

### E-9 State of Sediment Deposition at Dam Pengendali in Study Area

(Nov. and Dec., 1994 Survey)

No	Location		Construction Year	Dam Dimension (m)			Catchment Area		Dam Reservoir					Soil Deposited on slope (Tons/ha/yr)	Remarks
	Desa	Working Area		Height	Length	Crest Width	Area (ha)	Land Use	Ave. Depth of Sed. (m)	Sed. Area (m <sup>2</sup> )	Ave. Sed. Vol. (m <sup>3</sup> )	Ave. Sed. Vol. (Tons/yr)	Ave. Sed. Vol. (Tons/ha/yr)		
								(a)	(b)	(c)	(d)	(e)	(f)		
1	Oenoni	Oesao East	82/83	8	71	4	56	Kc Ppa	0.52	1,075	559	648	54	1.0	6.1
2	Tesbatan (Neofnee)	Oesao East	85/86	8	42	4	20	Sb Kc	0.20	1,674	335	389	43	2.2	13.3
3	Tesbatan (Pangkoto)	Oesao East	85/86	8	80	4	11	Ppa Kc	0.40	750	300	348	39	3.5	21.2
4	Ponain	Oesao East	92/93	6	45	4	27	Ppa Kp, Kc	0.06	300	18	21	11	0.4	2.4
5	Babau No.1	Oesao West	85/86	8	77	4	19	Pr Ppb, Kc	0.23	3,025	696	807	90	5.0	29.6
6	Babau No.2	Oesao West	85/86	6	40	4	20	Ppb Pr	0.40	3,114	1,246	1,445	161	8.1	48.0
7	Nonbes (Oeteum)	Oesao West	92/93	7	42	4	16	Sb Ppb	—	—	—	—	—	—	Some 7,100 m <sup>3</sup> water in dam reservoir in Nov.
8	Tuatuka	Oesao West	80/81	7	100	4	85	Sb Ppb	—	—	—	—	—	—	Spillway destroyed in 1990
9	Oefafi	Oesao West	87/88	7	88	4	40	Tg Ppa	0.21	3,040	638	740	106	2.7	16.0
10	Embung (Babau, PU)	Oesao West	90/91	10	82	4	47	Pr	—	—	—	—	—	—	Some 27,000 m <sup>3</sup> water in dam reservoir in Nov.
11	Oefafi (Tasipa)	Olio	85/86	6	90	4	14	Tg Ppa	0.30	2,940	882	1,023	114	8.1	40.1
12	Tuapukan	Olio	82/83	8	90	4	14	Kca Ppa	0.41	1,716	704	817	68	5.0	25.0
13	Oelpuah (Haosisi)	Oebelo	85/86	7	46	4	19	Kp K Ppa	0.42	980	412	478	53	2.8	16.0
14	Merdeka	Oebelo	84/85	8	70	4	21	Ppa	0.40	1,414	566	657	66	3.1	17.8

Note: 1) Except for dams No.8 and 10 the catchment area of other dams was estimated using topographical maps of the scale 1/10,000.

2) Data source for dam dimension and year of construction is Cabang RLKT, Kupang.

