

Tabel III-1.4.2 Harga Kayu Potong

Spesies	Selling price from farmer (Rp / m3)	Selling price at the shop (Rp / m3)	Remarks
Linggua (<i>Pterocarpus indicus</i>)	1.750,000	2.250,000	Plank
Cempaka (<i>Elmerillia sp.</i>)	700,000	950,000	Plank
		850,000	Beam
Nantu (<i>Palaquium obtusifolium</i>)	450,000	600,000	Plank/Beam
Pulutan (<i>Palaquium obovatum</i>)	450,000	600,000	Beam
Mahoni (<i>Swietenia macrophylla</i>)	450,000	600,000	Beam
Durian (<i>Durio zibetinus</i>)	400,000	550,000	Plank/Beam
Wusel (<i>Pometia tomentosa</i>)	400,000	550,000	Plank/Beam
Wolo (<i>Pterospermum celebicum</i>)	300,000	450,000	Plank
Wakan (<i>Lithocarpus celebicus</i>)	300,000	450,000	Plank
Kananga (<i>Cananga odorata</i>)	300,000	450,000	Plank

Source : 1. Toko / Timbunan di Tomohon (the owner: Mr.Piet Oroh)

2. Mr. Nico Polii (forestry officer / KRPH Tomohon)

Spesies	Selling price from farmer (Rp / m3)	Selling price at the shop (Rp / m3)	Remarks
Cempaka (<i>Elmerillia sp.</i>)		1,000,000	Plank/Beam
Nantu (<i>Palaquium obtusifolium</i>)		500,000	Plank/Beam
Wakan (<i>Lithocarpus celebicus</i>)		500,000	Plank/Beam

Source : Usaha Karya Woloan Village

Spesies	Selling price from farmer (Rp / m3)	Selling price at the shop (Rp / m3)	Remarks
Linggua (<i>Pterocarpus indicus</i>)		2,000,000	Plank
Cempaka (<i>Elmerillia sp.</i>)		800,000	Plank/Beam
Nantu (<i>Palaquium obtusifolium</i>)		500,000	Plank/Beam

Source : UD Purna Yudha Kinamang Leilem Village

Spesies	Selling price from farmer (Rp / m3)	Selling price at the shop (Rp / m3)	Remarks
Linggua (<i>Pterocarpus indicus</i>)		2,000,000	Plank
Cempaka (<i>Elmerillia sp.</i>)		800,000	Plank/Beam
Nantu (<i>Palaquium obtusifolium</i>)		500,000	Plank/Beam

Source : UD. Reymond Leilem Village

Spesies	Selling price from farmer (Rp / m3)	Selling price at the shop (Rp / m3)	Remarks
Cempaka (<i>Elmerillia sp.</i>)		900,000	Plank
Nantu (<i>Palaquium obtusifolium</i>)		600,000	Plank/Beam
Lower quality than Nantu		375,000	Plank/Beam

Source : Walian Jaya (Timber Shop) Tomohon

Spesies	Selling price from farmer (Rp / m3)	Selling price at the shop (Rp / m3)	Remarks
Linggua (<i>Pterocarpus indicus</i>)		2,500,000	Plank
Cempaka (<i>Elmerillia sp.</i>)		925,000	Plank/Beam
Nantu (<i>Palaquium obtusifolium</i>)		625,000	Plank/Beam
Lower quality than Nantu		425,000	Plank/Beam

Source : UD. Kalpataru Manado

Spesies	Selling price from farmer (Rp / m3)	Selling price at the shop (Rp / m3)	Remarks
Linggua (<i>Pterocarpus indicus</i>)		2,000,000	Plank
Cempaka (<i>Elmerillia sp.</i>)		900,000	Plank/Beam
Nantu (<i>Palaquium obtusifolium</i>)		500,000 - 550,000	Plank/Beam
Lower quality than Nantu		350,000	Plank/Beam

Source : Dinas Kehutanan Minahasa (Mr. Esry Wowor)

