Appendix-D

SOCIO-ECONOMY

AND

RAPID RURAL APPRAISAL

THE STUDY
ON
CRITICAL LAND
AND
PROTECTIO FOREST REHABILITATIN
AT TONDANO WATERSHED
IN
THE REPUBLIC OF INDONESIA

Volume II

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SOCIO-ECONOMY AND RAPID RURAL APPRAISAL

CHAPTER 1 INTRODUCTION

It is essential to address that a watershed is an integrated agro-ecological unit embraces both existence and activities of human beings and natural resources as rivers, lakes, soil, flora and fauna. A component of watershed affects, and is affected by, the other elements within the integrated unit, thus to understand a dynamic agro-ecological system of watershed requires the examination of all components within it.

For this, one of the essential components of watershed, local people were carefully studied during the project. Throughout the Study, the present and past socio-economic conditions and activities of local people are examined using both primary and secondary data. The socio-economic survey during the JICA Study was executed at 3 different levels: the national and regional level, Study Area level and Intensive Area level.

The study results at the national regional level can be found in Chapter 2, while the ones at the Study Area level are in Chapter 3. Both results are parts of the Master Plan Study (Phase I Study) in accordance with the Terms of Reference from JICA. The survey results during the Feasibility Study (Phase II Study) are attained from the detailed socio-economic survey at the Intensive Area level, which are in Chapter 4 in this Appendix. The most of those data and information are acquired from the data/information gathering at the community level with local leaders and people.

CHAPTER 2 GENERAL BACKGROUND

2.1 General

Indonesia as a whole is in a great transition time: the economy has just experience a great crisis after a relatively long and buoyant economic growth during the 1970s and 80s, the administrative decentralization has become one of the most important and discussed agenda in the nation, there have been a couple of new political administrations followed the long-standing Soeharto regime. In addition, the nation has been experiencing the social and cultural transformation in the context of globalization and westernization through trade, media and political movements.

With these socio-economic environments in mind, National and Regional Economy, Administrative Decentralization, Basic Stipulation of Forestry Laws and Comparison among Forestry Law, Agrarian Law and Customary Law (*Hukum Adat*) are studied in this Chapter.

2.2 National and Regional Economy

(1) National Economy

The Indonesian economy has steadily grown at an average annual growth rate of around 7% since 1969, through the implementation of two Long-Term Development Plans (*PJP: Pembangunan Jangka Panjang*). Each Long-Term Development Plan is a 25-year plan, and is further divided into consecutive 5-year Development Plans, called *Repelita*. The Long-Term Development Plan, Phase I was completed on March 31, 1994, and then the Phase II was launched, but was disrupted due to the national level economic crisis started in July 1997.

The national economic crisis, which was triggered by the drastic devaluation of the currency at the late 1997, has largely influenced the Indonesian economy, so that its economic growth rate dropped to –13.6% in 1998. As a result, Indonesia has returned to a low-income country. This economic crisis has impacted the increase of unemployment and poverty, and also the raising of the inflation rate. Unemployment reached 6.7 million in number in 1998, about 7% of the whole labor force. The economic situation in the rural areas has become worse than that in the urban areas, due to the run-off of jobless people to the rural area. However, the Indonesian economic has gradually been improved, and the economic growth rate in the first quarter of 2000, which is still predicted, has arrived at 2%.

The new government was inaugurated in October 1999. It has not made any

publication of its own economic development program so far. But, in '*Garis-Garis Besar Haluan Negara* (*GBHN*) or the General Guideline for the National Development, *MPR* (People Consultative Body) has already determined the principles of economic development. These include a) the promotion of free market mechanism, b) the promotion of healthy and fair competition, c) the promotion of economic justice, d) the promotion of public transparency and e) the development of national economic competitiveness.

Between 1993 and 1999, the GDP per capita increased from Rp. 2.3 million to Rp. 4.6 million at the current market price. But it decreased by 1.34% at a constant market price. The contribution of forestry sub-sector to GDP increased from 1.53% in 1997 to 1.71% in 1998. However, it decreased to 1.56% in 1999.

