

Tables

Table D.2.1 Comparison between New and Old Forestry Laws(1/2)

Definitions	
Forestry Law 5/1967	Forestry Law 41/1999
<ul style="list-style-type: none"> ◇ Forest: A land grown with trees and be entirely of the natural creature, which is determined by the government ◇ Forest Area: An area particularly determined by the government to be or to be converted into a permanent forest ◇ Forestry: Activities closely related with forest and its management 	<ul style="list-style-type: none"> ◇ Forest: A unit of ecosystem in the form of land comprising biological resources and natural trees ◇ Forest Area: An area particularly determined by the government to be a permanent forest ◇ Forestry: A system of integrated management pertaining to forest, forest area, forest production
Classification of Forest	
Forestry Law 5/1967	Forestry Law 41/1999
<ul style="list-style-type: none"> ◇ State Forest: A forest with no ownership ◇ State forest is divided into 4 categories: Preservation, Conservation, Production, and Tourism Forest ◇ Preservation Forest: A forest preserved to manage water, to prevent flood and soil erosion ◇ Conservation Forest: A forest for natural and wildlife conservation ◇ Production Forest: A forest to produce forest products to fulfill people's interest in development, industry and export ◇ Property Forest: A forest with ownership 	<ul style="list-style-type: none"> ◇ State Forest: A forest with no ownership rights. It includes <i>adat</i> or customary forest ◇ Government determines forests according to its main function: Protection, Conservation and Production Forest ◇ Protection Forest: Similar to "Preservation Forest" defined in the previous law ◇ Conservation Forest: Similar to the one defined in the previous law ◇ Production Forest: A forest wherein the main function is to produce forest products ◇ Right Forest: A forest with ownership rights
Forest Administration	
Forestry Law 5/1967	Forestry Law 41/1999
<ul style="list-style-type: none"> ◇ Activities: Forest Planning and Forest Management ◇ Forestry Planning: Components not specified. The plan should be concerned with: management of water flood and erosion, forest products and marketing, natural protection for science, culture, national defense, recreation and tourism, transmigration, and agriculture ◇ Forest Management: Activities to manage protection, inventory, research, restoration, and production of forests ◇ Government authority over non-state forest: The operation of Property Forest is conducted by the owners under the Minister's direction 	<ul style="list-style-type: none"> ◇ Activities: Forest Planning, Forest Management, Forestry Research and Development, Education and Training, Extension and Supervision ◇ Forestry Planning: Components; forest inventory, forest area gazettment, forest area land use, establishment of forest management area and preparation of forestry plan. The definition and guideline of each component are described. ◇ Forest Management: Activities including; organizing forest and preparation of forest management plan; utilization of forest and use of forest area; forest rehabilitation and reclamation and; forest protection and nature conservation. The definition and guideline of each activity are explained ◇ Government authority over non-state forest: Not specified.

Table D.2.1 Comparison between New and Old Forestry Laws(2/2)

Forest Utilization	
Forestry Law 5/1967	Forestry Law 41/1999
<ul style="list-style-type: none"> ✧ Principle: Forest exploration for the development of national economy and people's prosperity. The exploration should be based on the principle of forest preservation. ✧ Guideline: The law briefly mentions that the state and regional and private corporations have rights to explore the forest 	<ul style="list-style-type: none"> ✧ Principle: Forest utilization for obtaining optimal and fair benefits for people's welfare while maintaining its sustainability. ✧ Guideline: The law describes business licensing, harvesting and processing of forest products and utilization of customary forest
Forest Rehabilitation	
Forestry Law 5/1967	Forestry Law 41/1999
<ul style="list-style-type: none"> ✧ No specific explanation of forest rehabilitation 	<ul style="list-style-type: none"> ✧ Activities: Reforestation, re-greening, tending, enrichment planting and application of soil conservation through vegetation and mechanical means on critical and non-productive lands ✧ Selection of Area: Criteria based on specific biophysics conditions
Forest Protection	
Forestry Law 5/1967	Forestry Law 41/1999
<ul style="list-style-type: none"> ✧ Guideline: Implementation in accordance with regulations and people's rights 	<ul style="list-style-type: none"> ✧ Guideline: Forest protection within the state forest be undertaken by the state, within the right forest be undertaken by the holder of rights. ✧ Article 50: Specific regulation on protection area (see the box below) ✧ Article 51: Specific schemes to ensure the enforcement of the regulation (see the box below)
Other Features	
Forestry Law 5/1967	Forestry Law 41/1999
<ul style="list-style-type: none"> ✧ Customary law is implicitly positioned inferior to government planning 	<ul style="list-style-type: none"> ✧ Concerns for Customary Law Community: A community recognized as being governed by <i>adat</i> law has a right to collect forest products for the needs of community and to manage forest. ✧ Community Participation: The law provides communities the right to utilize forest in accordance with prevailing laws and regulations. The government is obliged to encourage people participation. ✧ Compensation: The law states that communities within or around forest have the rights to receive compensation for losing assets or ownership rights.

Table D.2.2 Articles 50 and 51 of Law 41/1999

Article 50

1. Any person is prohibited to destroy the infrastructure and facilities of forest protection.
2. Anybody who has received the license of forest are use; the license of utilising environmental services, the right of timber and non-timber forest product utilisation, the license of timber and non-timber forest product collection; is not allowed to undertake any activities leading to forest damage.
3. No one is allowed to:
 - a. cultivate and / or use and / or occupy illegally a forest area;
 - b. encroach a forest area;
 - c. cut trees within a radius or distance up to:
 1. 500 (five hundred) meters from the edge of a lake;
 2. 200 (two hundred) meters from the edge of water sources and along side rivers in a swamp area;
 3. 100 (hundred) meters alongside of rivers;
 4. 50 (fifty) meters alongside of streams
 5. 2 (two) times the depth of ravine from the edge of ravine;
 6. 130 (one hundred thirty) times the difference between the highest and the lowest tide, measured from the coastline.
 - a. burn the forest;
 - b. cut trees or harvest or collect any forest product within the forest area without holding any rights or license issued by authorised officials;
 - c. receive, buy or sell, receive as an exchange, receive as an entrusted goods, keep or posses any forest product which were allegedly harvested from a forest area through an illegal way.
 - d. undertake general investigation, activities, exploration or exploitation of mine materials within the forest are without minister's approval;
 - e. carry, posses or keep forest product without being accompanied by any legal document;
 - f. graze livestock within the forest area which is not assigned specifically by authorised officials for that purpose;
 - g. bring heavy equipment or other tools which are commonly used or will presumably be used for loading forest product within forest area, without any legal authorisation;
 - h. bring equipment which are commonly used for felling, cutting, cracking the trees, without any legal authorisation;
 - i. throw any inflammable material into the forest area which may cause forest fires and threat the existence and sustainability of forest fuctions; and
 - j. remove, carry, transport plants and wildlife species which are not protected by the law, from forest area without any legal authorisation.
4. Further provisions concerning removal, carrying or loading actions of protected plants and animal species, shall be regulated by the prevailing laws and regulations.