Tabel III-1.4.3 Jenis Pohon yang Berguna di Wilayah Studi

No	Latin Name	Lokal Name	Usage
1	2	3	4
1	<i>Agathis celebica</i>	Agatis / Damar	Construction, Plywood, Furniture, Music and sports instruments, matches, pulp, pencil
2	<i>Annona mucikata</i>	Sirsak	Fruits
3	<i>Artocarpus integra</i>	Nangka	Fruits, Vegetables
4	<i>Aleurites molluccana</i>	Kemiri	Spice, Cosmetics
5	<i>Areca oxycarpa</i>	Palem	Land conservation
6	<i>Areca cathecu</i>	Pinang	Medicine, Ornamental purpose
7	<i>Arenga undulatifolia</i>	Aren/enau	Sugar, Alcohol, Broom, rope
8	<i>Averrhoa carambeia</i>	Belimbing	Fruits
9	<i>Albizia falcataria</i>	Sengon	Construction, Wrapping materials
10	<i>Casuarina sumatrana</i>	Cemara	Land conservation
11	<i>Casuarina junghuniana</i>	Cemara	Land conservation
12	<i>Casuarina equisetifolia</i>	Cemara	Land conservation, Ornamental
13	<i>Cananga odorata</i>	Kenanga	Construction
13	<i>Cinnamomum burmanii</i>	Kayu manis	Spice
14	<i>Cocos nucifera</i>	Kelapa	Oil, Flour, Firewood, Furniture
15	<i>Cordia blancoi</i>	Kanonan	Fuel wood, Paste
16	<i>Durio zibethinus</i>	Durian	Construction, Fruits
17	<i>Dysoxylum caulestachium</i>	Tombawak	Construction
18	<i>Excocoria agalloca</i>	mapopok	Construction
19	<i>Elmerillia celebica</i>	Cempaka wasian	Construction, Door and window frame
20	<i>Elmerllia ovalis</i>	Cempaka	Construction, Door and window frame
21	<i>Eugenia aromatica</i>	Cengkih	Fruits
22	<i>Eugenia aquatica</i>	Jambu air	Fruits
23	<i>Eugenia malaccensis</i>	Jambu	Fruits
24	<i>Erytrina cristagali</i>	Dadap	Land conservation
24	<i>Ficus celebensis</i>	Beringin	Land conservation
26	<i>Ficus benyamina</i>	Beringin	Land conservation
27	<i>Gnetum genemon</i>	Melinjo/ganemo	Vegetable
28	<i>Garcinia manggostana</i>	Manggis	Fruits
29	<i>Koordersiodendron pinatum</i>	Kayu bugis	Construction
30	<i>Lansium domesticum</i>	Lansat	Fruits
31	<i>Lithocarous celebicus</i>	Wakan	Construction
32	<i>Livistona rotundivolia</i>	Woka	Land conservation, Wrapping materials
33	<i>Metroxylon sagu</i>	Rumbia	Sago flour, Roofing materials
34	<i>Myristica fragrans</i>	Pala	Fruits, Spece
35	<i>Mangifera indica</i>	Mangga	Fruits
36	<i>Nephelium lappacium</i>	Rambutan	Fruits
37	<i>Octomeles Sumatrana</i>	Binuang	Construction, Door and window frame
38	<i>Palaquium Abovatum</i>	Pulutan	Construction, Door and window frame
39	<i>Palaquium Obtusifolium</i>	Nantu	Construction, Door and window frame
40	<i>Pangium Edule</i>	Pangi	Vegetable
41	<i>Pinus merkusii</i>	Pinus	Construction, Firewood, Pulp, Resin
42	<i>Pingafetha Filaris</i>	Nibong	Land conservation
43	<i>Pterocarpus indicus</i>	Angsana/Linggua	Furniture, Door and window frame
44	<i>Pterospermium Celebicum</i>	Wolo	Construction
45	<i>Parsia Speriosa</i>	Petai	Vegetable
46	<i>Parsia Americana</i>	Alpoket	Fruits
47	<i>Pometia Tomentosa</i>	Wusel	Construction
48	<i>Sivietenia Macrophylla</i>	Mahoni	Furniture, Door and window frame
49	<i>Spondias pinata</i>	Kedondong	Fruits
50	<i>Toona Celebica</i>	Lalumpek	Construction

Tabel III-1.5.1 Penggunaan Lahan Pertanian dengan Jenis Lereng dan Jenis Pertanian