Between 1993 and 1999, the manufacturing sector contributed to GDP significantly. In 1999, its economic contribution has reached to 25.78%, followed by the agriculture, livestock, forestry and fishery sector (19.41%).

(2) Regional Economy

The Gross Regional Domestic Product (GRDP) of North Sulawesi Province increased from Rp. 2,806 billion in 1993 to Rp. 3,890 billion in 1999 at the constant market price basis. The average economic growth in the province between 1993 and 1999 was 5.76%. Region's economy grew fast between 1994 and 1996, but after 1996, it gradually declined, and reached to -2.37% in 1998 due to the economic crisis. The decline was relatively mild in North Sulawesi comparing with the average decline at the national level with unknown reasons.

In 1999, North Sulawesi's GRDP has contributed to the whole Indonesian GDP at the rate of 1.06%, while the population of the province has shared 1.36% of country's total population.

According to the statistics in 1999, the agricultural sector accounted for 27.96% of GRDP, followed by the service sector, which contributed 19.14% of GRDP. The contribution of forestry sector to GRDP has increased constantly from 2.34% in 1993 to 3.66% in 1999.

2.3 Latest Policy and Laws Concerned

2.3.1 Administrative Decentralization

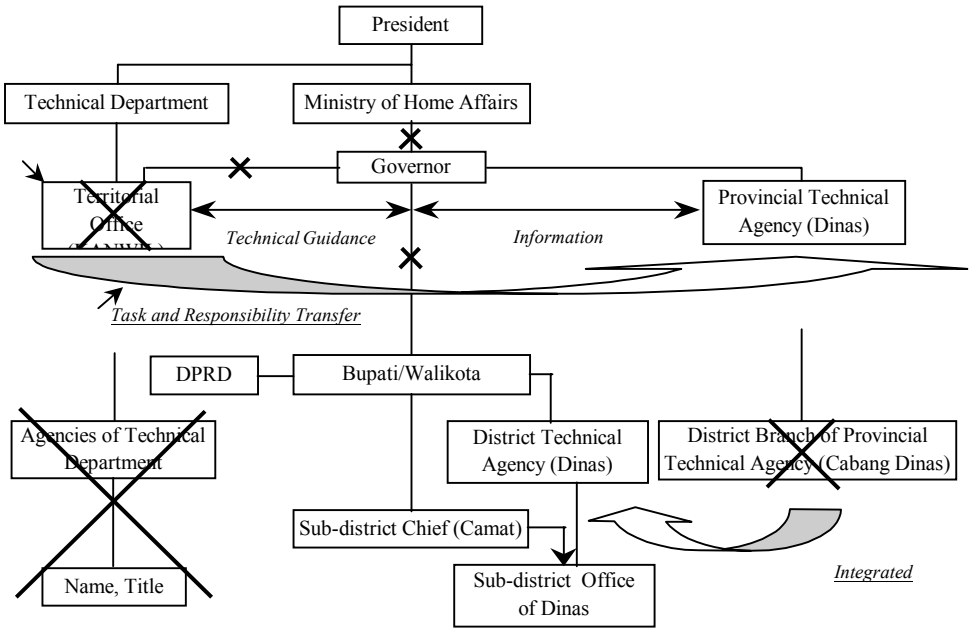
The current regional government structure and local autonomy in Indonesia is based primarily on the law No.5 from 1974. The law illustrates the basic structure of

public administration at all levels and defines the status, form, responsibilities and tasks of local governments. The law provides districts/municipalities with the rights to pass and issue local laws and regulations. Districts/Municipalities have a certain discretionary power over their personnel and budget, but intensive control and supervision of the central and provincial government limit the autonomy. The provincial, district and municipal governments are considered administrative entities of the central government.

In 1992, GOI passed a regulation PP 45/92, which stipulates substantial political and administrative decentralization in the country. It indicates that the number and forms of responsibilities must be transferred to districts/municipalities, and the regulation confirms the dominant role of the Ministry of Home Affairs in decentralization. After the enactment of PP 45/92, the Ministry of Administrative Reform (*MENPAN*) launched an experimental program, the District Autonomy Pilot Programme (DAPP) in 1994. In 1996, Minahasa District was chosen as one of the pilot local governments for DAPP.