Article 51

1. To ensure the implementation of forest protection, a special police authorisation shall be extended to certain forestry officials according to the nature of their responsibilities.
2. The officials bearing the special police authorisation as referred to in paragraph (1) shall be authorised to:
 - a. execute a patrol activity within forest area of his/her legal territory.
 - b. Verify any papers or documents concerning the transportation of forest product within forest area of his/her legal territory;
 - c. receive any information on criminal acts pertaining to forest, forest area and forest products;
 - d. seek any information and evidences of criminal act pertaining to forests, forest areas and forest products;
 - e. in a red-handed case, have the obligation to catch the suspect of the criminal act to be brought to authorised officials;
 - f. prepare any reports and sign the reports of the criminal act pertaining to forests, forest areas and forest product.

Source: Unofficial translation of "Law 41/1999"

Table D.3.1 Population in Study Area 2000(1/4)

Sub-District/ Municipality	Village	Area (ha)	Household	Population	Annual pop. growth rate 1990-2000	Pop. density / km ²	Ave. # of fmly mbrs	
Langowan	Wolaang	214	722	2,238	-0.16%	1,046	3.10	
	Winebetan	65	505	1,649	-0.29%	2,537	3.27	
	Tonolet	200	709	2,265	-0.16%	1,133	3.19	
	Kaayuran Atas	98	94	339	0.52%	346	3.61	
	Koyawas	234	278	931	-0.44%	398	3.35	
	Walewangko	221	468	1,415	-1.08%	640	3.02	
	Noongan	2,200	888	2,938	0.59%	134	3.31	
	Raringis	140	660	2,227	1.28%	1,591	3.37	
	Ampreng	113	393	1,285	0.48%	1,137	3.27	
	Lowian	87	343	1,100	2.31%	1,264	3.21	
	Walantaken	36	440	1,322	0.68%	3,672	3.00	
	Waleure	74	559	2,032	2.67%	2,746	3.64	
	Amongena Dua	160	442	1,369	-0.97%	856	3.10	
	Amongena Satu	240	776	2,507	0.38%	1,045	3.23	
	Karondoran	95	388	1,282	0.71%	1,349	3.30	
	Sumarayar	115	332	1,179	-0.13%	1,025	3.55	
	Karumenga	80	336	1,109	1.12%	1,386	3.30	
	Toraget	56	389	1,260	0.54%	2,250	3.24	
	Taraitak	125	537	1,625	-0.06%	1,300	3.03	
	Tumaratas	1,800	874	3,051	1.19%	170	3.49	
	Tempang	135	724	2,308	-0.16%	1,710	3.19	
	Teep	201	430	1,387	0.29%	690	3.23	
	Manembo	380	358	1,290	-0.31%	339	3.60	
	Sub-Total		7,069	11,645	38,108	0.39%	539	3.27
	Kakas	Touliang	350	418	1,413	0.46%	404	3.38
		Kalawiran	120	228	727	0.96%	606	3.19
Panasen		267	282	1,053	0.60%	394	3.73	
Tountimomor		271	143	480	0.90%	177	3.36	
Totolan		385	199	682	0.93%	177	3.43	
Passo		343	594	2,242	0.11%	654	3.77	
Wasian		100	151	534	1.01%	534	3.54	
Tarikuran		212	162	471	0.71%	222	2.91	
Tounelet		115	424	1,455	-0.20%	1,265	3.43	
Sendangan		400	576	1,762	-1.19%	441	3.06	
Pahaleten		468	184	661	0.50%	141	3.59	
Paslaten		537	518	1,797	0.56%	335	3.47	
Kaweng		1,250	433	1,509	-0.73%	121	3.48	
Toulimembet		360	224	832	-0.18%	231	3.71	
Simbel		382	274	932	0.12%	244	3.40	
Sub-Total		5,560	4,810	16,550	0.09%	298	3.44	
Tompaso	Tonsewer	250	464	1,534	1.61%	614	3.31	
	Touure	349	247	868	0.38%	249	3.51	
	Kemanga	212	555	1,794	-0.65%	846	3.23	
	Tember	108	231	727	2.68%	673	3.15	
	Liba	256	188	663	-1.11%	259	3.53	
	Sendangan	102	151	450	0.20%	441	2.98	
	Talikuran	152	261	884	0.29%	582	3.39	
	Tempok	343	344	1,178	0.13%	343	3.42	
	Tolok	268	290	1,065	-0.69%	397	3.67	
	Sub-Total		2,040	2,731	9,163	0.22%	449	3.36

Table D.3.1 Population in Study Area 2000(2/4)

Sub-District/ Municipality	Village	Area (ha)	Household	Population	Annual pop. growth rate 1990-2000	Pop. density / km ²	Ave. # of fmly mbrs
Remboken	Leleko	450	439	1,455	0.38%	323	3.31
	Paslaten	374	211	837	1.66%	224	3.97
	Talikuran	235	374	1,392	1.95%	592	3.72
	Sendangan	190	222	810	2.66%	426	3.65
	Timu	165	188	674	0.65%	408	3.59
	Kaima	254	253	814	-0.19%	320	3.22
	Sinuian	259	264	1,024	-0.31%	395	3.88
	Parepei	371	398	1,182	0.21%	319	2.97
	Pulutan	247	286	982	3.46%	398	3.43
	Kasuratan	675	431	1,361	0.55%	202	3.16
	Tampusu	660	92	348	0.20%	53	3.78
	Sub-Total		3,880	3,158	10,879	0.96%	280
Tomohon	Rarukan	269	383	1,504	1.69%	559	3.93
	Temboan	168	279	1,062	1.03%	632	3.81
	Kumelebuan	332	301	1,053	0.69%	317	3.50
	Sub-Total		769	963	3,619	1.19%	471
Tondano	Urongo	169	218	978	1.64%	579	4.49
	Peleloan	490	368	1,336	0.33%	273	3.63
	Tounsaru	111	231	732	0.32%	659	3.17
	Koya	515	890	2,720	2.84%	528	3.06
	Tataaran I	275	1,263	3,899	3.95%	1,418	3.09
	Tataaran II	486	1,575	4,778	1.24%	983	3.03
	Masarang	447	220	780	0.51%	174	3.55
	Roong	297	398	1,479	-0.88%	498	3.72
	Tuutu	537	405	1,484	-0.65%	276	3.66
	Rinegetan	339	636	2,024	1.17%	597	3.18
	Touukuramber	248	378	1,247	-1.95%	503	3.30
	Wawalintouan	164	948	3,565	1.10%	2,174	3.76
	Rerewokan	294	495	1,679	-0.38%	571	3.39
	Watulambot	405	628	2,197	0.76%	542	3.50
	Wewelen	494	782	2,742	2.14%	555	3.51
	Sasaran	2	175	745	0.05%	37,250	4.26
	Samangka	4	188	820	0.22%	20,500	4.36
	Sub-Total		5,277	9,798	33,205	1.10%	629

Table D.3.1 Population in Study Area 2000(3/4)