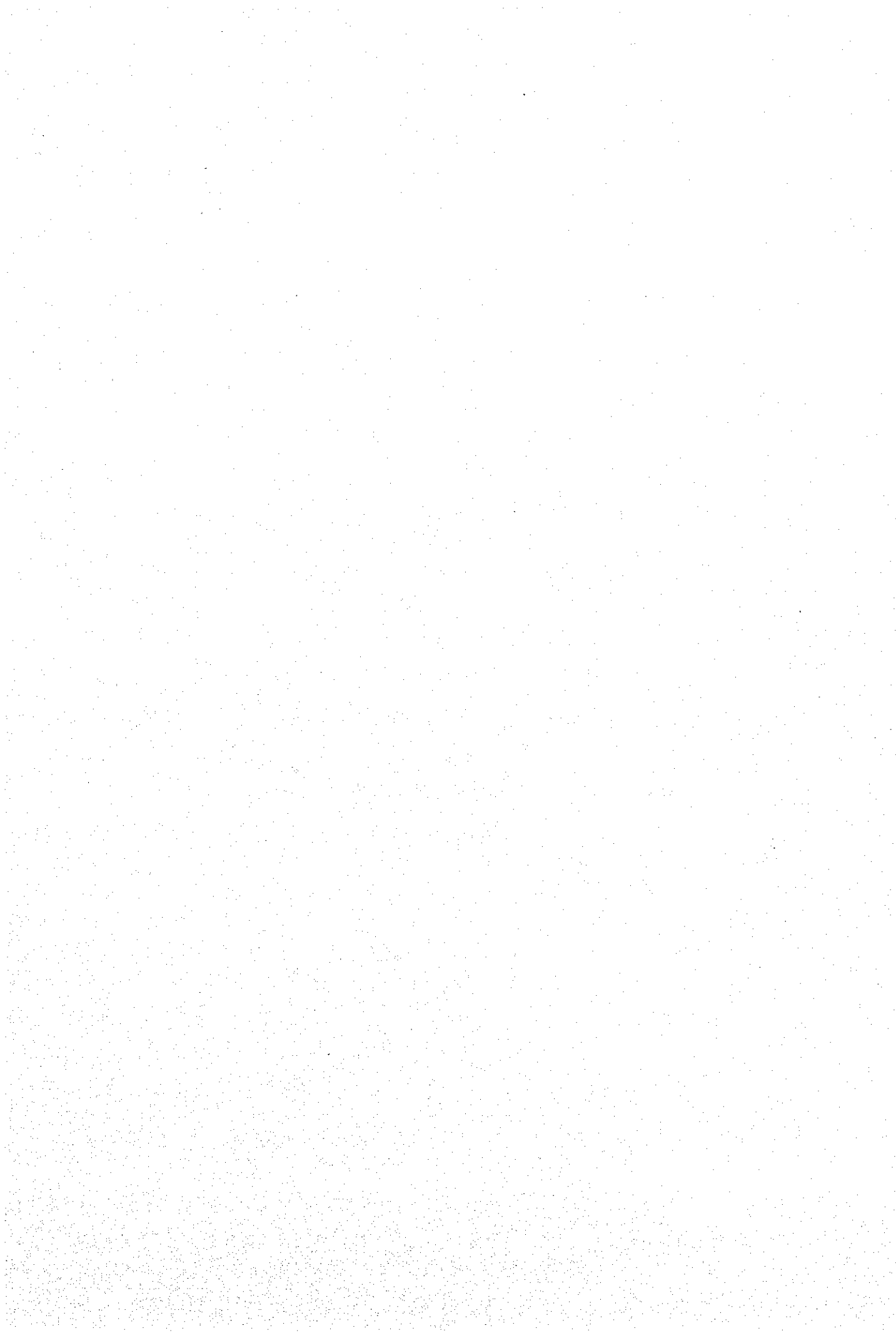
3) Refer to Table 2 in Progress Report of this study for meaning of land use symbols.

4) Sediment weight is calculated by multiplying the sediment Vol. (m<sup>3</sup>) by bulk density of alluvial soil, i.e. 1.16, established by soil survey in this study.

**E-10 Occurrences of Flooding in Study Area and Its Vicinity (1990 - 1994)**

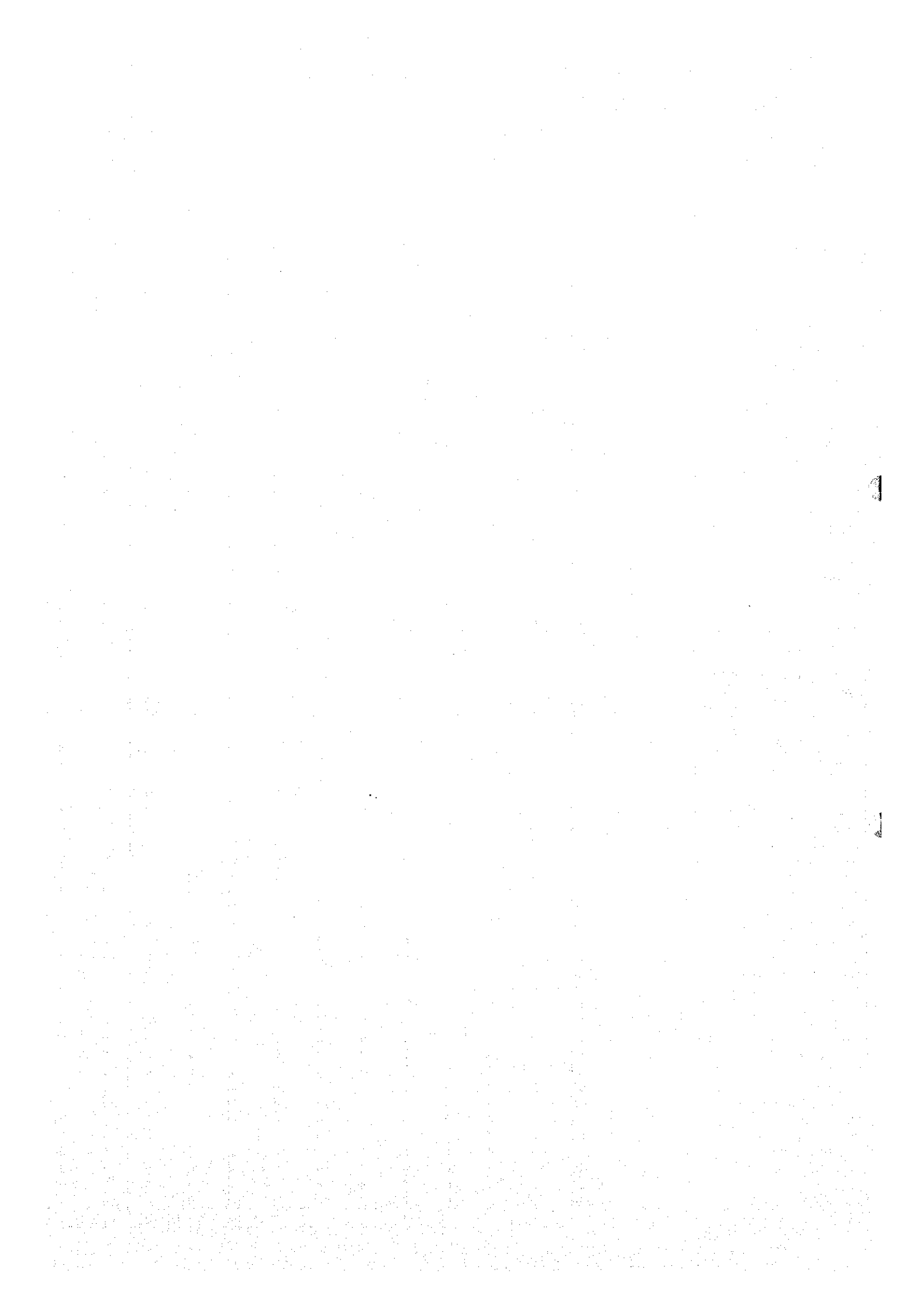
Year	Location and Damage	Location and Damage
1990	-	-
1991 April 12	Desa Noelbaki Kecamatan Kupang Tengah - Several houses and public buildings (details unavailable) - Some 12 ha of paddy fields - Thousands of coconut palm and other kind of trees damaged	Desa Tarus Kecamatan Kupang Tengah - 18 houses and public buildings - 1,383 ha of mainly king grass fields - 736 fruit trees - 26 animals killed [Flooding of Manikin River]
1992 - 1993	-	-
1994 March 30	Desa Oebesi Kecamatan Amarasi - 17 houses and public buildings [Responsible river is unknown] Desa Oebesi is located just outside the western border of the Study Area	

