</p> <p>Adopt cut and fill technology</p> <p>Land Acquisition (farm land)</p> <p>Site clearance in forest area</p> <ul style="list-style-type: none"> • Royalty • Cost for clearance and transportation of products <p>Road slope stabilization (cost for spoil disposal, plantation, grass turving, protection wall etc. and cost for Bio-Engineering)</p> <p>Environmental pollution</p> <ul style="list-style-type: none"> • Water spraying • Erection of no horn signs • Vehicle maintenance <p>Disposal of Spoils (0.4 million m³) (loading, transportation and unloading cost, leveling, compaction, and plantation cost)</p>	<p>Application of Design Concepts described in the Draft Final Report</p> <p>Application of Specifications as mentioned in the Tender Document</p> <p>Preparation of adequate Specifications in the Tender Document</p> <p>To be borne by Nepalese side</p> <p>To be borne by Nepalese side Clearance and Transportation of Products</p> <p>The Slope Stabilization Works within the scope as described in the Draft Final Report</p> <p>Water Spraying Erection of no horn signs Construction Equipment Maintenance</p> <p>The works of loading, transportation, unloading, levelling compaction of surplus material and slope stabilization with minimum facilities.</p>
<ul style="list-style-type: none"> • Compensatory plantation (also plant in roadside plantation preferably 3 rows at appropriate places) • Regulating collection of forest products (checkpoint cost) <p>Awareness and Counseling services (cost for the preparation and production of awareness materials, cost for Sociologist)</p> <p>Relocation of Drinking water facilities (number of facilities damaged and approximate cost)</p> <p>Relocation of irrigation schemes (number of schemes damaged and approximate cost)</p>	<p>To be borne by Nepalese side</p> <p>To be borne by Nepalese side</p> <p>To be borne by Nepalese side</p> <p>To be borne by Nepalese side</p> <p>Re-location of existing irrigation canals as described in the Draft Final Report</p>
<p>Relocation of electric poles</p>	<p>To be borne by Nepalese side</p>

A. Swai

[Signature]

ANNEX – 2

Mitigation Measures Shown in Table 5.2 in Draft EIA Report	Work scope to be covered under Japan's Grant Aid Programme
Addition physical facility for educational institutions Health and safety (cost for medicines, safety equipment such as helmets, masks, air plugs etc.)	To be borne by Nepalese side Health and Safety of Workers and Labours employed by the Contractor
Operational Stage Roadslope stabilization Environmental pollution (conduct a study after construction stage) ROW management (plantation)	To be borne by Nepalese side To be borne by Nepalese side To be borne by Nepalese side

A. Swai



6. その他のデータ

ネパール国政府負担内容内訳

沿線植生調査表

交通量調査

Cost Estimation Borne by the HMG/N

1. Land acquisition and House Compensation Cost

Land acquisition		House compensation	
Area (m ²)	498,824 (m ²)	Number	91
Rate (NRs)	100 (NRs/m ²)	Rate (NRs)	25,000 (NRs) ... *
Cost (NRs)	49,882,400 (NRs)	Cost (NRs)	2,275,000 (NRs)
	Total 52,157,400 (NRs)		

* Note : House compensation cost is estimated at 500 (NRs/m²). And it is supposed that area of one house is 50m².

2. Electric pole relocation

Electric pole		Electric pole with transformer	
Number	31	Number	10
Rate (NRs)	10,000 (NRs)	Rate (NRs)	20,000 (NRs)
Cost (NRs)	310,000 (NRs)	Cost (NRs)	200,000 (NRs)
	Total 510,000 (NRs)		

3. Forest

Estimation at the rate of 5 persons for 4 months a year with average salary of 6,000NRs/month

5 persons × 4 months × 6,000NRs/month	= 120,000 NRs/year
Transportation (Lumpsum)	= 300,000 NRs/year
Administrative	= 60,000 NRs/year
Total	= 480,000 NRs/year

4. Maintenance Administration Cost

POSITION	Man Year
Project Manager	1
Chief Engineer	1
Engineer	4
Supervisor	4
Mechanical Engineer	2
Administrative staff	1
Other	9
Total Man Year	22

Average salary = 3,000 NRs/month

Allowance, office expenditure at 100 % of total salary

22 Man Year × 12 months × 3,000 NRs/month × 200% = 1,584,000 NRs/year

5. Maintenance Material

Average distance of cross drainage = 165 m

Gabion 1 m³/165 m/year

Riplot 1m³/165 m/year

Gabion wire 32.5kg/0.165 × 39km = 197 kg × 41NRs x 39km = 315,003 NRs/year

Cement 150kg/0.165 x 39km = 909 kg x 6.0 NRs x 39km = 212,700 NRs/year

Total = 527,703 NRs/year

6. Fuel

According to B/D study, fuel consumption is assumed to be 19.55 litre/hr

700m³/km/year of deposits are cleaned at capacity of 40m³/hr = 17.5 hr/km/year

17.5hr/km/year × 19.55litre/hr × 39km = 13,343 litre/year × 13NRs/litre = 173,459 NRs/year

7. Labour

2 persons/km/day × 39 km × 140 NRs/day × 25 days × 12 months = 3,276,000 NRs/year

8. Spare

Annual spare equipment cost = 5 % of equipment cost given in reports of Section 1

80,000,000 NRs x 0.05 = 4,000,000 NRs/year

Estimated Land Acquisition Area and Houses to be compensated within the ROW

Section	Station	Total within ROW		Houses within Const. Width	Acquisition Cost		
		Area (m2)	Houses		Land	Houses	Subtotal
A	Sta.0+000 - Sta.6+500	156,836	33	6	15,683,600	825,000	16,508,600
B	Sta.6+500 - Sta.13+000	63,479	9	5	6,347,900	225,000	6,572,900
C	Sta.13+000 - Sta.26+000	143,050	29	19	14,305,000	725,000	15,030,000
D	Sta.26+000 - Sta.35+000	37,232	0	0	3,723,200	0	3,723,200
E	Sta.35+000 - Sta.39+700	98,227	20	6	9,822,700	500,000	10,322,700
Total							52,157,400

Note: Land Acquisition Cost is estimated at Rs.100/m².

House Acquisition Cost is estimated at Rs.500/m². And it is supposed that area of one house is 50m².

Estimated Land Acquisition Area and Houses to be compensated within the ROW (1km)

Section	No.	Area (m ²)	Total within ROW		Houses within Construction width
			Area (m ²)	Houses (No.)	
STA 0+000 - STA 1+000	1	3,600			
	2	14,100			
	3	7,640	25,340	7	3
STA 1+000 - STA 2+000	4	30,259	30,259	16	1
STA 2+000 - STA 3+000	5	9,399			
	6	9,114			
	7	7,013			
	8	4,004	29,530	5	0
STA 3+000 - STA 4+000	9	29,603	29,603	1	0
STA 4+000 - STA 5+000	10	9,403			
	11	16,033	25,436	4	2
STA 5+000 - STA 6+000	12	1,546			
	13	3,735			
	14	2,159	7,440	0	0
STA 6+000 - STA 7+000	15	9,228			
	16	11,300	20,528	2	1
STA 7+000 - STA 8+000	17	23,972	23,972	2	1
STA 8+000 - STA 9+000	18	7,049	7,049	0	0
STA 9+000 - STA 10+000		0	0	0	0
STA 10+000 - STA 11+000		0	0	0	0
STA 11+000 - STA 12+000	19	3,822	3,822	0	0
STA 12+000 - STA 13+000	20	7,186			
	21	10,150	17,336	5	3
STA 13+000 - STA 14+000	22	5,708			
	23	8,370			