Sub-District/ Municipality	Village	Area (ha)	Household	Population	Annual pop. growth rate 1990-2000	Pop. density / km ²	Ave. # of fmly mbrs
Toulimambot	Kiniar	396	132	475	-12.95%	120	3.60
	Taler	407	226	817	0.79%	201	3.62
	Liningaan	525	334	1,212	0.26%	231	3.63
	Ketinggolan	272	221	774	-0.58%	285	3.50
	Kendis	353	373	1,335	2.22%	378	3.58
	Wengkol	388	294	947	-0.34%	244	3.22
	Ranowangko	145	334	1,192	1.29%	822	3.57
	Toulour	141	583	2,029	19.28%	1,439	3.48
	Wulauan	387	375	1,347	2.05%	348	3.59
	Kampung Jawa	50	576	2,220	0.21%	4,440	3.85
	Luaan	602	420	1,462	1.47%	243	3.48
	Papakelan	283	681	2,358	1.19%	833	3.46
	Makalonsouw	156	107	414	1.84%	265	3.87
	Marawas	248	40	179	-0.38%	72	4.48
	Sub-Total		4,353	4,696	16,761	0.94%	385
Eris	Telap	671	277	953	-0.22%	142	3.44
	Watumea	59	244	873	0.06%	1,480	3.58
	Eris	950	512	1,726	0.91%	182	3.37
	Tandengan	405	710	2,359	0.57%	582	3.32
	Ranomerut	496	439	1,386	1.07%	279	3.16
	Touliana Oki	405	535	2,200	-0.56%	543	4.11
	Sub-Total		2,986	2,717	9,497	0.30%	318
Kauditan	Lembean	472	369	1,196	-0.07%	253	3.24
	Paslaten	386	329	1,045	1.49%	271	3.18
	Tumaluntung	978	649	2,142	-0.42%	219	3.30
	Sub-Total		1,836	1,347	4,383	0.10%	239
Airmadidi	Saluan	1,005	305	1,004	-3.20%	100	3.29
	Kembuan	1,050	468	1,914	2.98%	182	4.09
	Tonsealama	775	546	1,732	0.50%	223	3.17
	Tanggari	705	434	1,582	1.46%	224	3.65
	Rumengkor	1,217	632	2,334	-0.74%	192	3.69
	Sampiri	1,268	324	1,217	2.95%	96	3.76
	Sawangan	1,128	615	1,849	0.27%	164	3.01
	Airmadidi Bawah	821	614	2,751	0.24%	335	4.48
	Airmadidi Atas	825	1,225	4,244	3.41%	514	3.46
	Sarongsong I	75	779	2,710	0.54%	3,613	3.48
	Sarongsong II	377	396	1,338	-0.61%	355	3.38
	Rap-Rap	237	205	739	-1.19%	312	3.60
	Sukur	1,207	794	2,504	0.93%	207	3.15
	Suwaan	291	278	992	-0.84%	341	3.57
	Kolongan	625	1,073	3,923	4.68%	628	3.66
	Kawangkoan	802	1,019	3,825	12.04%	477	3.75
	Kaleosan	722	168	566	2.74%	78	3.37
	Kuwil	852	236	757	0.01%	89	3.21
	Watutumou	858	1,305	5,000	4.56%	583	3.83
	Naumbi	772	696	2,705	4.66%	350	3.89
Sub-Total		15,612	12,112	43,686	2.31%	280	3.61

Table D.3.1 Population in Study Area 2000(4/4)

Sub-District/ Municipality	Village	Area (ha)	Household	Population	Annual pop. growth rate 1990-2000	Pop. density / km ²	Ave. # of fmly mbrs
Pineleng	Sawangan	653	350	1,271	2.50%	195	3.63
	Kamangta	545	467	1,641	3.95%	301	3.51
	Tombuluan	500	240	860	0.59%	172	3.58
	Kembes I	1,259	724	2,299	0.10%	183	3.18
	Kembes II	1,866	466	1,455	-0.81%	78	3.12
	Koka	515	371	1,147	0.72%	223	3.09
	Sub-Total	5,338	2,618	8,673	1.01%	162	3.31
Minahasa Total		54,720	56,595	194,524	0.99%	355	3.44
Wenang	Tikala Baru	412	3,944	13,936	2.99%	3,382	3.53
	Paal Dua	220	2,869	10,045	3.56%	4,562	3.50
	Lawangirung	26	1,109	4,224	-1.16%	16,500	3.81
	Tikala Ares	240	706	2,457	0.51%	1,024	3.48
	Dendengan Dalar	63	1,339	5,212	-2.19%	8,273	3.89
	Pinaeseaan	43	601	2,184	-4.82%	5,127	3.63
	Banjer	76	2,220	8,592	1.47%	11,305	3.87
	Komo Luar	5	715	2,448	0.90%	48,000	3.42
	Ranomut	281	4,459	17,215	3.54%	6,126	3.86
	Dendengan Luar	45	704	2,666	-1.61%	5,924	3.79
	Mahakeret Timur	22	793	2,854	-2.21%	13,274	3.60
	Teling Bawah	36	1,202	4,485	-0.42%	12,458	3.73
	Istiqlal	9	767	2,473	1.12%	26,880	3.22
Sub-Total	1,477	21,428	78,791	1.18%	5,333	3.68	
Molas	Ketang Baru	8	894	2,964	0.95%	37,050	3.32
	Ternats Baru	18	1,979	7,476	1.85%	42,237	3.78
	Wawonasa	21	811	3,752	-1.09%	17,698	4.63
	Kombos	170	3,501	14,190	7.50%	8,347	4.05
	Sinkil	159	2,826	10,677	3.89%	6,711	3.78
	Molas	359	774	3,033	6.73%	845	3.92
	Sub-Total	735	10,785	42,092	3.84%	5,727	3.90
Sario	Teling Atas	122	5,717	17,788	1.60%	14,580	3.11
	Sub-Total	122	5,717	17,788	1.60%	14,580	3.11
Mapanget	Kairagi Weru	184	525	2,016	1.14%	1,093	3.84
	Kairagi I	404	781	3,035	2.91%	752	3.89
	Sub-Total	588	1,306	5,051	2.16%	859	3.87
Manado Total		2,923	39,236	143,722	1.98%	4,918	3.66
Total		57,643	95,831	338,246	1.40%	587	3.53

Source: *Sensus Penduduk 1990 and 2000*

Table D.3.2 List of NGOs in North Sulawesi(1/3)

Name	Established Year	Number of Staff	Contact	Activities	Activities last year (in 1999)
Forum Komunikasi Pengembangan dan Pelestarian Lingkungan Hidup (FK-PPLH) - (Branch *)	Manado, Mar. 1982		Jl. Radiolen No. 8 Sario Manado Tel: 851 274	- To held environmental conservation - To conduct study and training for environmental cadres at the village level	
Kerukunan Citra Kawana Sulut *)	Manado Nov. 1987		Manado	- Build community and encourage youth participation. Areas of activities: environmental conservation and environmental tourism	
Yayasan Suara Nurani ***)	Tomohon, 1987	11 permanent 7 temporary	Jl. Raya Walian L. I no 17 PO Box 11 Tomohon Tel: 353 722 Fax: 351 560	- Advocacy on: environment, land rights, mining, human rights and democracy - Women's empowerment - Empowerment for peasants, fishermen and merchants (<i>Tibo</i>)	- Advocacy (in environment and human right), - Agriculture, Fishery, Trade - Women, - Publication
Perkumpulan Pencinta Alam Andar Nyowo *)	Manado, Dec. 1987		Jl. Bahari No. 1 Dendengan Dalam Lingkungan I Manado Tel: 867 237	- To hold activities concerning environmental conservation - To hold regular meetings with members - Work with government	
Yayasan Pencinta Penyelamat Lingkungan Hidup " Waranli Bohusami " *)	Manado June 1988		Jl. Pramuka 8 No. 3 Manado Tel: 855 384	- To implement re-greening and reforestation, to prevent pollution and help garbage disposal - Extension work on health issues	
Pencinta Alam Expala *)	Tondano, Oct. 1988		Jl. Manguni No. 11 Tondano	- Survey on critical land for reforestation - Field survey for tourism in Minahasa - To facilitate discussions, dialogue, seminar on environment	
Yayasan Lembaga Pengembangan Teknologi Pedesaan *)	Manado, Sep. 1989	16 permanent 20 temporary	Jl. Minanga No. 15 Malalayang I, Manado Tel: 861409	- To create employment opportunities in rural community - To assist solving problems on environment	August 1999- July 2000 - KIP - Training Mushroom Cult. - Management SME
Perkumpulan Pencinta Alam Issabella Club *)	Manado, Oct. 1989		Tanjung Batu Lingkungan II No 72 Manado	- To increase naturists in relationship with government and community - To create professional and high quality positions for responsible nature lovers	