Source: Bagian Sosial Sekwilda TK II Kupang, Aug., 1994





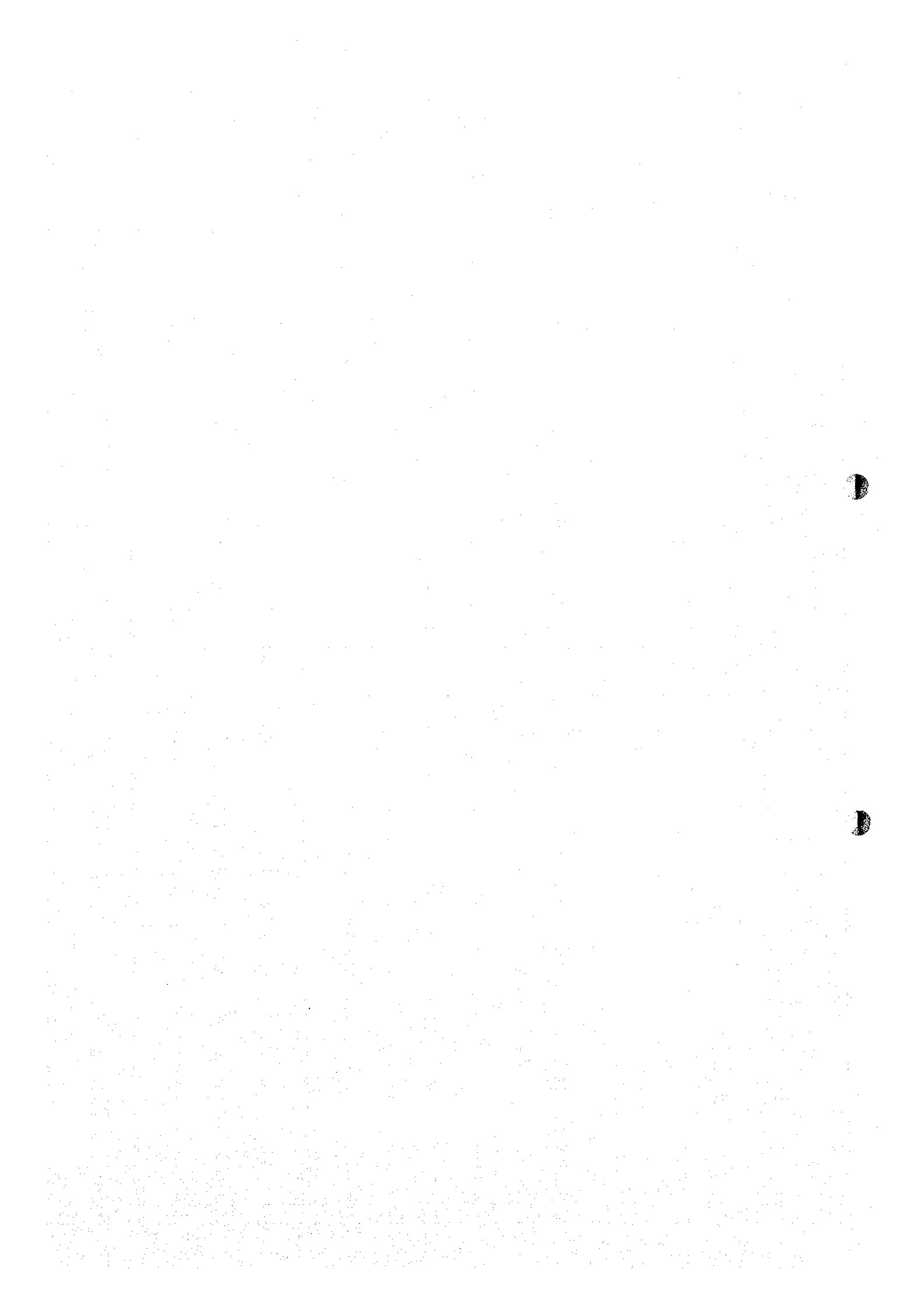






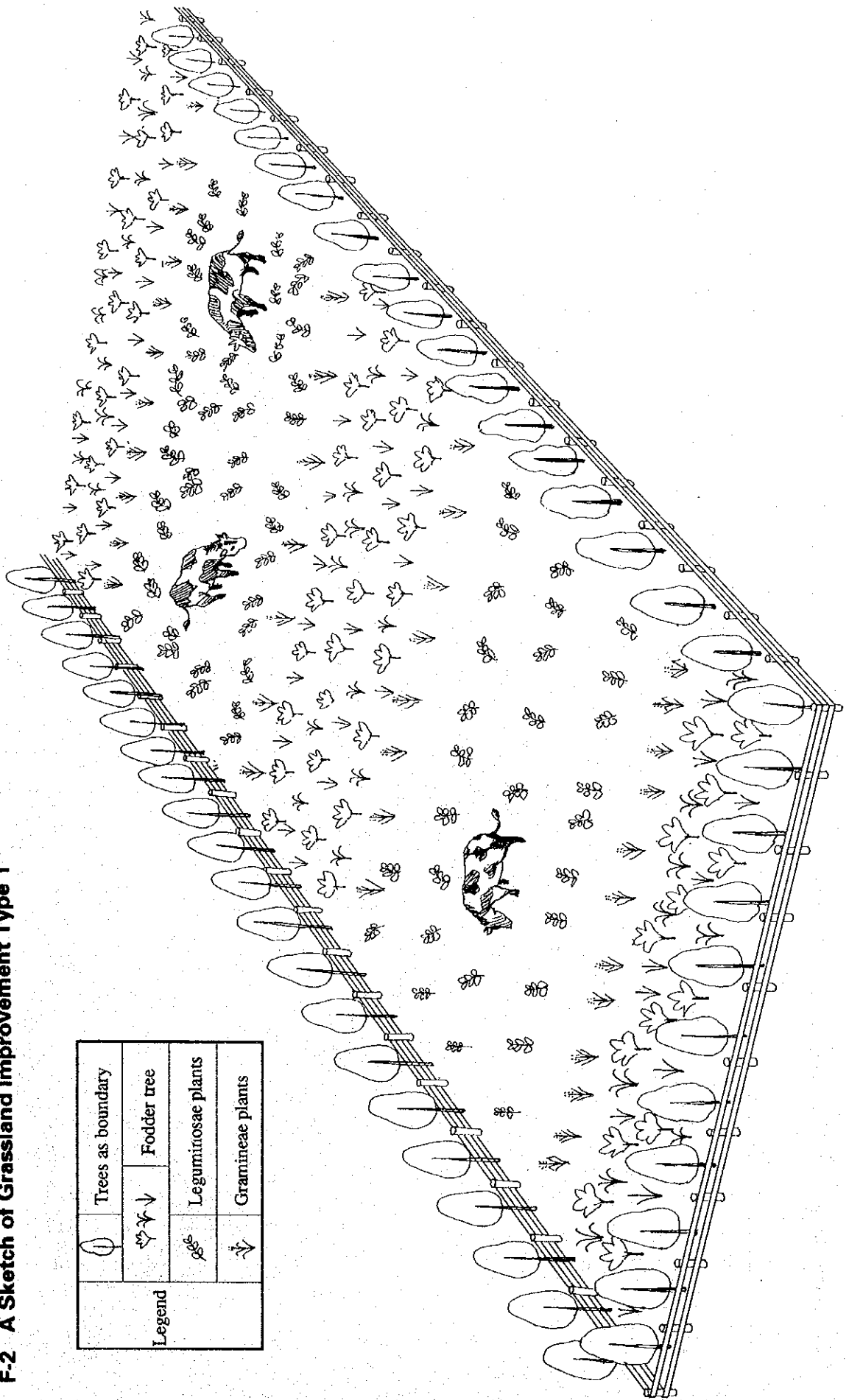






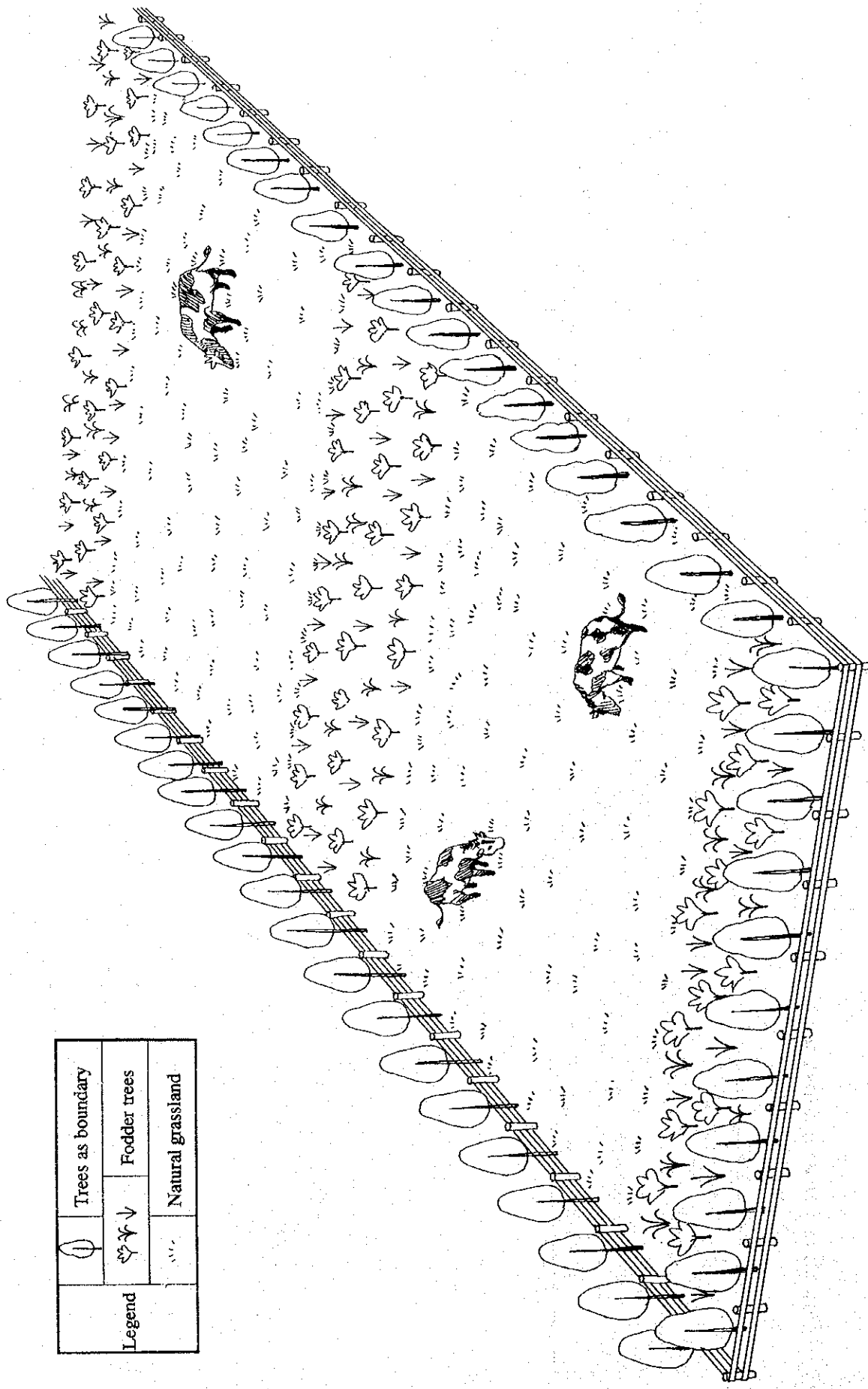