Section	No.	Area (m ²)	Total within ROW		Houses within Construction width
			Area (m ²)	Houses (No.)	
	24	2,100	16,178	1	1
STA 14+000 - STA 15+000	25	16,011			
	26	988	16,999	3	3
STA 15+000 - STA 16+000	27	13,120	13,120	0	0
STA 16+000 - STA 17+000	28	8,606			
	29	4,268	12,874	1	1
STA 17+000 - STA 18+000	30	11,980			
	31	926			
	32	3,188	16,094	7	3
STA 18+000 - STA 19+000	33	4,291	4,291	0	0
STA 19+000 - STA 20+000		0	0	0	0
STA 20+000 - STA 21+000		0	0	0	0
STA 21+000 - STA 22+000		0	0	0	0
STA 22+000 - STA 23+000	34	2,876			
	35	1,938	4,814	0	0
STA 23+000 - STA 24+000	36	7,460			
	37	4,584			
	38	1,853	13,897	6	4
STA 24+000 - STA 25+000	39	10,230			
	40	6,441			
	41	7,940	24,611	7	5
STA 25+000 - STA 26+000	42	2,644			
	43	9,710			
	44	4,380			
	45	2,175			
	46	1,263	20,172	4	2
STA 26+000 - STA 27+000	47	2,065	2,065	0	0

Section	No.	Area (m ²)	Total within ROW		Houses within Construction width
			Area (m ²)	Houses (No.)	
STA 27+000 - STA 28+000		0	0	0	0
STA 28+000 - STA 29+000		0	0	0	0
STA 29+000 - STA 30+000		0	0	0	0
STA 30+000 - STA 31+000	48	11,332	11,332	0	0
STA 31+000 - STA 32+000	49	9,450			
	50	1,000			
	51	5,725	16,175	0	0
STA 32+000 - STA 33+000	52	2,350	2,350	0	0
STA 33+000 - STA 34+000	53	5,310	5,310	0	0
STA 34+000 - STA 35+000		0	0	0	0
STA 35+000 - STA 36+000	54	940			
	55	2,287			
	56	2,460			
	57	1,196	6,883	11	3
STA 36+000 - STA 37+000	58	5,510			
	59	3,820			
	60	18,565	27,895	6	3
STA 37+000 - STA 38+000	61	4,887			
	62	7,838	12,725	0	0
STA 38+000 - STA 39+000	63	2,885			
	64	2,571			
	65	2,994			
	66	4,241			
	67	14,567	27,258	3	0
STA 39+000 - End	68	23,466	23,466	0	0
GRAND TOTAL			498,824	91	36