Table D.3.2 List of NGOs in North Sulawesi(2/3)

Name	Established Year	Number of Staff	Contact	Activities	Activities last year (in 1999)
Forum Komunikasi Pencinta Alam (FKPA) Sulut *)	Manado, Jan. 1990		Jl. Bahari No. 1 Manado Tel: 867 237	- Environmental conservation - Nurturing activities - Social activities	
Pencinta Alam Tangkoko Bitung *)	Bitung Mar. 1990		Bitung	- Extension work on forest conservation through discussions and panel forum - Socialization and campaign on flora and fauna conservation in North Sulawesi	
Kelompok Pencinta Lingkungan Hidup (KPLH) Dentriss *)	Amurang, Mar. 1992		Jl. Waoraas Buyungon Amurang	- To conduct seminars, discussions on environment - Training on efficient and effective technology - To hold cleaning competitions	
Himpunan Pelestarian Lingkungan Hidup Nyiur Hijau *)	Manado, Jan. 1993		Wisma Angin Laut Jl. Kampus No. 24 Kleak Lingkungan I Malalayang, Manado		
Yayasan Pelita Kasih Abadi ***) (Peka Manado)	Manado, 1996	12 permanent 3-8 temporary		- Community development in the field of: Health (HIV, etc), Environment, Income generation, Social justice	
Forum Komunikasi Kelompok Pelestarian Sumber Daya Alam (FK-KPSA) *)	-		Jl. Tololiu Supit Teling Atas Manado		
Mahasiswa Pencinta Alam PAH' YAGA' AN *)	Manado		Fakultas Teknik Unsrat Manado Tel: 852 959	- Blood solicitation activities - Cleaning and planting activities - Study tours - Photography, hiking and mountain climbing	
DPW Bina Lingkungan Hidup Indonesia Sulut (LBLH) *)			Jl. Pomorow VI. 39 Banjer - Manado Tel: 865 939/841 092		

Table D.3.2 List of NGOs in North Sulawesi(3/3)

Name	Established Year	Number of Staff	Contact	Activities	Activities last year (in 1999)
LSM Wanuata waya **) and *****)	Manado Mar. 1999		Jl. Kampus No. 22 Manado Tel: 861 278; 825 759 868 792; 825 438	- Community development in the field of: health economy, education, social and cultural activities - Funding for environmental conservation - Land rights advocacy	
LSM Yayasan Bina Mutu Masyarakat **)	1999	No staff only 20 members of board	Jl. Siswa No. 131 Talete Desa Tomohon Tel: 353 678, 351 247	- To build of farming facilities for farmers, fishermen and stock farmers - Conservation of Environment - Scholarship - Community training - Solution for social problems	

*) Direktori LSM. 1994. Direktorat Sosial Politik Propinsi Sulawesi Utara

***) Daftar Inventarisasi Pendataan Ulang LSM. 1999. Direktorat Sosial Politik Propinsi Sulawesi Utara

*****) Information by telephon, they are not registered in Dir. Sospol but registered in Dinas Sosial

*****) Profil LSM "Wanuata Waya"

Table D.4.1.1 Selection of Target Villages for RRA(1/3)

Target Village Selection						
Sub-District	Village	Criteria 1[1]	Criteria 2[2]	Criteria 3[3]	Criteria 4[4]	Result
Tompaso	Tonsewer	O	4	4	-	OK
	Touure	O	4	4	-	OK
	Kamanga	X	0	3	-	OK
	Tember	Pre-Testing[5]				
	Kiba	X	0	2	-	
	Sendangan	X	0	3	-	OK
	Talikuran	X	0	2	-	
	Tempok	X	0	2	-	
	Tolok	X	0	1	-	
Langowan	Wolaang	X	0	1	-	
	Winebetan	O	3	4	X	
	Tonelet	X	0	1	-	
	Walewangko	Pre-Testing				
	Kaayuran Atas	O	4	4	-	OK
	Kaayuran	O	2	4	-	
	Koyowas	X	0	1	-	
	Noongan	O	4	4	-	OK
	Raringis	O	4	4	X	
	Ampreng	O	4	4	-	OK
	Lowian	X	0	1	-	
	Walentakan	X	0	1	-	
	Waleure	X	0	1	-	
	Amongena I	X	0	1	-	
	Amongena II	X	0	1	-	
	Karondoran	X	0	1	-	
	Sumarayar	X	0	1	-	
	Karumenga	X	0	1	-	
	Toraget	X	0	3	-	
	Taraitak	X	0	2	-	
	Tumaratas	O	4	4	-	OK
	Tempang	X	0	2	-	
	Teep	O	4	4	-	OK
Manembo	O	4	4	-	OK	
Kakas	Touliang	O	4	3	-	OK
	Kakawiran	X	0	1	-	
	Panasen	X	0	1	-	
	Tountimomor	Pre-Testing				
	Totolan	X	0	1	-	
	Passo	O	4	4	-	OK
	Wasian	X	0	1	-	
	Talikuran	X	0	1	-	
	Tounelet	X	0	1	-	
	Sendangan	O	2	1	-	
	Pahaleten	X	0	1	-	
	Paslaten	O	2	4	-	
	Kaweng	O	4	4	-	OK
	Toulimenbet	O	4	4	X	
Simbel	O	3	4	-	OK	

Table D.4.1.1 Selection of Target Villages for RRA(2/3)

Target Village Selection

Sub-District	Village	Criteria 1[1]	Criteria 2[2]	Criteria 3[3]	Criteria 4[4]	Result
Tondano	Urongo	O	4	1	X	
	Paleloan	O	4	1	-	OK
	Tonsaru	O	3	1	-	
	Koya	O	2	1	-	
	Tataaran I	O	3	1	-	
	Tataaran II	O	4	1	-	OK
	Masaran	X	0	1	-	
	Roong	X	0	1	-	
	Tuutu	X	0	1	-	
	Rinegetan	X	0	1	-	
	Tounkuramber	X	0	1	-	
	Wawalintouan	X	0	1	-	
	Rerewokan	X	0	1	-	
	Watulambot	X	0	1	-	
	Wewelen	X	0	1	-	
	Sasaran	X	0	1	-	
	Sumalangka	X	0	1	-	
Remboken	Leleko	O	4	4	-	OK
	Paslaten	O	3	3	-	
	Talikuran	X	0	1	-	
	Sendangan	O	1	1	-	
	Timu	X	0	1	-	
	Kaima	Pre-Testing				
	Sinuiian	O	4	4	-	OK
	Tampusu	O	4	4	X	OK
	Parepei	O	4	4	X	
	Pulutan	O	4	4	-	OK
	Kasuratan	O	4	4	X	