Location	Sub-district	Farming Type	Steep slope	Moderate slope	Gentle slope	Flat	Total	Location	Sub-district	Farming Type	Steep slope	Moderate slope	Gentle slope	Flat	Total
East	Toulimambot	AGF.- I	294	0	0	0	294	West	Remboken-E	AGF.- I	0	30	0	0	30
		AGF.- II	0	20	0	0	20			AGF.- II	0	0	60	0	60
		AGF.- III	79	70	0	0	149			AGF.- III	0	105	20	0	125
		Upland-F	0	31	0	7	38			Upland-F	0	0	0	53	53
		Lowland-F	0	0	0	169	169			Lowland-F	0	0	0	0	0
		Total	373	121	0	176	670			Total	135	80	53	268	
	Eris	AGF.- I	874	0	0	0	874		Kakas-W	AGF.- I	0	175	0	0	175
		AGF.- II	13	49	0	0	62			AGF.- II	0	30	15	35	80
		AGF.- III	88	0	0	0	88			AGF.- III	0	135	0	0	135
		Upland-F	0	23	0	6	29			Upland-F	0	0	0	50	50
		Lowland-F	0	0	0	100	100			Lowland-F	0	0	0	7	7
		Total	975	72	0	106	1,153			Total	340	15	92	447	
	Kakas-E	AGF.- I	297	218	0	0	515		Tondano	AGF.- I	140	281	0	0	421
		AGF.- II	0	75	0	32	107			AGF.- II	0	450	0	0	450
		AGF.- III	0	36	0	0	36			AGF.- III	0	570	0	0	570
		Upland-F	0	0	0	32	32			Upland-F	0	20	440	81	541
		Lowland-F	0	0	0	119	119			Lowland-F	0	0	0	88	88
		Total	297	329	0	183	809			Total	140	1,321	440	169	2,070
South	Langowan	AGF.- I	101	100	0	0	201	Remboken-W	AGF.- I	0	351	0	0	351	
		AGF.- II	0	0	209	232	441		AGF.- II	0	59	260	0	319	
		AGF.- III	0	260	79	0	339		AGF.- III	0	400	0	0	400	
		Upland-F	0	0	0	398	398		Upland-F	0	0	320	160	480	
		Lowland-F	0	0	0	105	105		Lowland-F	0	0	0	30	30	
		Total	101	360	288	735	1,484		Total	0	810	580	190	1,580	
	Tompaso	AGF.- I	15	13	0	0	28	Total	AGF.- I	1,721	1,168	0	0	2,889	
		AGF.- II	0	8	98	111	217		AGF.- II	13	691	642	410	1,757	
		AGF.- III	0	125	0	0	125		AGF.- III	167	1,701	99	0	1,968	
		Upland-F	0	0	6	134	140		Upland-F	0	74	766	921	1,761	
		Lowland-F	0	0	0	20	20		Lowland-F	0	0	0	638	638	
		Total	15	146	104	265	530		Total	1,901	3,634	1,507	1,969	9,012	

Note: AGF-I; Agroforestry type I, AGF-II; Agroforestry type II, and AGF-III; Agroforestry type III

Steep slope: Slope more than 25%, Slope; slope 15-25%, Gentle slope; slope 8-15% and Flat; slope 0-8%

Tabel III-1.5.2 Hasil Panen saat ini di Wilayah Intensif

Location		Tree crops							Herbaceous crops					
		Coconut	Clove	Coffee	Cocoa	Cinnamon	Vanila	Fruits	Maize	Ground nuts	Cowpeas	Cassava	Vegetables*	Paddy
East	Area (ha)	83	846	55	3	26	18	64	623	3	9	3	1	620
	Yield (kg/ha)	1,200	200	950	600		100		2,900	1,080	900	15,000	7,000	4,800
	Production (ton)	100	169	52	2	0	2	0	1,807	3	8	45	7	2,976
South	Area (ha)	49	201	19	0	3	7	19	1,785	19	83	1	155	328
	Yield (kg/ha)	1,200	200	950	600		100		2,900	1,080	900	15,000	7,000	4,800
	Production (ton)	59	40	18	0	0	1	0	5,177	21	75	15	1,085	1,574
West	Area (ha)	54	424	69	29	0	24	146	2,935	301	37	29	185	200
	Yield (kg/ha)	1,200	200	950	600		100		2,900	1,080	900	15,000	7,000	4,800
	Production (ton)	65	85	66	17	0	2	0	8,512	325	33	435	1,295	960
Total	Area (ha)	186	1,471	143	32	29	49	229	5,343	323	129	33	341	1,148
	Yield (kg/ha)	1,200	200	950	600		100		2,900	1,080	900	15,000	7,000	4,800
	Production (ton)	223	294	136	19	0	5	0	15,495	349	116	495	2,387	5,510

* Yield is estimated by yield of tomato.