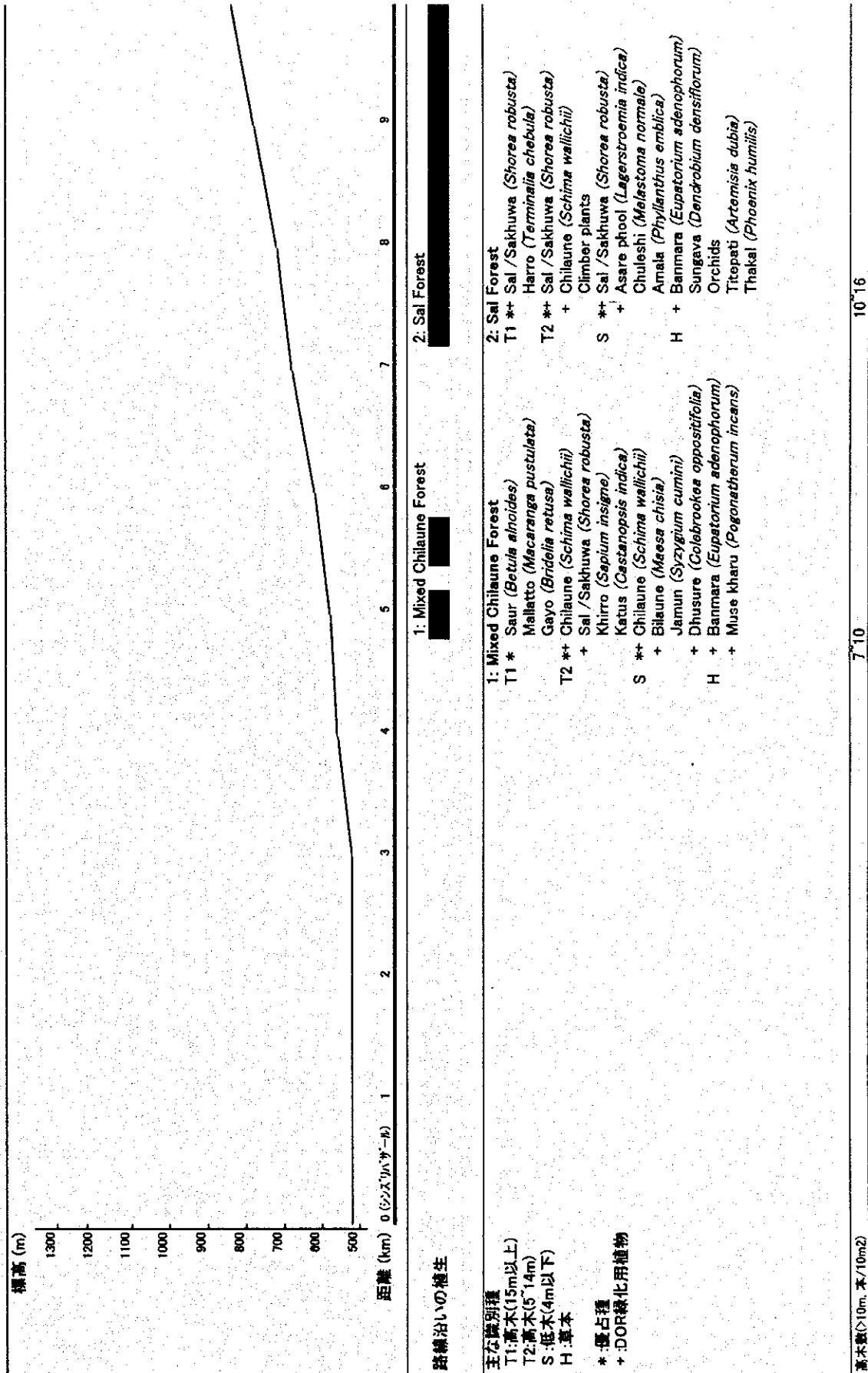


Figure 2.1.5 (a) Vegetation along Road Alignment

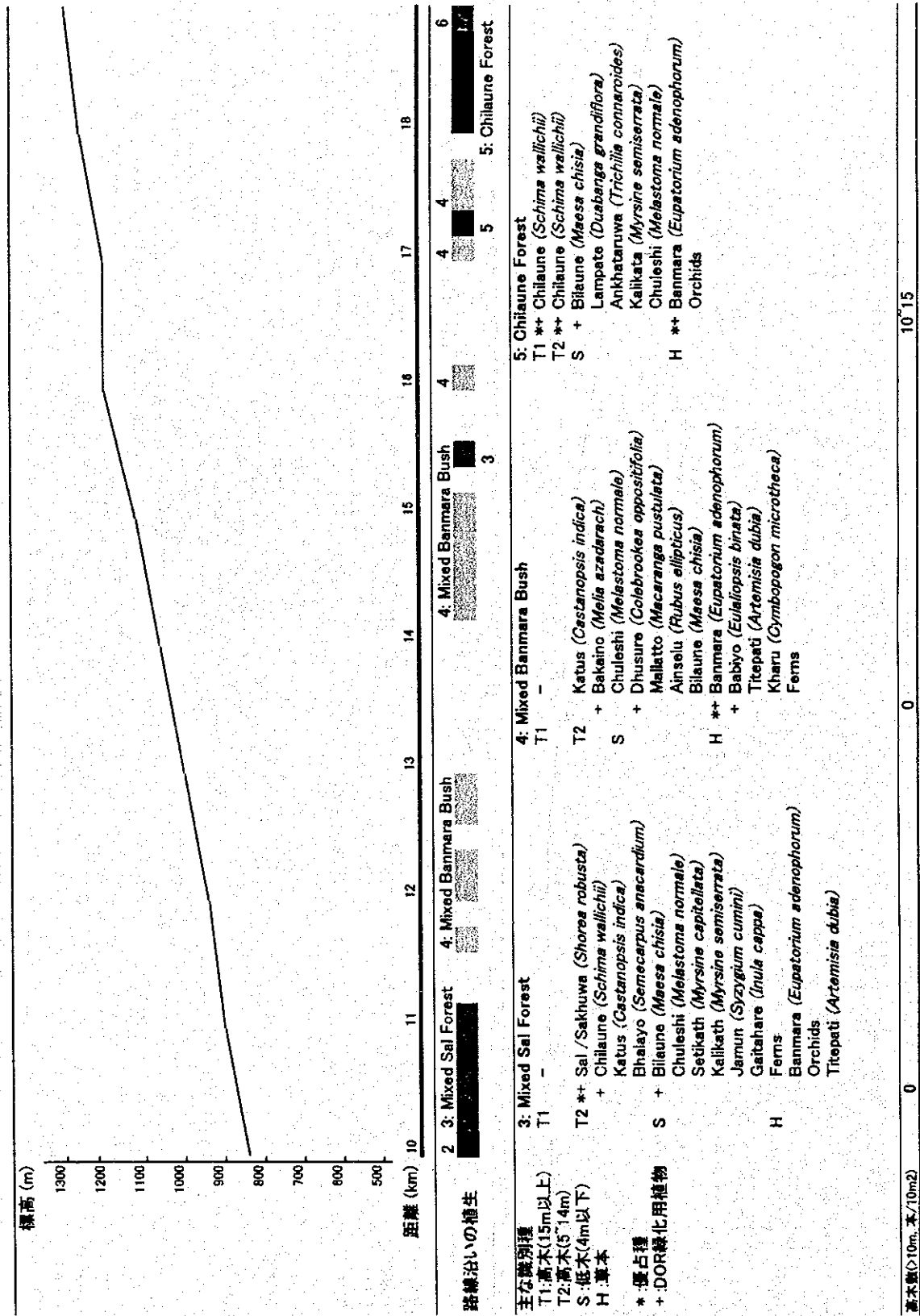


Figure 2.1.5 (b) Vegetation along Road Alignment

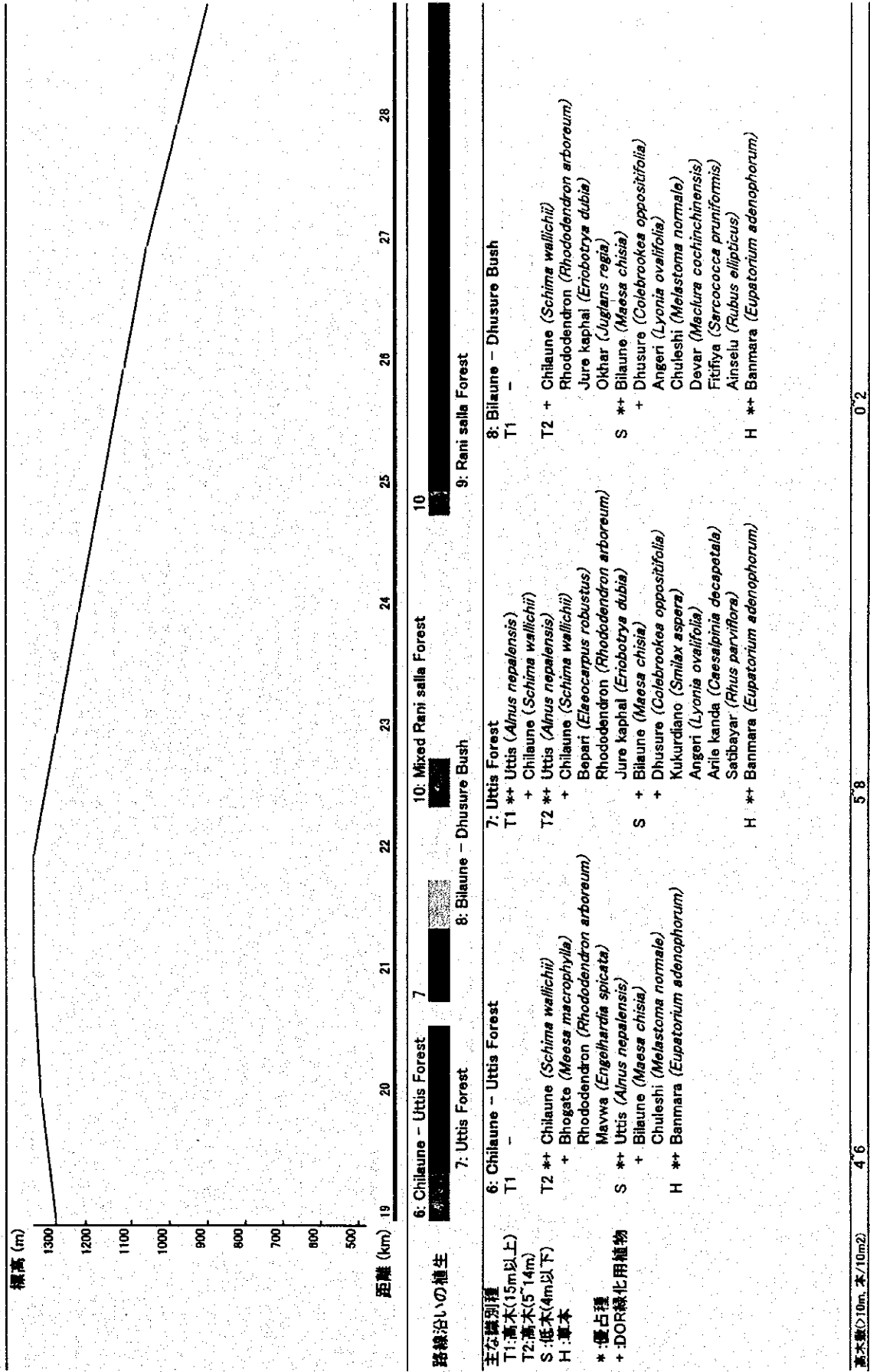


Figure 2.1.5 (c) Vegetation along Road Alignment

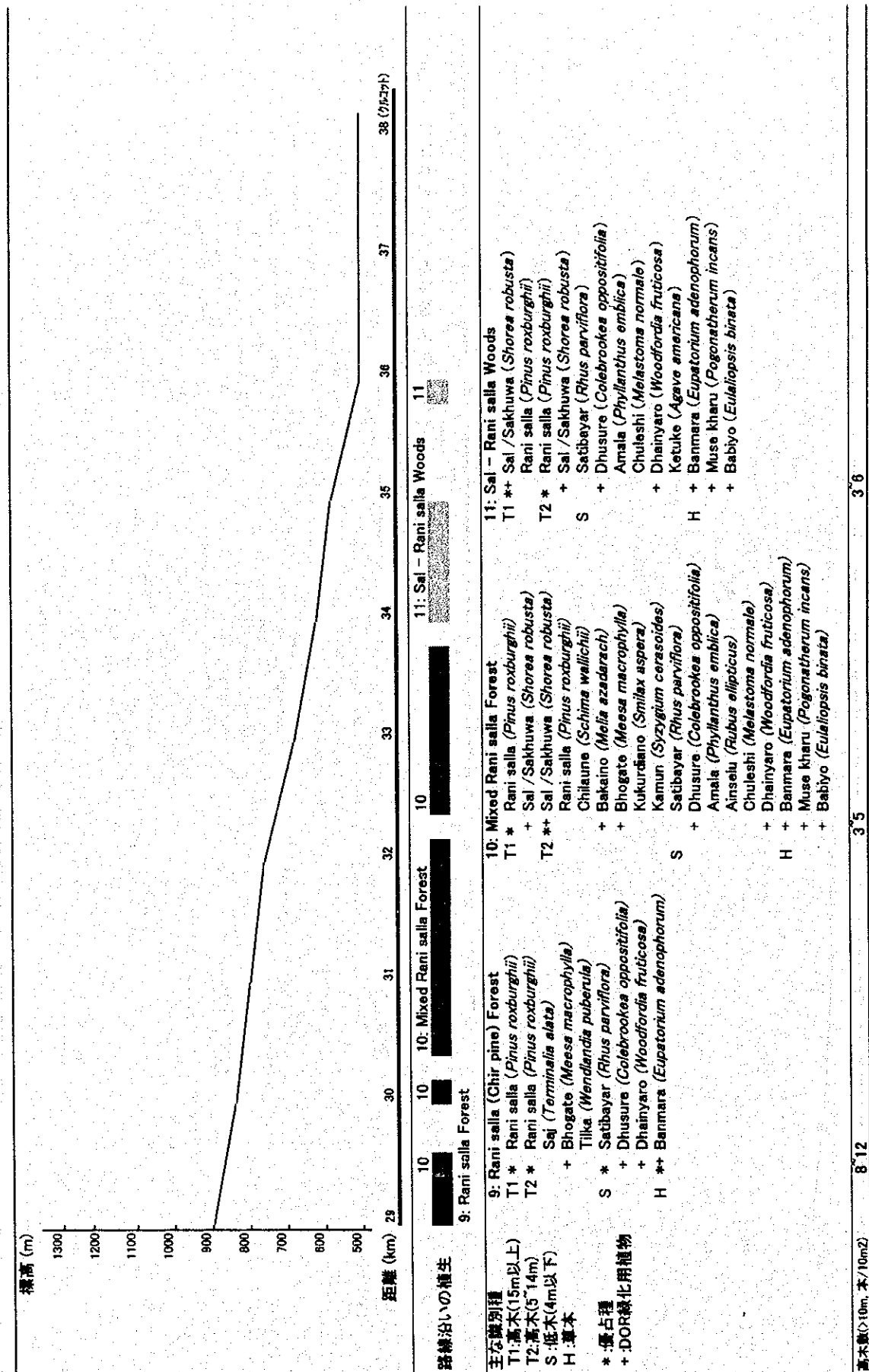


Figure 2.1.5 (d) Vegetation along Road Alignment

Vegetation Survey Check Sheet

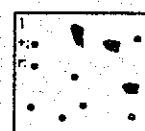
Date: 13 Apr. 99 Vegetation Survey No.: 1 Plant Community: Mixed Chilaune Forest
 Altitude: 580 m Inclination Angle: 30° Inclination Direction: NW
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Silt (White) (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No. of trees/10x10m
Tree1(T1) >15m	Saur	~15	5	1
Tree2(T2) 5-14m	Chilaune	~10	70	15
Shrub(S) <4m	Chilaune	3	50	-
(Including low tree)				
Herbaceous		0.3	20	

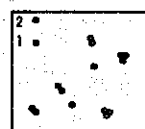
(Slope Protection plants)

S: Coverage · Sociability		Species of Plant	S: Coverage · Sociability		Species of Plant
			T		Uttis (<i>Alnus nepalensis</i>)
					Sisoo (<i>Dalbergia sissoo</i>)
T1:	r	Saur (<i>Betula alnoides</i>)			
	r	Mallatto (<i>Macaranga pustulata</i>)	2 · 2		Chilaune (<i>Schima wallichii</i>)
	r	Gayo (<i>Bridelia retusa</i>)			Seto siris (<i>Albizia procera</i>)
					Bakaino (<i>Melia azadarach</i>)
			1 · 2		Sal /Sakhuwa (<i>Shorea robusta</i>)
T2:	2 · 2	Chilaune (<i>Schima wallichii</i>)			Khanayo (<i>Ficus semicordata</i>)
	1 · 2	Sal /Sakhuwa (<i>Shorea robusta</i>)			Khayer (<i>Acacia catechu</i>)
	+	Khirro (<i>Sapium insigne</i>)			Bhogate (<i>Meesa macrophylla</i>)
	r	Katus (<i>Castanopsis indica</i>)	S		Dhainyaro (<i>Woodfordia fruticosa</i>)
					Amba (<i>Psidium guajava</i>)
					Tilka (<i>Wendlandia species</i>)
S	2 · 3	Chilaune (<i>Schima wallichii</i>)			Assuro (<i>Adhatoda vasica</i>)
	1 · 1	Bilaune (<i>Maesa chisia</i>)	1 · 1		Bilaune (<i>Maesa chisia</i>)
	1 · 1	Jamun (<i>Syzygium cumini</i>)			Kunyelo (<i>Trema orientalis</i>)
	1 · 1	Dhasure (<i>Colebrookea oppositifolia</i>)	1 · 1		Dhasure (<i>Colebrookea oppositifolia</i>)
					Phul kanda (<i>Lantana camara</i>)
					Sajiwan /Kadam (<i>Jatropha curcas</i>)
H	1 · 1	Banmara (<i>Eupatorium adenophorum</i>)			Simali (<i>Vitex negundo</i>)
	1 · 1	Muse kharu (<i>Pogonatherum incans</i>)			Bhujetro (<i>Butea minor</i>)
					Areri (<i>Acacia pennata</i>)
					Angero (<i>Goldfussia penstemonoides</i>)
					Asare phool (<i>Lagerstroemia indica</i>)
					Barhamase (<i>Nerium indicum</i>)
					Rahar (<i>Gajanus cajan</i>)
			H		Chiraita (<i>Swertia chirayita</i>)