Table D.4.1.1 Selection of Target Villages for RRA(3/3)

Target Village Selection

Sub-District	Village	Criteria 1[1]	Criteria 2[2]	Criteria 3[3]	Criteria 4[4]	Result
Toulimanbot	Kiniar	X	0	1	-	
	Taler	X	0	1	-	
	Liningaan	X	0	1	-	
	Katinggoloan	X	0	1	-	
	Kendis	X	0	1	-	
	Wengkol	X	0	1	-	
	Ranowangko	X	0	1	-	
	Toulour	X	0	1	-	
	Wulauan	X	0	1	-	
	Kampung Jawa	X	0	1	-	
	Luaan	X	0	1	-	
	Papakelan	X	0	4	-	OK
	Makalensouw	O	4	1	-	OK
	Marawas	X	0	1	-	
Eris	Telap	O	4	4	-	OK
	Watunea	O	4	4	X	
	Eris	O	4	4	-	OK
	Tandengan	O	4	4	-	OK
	Ranomerut	O	4	4	X	
	Toliang Oki	O	4	4	-	OK

[1] Location (if the village is within the intensive area or not)

[2] Size of village area included in the intensive area (100-75%=4, 75-50%=3, 50-25%=2, 25-1%=1)

[3] Access to forest areas from village center

[4] Even geographical disperse of villages throughout the sub-district

[5] The villages that were selected for pre-testing were excluded for RRA.

Table D.4.1.2 Respondents to Semi-Structured Interview

		Farmer				Local Leader					Women	Total		
		Well-	Middle	Poor	Total								Total	
ERIS	Eris	2	3	2	7	Head of Vil.	Famer Group	KUD	Church Leader		4	3	14	
	Tandengan	2	2	0	4	Head of Vil.	Pastor				2	3	9	
	Telap	2	1	1	4	Head of Vil.	Pastor	PKK Chief			3	2	9	
	Touliang Oki	2	3	1	6	Head of Vil.	Pastor	KUD			3	3	12	
	Sub-Total	46	9	4	59						12	11	44	
KAKAS	Kaweng	0	4	1	5	Head of Vil.	Farmer Group	LKMD	Pastor	LocalLeader	5	3	13	
	Passo	2	3	2	7	Head of Vil.	Farmer Group	PKK Chief	Teacher		4	3	14	
	Simbel	2	2	2	6	Head of Vil.	PKK Chief	Local Leader			3	3	12	
	Touliang	2	2	2	6	Head of Vil.	Farmer Group	PKK Chief	Pastor	Local Leader	5	3	14	
	Sub-Total	6	11	7	24						17	12	53	
LANGOAN	Ampreng	2	3	0	5	Village Sec.	Pastor	KUD			3	3	11	
	Kaayuran Atas	1	3	5	9	Head of Vil.	Church Leader	PKK Chief			3	3	15	
	Manembo	2	1	2	5	Head of Vil.	Church Leader	Church Leader	Farmer Group	Farmer Group	PKK Chief	6	3	14
	Noongan	3	2	3	8	Head of Vil.	Church Leader	Sub-Village	PKK Vice	Farmer Group		5	3	16
	Teep	3	2	1	6	Head of Vil.	Church Leader	PKK Chief	Farmer Group	Farmer Group		5	3	14
	Tumaratas	2	2	2	6	Head of Vil.	Pastor	Secretary	LKMD Chief	LKMD Treasure		5	3	14
	Sub-Total	13	13	13	39						27	18	84	
REMBOKEN	Leleko	1	3	2	6	LKMD Chief	Farmer Group	PKK Chief	Pastor		4	3	13	
	Pulutan	2	2	1	5	Head of Vil.	Farmer Group	KUD Secretary	Pastor		4	3	12	
	Sinuian	2	2	2	6	Head of Vil.	Youth Leader	Pastor			3	3	12	
	Tampusu	2	2	2	6	LKMD Chief	KUD				2	3	11	
	Sub-Total	7	9	7	23						13	12	48	
TOMPASO	Kemanga	1	2	1	4	Head of Vil.	Farmer Group	Pastor			3	1	8	
	Sendangan	2	2	2	6	Head of Vil.	Farmer Group	PKK Chief			3	3	12	
	Tonsewer	1	4	3	8	Head of Vil.	Farmer Group	LKMD Sec.			3	3	14	
	Toure	3	3	3	9	Head of Vil.	Farmer Group	LKMD Chief			3	3	15	
	Sub-Total	7	11	9	27						12	10	49	
TONDANO	Paleloan	2	4	1	7	Head of Vil.	PKK Chief	LKMD Chief	Church Leader		4	2	13	
	Tataaran II	0	3	4	7	Head of Vil.	Farmer Group	Church Leader			3	3	13	
	Sub-Total	2	7	5	14						7	5	26	
TOUL..	Makalensow	0	2	4	6	Head of Vil.	Farmer Group	Pastor			3	4	13	
	Papakelan	3	1	2	6	Head of Vil.	Farmer Group	Church Leader			3	4	13	
	Sub-Total	3	3	6	12						6	8	26	
	TOTAL	46	63	51	160						94	76	330	

Notes: LKMD: Lembaga Ketahanan Masyarakat Desa = Consisted Informal Leader
 PKK: Pembinaan Kesejahteraan Keluarga = Women Group
 KUD: Koperasi Unit Desa = Village Unit Cooperatives

Table D.4.1.3 Selection of Target Villages for Feedback Workshop

Target Village Selection					
Sub-District	Village	Criteria 1[1]	Criteria 2[2]	Criteria 3[3]	Result
Tompaso	Tonsewer	2	1	1	4
	Touure	3	2	1	6
	Kamanga	1	1	2	4
	Sendangan	2	1	2	5
Langowan	Kaayuran Atas	3	2	1	6
	Noongan	3	3	3	9
	Ampreng	2	3	1	6
	Tumaratas	3	3	1	7
	Teep	3	2	2	7
	Manembo	3	2	2	7
Kakas	Touliang	3	3	2	8
	Passo	3	2	3	6
	Kaweng	2	1	1	4
	Simbel	2	3	1	6
Tondano	Paleloan	2	1	3	6
	Tataaran II	2	3	2	7
Remboken	Leleko	3	2	2	7
	Sinuiian	1	1	1	3
	Tampusu	3	3	3	9
	Pulutan	2	3	2	7
Toulimanbot	Papakelan	3	3	2	8
	Makalensouw	3	1	2	6
Eris	Telap	3	3	2	8
	Eris	3	3	2	8
	Tandengan	3	3	3	9
	Touliang Oki	3	1	2	6

[1] Access to forest areas from village center

[2] The level of cooperation from village leaders during RRA

[3] The frequency of natural disasters (landslides, flooding and forest fire)