Tabel III-1.6.1 Jenis Pohon untuk Pertanian Hutan

Species	Suitable Altitude (m)	Suitable Rain fall (mm/year)	Suitable Soil			Production age	Adaptability
			pH	Depth (cm)	Type		
Estate crops							
Clove (<i>Eugenia aromatica</i>)	200-600	1500-4700	3.0-7.0		Well drained	5-6	o
Coconut (<i>Cocos nucifera</i>)	0-600	1200-2000	4.3-8.3	75		4	o
Coffee (<i>Coffea</i> sp.)	0-600	1550-1800	4.5-5.5	150	Loomy	3	o
Vanilla (<i>Vanilla fragras</i>)	0-800	2000-2500			Deep loomy sand	3	o
Cinnamon(<i>Cinnamomum zeylanicum</i>)						5-6	o
Cocoa (<i>Theobroma cacao</i>)	0-500 (1000)	1000-3000			Deep Loamy sand	3	o
Nutmeg (<i>Myristica fragrans</i>)	0-700	1400-2450	4.5-7.5		Sandy soil		o
Candle nuts (<i>Aleurites moluccana</i>)	0-700	1000-2500			Volcanic	5-6	o
Cashew (<i>Anacardium occidentale</i>)	0-700 (800)	500-3200	5-8		Deep Sandy	5-6	o
Sugar palm (<i>Arenga pinnata</i>)	700-1000				Volcanic	3	o
Pepper (<i>Piper nigrum</i>)	0-500(1000)	1500-2000	4.3-7.4		Loomy		x
Rubber (<i>Hevea brasiliensis</i>)	0-500	Rain forest	Acidic-nutral			5	x
Fruits							
Durian (<i>Durio zibethinus</i>)	1-1000	1500-2500	5.5-7		Well drained	5-10	o
Mango (<i>Mangifera indica</i>)	0-500(600)	760-2000	5.5-7.5		Deep Loam	4	o
Mangostin (<i>Garcinia mangostana</i>)	0-500	1500-2500	Acidic		Deep Loam	10-15	o
Avogado (<i>Persea americana</i>)	0-500	1500-3000	5.5-6.5		Volcanic	6	o
Langsat (<i>Lancium domesticum</i>)	30-500	1500-2500	5.5-7.0		Loose	5	o
Rambutan (200-1500	1500-2500	5.5-7.0		Well drained	8	o
Jackfruit (<i>Artocarpus integra</i>)	0-700(1000)	>1500	5.0-7.0		Deep Well drained	5	o
Banana (<i>Musa</i> sp.)	0-1500	1400-2500					o
Guava (<i>Psidium guajava</i>)	0-800	700-3700	5.5-7.5		Deep Well drained	5	o
Citrus sp.	0-1200	1500-2000	5.5-6.5	100	Sandy loam	3-4	o
Trees							
Cempaka(<i>Elmerillia ovalis</i>)	0-1000	2000-4000				20	o
Albizia(<i>Paraserianthes falcataria</i>)	0-1200	2000-4000	Acidic-nutral		Well drained	5 (for pulp), 20	o
Piper (<i>Piper aduncum</i>)							Autogenensis
Ficus sp							Autogenensis
Pangium (<i>Pangium edule</i>)							o
Tayapu (<i>Trema orientaris</i>)	300-2500	1000-2000	Nutral-basic		Loam	15	o
Mahogany(<i>Swientenia</i> sp.)	50-1400	1600-4000	Nutral-basic		Nutral-basic	15	o
Nyatou Batu(<i>Paraquium</i> sp.)	0-1000	2000-4000	Acidic-nutral			20	o
Kanonang (<i>Cordia blancoi</i>)	0-1000	Rain forest	Acidic-nutral				o
Dadap/Walantaken (<i>Erythrina</i>)	0-1000	Rain forest	Acidic-nutral				
Angsana pterocarpus	0-1000	Rain forest				30	o
Linggua (<i>Pterocarpus indica</i>)	0-1800	2000-4000				30-40	o
Pinus sp.	200-2000				Volcanic		x
Teak(<i>Tectona grandis</i>)	0-900	1250-2500	Acidic-nutral		Well drained	80	x
Meranti (<i>Shorea</i> Sp.)	0-1000				Well drained	50	x
Multipurpose trees							
Calliandra calothyrsus	150-1500	2000-4000	moderate acidic		Well drained		o
Gliricidia sepium	0-1600	1500-2300	Acidic-nutral		Well drained		o
Gmelina arborea	0-1200	950-4500	Acidic		Well drained	15	o
Leucaena Leucocephala	0-1000	600-3000	Nutral-basic		Well drained		x
Acacia auriculiformis	0-800	1500-2500	3-9			5-7 (for pulp)	x
A. mangium	0-720	1000-4500	Acidic-nutral			5-7(for pulp)	x
Jatropha Curcas(Balacai)	10-1000	2000-4000					

Source: Imperata Grassland Rehabilitation using Agroforestry and assisted Natural Regeneration, ICRAF 1999

Jenis-Jenis Pohon Serba Guna BRLKT 1999/2000, Netai no Yuyo Jushu, TARC Japan 1977

Note: o; Suitable, x: not suitable

Tabel III-1.6.2 Wilayah Penanaman, Produksi dan Nilai dari Cengkih di Sulawesi Utara