					Kans (<i>Saccharum spontaneum</i>)
					Babiyo (<i>Eulaliopsis binata</i>)
					Amliso (<i>Thysanolaena maxima</i>)
			1 · 1		Muse kharu (<i>Pogonatherum incans</i>)
			1 · 1		Banmara (<i>Eupatorium adenophorum</i>)

Coverage



Sociability



Vegetation Survey Check Sheet

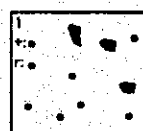
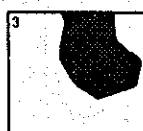
Date: 13 Apr. 99 Vegetation Survey No.: 2 Plant Community: Sal Forest
 Altitude: 750 m Inclination Angle: 20° Inclination Direction: SW
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Silt (White) (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No.of trees/10x10m
Tree1(T1) >15m	Sal	~20	60	8
Tree2(T2) 5-14m	Sal	10	70	12
Shrub(S) <4m	Sal	2	50	-
(Including low tree)				
Herbaceous		0.3	20	

(Slope Protection plants)

S: Coverage · Sociability	Species of Plant	S: Coverage · Sociability	Species of Plant
T1: 5 · 5 r	Sal /Sakhuwa (<i>Shorea robusta</i>)	T	Uttis (<i>Alnus nepalensis</i>)
	Harro (<i>Terminalia chebula</i>)	1 · 1	Sisoo (<i>Dalbergia sissoo</i>)
			Chilaune (<i>Schima wallichii</i>)
			Seto siris (<i>Albizia procera</i>)
T2: 5 · 5 1 · 1 +	Sal /Sakhuwa (<i>Shorea robusta</i>)	5 · 5	Bakaino (<i>Melia azadarach</i>)
	Chilaune (<i>Schima wallichii</i>)		Sal /Sakhuwa (<i>Shorea robusta</i>)
	Climber plants		Khanayo (<i>Ficus semicordata</i>)
			Khayer (<i>Acacia catechu</i>)
S: 4 · 4 + + +	Sal /Sakhuwa (<i>Shorea robusta</i>)	S	Bhogate (<i>Meesa macrophylla</i>)
	Asare phool (<i>Lagerstroemia indica</i>)		Dhainyaro (<i>Woodfordia fruticosa</i>)
	Chuleshi (<i>Melastoma normale</i>)		Amba (<i>Psidium guajava</i>)
	Amala (<i>Phyllanthus emblica</i>)		Tilka (<i>Wendlandia species</i>)
			Assuro (<i>Adhatoda vasica</i>)
			Bilaune (<i>Maesa chisia</i>)
H: + + + r r	Banmara (<i>Eupatorium adenophorum</i>)	H	Kunyelo (<i>Trema orientalis</i>)
	Sungava (<i>Dendrobium densiflorum</i>)		Dhusure (<i>Colebrookea oppositifolia</i>)
	Orchids		Phul kanda (<i>Lantana camara</i>)
	Titepati (<i>Artemisia dubia</i>)		Sajiwan /Kadam (<i>Jatropha curcas</i>)
	Thakal (<i>Phoenix humilis</i>)		Simali (<i>Vitex negundo</i>)
			Bhujetro (<i>Butea minor</i>)
			Areri (<i>Acacia pennata</i>)
			Angero (<i>Goldfussia penstemonoides</i>)
			Asare phool (<i>Lagerstroemia indica</i>)
			Barhamase (<i>Nerium indicum</i>)
	Rahar (<i>Cajanus cajan</i>)		
	Chiraita (<i>Swertia chirayita</i>)		
	Kans (<i>Saccharum spontaneum</i>)		
	Babiyo (<i>Eulaliopsis binata</i>)		
	Amliso (<i>Thysanolaena maxima</i>)		
	Muse kharu (<i>Pogonatherum incans</i>)		
	Banmara (<i>Eupatorium adenophorum</i>)		