Table D.4.1.4 Research Items, Methods and Target Population

Categories	Research Items	Research Methods	Target Population
General Area Information	Topography	Comm. Mapping, Transect Walk	Farmers
	Access/Transportation	Comm. Mapping, SSI	Farmers
	Public Facilities	Comm. Mapping, SSI	Farmers
	Housing	Comm. Mapping, SSI	Farmers
	Demography	Secondary Data, SSI	Leaders
Natural Resources	Forest Conditions	Comm. Mapping, Transect Walk, Trend Analysis, SSI	Farmers
	Water Resources	Comm. Mapping, Transect Walk, Trend Analysis, SSI	Farmers
	Fuel Wood	Comm. Mapping, Transect Walk, Trend Analysis, SSI	Farmers
	Non-Timber Products	Transect Walk, Trend Analysis, SSI	Farmers
	Encroachment	Comm. Mapping, Transect Walk, Trend Analysis, SSI	Farmers, Leaders
	Re-greening	Comm. Mapping, SSI	Farmers, Leaders
	Comm. Consv. Activities	SSI	Farmers, Leaders
	Conflict over N.R.	SSI	Farmers, Leaders
	Mining	Comm. Mapping, SSI	Farmers
	Natural Disaster	Transect Walk, SSI	Farmers
	Forestry Ext. Services	SSI	Farmers, Leaders
Farmers' Awareness toward Consv	Knowledge	SSI	Farmers
	Perception	SSI	Farmers
	Behavior	SSI	Farmers
Agriculture	Farm Size and Ownership	SSI	Farmers, Leaders
	Farming Sys. & History	Transect Walk, Calendaring, SSI	Farmers
	Crop Production	10 Stone Production, SSI	Farmers
	Marketing	SSI	Farmers
	Agri. Extension Services	SSI	Farmers, Leaders
Organizations	Vision/Mission	SSI	Leaders
	History	SSI	Leaders
	Activities	SSI	Leaders
	Decision-Making	SSI	Leaders
	Finance	SSI	Leaders
	Roles/Influence	Venn Diagram	Farmers, Leaders
Gender	Labor Distribution	Time Tabling	Farmers
	Access and Control	A/C Analysis	Farmers
	Participation	Participation Analysis	Farmers
	Women's Needs	10 Stone Priority	Women
Farmer's Needs	Farmer's Needs	Natural Resource Ranking, 10 Stone Priority	Farmers

Table D.4.2.1 Population in Intensive Area 2000

Sub-District/ Municipality	Village	Area (ha)	Household	Population	Annual pop. growth rate 1990-2000	Pop. density / km ²	Ave. # of fmly mbrs
Langowan	Winebetan	65	505	1,649	-0.29%	2,537	3.27
	Kaayuran Atas	98	94	339	0.52%	346	3.61
	Koyawas	234	278	931	-0.44%	398	3.35
	Noongan	2,200	888	2,938	0.59%	134	3.31
	Raringis	140	660	2,227	1.28%	1,591	3.37
	Ampreng	113	393	1,285	0.48%	1,137	3.27
	Tumaratas	1,800	874	3,051	1.19%	170	3.49
	Teep	201	430	1,387	0.29%	690	3.23
	Manembo	380	358	1,290	-0.31%	339	3.60
	Sub-Total	5,166	3,975	13,448	0.62%	260	3.38
Kakas	Touliang	350	418	1,413	0.46%	404	3.38
	Passo	343	594	2,242	0.11%	654	3.77
	Sendangan	400	576	1,762	-1.19%	441	3.06
	Paslaten	537	518	1,797	0.56%	335	3.47
	Kaweng	1,250	433	1,509	-0.73%	121	3.48
	Toulimembet	360	224	832	-0.18%	231	3.71
	Simbel	382	274	932	0.12%	244	3.40
		Sub-Total	3,622	3,037	10,487	-0.15%	290
Tompaso	Tonsewer	250	464	1,534	1.61%	614	3.31
	Touure	349	247	868	0.38%	249	3.51
		Sub-Total	599	711	2,402	1.15%	401
Remboken	Leleko	450	439	1,455	0.38%	323	3.31
	Paslaten	374	211	837	1.66%	224	3.97
	Kaima	254	253	814	-0.19%	320	3.22
	Sinuian	259	264	1,024	-0.31%	395	3.88
	Parepei	371	398	1,182	0.21%	319	2.97
	Pulutan	247	286	982	3.46%	398	3.43
	Kasuratan	675	431	1,361	0.55%	202	3.16
	Tampusu	660	92	348	0.20%	53	3.78
		Sub-Total	3,290	2,374	8,003	0.67%	243
Tondano	Urongo	169	218	978	1.64%	579	4.49
	Peleloan	490	368	1,336	0.33%	273	3.63
	Tounsaru	111	231	732	0.32%	659	3.17
	Tataaran I	275	1,263	3,899	3.95%	1,418	3.09
	Tataaran II	486	1,575	4,778	1.24%	983	3.03
		Sub-Total	1,531	3,655	11,723	1.91%	766
Toulimambot	Papakelan	283	681	2,358	1.19%	833	3.46
	Makalonsouw	156	107	414	1.84%	265	3.87
		Sub-Total	439	788	2,772	1.28%	631
Eris	Telap	671	277	953	-0.22%	142	3.44
	Watumea	59	244	873	0.06%	1,480	3.58
	Eris	950	512	1,726	0.91%	182	3.37
	Tandengan	405	710	2,359	0.57%	582	3.32
	Ranomerut	496	439	1,386	1.07%	279	3.16
	Touliana Oki	405	535	2,200	-0.56%	543	4.11
		Sub-Total	2,986	2,717	9,497	0.30%	318
	Total	17,633	17,257	58,332	0.72%	331	3.38

Source: *Sensus Penduduk 1990 and 2000*

Table D.4.2.2 Village Facilities

Area	Sub-District	Village	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)	15)	16)	17)	18)	19)	20)	21)	22)	
East	Eris	Touliang Oki	1	2	1	0	2	*			*			*	*	*								Springs	
		Tandengan	1	2	1	1	8	*						*	*	*	*								Spring developed by the World Bank
		Telap	1	2	0	0	3	*																	
		Eris	1	2	0	0	4	*							*	*		*							
	Toulimambo	Makalonsow		1			3	1																	Waterholes
		Papakelan		2			3		1			1													Wells
	Kakas(E)	Kaweng	1	2			4	1				1													PDAM lines and wells
Simbel		1	1			4	1	1			1	1				25 pig									
South	Langowan	Ampreng		1			3		1			1				*								Wells (20m), PDAM lines out of order	
		Noongan		2		1	4			*		*							4						PDAM lines from springs
		Tumaratas		3			6		*			*		*											PVC channel from spring
		Kaayuran Atas		1			2					*	*			*									Community wells (15m) and deep wells (62m)
		Manembo		2			6					*			*										10m wells
		Teep		2			6					*			*	*									5m wells and springs
	Tompasso	Toure		1			2	*							*										
		Tonsewer		2			6	*	*				*		*										
	West	Remboken	Leleko	0	2			3		*			*			*				*	*				Wells (7m)
			Sinuian	1	2	0	0	3					*										*		PDAM lines from Leleko
Pulutan			1	2	0	0	3		*		*	*													7m wells, drilled well (60m), 5 interceptor tanks
Tampusu			0	1	0	0	3					*													Interceptor tanks and geothermal wells
Kakas(W)		Passo	1	3	2		5		1																
		Touliang	1	2			3	1																	3 drilled well
Tondano		Tataaran II	2	3		1	4	1			1			1										20	PDAM lines, shallow and deep wells
	Paleloan		2			2	1	1														*		Springs and lake water (PDAM often out of order)	