Year	Price (Rp/kg)	Planted area (ha)	Production (ton)	Yield (kg/ha)	Exchange Rp/US 1	Price (US\$/kg)	Value (US\$ mil)
1969	1,189	15,396	2,007	130			
1970	1,396	10,616	2,103	198	381	3.66	7.7
1971	1,334	18,425	2,022	110			
1972	1,478	18,149	904	50			
1973	1,328	19,484	8,000	411	618	2.15	17.2
1974	3,528	20,486	700	34	551	6.41	4.5
1975	4,135	24,485	2,800	114	522	7.92	22.2
1976	4,301	25,406	160	6	450	9.56	1.5
1977	4,146	26,856	12,000	447	474	8.74	104.9
1978	4,130	28,432	2,400	84	621	6.65	16.0
1979	8,161	30,008	4,800	160	627	13.01	62.5
1980	7,796	31,157	12,042	386	628	12.42	149.6
1981	8,144	33,158	6,700	202	644	12.64	84.7
1982	8,289	34,734	9,116	262	693	11.97	109.1
1983	7,960	36,301	10,000	275	994	8.01	80.1
1984	6,322	38,041	3,500	92	1,074	5.89	20.6
1985	8,535	39,305	4,000	102	1,125	7.58	30.3
1986	6,750	40,856	5,000	122	1,641	4.11	20.6
1987	6,100	40,856	5,000	122	1,650	3.70	18.5
1988	4,400	42,650	1,000	23	1,729	2.54	2.5
1989	6,350	43,650	3,500	80	1,795	3.54	12.4
1990	7,050	43,650	7,000	160	1,901	3.71	26.0
1991	7,900	43,700	14,215	325	1,992	3.97	56.4
1992	5,270	43,700	10,000	229	2,062	2.56	25.6
1993	3,200	43,700	6,000	137	2,110	1.52	9.1
1994	3,000	43,700	10,500	240	2,200	1.36	14.3
1995	2,500	43,485	10,990	253	2,308	1.08	11.9
1996	2,601	43,009	4,200	98	2,383	1.09	4.6
1997	2,997	43,009	7,400	172	4,650	0.64	4.8
1998	6,707	43,009	15,550	362	8,025	0.84	13.0
1999	20,107	43,009	1,800	42	7,100	2.83	5.1
2000	35,000	43,009			8,600	4.07	

Source: 1. Dinas Perkebunan North Sulawesi, 2. Dinas perkebunan Minahasa
3. Peranan Komoditi Cengkeh Terhadap Pertumbuhan Ekonomi Daerah Sulawesi Utara, 4. Bank Negara Indonesia

Tabel III-1.6.3 Wilayah Penggunaan Lahan Pertanian yang Tidak Cocok

Site		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Location	Kecamatan	Kakas	Kakas	Kakas	Kakas	Kakas	Kakas	Remboken	Remboken	Remboken	Tondano	Tondano	Tondano	Tondano	Tondano	Tondano	Tondano	Langowan	Eris
	Village	Passo	Passo	Passo	Passo	Passo	Passo	Sinuian	Leleko	Leleko	Urongo	Palelowan	Palelowan	Palelowan	Palelowan	Palelowan	Palelowan	Kawatak	Tandegan
		N 01°16'39" E 124°51'19"	N 01°12'46" E 124°51'23"	N 01°12'46" E 124°51'27"	N 01°12'57" E 124°51'36"	N 01°12'42" E 124°51'20"	N 01°12'56" E 124°51'23"	N 01°13'20" E 124°51'23"	N 01°14'07" E 124°52'18"	N 01°14'15" E 124°52'24"	N 01°14'10" E 124°52'40"	N 01°14'15" E 124°52'49"	N 01°14'40" E 124°53'24"	N 01°14'44" E 124°53'25"	N 01°15'10" E 124°53'40"	N 01°15'27" E 124°53'44"	N 01°15'48" E 124°53'59"	N 01°7'46" E 124°50'20"	N 01°13'20" E 124°56'16"
Area	Length (m)	80	30	30	50	50	40	35	40	35	50	20	50	50	40	40	40	350	100
	Width (m)	100	40	180	55	100	50	30	50	50	50	50	150	100	50	50	100	400	150
	Area (sq. m)	8,000	1,200	5,400	2,750	5,000	2,000	1,050	2,000	1,750	2,500	1,000	7,500	5,000	2,000	2,000	4,000	140,000	15,000
Gradient (%)		50	50	50	50	58	36	27	36	36	36	36	36	36					
Elevation																			
Present land use		AGF- II	Fallow	UF	UF	AGF-III	AGF-III	UF	AGF-II	Fallow/AGF-II	Fallow/AGF-II	AGF-III	AGF-III	AGF-III	AGF-II	AGF-II	AGF-II	AGF-I/UF	AGF-III
	Tree	Bamboo				Bamboo						Ficus		Bamboo		Bamboo			Cempaka
	Fruit	Banana	Banana	Banana Langsat	Banana Langsat	Avogado Langsat	Mango Langsat		Mango Durian	Mango Banana Langsat	Mango Banana Langsat	Jackfruit Banana	Jackfruit Mango Banana Langsat	Jackfruit Mango Banana Langsat	Durian Langsat	Banana Papaya	Durian Jackfruit Guava Mango		
	Estate crops	Coconut Clove Sinamon				Clove Coffee	Clove		Coconut	Clove Coconut	Clove Coconut Sugar palm	Coconut Sugar palm	Coconut Sugar palm	Clove Coffee Coconut Sugar palm	Coconut	Coconut Clove	Coconut Clove	Clove Sugar palm	Clove
	Field crops	Maize		Maize	Maize Cassava Fallow	Maize	Maize	Maize	Maize	Maize Fallow	Maize Fallow	Maize Cassava	Maize Cassava	Maize Cassava	Maize	Maize	Maize	Maize	Maize Groundnut
	Headge crop	Gliricidea		Gliricidea Bnana	None	Banana	None	None	Gliricidea	Gliricidea	Gliricidea	Gliricidea Banana Cassava	None Banana Cassava	None Banana Cassava	None	None	Gliricidea	Gliricidea Banana	Gliricidea
	Ridge					0.15x0.3: 0.8					Terrace: 1.2x0.5								