Coverage



Sociability



Vegetation Survey Check Sheet

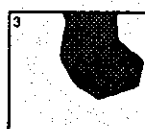
Date: 13 Apr. 99 Vegetation Survey No.: 3 Plant Community: Mixed Sal Forest
 Altitude: 910 m Inclination Angle: 5° Inclination Direction: W
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Sand / Rock (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No.of trees/10x10m
Tree1(T1) >15m	-			
Tree2(T2) 5-14m	Sal	~8	40	4
Shrub(S) <4m	Sal	1	40	-
(Including low tree)				
Herbaceous		0.5	20	

(Slope Protection plants)

S: Coverage · Sociability	Species of Plant	S: Coverage · Sociability	Species of Plant
T1: -		T	Uttis (<i>Alnus nepalensis</i>)
			Sisoo (<i>Dalbergia sissoo</i>)
		1 · 1	Chilaune (<i>Schima wallichii</i>)
			Seto siris (<i>Albizia procera</i>)
T2: 3 · 3	Sal / Sakhuwa (<i>Shorea robusta</i>)		Bakaino (<i>Melia azadarach</i>)
1 · 1	Chilaune (<i>Schima wallichii</i>)	3 · 3	Sal / Sakhuwa (<i>Shorea robusta</i>)
r	Katus (<i>Castanopsis indica</i>)		Khanayo (<i>Ficus semicordata</i>)
r	Bhalayo (<i>Semecarpus anacardium</i>)		Khayer (<i>Acacia catechu</i>)
			Bhogate (<i>Meesa macrophylla</i>)
		S	Dhainyaro (<i>Woodfordia fruticosa</i>)
S: 2 · 2	Sal / Sakhuwa (<i>Shorea robusta</i>)		Amba (<i>Psidium guajava</i>)
1 · 1	Bilaune (<i>Maesa chisia</i>)		Tilka (<i>Wendlandia species</i>)
1 · 1	Chuleshi (<i>Melastoma normale</i>)		Assuro (<i>Adhatoda vasica</i>)
+	Setikath (<i>Myrsine capitellata</i>)	1 · 1	Bilaune (<i>Maesa chisia</i>)
+	Kalikath (<i>Myrsine semiserrata</i>)		Kunyelo (<i>Trema orientalis</i>)
r	Jamun (<i>Syzygium cumini</i>)		Dhasure (<i>Colebrookea oppositifolia</i>)
r	Gaitahare (<i>Inula cappa</i>)		Phul kanda (<i>Lantana camara</i>)
			Sajiwan / Kadam (<i>Jatropha curcas</i>)
			Simali (<i>Vitex negundo</i>)
H: 2 · 3	Ferns		Bhujetro (<i>Butea minor</i>)
+	Banmara (<i>Eupatorium adenophorum</i>)		Areri (<i>Acacia pennata</i>)
+	Orchids		Angero (<i>Goldfussia penstemonoides</i>)
r	Titepati (<i>Artemisia dubia</i>)		Asare phool (<i>Lagerstroemia indica</i>)
			Barhamase (<i>Nerium indicum</i>)
			Rahar (<i>Cajanus cajan</i>)
		H	Chiraita (<i>Swertia chirayita</i>)
			Kans (<i>Saccharum spontaneum</i>)
			Babiyo (<i>Eulaliopsis binata</i>)
			Amliso (<i>Thysanolaena maxima</i>)
			Muse kharu (<i>Pogonatherum incans</i>)
		+	Banmara (<i>Eupatorium adenophorum</i>)

Coverage



Sociability



Vegetation Survey Check Sheet

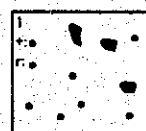
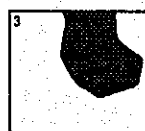
Date: 14 Apr. 99 Vegetation Survey No.: 4 Plant Community: Mixed Banmara Bush
 Altitude: 1120 m Inclination Angle: 40° Inclination Direction: NW
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Silt (White-Ocher) (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No.of trees/10x10m
Tree1(T1) >15m	-			
Tree2(T2) 5-14m	-	5	5	1
Shrub(S) <4m	-	1	50	-
(Including low tree)				
Herbaceous	Banmara	0.5	40	-

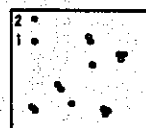
(Slope Protection plants)

S: Coverage·Sociability	Species of Plant	S: Coverage·Sociability	Species of Plant
		T	Uttis (<i>Alnus nepalensis</i>)
T1: -			Sisoo (<i>Dalbergia sissoo</i>)
			Chilaune (<i>Schima wallichii</i>)
			Seto sirls (<i>Albizia procera</i>)
T2: r	Katus (<i>Castanopsis indica</i>)	r	Bakaino (<i>Melia azadarach</i>)
r	Bakaino (<i>Melia azadarach</i>)		Sal /Sakhuwa (<i>Shorea robusta</i>)
			Khanayo (<i>Ficus semicordata</i>)
			Khayer (<i>Acacia catechu</i>)
S: 1·1	Chuleshi (<i>Melastoma normale</i>)		Bhogate (<i>Meesa macrophylla</i>)
+	Dhasure (<i>Colebrookea oppositifolia</i>)	S	Dhainyaro (<i>Woodfordia fruticosa</i>)
+	Mallatto (<i>Macaranga pustulata</i>)		Amba (<i>Psidium guajava</i>)
r	Ainselu (<i>Rubus ellipticus</i>)		Tilka (<i>Wendlandia species</i>)
r	Bilaune (<i>Maesa chisia</i>)		Assuro (<i>Adhatoda vasica</i>)
		r	Bilaune (<i>Maesa chisia</i>)
			Kunyelo (<i>Trema orientalis</i>)
H: 2·2	Banmara (<i>Eupatorium adenophorum</i>)	+	Dhasure (<i>Colebrookea oppositifolia</i>)
+	Babiyo (<i>Eulaliopsis binata</i>)		Phul kanda (<i>Lantana camara</i>)
+	Titepati (<i>Artemisia dubia</i>)		Sajiwan /Kadam (<i>Jatropha curcas</i>)
+	Kharu (<i>Cymbopogon microtheca</i>)		Simali (<i>Vitex negundo</i>)
+	Ferns		Bhujetro (<i>Butea minor</i>)
			Areri (<i>Acacia pennata</i>)
			Angero (<i>Goldfussia penstemonoides</i>)
			Asare phool (<i>Lagerstroemia indica</i>)
			Barhamase (<i>Nerium indicum</i>)
			Rahar (<i>Cajanus cajan</i>)
		H	Chiraita (<i>Swertia chirayita</i>)
			Kans (<i>Saccharum spontaneum</i>)
		+	Babiyo (<i>Eulaliopsis binata</i>)
			Amliso (<i>Thysanolaena maxima</i>)
			Muse kharu (<i>Pogonatherum incans</i>)
		2·2	Banmara (<i>Eupatorium adenophorum</i>)

Coverage



Sociability



Vegetation Survey Check Sheet

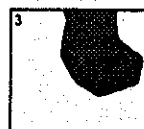
Date: 14 Apr. 99 Vegetation Survey No.: 5 Plant Community: Chilaune Forest
 Altitude: 1280 m Inclination Angle: 40° Inclination Direction: W
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Silt (White) (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No. of trees/10x10m
Tree1(T1) >15m	Chilaune	~20	60	5
Tree2(T2) 5-14m	Chilaune	10	70	10
Shrub(S) <4m	-			-
(Including low tree)				
Herbaceous	Banmara	0.5	50	