- | | | | | |
|-----------------------|-------------------------|--------------------------|-------------------------|--------------------------|
| 1) Kindergardens | 6) Village Hall | 11) Sport Field | 16) Army Training Field | 21) Pottery Making Place |
| 2) Elementary School | 7) Public Health Center | 12) Local Market | 17) Police Office | 22) Water for drink |
| 3) Junior High School | 8) Hospital | 13) Cemetery | 18) Seedbed House | |
| 4) High School | 9) Rice Mill | 14) Animal Farm/Butchery | 19) Mosque | |
| 5) Church | 10) Village Office | 15) Fishery Place | 20) Geothermal Well | |

Source: JICA Study Team

Table D.4.2.3 Re-Greening and Reforestation Activities in Community

	Location	Year	Agency	Remarks
East	Tandengan	1997, 98	BRLKT	Sugar palm, Mahogany, Cempaka, <i>Kaliandra</i> , <i>Nantu</i> , and Cinnamon. The heights of trees reached about 2 m.
	Eris	1997	BRLKT	Mahogany, Cempaka, <i>Kaliandra</i> , <i>Nantu</i> , and Cinnamon
	Kaweng	1970s, 78, 79, 80,84	Forestry Service	Mahogany, Cempaka, <i>Kaliandra</i> , <i>Nantu</i> , Acacia, <i>Lamtoro</i> , Cinnamon, Rambutan, Durian, coffee. Acacia. Acacia has died during the long drought.
	Simbel	1970, 99	Forestry Service	Acacia, tropical magnolia, <i>Kaliandra</i> , <i>Sengon</i> , Cinnamon, coconuts. Acacia and Cinnamon have died away.
	Papakelan	1973, 98	Forestry Service	<i>Kaliandra</i> , pines, <i>Nantu</i> , tropical magnolia, mahogany. Some trees are still remaining, but some are pulled out right after the replanting.
	Makalensow	1970s, 82, 92	Forestry Service & Nat'l Army (TNI)	Mahogany, <i>Kaliandra</i> , pines, <i>Nantu</i> , cinnamon, acacia, tropical magnolia, <i>Lamtoro</i> , jackfruits, sugar palm, durian, <i>Banyan</i> . Some trees are still remaining, but some are pulled out right after the replanting.
South	Manembo	1997	Forestry Service	Mahogany, tropical magnolia, <i>Pulutan</i> , <i>Nantu</i> . The condition of trees is good on the whole.
	Ampreng	1979	Forestry Service	Pines, Mahogany, Acacia, <i>Sengon</i> , <i>Kaliandra</i> . A part of replanted trees were already cut illegally.
	Noongan	1980s	Forestry Service	Mahogany, tropical magnolia, coffee, other fruit trees.
	Kaayuran Atas	1992	Forestry Service	Cempaka, Mahogany, coffee, <i>Nantu</i> . 5 Ha out of 10 Ha targeted still contains replanted trees. Others were diminished due to the long drought and domestic animal activities.
	Teep	1997	Forestry Service	Tropical magnolia, <i>Nantu</i> , <i>Wasian</i> . 10 Ha out of 50 Ha planted still has trees. The project failed due to the long drought.
	Toure	1978	Forestry Service	Mahogany, Cempaka, Acacia, pines, <i>Nantu</i> at the border of protection and private forest
	Tonsewer	2000	Forestry Service	Cempaka
West	Sinuiian	1970s, 98	Forestry Service	Mahogany, tropical magnolia, <i>Kaliandra</i> , Cempaka, <i>Nantu</i> , durian, banana. Most trees are located at the borders of farm plots.
	Tampusu	1982, 89, 93, 94	Forestry Service	Mahogany, <i>Enau</i> , coconuts, rattan, coffee, cinnamon. Planting was conducted both within and near the protection forest.
	Leleko	-	Forestry Service	<i>Kaliandra</i> to prevent soil erosion from the agricultural land.
	Pulutan	1980s	Forestry Service	Pines and <i>Kaliandra</i> . The planting was conducted as a part of the National Week of Re-greening (PPN), but most trees did not survive due to the drought.
	Passo	1972, 76, 77, 80s	Forestry Service	Tropical magnolia, <i>Kaliandra</i> , Acacia. Acacia has died during the long drought.
	Touliang	1980, 85, 94, 95	Forestry Service	Pines, tropical magnolia, <i>Kayu macis</i> , coffee, cinnamon, cocoa. Only estate crops have survived.
	Tataaran II	1970s, 80, 90	Forestry Service	Mahogany, <i>Kaliandra</i> , tropical magnolia, <i>Nantu</i> . Despite of re-greening activities, private forest is shrinking.
	Paleloan	1997, 99	Forestry Service	Tropical magnolia, rambutan, durian. Most trees are dead now because of the lack of maintenance and fund for maintenance.

Table D.4.2.4 Ten Stone Production (1/2)

East Area

Crop	Eris			Toulimambot		
	Production	Sold	Domestic Consumpt.	Production	Sold	Domestic Consumpt.
Maize	00000 00000	00000	00000	00000 0	000	000
Paddy	00000 00000	000	00000 00	00000 0	000	000
Ground nut	000	0	00	00000 00	00000 0	0
Red bean	000	0	00	00000	0000	0
Red onion	00	1 1/2	1/2	00000 000	00000 00	0
Chili	0000	00	00	00000 0	00000 0	-
Tomato	0000	000	0	00000 000	00000 00	0
Cloves	00000 00000	00000 00000	-	00000 00000	00000 00000	-
Coffee	0000	000	0	N/A	N/A	N/A
Coconut	0	1/2	1/2	00	-	00
Cinnamon	00	1 1/2	1/2	-	-	-
Vanilla	0	0	-	0000	0000	-
Sugar palm	00	0	0	00000	00000	0
Fruits	000	0	00	00000	0000	0
Pig	000	2 1/2	1/2	00000 0	00000 0	-
Cow	0	0	-	00000 00	00000 00	-
Duck &egg	000	000	-	00000	00000	-
Chicken	0000	000	0	N/A	N/A	N/A
Fish	00000 000	00000 00	0	-	-	-
Timber	0	0	-	N/A	N/A	N/A
Bamboo	000	00	0	N/A	N/A	N/A

South Area

Crop	Langowan			Tompaso		
	Production	Sold	Domestic Consumpt.	Production	Sold	Domestic Consumpt.
Maize	00000 00000	00000 00	000	00000 0000	00000	0000
Paddy	00000 000	0000	0000	00000 000	00000	000
Ground nut	000	000	-	00000 00	00000	00
Red bean	00000 0	00000 0	-	00000 000	00000 00	0
Red onion	0000	0000	-	00000 000	00000 00	0
Chili	00000	000	00	00	-	00
Tomato	00000	0000	0	00000 0000	00000 0000	-
Leaf onion	0000	000	0	00000 0	00000	0
Chinese cabbage	000	000	-	00000 00	00000 00	-
Cabbage	000	000	-	00000 0	00000 0	-
Cassava	0	-	0	00	0	0
Potato	00	0	-	00	0	0
Pumpkin	N/A	N/A	N/A	00000 0	00000	0
Carrot	N/A	N/A	N/A	00000 0	00000 0	-
Soy bean	N/A	N/A	N/A	00000 0	00000 0	
String bean	N/A	N/A	N/A	00	-	00
Eggplant	N/A	N/A	N/A	00	-	00
Cloves	00000	00000	-	-	-	-
Coffee	000	00	0	N/A	N/A	N/A
Coconut	0	-	-	N/A	N/A	N/A
Sugar palm	00000	00000	-	N/A	N/A	N/A
Fruits	0	-	0	00	0	0