Tabel III-1.8.1 Kondisi Cek-dam yang telah ada (1/2)

No.	Name of the Dam	Location							Year of Construction	Government Agency	Catchment Area (ha)	Dam Dimension				
		North Latitude	East Longitude	Town	Sub District	Sub-watershed No.	Zone	Area				Type	No. of the Dam (nos.)	Crest Length (m)	Dam Height (m)	Crest Width (m)
CD - 1	Tataaran II	01°16'45"	124°52'02"	Tataaran II	Tondano	2	Bm1	West	1983/1984	BRLKT	133	Earth Fill Dam	1	25.0	4.0	4.0
CD - 2	Tataaran II	01°16'39"	124°52'05"	Tataaran II	Tondano	2	Bm1	West	1984/1985	BRLKT	32	Earth Fill Dam	1	45.0	6.5	10.0
CD - 3	Tataaran I	01°16'06"	124°52'48"	Tataaran I	Tondano	-	Bm2	West	1983/1984	BRLKT	81	Earth Fill Dam	1	45.0	Unknown	4.0
CD - 4	Roong	01°15'57"	124°53'32"	Tounsaru	Tondano	5	Bm2	West	1982/1983	BRLKT	100	Earth Fill Dam	1	40.0	4.5	3.5
CD - 5	Leleko	01°15'01"	124°51'56"	Leleko	Remboken	6	Bm2	West	1984/1985	BRLKT	68	Earth Fill Dam	1	45.0	5.0	2.5
CD - 6	Kasuratan	01°15'07"	124°50'11"	Kasuratan	Remboken	-	Bm3	West	1991/1992	BRLKT	22	Earth Fill Dam	1	30.0	2.0	3.5
CD - 7	Pulutan	01°13'11"	124°50'09"	Pulutan	Remboken	-	Bm2	West	1995/1996	District Forest Service	13	Earth Fill Dam	1	44.0	6.0	3.5
CD - 8	Touure	01°08'50"	124°47'15"	Touure	Tompasso	10	Bm2	South	1991/1992	BRLKT	59.2	Earth Fill Dam	1	-	-	-
CD - 9	Tumaratas	01°09'12"	124°48'14"	Tumaratas	Langowan	11	F	South	1993/1994	District Forest Service	379	Earth Fill Dam	1	45.0	8.0	4.0
CD - 10	Tounelet	01°07'57"	124°50'21"	Tounelet	Langowan	-	Bm2	South	1997/1998	District Forest Service	19	Earth Fill Dam	1	40.0	4.5	3.5
CD - 11	Tountimomor	01°11'04"	124°52'26"	Tountimomor	Kakas	-	-	-	1997/1998	District Forest Service	6,770	Gabion Box Check Dam	2	7.0	Unknown	-
CD - 12	Telap	01°12'44"	124°54'48"	Telap	Eris	16	Bm1	East	1994/1995	District Forest Service	42	Dam Penahan	4	4.0	0.0	-
CD - 13	Eris	01°13'30"	124°55'06"	Eris	Eris	17	Bm1	East	1984/1985	BRLKT	100	Earth Fill Dam	1	75.0	2.5	4.0
CD - 14	Tandengan	01°13'51"	124°55'47"	Tandengan	Eris	19	Bm1	East	1984/1985	BRLKT	30	Earth Fill Dam	1	40.0	4.0	4.0
CD - 15	Ranomerut	01°14'41"	124°56'01"	Ranomerut	Eris	-	Bm2	East	1983/1984	BRLKT	13	Earth Fill Dam	1	35.0	3.0	6.0
CD - 16	Touliang Oki	01°15'07"	124°56'36"	Touliang Oki	Eris	24	Bm2	East	1997/1998	Provincial Irrigation Office	104	Wet Masonry Gravity Dam	1	80.0	5.0	3.0
CD - 17	Touliang Oki	01°15'25"	124°56'13"	Touliang Oki	Eris	-	Bm2	East	1983/1984	BRLKT	21	Earth Fill Dam	1	50.0	3.5	4.0