F-2 A Sketch of Grassland Improvement Type 1










Legend		Trees as boundary	

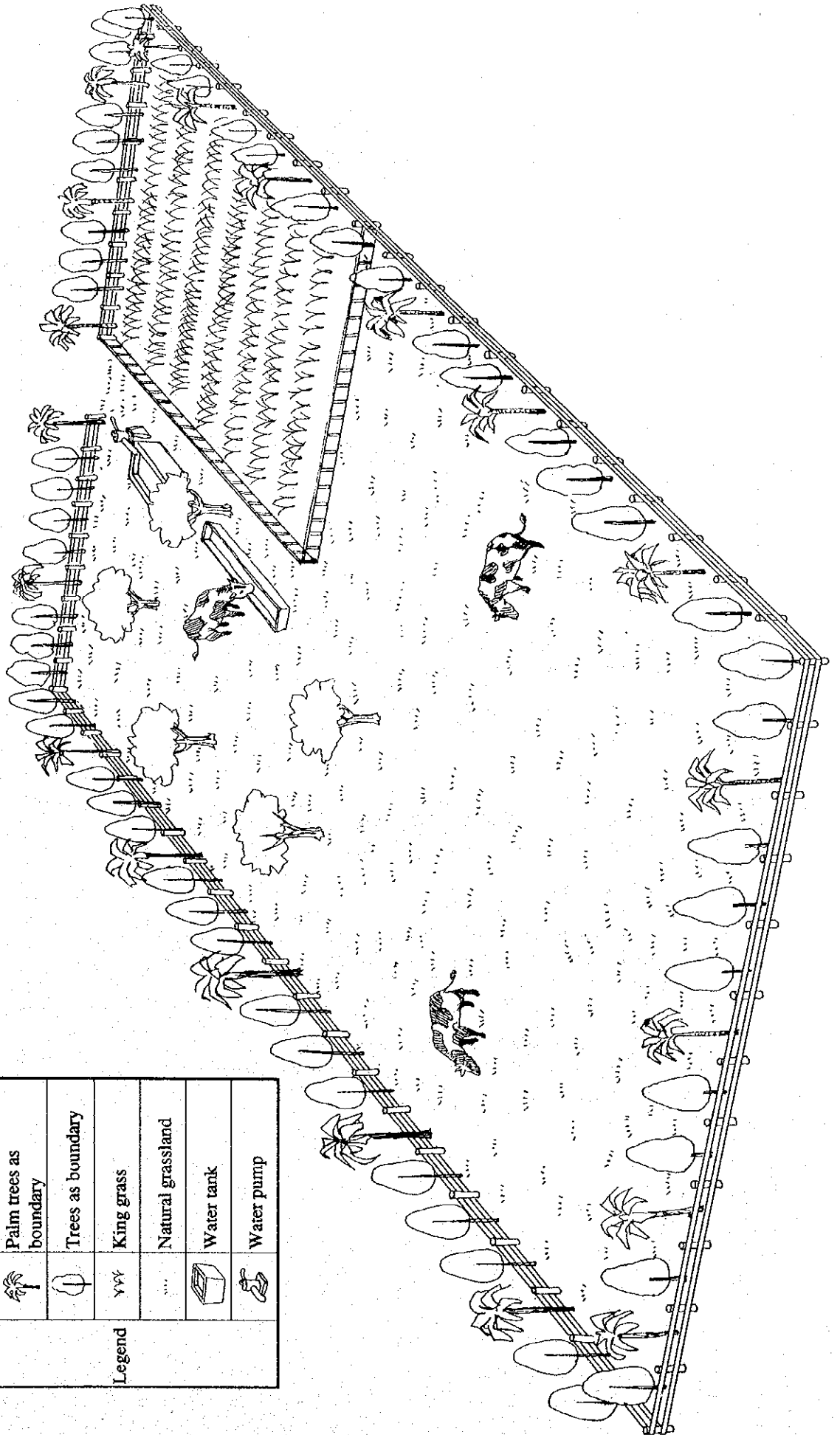
F-3 A Sketch of Grassland Improvement Type 2



Legend	Tree symbol	Trees as boundary
	Tree symbol with arrow	Fodder trees
	Grass symbol	Natural grassland

**F-4 A Sketch of Fodder Field Demonstration Plot**

		Shade trees
		Palm trees as boundary
		Trees as boundary
Legend		King grass
		Natural grassland
		Water tank
		Water pump