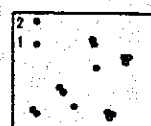
(Slope Protection plants)

S: Coverage · Sociability	Species of Plant	S: Coverage · Sociability	Species of Plant
		T	Uttis (<i>Alnus nepalensis</i>)
T1: 4 · 3	Chilaune (<i>Schima wallichii</i>)		Sisoo (<i>Dalbergia sissoo</i>)
		4 · 3	Chilaune (<i>Schima wallichii</i>)
			Seto siris (<i>Albizia procera</i>)
T2: 4 · 3	Chilaune (<i>Schima wallichii</i>)		Bakaino (<i>Melia azadarach</i>)
			Sal / Sakhuwa (<i>Shorea robusta</i>)
			Khanayo (<i>Ficus semicordata</i>)
S: 2 · 2	Bilaune (<i>Maesa chisia</i>)		Khayer (<i>Acacia catechu</i>)
+	Lampate (<i>Duabanga grandiflora</i>)		Bhogate (<i>Meesa macrophylla</i>)
+	Ankhataruwa (<i>Trichilia connaroides</i>)	S	Dhainyaro (<i>Woodfordia fruticosa</i>)
+	Kalikatā (<i>Myrsine semiserrata</i>)		Amba (<i>Psidium guajava</i>)
+	Chuleshi (<i>Melastoma normale</i>)		Tilka (<i>Wendlandia species</i>)
			Assuro (<i>Adhatoda vasica</i>)
		2 · 2	Bilaune (<i>Maesa chisia</i>)
H: 3 · 3	Banmara (<i>Eupatorium adenophorum</i>)		Kunyelo (<i>Trema orientalis</i>)
+	Orchids		Dhasure (<i>Colebrookea oppositifolia</i>)
			Phul kanda (<i>Lantana camara</i>)
			Sajiwan /Kadam (<i>Jatropha curcas</i>)
			Simali (<i>Vitex negundo</i>)
			Bhujetro (<i>Butea minor</i>)
			Areri (<i>Acacia pennata</i>)
			Angero (<i>Goldfussia penstemonoides</i>)
			Asare phool (<i>Lagerstroemia indica</i>)
			Barhamase (<i>Nerium indicum</i>)
			Rahar (<i>Cajanus cajan</i>)
		H	Chiraita (<i>Swertia chirayita</i>)
			Kans (<i>Saccharum spontaneum</i>)
			Babiyo (<i>Eulaliopsis binata</i>)
			Amliso (<i>Thysanolaena maxima</i>)
			Muse kharu (<i>Pogonatherum incans</i>)
		3 · 3	Banmara (<i>Eupatorium adenophorum</i>)

Coverage



Sociability



Vegetation Survey Check Sheet

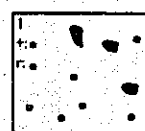
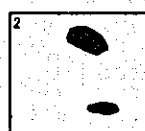
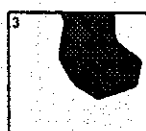
Date: 14 Apr. 99 Vegetation Survey No.: 6 Plant Community: Chilaune -- Uttis Forest
 Altitude: 1340 m Inclination Angle: 40° Inclination Direction: S
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Sand / Rock (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No.of trees/10x10m
Tree1(T1) >15m	-			-
Tree2(T2) 5-14m	Chilaune	~10	40	6
Shrub(S) <4m	Uttis	3	20	-
(Including low tree)				
Herbaceous	Banmara	0.5	20	

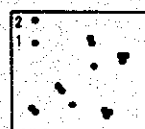
(Slope Protection plants)

S: Coverage	Sociability	Species of Plant	S: Coverage	Sociability	Species of Plant
			T 2 · 2		Uttis (<i>Alnus nepalensis</i>)
					Sisoo (<i>Dalbergia sissoo</i>)
T1:	-		2 · 2		Chilaune (<i>Schima wallichii</i>)
					Seto siris (<i>Albizia procera</i>)
T2:	2 · 2	Chilaune (<i>Schima wallichii</i>)			Bakaino (<i>Melia azadarach</i>)
	1 · 1	Bhogate (<i>Meesa macrophylla</i>)			Sal / Sakhuwa (<i>Shorea robusta</i>)
	+	Rhododendron (<i>Rhododendron arboreum</i>)			Khanayo (<i>Ficus semicordata</i>)
	+	Mavwa (<i>Engelhardia spicata</i>)			Khayer (<i>Acacia catechu</i>)
			1 · 1		Bhogate (<i>Meesa macrophylla</i>)
S:	2 · 2	Uttis (<i>Alnus nepalensis</i>)	S		Dhainyaro (<i>Woodfordia fruticosa</i>)
	2 · 1	Bilaune (<i>Maesa chisia</i>)			Amba (<i>Psidium guajava</i>)
	1 · 1	Chuleshi (<i>Melastoma normale</i>)			Tilka (<i>Wendlandia species</i>)
			2 · 1		Assuro (<i>Adhatoda vasica</i>)
H:	2 · 2	Banmara (<i>Eupatorium adenophorum</i>)			Bilaune (<i>Maesa chisia</i>)
					Kunyelo (<i>Trema orientalis</i>)
					Dhasure (<i>Colebrookea oppositifolia</i>)
					Phul kanda (<i>Lantana camara</i>)
					Sajiwan /Kadam (<i>Jatropha curcas</i>)
					Simali (<i>Vitex negundo</i>)
					Bhujetro (<i>Butea minor</i>)
					Areri (<i>Acacia pennata</i>)
					Angero (<i>Goldfussia penstemonoides</i>)
					Asare phool (<i>Lagerstroemia indica</i>)
					Barhamase (<i>Nerium indicum</i>)
					Rahar (<i>Gajanus cajan</i>)
			H		Chiraita (<i>Swertia chirayita</i>)
					Kans (<i>Saccharum spontaneum</i>)
					Babiyo (<i>Eulaliopsis binata</i>)
					Amliso (<i>Thysanolaena maxima</i>)
					Muse kharu (<i>Pogonatherum incans</i>)
			2 · 2		Banmara (<i>Eupatorium adenophorum</i>)

Coverage



Sociability



Vegetation Survey Check Sheet

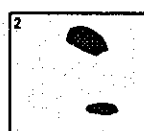
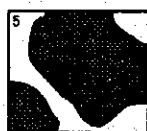
Date: 15 Apr. 99 Vegetation Survey No.: 7 Plant Community: Uttis Forest
 Altitude: 1300 m Inclination Angle: 40° Inclination Direction: N
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Sand (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No.of trees/10x10m
Tree1(T1) >15m	Uttis	~18	20	3
Tree2(T2) 5-14m	Uttis	~12	50	7
Shrub(S) <4m				-
(Including low tree)				
Herbaceous	Banmara	0.5	50	

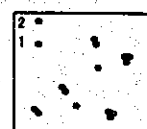
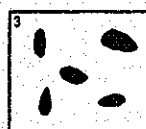
(Slope Protection plants)