Tabel III-1.8.1 Kondisi Cek-dam yang telah ada(2/2)

No.	Name of the Dam	Condition of Sediment Control			Condition of Water Supply				Condition of Dam Body
		Status of Sediment Control	Deposition Gradient (%)	Average Sediment Yield (ton/ha/year)	Intention for Water Supply	Purpose of Water Supply	Present Land Use of Downstream	Condition of Downstream Irrigation System	
CD - 1	Tataaran II	Functioning	N/A	N/A	Yes	Irrigation	Arable Upland	Not functioning	
CD - 2	Tataaran II	Functioning	N/A	N/A	Yes	Irrigation	Arable Upland	Not functioning	
CD - 3	Tataaran I	Abandoned	N/A	N/A	Yes	Irrigation	University Campus / Arable Upland	Abandoned	
CD - 4	Roong	Functioning	0.5	2,800	Yes	Irrigation	Grassland	Not Functioning	
CD - 5	Leleko	Functioning	1.8	3,000	Yes	Irrigation	Arable Upland	Not functioning	A part of dam body has damaged.
CD - 6	Kasuratan	Functioning	N/A	N/A	No	None	-	-	A part of spillway has damaged.
CD - 7	Pulutan	Functioning	3.0	1,000	No	None	-	-	
CD - 8	Touure	Not Functioning	N/A	N/A	No	None	-	-	Dam body has collapsed.
CD - 9	Tumaratas	Functioning	N/A	N/A	Yes	Irrigation	Paddy Field	Good	
CD - 10	Tounelet	Functioning	N/A	N/A	Yes	Irrigation	Paddy Field	Unknown	
CD - 11	Tountimomor	Functioning	N/A	N/A	No	None	-	-	
CD - 12	Telap	Functioning	N/A	N/A	No	None	-	-	
CD - 13	Eris	Functioning	N/A	N/A	Yes	Inland Fishery	Fish Pond	-	
CD - 14	Tandengan	Functioning	N/A	N/A	Yes	Irrigation	Paddy Field	Not functioning	
CD - 15	Ranomerut	Functioning	N/A	N/A	Yes	Irrigation	Paddy	Bad	
CD - 16	Touliang Oki	Functioning	N/A	N/A	No	None	-	-	
CD - 17	Touliang Oki	Functioning	N/A	N/A	Yes	Irrigation	Paddy	Good	

Table III-1.10.1 Jenis dari Kepentingan Komersial di Wilayah Intensif (1/2)