### F-5 Major Surface Erosion Control Measures and Resulting Reduction of Soil Loss

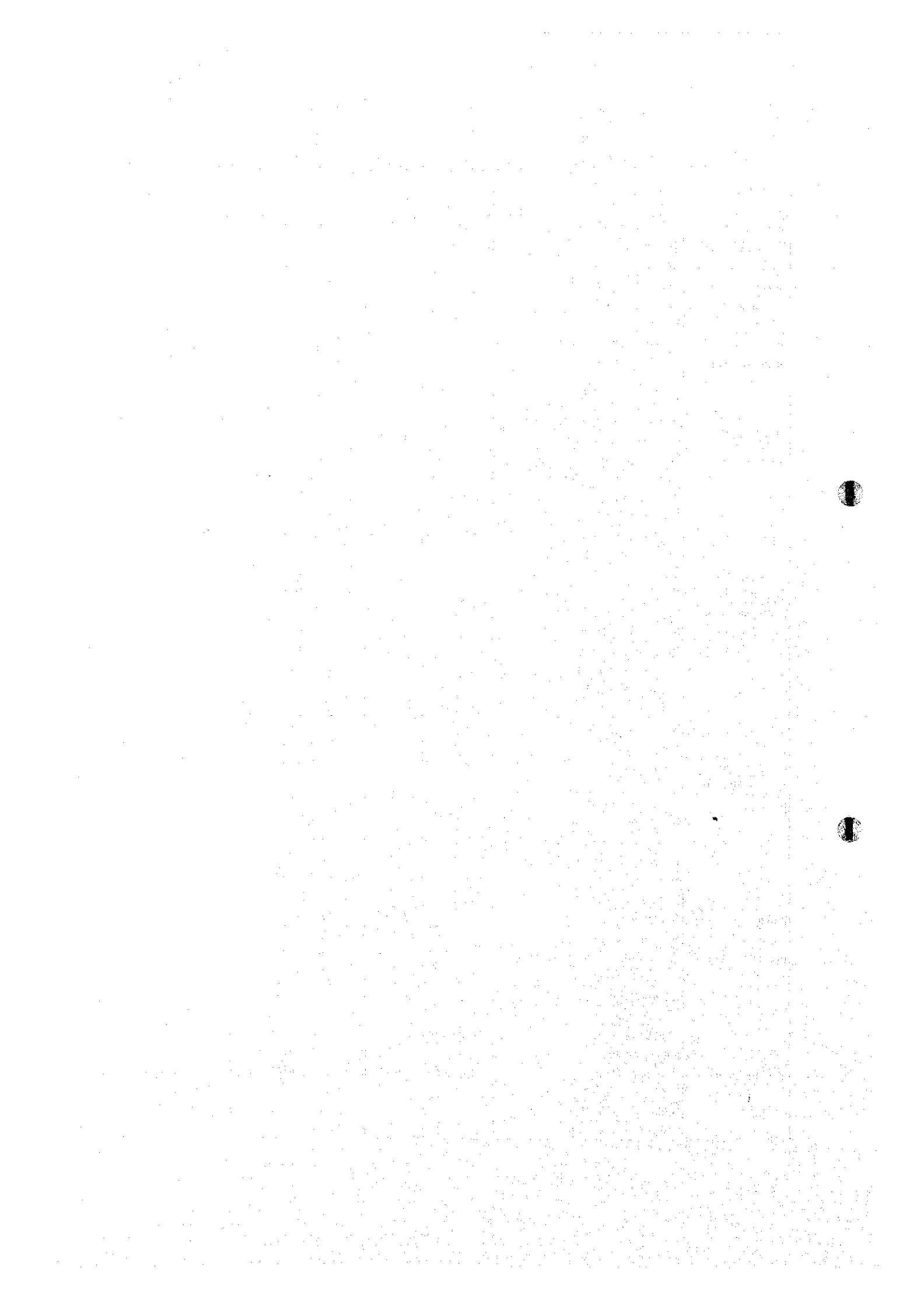
Land Use	Current Conditions and New Control Measures	Soil Loss (tons/ha/year)	Reduction of Soil Loss (%)
Mixed Garden	o Aramasi traditional terracing (erosion control effect of which is believed to be similar to that of the opening rows of lamtoro)	7.3	
	→ Improved terracing and the planting of fruit trees (soil loss is assumed to be 50% of the reforestation site)	1.3	82
Dry Crop Field	o Soil loss from a dry crop field is equivalent to that of total opening and burning of a lamtoro field	9.8	
	→ Vegetational barrier (soil loss is equivalent to that of a reforestation site)	2.5	74
	→ Reforestation (same as above)	2.5	74
	→ Teras gulud (soil loss is equivalent to that of an improved terrace)	1.3	87
Grassland	o Soil loss from grassland	7.7	
	→ Reforestation (fodder forest) (soil loss is equivalent to that of a reforestation site)	2.5	67
	→ Pasture	2.5	67
Shrub Land	o Soil loss from shrub land (equivalent to that of total opening and burned dry crop field due to burning)	9.8	
	→ Reforestation	2.5	74
Remarks	The introduction of appropriate grazing practices and the control of burning should reduce the soil loss of natural grassland by approximately 10%	-	-