S: Coverage·Sociability	Species of Plant	S: Coverage·Sociability	Species of Plant
		T 3 · 2	Uttis (<i>Alnus nepalensis</i>)
			Sisoo (<i>Dalbergia sissoo</i>)
T1: 2 · 2	Uttis (<i>Alnus nepalensis</i>)	2 · 1	Chilaune (<i>Schima wallichii</i>)
			Seto siris (<i>Albizia procera</i>)
			Bakaino (<i>Melia azadarach</i>)
T2: 3 · 2	Uttis (<i>Alnus nepalensis</i>)		Sal /Sakhuwa (<i>Shorea robusta</i>)
			Khanayo (<i>Ficus semicordata</i>)
			Khayer (<i>Acacia catechu</i>)
			Bhogate (<i>Meesa macrophylla</i>)
		S	Dhainyaro (<i>Woodfordia fruticosa</i>)
			Amba (<i>Psidium guajava</i>)
			Tilka (<i>Wendlandia species</i>)
S: 2 · 2	Bilaune (<i>Maesa chisia</i>)		Assuro (<i>Adhatoda vasica</i>)
		2 · 2	Bilaune (<i>Maesa chisia</i>)
			Kunyelo (<i>Trema orientalis</i>)
		1 · 1	Dhasure (<i>Colebrookea oppositifolia</i>)
			Phul kanda (<i>Lantana camara</i>)
			Sajiwan /Kadam (<i>Jatropha curcas</i>)
			Simali (<i>Vitex negundo</i>)
			Bhujetro (<i>Butea minor</i>)
H: 3 · 3	Banmara (<i>Eupatorium adenophorum</i>)		Areri (<i>Acacia pennata</i>)
			Angero (<i>Goldfussia penstemonoides</i>)
			Asare phool (<i>Lagerstroemia indica</i>)
			Barhamase (<i>Nerium indicum</i>)
			Rahar (<i>Cajanus cajan</i>)
		H	Chiraita (<i>Swertia chirayita</i>)
			Kans (<i>Saccharum spontaneum</i>)
			Babiyo (<i>Eulaliopsis binata</i>)
			Amliso (<i>Thysanolaena maxima</i>)
			Muse kharu (<i>Pogonatherum incans</i>)
		3 · 3	Banmara (<i>Eupatorium adenophorum</i>)

Coverage



Sociability



Vegetation Survey Check Sheet

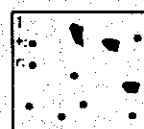
Date: 15 Apr. 99 Vegetation Survey No.: 8 Plant Community: Bilaune - Dhusure Bush
 Altitude: 1360 m Inclination Angle: 30° Inclination Direction: N
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Silt (Brown) (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No. of trees/10x10m
Tree1(T1) >15m	-			
Tree2(T2) 5-14m	-	10	10	1
Shrub(S) <4m (Including low tree)	Bilaune	1	60	-
Herbaceous	Banmara	0.5	30	

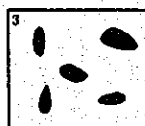
(Slope Protection plants)

S: Coverage · Sociability	Species of Plant	S: Coverage · Sociability	Species of Plant
		T	Uttis (<i>Alnus nepalensis</i>)
T1: -			Sisoo (<i>Dalbergia sissoo</i>)
		2 · 1	Chilaune (<i>Schima wallichii</i>)
			Seto siris (<i>Albizia procera</i>)
T:2 2 · 1	Chilaune (<i>Schima wallichii</i>)		Bakaino (<i>Melia azadarach</i>)
+	Rhododendron (<i>Rhododendron arboreum</i>)		Sal /Sakhuwa (<i>Shorea robusta</i>)
r	Jure kaphal (<i>Eriobotrya dubia</i>)		Khanayo (<i>Ficus semicordata</i>)
r	Okhar (<i>Juglans regia</i>)		Khayer (<i>Acacia catechu</i>)
			Bhogate (<i>Meesa macrophylla</i>)
		S	Dhainyaro (<i>Woodfordia fruticosa</i>)
S: 2 · 1	Bilaune (<i>Maesa chisia</i>)		Amba (<i>Psidium guajava</i>)
2 · 1	Dhusure (<i>Colebrookea oppositifolia</i>)		Tilka (<i>Wendlandia species</i>)
1 · 1	Angeri (<i>Lyonia ovalifolia</i>)		Assuro (<i>Adhatoda vasica</i>)
+	Chuleshi (<i>Melastoma normale</i>)	2 · 1	Bilaune (<i>Maesa chisia</i>)
r	Devar (<i>Maclura cochinchinensis</i>)		Kunyelo (<i>Trema orientalis</i>)
r	Fitifiya (<i>Sarcococca pruniformis</i>)	2 · 1	Dhusure (<i>Colebrookea oppositifolia</i>)
r	Ainselu (<i>Rubus ellipticus</i>)		Phul kanda (<i>Lantana camara</i>)
			Sajiwan /Kadam (<i>Jatropha curcas</i>)
			Simali (<i>Vitex negundo</i>)
H 3 · 3	Banmara (<i>Eupatorium adenophorum</i>)		Bhujetro (<i>Butea minor</i>)
			Aleri (<i>Acacia pennata</i>)
			Angero (<i>Goldfussia penstemonoides</i>)
			Asare phool (<i>Lagerstroemia indica</i>)
			Barhamase (<i>Nerium indicum</i>)
			Rahar (<i>Cajanus cajan</i>)
		H	Chiraita (<i>Swertia chirayita</i>)
			Kans (<i>Saccharum spontaneum</i>)
			Babiyo (<i>Eulaliopsis binata</i>)
			Amliso (<i>Thysanolaena maxima</i>)
			Muse kharu (<i>Pogonatherum incans</i>)
		3 · 3	Banmara (<i>Eupatorium adenophorum</i>)

Coverage



Sociability



Vegetation Survey Check Sheet

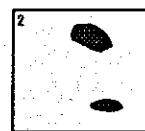
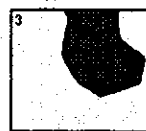
Date: 16 Apr. 99 Vegetation Survey No.: 9 Plant Community: Rani salla Forest
 Altitude: 1170 m Inclination Angle: 40° Inclination Direction: SE
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Sand / Rock (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No.of trees/10x10m
Tree1(T1) >15m	Rani salla (Chir pine)	~20	60	9
Tree2(T2) 5-14m	Rani salla (Chir pine)	7	30	4
Shrub(S) <4m	Satibayar	~2	20	-
(Including low tree)				
Herbaceous	Banmara	0.5	10	

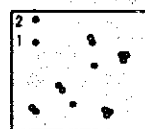
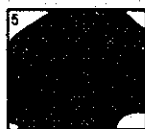
(Slope Protection plants)

S: Coverage·Sociability	Species of Plant	S: Coverage·Sociability	Species of Plant
		T	Uttis (<i>Alnus nepalensis</i>)
T1: 5 · 4	Rani salla (<i>Pinus roxburghii</i>)		Sisoo (<i>Dalbergia sissoo</i>)
			Chilaune (<i>Schima wallichii</i>)
			Seto siris (<i>Albizia procera</i>)
T2: 2 · 1	Rani salla (<i>Pinus roxburghii</i>)		Bakaino (<i>Melia azadarach</i>)
r	Saj (<i>Terminalia alata</i>)		Sai /Sakhuwa (<i>Shorea robusta</i>)
r	Bhogate (<i>Meesa macrophylla</i>)		Khanayo (<i>Ficus semicordata</i>)
r	Tilka (<i>Wendlandia puberula</i>)		Khayer (<i>Acacia catechu</i>)
		r	Bhogate (<i>Meesa macrophylla</i>)
S: 2 · 2	Satibayar (<i>Rhus parviflora</i>)	S r	Dhainyaro (<i>Woodfordia fruticosa</i>)
1	Dhasure (<i>Colebrookea oppositifolia</i>)		Amba (<i>Psidium guajava</i>)
r	Dhainyaro (<i>Woodfordia fruticosa</i>)		Tilka (<i>Wendlandia species</i>)
			Assuro (<i>Adhatoda vasica</i>)
			Bilaune (<i>Maesa chisia</i>)
			Kunyelo (<i>Trema orientalis</i>)
H: 2 · 2	Banmara (<i>Eupatorium adenophorum</i>)	1 · 1	Dhasure (<i>Colebrookea oppositifolia</i>)
			Phul kanda (<i>Lantana camara</i>)
			Sajiwan /Kadam (<i>Jatropha curcas</i>)
			Simali (<i>Vitex negundo</i>)
			Bhujetro (<i>Butea minor</i>)
			Aleri (<i>Acacia pennata</i>)
			Angero (<i>Goldfussia penstemonoides</i>)
			Asare phool (<i>Lagerstroemia indica</i>)
			Barhamase (<i>Nerium indicum</i>)
			Rahar (<i>Cajanus cajan</i>)
		H	Chiraita (<i>Swertia chirayita</i>)
			Kans (<i>Saccharum spontaneum</i>)
			Babiyo (<i>Eulaliopsis binata</i>)
			Amliso (<i>Thysanolaena maxima</i>)
			Muse kharu (<i>Pogonatherum incans</i>)
		2 · 2	Banmara (<i>Eupatorium adenophorum</i>)