No	Species	Kal	Tam	Kas	Man	Commercial Value
1	<i>Ainnaucleafagifolia</i>		+			Commercial wood
2	<i>Ailanthus integrifolia</i>		+	+	+	Commercial wood
3	<i>Alstonia scholaris</i>	+				Commercial wood and medicinal plants
4	<i>Areca vestiaria</i>		+	+	+	Ornamental plant
5	<i>Arengapinnata</i>			+	+	Multi-useful plant
6	<i>Begonia</i> sp		+			Ornamental plant
7	<i>Bhischoffia javannica</i>	+				Ornamental plant
8	<i>Calamus</i> sp 2		+	+	+	Industrial materials
9	<i>Calamus</i> sp 2		+		+	Industrial materials
10	<i>Calamus zollingeri</i>	+				Industrial materials
11	<i>Calathea</i> sp		+			Ornamental plant
12	<i>Callophyllum</i> sp 1	+	+	+		Ornamental plant
13	<i>Callophyllum soulattn</i>	+			+	Ornamental plant
14	<i>Callophyllum</i> sp 2		+			Ornamental plant
15	<i>Cananum hirtsutum</i>		+	+		Commercial wood
16	<i>Canarium</i> sp 1		+	+		Commercial wood
17	<i>Canarium</i> sp 3			+	+	Commercial wood
18	<i>Canarium</i> sp 4				+	Commercial wood
19	<i>Canarium</i> sp 5		+			Commercial wood
20	<i>Canarium</i> sp 2	+				Commercial wood
21	<i>Cananum vulgare</i>	+		+		Commercial wood
22	<i>Caryota mitis</i>	+		+		Ornamental plant
23	<i>Garyota urens</i>				+	Ornamental plant
24	<i>Casuanna selebica</i>	+				Commercial wood/ Ornamental wood
25	<i>Cinamomum culilawan</i>				+	Medicinal plant
26	<i>Dracaena</i> sp			+		Ornamental plant
27	<i>Dracontomelon dao</i>			+		Commercial wood
28	<i>Elmenilia ovalis</i>	+	+	+		Commercial wood
29	<i>Erythrina</i> sp				+	Commercial wood
30	<i>Ficus benyamina</i>	+				Ornamental plant
31	<i>Ficus celebensis</i>	+	+	+		Ornamental plant
32	<i>Flagellaria indica</i>				+	Ornamental plant
33	<i>Garctinia macrophylla</i>			+		Commercial wood
34	<i>Homalium celebicum</i>	+				Commercial wood
35	<i>Homalium</i> sp		+	+		Commercial wood
36	<i>Knema</i> sp				+	Commercial wood
37	<i>Lantana camara</i>			+		Medicinal plant
38	<i>Lithocarpus celebicus</i>	+				Commercial wood
39	<i>Lithocarpus</i> sp		+	+	+	Commercial wood
40	<i>Macaranga gigantea</i>	+				Commercial wood
41	<i>Magnolia paulantha</i>		+			Commercial wood
42	<i>Mallotus</i> sp	+		+	+	Commercial wood
43	<i>Mangifera minor</i>	+				Commercial wood
44	<i>Myristica fatua</i>			+		Commercial wood
45	<i>Nephrolepis biserata</i>		+			Ornamental plant
46	<i>Oplismenus</i> sp		+	+	+	Ornamental plant
47	<i>Palaquium</i> sp 2	+				Commercial wood

Note: Kal = Kaluta forest, Tarn = Tarnpusu forest, Kas = Kasuratan forest, Man = Manimporok forest

Tabel III-1.10.1 Jenis dari Kepentingan Komersial di Wilayah Intensif (2/2)

No	Species	Kal	Tam	Kas	Man	Commercial Value
48	<i>Palaquium obovatum</i>	+		+		Commercial wood
49	<i>Palaquium obtusifolium</i>			+	+	Commercial wood
50	<i>Palaquium sp 1</i>			+		Commercial wood
51	<i>Palaquium sp 3</i>				+	Commercial wood
52	<i>Pharaserianthes minahasae</i>	+				Commercial wood
53	<i>Pigaffeta flaris</i>			+	+	Ornamental plant
54	<i>Pinanga caesia</i>	+	+	+	+	Ornamental plant
55	<i>Pinanga celebica</i>			+		Ornamental plant
56	<i>Pinanga sp</i>		+	+	+	Ornamental plant
57	<i>Polyalthia macrophylla</i>				+	Commercial wood
58	<i>Pathos sp</i>	+				Commercial wood
59	<i>Pterocarpus indicus</i>	+				Commercial wood
60	<i>Sarcocephallus cadamba</i>	+				Commercial wood
61	<i>Schefflera sp</i>	+			+	Ornamental plant
62	<i>Schimattogictis sp</i>			+		Ornamental plant
63	<i>Scindapsus sp</i>		+	+		Ornamental plant
64	<i>Selaginella intermedia</i>			+		Ornamental plant
65	<i>Shorea sp</i>				+	Commercial wood
66	<i>Spathoglottis sp</i>				+	Ornamental plant
67	<i>Syngonium sp</i>		+	+	+	Ornamental plant
68	<i>Talauma celebica</i>		+	+		Commercial wood
69	<i>Terminalia bellinca</i>		+	+	+	Commercial wood
70	<i>Trema orinentalis</i>				+	Commercial wood
71	Unknown 11	+				Commercial wood
72	Unknown 13			+	+	Ornamental plant
73	Unknown 14	+	+	+	+	Ornamental plant
74	Unknown 15			+		Ornamental plant
75	Unknown 16		+	+	+	Ornamental plant
76	<i>Ficus microcarpa</i>		+			Ornamental plant
77	<i>Ficus sp 1</i>			+		Ornamental plant

Note: Kal = Kaluta forest, Tarn = Tarnpusu forest, Kas = Kasuratan forest, Man = Manimporok forest