Table D.4.2.4 Ten Stone Production (2/2)

West Area

Crop	Remboken			Tondano		
	Production	Sold	Domestic Consumpt.	Production	Sold	Domestic Consumpt.
Maize	00000 00000	00000 000	00	00000 00000	00000 0000	0
Paddy	00000 00000	00000 0	0000	00000 000	0000	0000
Ground nut	00000 000	00000 00	0	00000 00	00000 0	0
Red bean	00000 000	00000 00	0	00000	0000	0
Red onion	000	00	0	N/A	N/A	N/A
Chili	N/A	N/A	N/A	00000 000	00000 000	-
Tomato	00000 00	00000 00	-	00000 00	00000 00	-
Leaf onion	N/A	N/A	N/A	00000 0	00000 0	-
Potato	0000	00	00	N/A	N/A	N/A
Eggplant	00	0	0	N/A	N/A	N/A
Cucumber	N/A	N/A	N/A	00000	0000	0
<i>Kangkung</i>	0000	000	0	N/A	N/A	N/A
Ginger	00	0	0	00000 0000	00000 0000	-
Cacao	0	-	0	N/A	N/A	N/A
Cloves	0000	0000	-	00000 00000	00000 00000	-
Coffee	00	0	0	00000 000	0000	0000
Coconut	00	0	0	00000	-	00000
Cinnamon	N/A	N/A	N/A	00000 00	00000 0	0
Vanilla	00	00	-	00000 000	00000 000	-
Sugar palm	00	0	0	00000 00	00000	00
Fruits	00000 00000	00000 00	000	00000 00000	00000 0	0000
Pig	00	00	0	N/A	N/A	N/A
Cow	00000 0	0	00000	N/A	N/A	N/A
Duck & egg	0000	000	0	N/A	N/A	N/A
Chicken	00	1 1/2	1/2	N/A	N/A	N/A
Fish	00	00	-	00000 000	000	00000
Timber	00	00	-	00000 00	00	00000
Bamboo	000	00	0	00000	00000	-

Table D.4.2.5 Result of Natural Resource Ranking

	Used for						Domestic use/Housework						Income						Labor Human resource/Manpower						Maintenance							
	E	Tou	K	R	Ton	Lan	E	Tou	K	R	Ton	Lan	E	Tou	K	R	Ton	Lan	E	Tou	K	R	Ton	Lan	E	Tou	K	R	Ton	Lan		
Lake	Tourism object, Fish source, Drinking Water, Electricity		Irrigation, Washing, Bathing	Fish culture, Tourism, Bathing, Washing	Drinkinkable water, Electricity, Tourism		5					19	5					17	5					17	Reforestation, Terracing, Construction/Fixing of check dam, Construction of ditches, Excavation/clearing of hyacinth, Floating net arrangement, The handling of household disposal.		Regreening, Excavation, Cleaning up the hyacinth, Ditches construction	Cleaning up the hyacinth, regreening, ditches construction.	Depletion of water hyacinths, Regreening, Elucidation, Lake conservation			
Spring	Drinking water, Washing, Irrigation	Drinkable water, Irrigation and Wet land	Drinking water, Washing, bathing, Irrigation	Drinking water, Washing, Irrigation			5	5	5	5	5	25	3			5	5	4	17	2		5	3	4	14	Plantation of " beringin " trees (regreening), Construction of control reservoir.	Less volume of water and Fresh water network.	Regreening, Reservoir construction, Keep the clean	Regreening, Intercepting		Reforestation, Intercepting reservoir	
Tree	Construction, Material, Fuel wood, Protecting, Fishery	Building material, Fuel wood and shelter	Construction material, Fuel wood, Furniture,	Construction material, Fuel wood, Protection	Building materials, Fuel, Schelter	Construction, Fuel wood, Conservation	4	3	4	4	2	5	22	4	3	4	3	3	17	3	2	2	3	1	14	Plantation of Elmeria ovalis trees, Palaquium Obusifolium Mahogany, and fruit trees.	Land and water conservation, Reforestation	Plantation, Regreening	Regreening	Regreening, Trees producing fruits.	Reforestation, Cut-plant	
River	Irrigation, Drinking water, Washing	Shower, Washing and Irrigation	Drinking water, Washing, Bathing	Irrigation, Fish culture, Drinking water, Bathing		Irrigation, MCK, Fish source	3	5	3	3		17	3		5	2		4	14	2		5	2		13	Plantation of " kaliandra " trees, Excavation Construction of dam.	Less volume Damp making and Irrigation channel	Regreening at the riverbank, Cleaning, Ditches construction	Cleaning, Ditches construction		Reforestation, Check dam	
Bush		Animal food, Fuel wood, Conservation		Fuel wood, Fertilizing, The land	For fuel, Erosion control, Roof Nutriments for livestock	Livestock food, Fuel wood, Conservation	2		1	3	4	10				1		2	3			1	1	1	3		Land and water conservation, Reforestation		Regreening	Regreening	Reforestation	
Clove		Sold and Fuel wood	Income source, Fuel wood		Saleable, For medicine	Medicine, Fuel wood, Industry	2	2	1	1	1	7	2	5	4		1	3	15	2	5	4	2	2	15	Plantation (extension)	Replanting and plantation with conservation concept.	Plantation, Maintenance		Rejuvenation	Re-greening, Conservation	
Paddy fields and estates				Income source,	Saleable, Domestic consumption (drink)				3	5		8				3	5	8				3	5	8								
Coffee					Saleable, Domestic consumption (drink)		2			2	3	7	1			2	1	4	4	4			2	1	7	Replanting(rejuvenation)				Regreening, Rejuvenation		
Fruits		Sold and self consumed		Income source, Construction material, Fuel wood,			1		3			4	3		3			6	2		3				5				Plantation, maintenance			
Vanilla		Sold	Income source, Food product				1	1				2	4	1				5	5	1					6		Re plantation	Plantation				
Bamboo		Building material and Cooking tool	Construction material, Keramba, Cooking media	Construction material, fuel wood	Building material, Saleable, Handicraft		3	2	3	3	3	14	3	2	3	3	2		13	3	2	3	2	2	12	Being cultured,		Plantation	Plantation			
Sugar Palm		Healthy drink			Saleable, Domestic consumption (drink)		1		2	2	3	8	1	4	3	2	3		13	1	1	4	1	3	10	Plantation	Side effect need advises.	Plantation		Plantation		
Honey		Medicine and Self consumed	Medicine	Medicine			1	1	1	1	1	5	1	1	1	1	1		5	1	1	1	1	1	5	Being cultured			Apiculture			
Stones/White sand				Construction material	Saleable, Domestic consumption (house, road)				3	2		5			2	1			3			2	2		4							
Coconut			Income source, Construction material, Good			Kopra Cooking Industry			2		3	5			2		2		4			2		2	4			Plantation		Re-greening		
Animal		Self consumed	Food				-	1	1		1	3	1				1		2		1	1		1	3	Being protected						
Banana, fruits		Self consumed		Consumption			1		1			2	1		1				2		1	1			2							
Soho Palm				Sago, vegetable, Captikus, Bushes, Lines.					2			2			2				2			2			2			Plantation				
Rattan							1					1	1						1	1					1	Being cultured						
Mushroom											1	1					1		1					1	1							

Source: JICA Study Team