Coverage



Sociability



Vegetation Survey Check Sheet

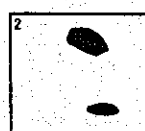
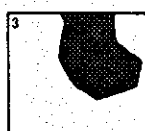
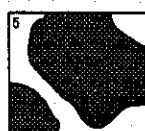
Date: 16 Apr. 99 Vegetation Survey No.: 10 Plant Community: Mixed Rani salla Forest
 Altitude: 820 m Inclination Angle: 30° Inclination Direction: SE
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Silt (Ocher) (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No.of trees/10x10m
Tree1(T1) >15m	Rani salla (Chir pine)	~15	30	3
Tree2(T2) 5-14m	Sal	10	20	2
Shrub(S) <4m		1	50	-
(Including low tree)				
Herbaceous		0.5	40	

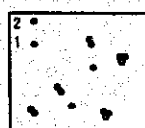
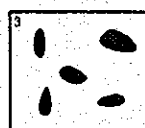
(Slope Protection plants)

S: Coverage·Sociability	Species of Plant	S: Coverage·Sociability	Species of Plant
		T	Uttis (<i>Alnus nepalensis</i>)
T1: 3·3	Rani salla (<i>Pinus roxburghii</i>)		Sisoo (<i>Dalbergia sissoo</i>)
2·2	Sal /Sakhuwa (<i>Shorea robusta</i>)		Chilaune (<i>Schima wallichii</i>)
			Seto siris (<i>Albizia procera</i>)
		1·1	Bakaino (<i>Melia azadarach</i>)
T2: 2·2	Sal /Sakhuwa (<i>Shorea robusta</i>)	2·2	Sal /Sakhuwa (<i>Shorea robusta</i>)
2·2	Rani salla (<i>Pinus roxburghii</i>)		Khanayo (<i>Ficus semicordata</i>)
1·1	Chilaune (<i>Schima wallichii</i>)		Khayer (<i>Acacia catechu</i>)
1·1	Bakaino (<i>Melia azadarach</i>)	1·1	Bhogate (<i>Meesa macrophylla</i>)
1·1	Bhogate (<i>Meesa macrophylla</i>)	S r	Dhainyaro (<i>Woodfordia fruticosa</i>)
r	Kukurdiano (<i>Smilax aspera</i>)		Amba (<i>Psidium guajava</i>)
r	Kamun (<i>Syzygium cerasoides</i>)		Tilka (<i>Wendlandia species</i>)
			Assuro (<i>Adhatoda vasica</i>)
			Bilaune (<i>Maesa chisia</i>)
S: 2·2	Satibayar (<i>Rhus parviflora</i>)		Kunyelo (<i>Trema orientalis</i>)
1·1	Dhasure (<i>Colebrookea oppositifolia</i>)	1·1	Dhasure (<i>Colebrookea oppositifolia</i>)
r	Amala (<i>Phyllanthus emblica</i>)		Phul kanda (<i>Lantana camara</i>)
r	Ainselu (<i>Rubus ellipticus</i>)		Sajiwan /Kadam (<i>Jatropha curcas</i>)
r	Chuleshi (<i>Melastoma normale</i>)		Simali (<i>Vitex negundo</i>)
r	Dhainyaro (<i>Woodfordia fruticosa</i>)		Bhujetro (<i>Butea minor</i>)
			Areri (<i>Acacia pennata</i>)
			Angero (<i>Goldfussia penstemonoides</i>)
			Asare phool (<i>Lagerstroemia indica</i>)
H: 1·2	Banmara (<i>Eupatorium adenophorum</i>)		Barhamase (<i>Nerium indicum</i>)
1·2	Muse kharu (<i>Pogonatherum incans</i>)		Rahar (<i>Cajanus cajan</i>)
1·2	Babiyo (<i>Eulaliopsis binata</i>)	H	Chiraita (<i>Swertia chirayita</i>)
			Kans (<i>Saccharum spontaneum</i>)
		1·2	Babiyo (<i>Eulaliopsis binata</i>)
			Amliso (<i>Thysanolaena maxima</i>)
		1·2	Muse kharu (<i>Pogonatherum incans</i>)
		1·2	Banmara (<i>Eupatorium adenophorum</i>)

Coverage



Sociability



Vegetation Survey Check Sheet

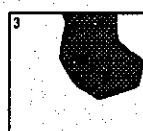
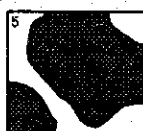
Date: 16 Apr. 99 Vegetation Survey No.: 11 Plant Community: Sal - Rani salla Woods
 Altitude: 600 m Inclination Angle: 50° Inclination Direction: N
 Terrain: Top Ridge Slope(Upper Middle Lower) Riverain
 Sunshine: Much Middle Little Soil Type: Silt (Brown) (Dry Middle Wet)

Stair	Dominant Species	Height (m)	Cover (%)	No.of trees/10x10m
Tree1(T1) >15m	Sal	~15	10	2
Tree2(T2) 5-14m	Rani salla (Chir pine)	~10	30	5
Shrub(S) <4m		1	40	-
(Including low tree)				
Herbaceous		0.5	50	

(Slope Protection plants)

S: Coverage · Sociability	Species of Plant	S: Coverage · Sociability	Species of Plant
T1: 1 · 1	Sal /Sakhuwa (<i>Shorea robusta</i>)	T	Uttis (<i>Alnus nepalensis</i>)
1 · 1	Rani salla (<i>Pinus roxburghii</i>)		Sisoo (<i>Dalbergia sissoo</i>)
			Chilaune (<i>Schima wallichii</i>)
			Seto siris (<i>Albizia procera</i>)
			Bakaino (<i>Melia azadarach</i>)
T2: 2 · 2	Rani salla (<i>Pinus roxburghii</i>)	2 · 2	Sal /Sakhuwa (<i>Shorea robusta</i>)
2 · 1	Sal /Sakhuwa (<i>Shorea robusta</i>)		Khanayo (<i>Ficus semicordata</i>)
			Khayer (<i>Acacia catechu</i>)
			Bhogate (<i>Meesa macrophylla</i>)
S: 2 · 2	Satibayar (<i>Rhus parviflora</i>)	S r	Dhainyaro (<i>Woodfordia fruticosa</i>)
+	Dhasure (<i>Colebrookea oppositifolia</i>)		Amba (<i>Psidium guajava</i>)
r	Amala (<i>Phyllanthus emblica</i>)		Tilka (<i>Wendlandia species</i>)
r	Chuleshi (<i>Melastoma normale</i>)		Assuro (<i>Adhatoda vasica</i>)
r	Dhainyaro (<i>Woodfordia fruticosa</i>)		Bilaune (<i>Maesa chisia</i>)
r	Ketuke (<i>Agave americana</i>)		Kunyelo (<i>Trema orientalis</i>)
		+	Dhasure (<i>Colebrookea oppositifolia</i>)
			Phul kanda (<i>Lantana camara</i>)
H: 2 · 2	Banmara (<i>Eupatorium adenophorum</i>)		Sajiwan /Kadam (<i>Jatropha curcas</i>)
2 · 2	Muse kharu (<i>Pogonatherum incans</i>)		Simali (<i>Vitex negundo</i>)
1 · 2	Babiyo (<i>Eulaliopsis binata</i>)		Bhujetro (<i>Butea minor</i>)
			Areri (<i>Acacia pennata</i>)
			Angero (<i>Goldfussia penstemonoides</i>)
			Asare phool (<i>Lagerstroemia indica</i>)
			Barhamase (<i>Nerium indicum</i>)
			Rahar (<i>Cajanus cajan</i>)
		H	Chiraita (<i>Swertia chirayita</i>)
			Kans (<i>Saccharum spontaneum</i>)
		2 · 2	Babiyo (<i>Eulaliopsis binata</i>)
			Amliso (<i>Thysanolaena maxima</i>)
		2 · 2	Muse kharu (<i>Pogonatherum incans</i>)
		1 · 2	Banmara (<i>Eupatorium adenophorum</i>)

Coverage



Sociability