**Note**

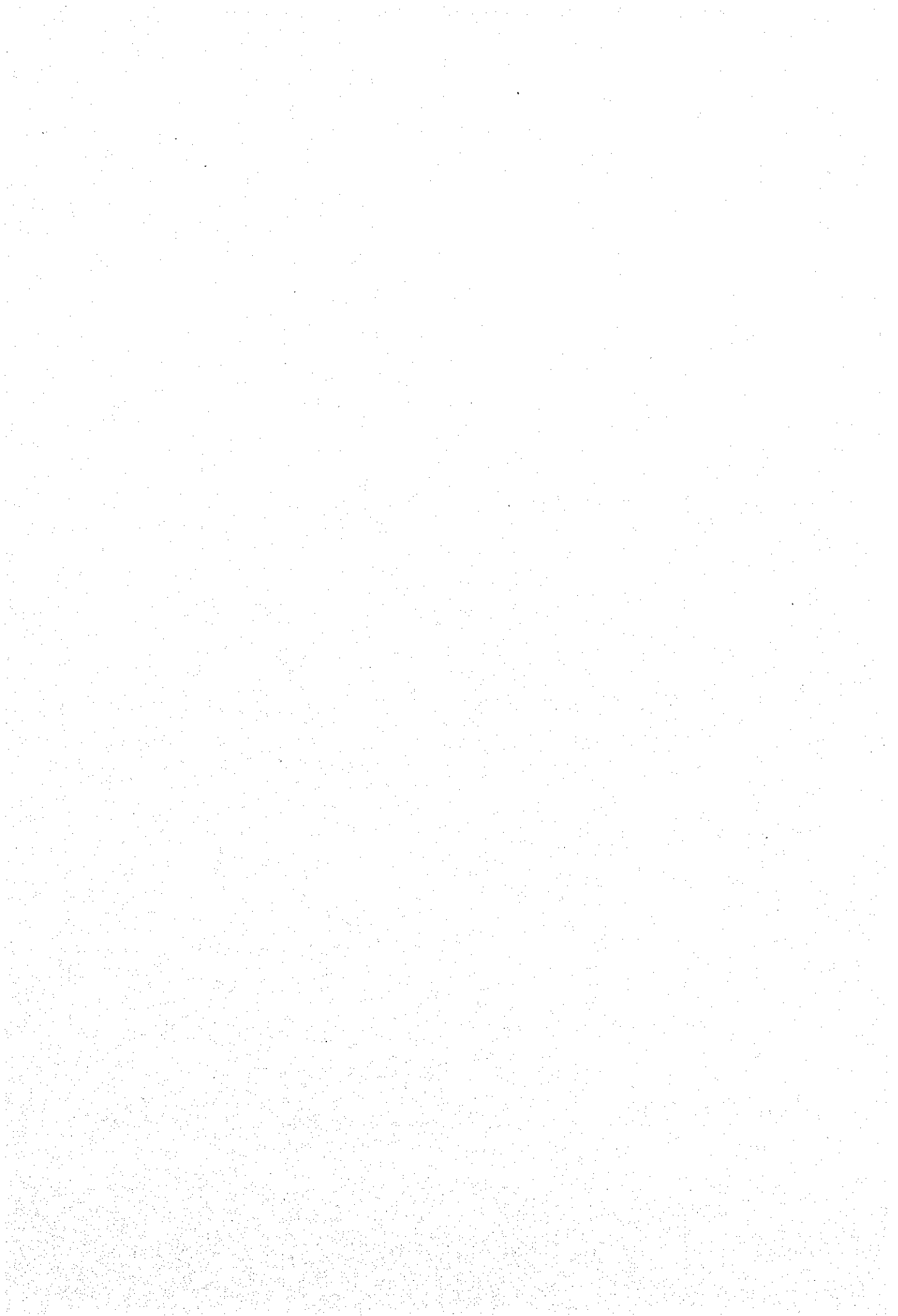
- o : current land use or soil and water conservation measure
- : soil and water conservation measure to be introduced under the Plan

### F-6 Basic Data for Plan Implementation Cost Estimation

Planning Item		Unit	Base Year	Unit Cost	Remarks
Reforestation National Forest, etc.)	Reforestation 1	Rp/ha	1995	870,000	
	Reforestation 2	"	"	710,000	
	Reforestation 3	"	"	290,000	
Reforestation (Enclave and Private Land)	Reforestation 1	"	"	510,000	
	Reforestation 2	"	"	450,000	
	Reforestation 3	"	"	290,000	
Farmland Improvement	Farmland Improvement 1	"	"	550,000	
	Farmland Improvement 2	"	"	180,000	
	Improved Terrace	"	1994	150,000	
	Terrace Gulud	"	"	175,000	
	Vegetative Interception Works	"	"	80,000	
Grassland Improvement	Grassland Improvement 1	"	1995	940,000	
	Grassland Improvement 2	"	"	770,000	
	Dry Crop or Wet Field	"	"	170,000	
	Watering Place (Natural Grassland Improvement)	Rp/unit	"	1,000,000	
	Fodder Field	Rp/ha	"	1,572,000	Demonstration plot at irrigable site
Settlement Environmental Conservation	Well (Drinking/Infiltration)	Rp/unit	1994	1,230,000	
	Tree Planting	Rp/tree	"	1,000	
	Hedge	"	"	200	
Gully and Bank Conservation	Earth Check Dam	Rp/unit	"	36,570,000	
	Small Check Dam	"	"	4,500,000	
	Bamboo Gully Plug	"	"	100,000	
	Gabion Gully Plug	"	"	650,000	
	Infiltration Ditch	Rp/m	"	1,500	
	Planting	Rp/ha	"	730,000	
	Revetment Works	Rp/m	"	55,000	
	Bank Planting	Rp/ha	"	730,000	
Landslide Site Rehabilitation	Gabion Earth Retaining Works	Rp/m	"	85,000	
Road	New Forest Road	Rp/m	"	12,000	
	New Community Road	"	"	32,000	
	Road Improvement (Asphalt)	"	"	68,000	
	Road Improvement (Gravel)	"	"	16,800	
	Side Ditch	"	"	760	
	Falling Works	Rp/unit	"	9,800	
Nursery	New Nursery	"	1995	1,700,000	
	Maintenance	"	"	119,000	
Forest Protection	New Fire Look-Out	"	1994	17,300,000	
	Communication Facilities	"	"	1,425,000	
	Radio Equipment	"	"	650,000	
	Jet Shooter	"	"	640,000	
	Watchman Wage	Rp/person	"	3,250	
	Patrolman Wage	"	"	3,250	
Management	Personnel Cost	Rp/unit	1995	101,300,000	Incl. travelling expenses; wages for labourers' & external lecturers
	Building Service Equipment	"	"	478,194,000	Incl. vehicle cost
	Office Running Cost	"	"	9,894,000	







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