After reviewing DAPP, GOI passed the law No. 22 and 25/99 in 1999 to apply DAPP to all districts/municipalities in the country. According to the law, *Kandep* and *Cabang Dinas* will be integrated into District Technical Agencies (*Dinas*), and autonomous technical units are to be directly managed by a district/municipality. Heads of District/Municipality, namely *Bupati* and *Walikota* no longer report to their governors but to the locally elected assemblies (*DPRD*). The main point of structural change in the regional government according to the law is shown below.

The Structure Change of Regional Government According to Law 22 of 1999



Source: Study Team based on AF-SPL Technical Report

The decentralization process is designed to accompany fiscal decentralization. A portion of revenue from forestry, mining, fishery, oil, gas, and land/building taxes will be shared with local governments as shown below.

Fiscal Decentralization

Source of Revenue	Central Government	Region
Land and Property Tax	10%	90%
Land Purchase and Building Permits Revenue	20%	80%
Forestry, Mining and Fishery Royalties	20%	80%
Oil and Gas Royalties	85% oil, 70% gas	15% oil, 30% gas

However, this simplistic decentralization process is not simple in practice due to the existence of three forms of decentralization devised through Law 5/1974. They are decentralization, de-concentration and co-administration (*tugas pembantuan*)[1].

To identify which responsibilities/tasks of *Kandep* and *Cabang Dinas* are subject to be transferred to, delegated to or implemented by District Technical Agencies (*Dinas*) under Law 22/25 1999 is an extremely complex job. In general, the decentralization process after the enforcement of the law has been gradual in the country. In respect to the decentralization of *Kanwil*, the progress has been further prolonged since the law did not state the restructure of *Kanwil*.

Another element for the sluggish decentralization process is the delay of human resource development at the district/municipality level. The decentralization program has a component of capacity building for districts/municipalities through the undertaking of de-concentration and co-administration. It aims to provide opportunity for local governments to gain experience in taking responsibilities and implementing government services. In reality, additional de-concentration and co-administration aggregates the complexity of determining tasks to be devolved.

The authority of the local legislative branch (DPRD), for which the heads of district/municipality are accountable, is still weak. As a result, the accountability and responsibility of local governments remains underdeveloped. Therefore, political decentralization is a must for successful administrative decentralization in this aspect. These general trends and obstacles of decentralization are evident in Minahasa District and Manado Municipality.

BRLKT, the Indonesian counterpart agency of the Study, falls into a category of

1 Decentralization, which is often called "political decentralization" in international literature, means transferring legislative authority, responsibility and tasks from a higher level of government to a lower autonomous level. The transfer always has to be accompanied by the transfer of personnel, money and necessary equipment. De-concentration means the delegation of administrative tasks from a central ministry to its field offices or line agencies in the region. If local governments implement tasks on behalf of the provincial or district department offices, it is called co-administration.

specialist organization known as technical implementation unit (*UPT*). *UPT* can be classified into 2 units: *UPT Wilayah* and *UPT Daerah*. *UPT Wilayah* is attached to *Kanwil*, thus in line with the technical department of central ministry, whereas *UPT Daerah* is attached to regional specialist offices known as *Dinas*. Therefore, the function of *BRLKT* has dual dimensions. One is the function as a specialist organization for the department, and the other is as an implementation unit for regional government.

On one hand, the implication of decentralization in respect to *BRLKT* as *UPT Wilayah* can be summarized as the reinforcement of tasks delegation and responsibility transfer to *UPT Daerah*. Since the principles of decentralization in Indonesia are the reduction of departmental influence at the regional level, the functions and responsibilities of *BRLKT* as *UPT Wilayah* are subject to be cut down. On the other hand, decentralization implies the need for institutional development of *BRLKT* at the *Daerah* level. *BRLKT Daerah* is urged to expand its institutional capability so as to be able to accommodate the additional functions and responsibilities from *Wilayah*.

It is important to note that the regional technical implementation unit consists of 2 levels: province and district. According to the decentralization principles, the emphasis has been put on the administrative decentralization at the district governments, rather than the provincial government. It reinforces the strengthening of *BRLKT Daerah* at the district level.

The decentralization also implies the importance of regional government's involvement in implementation. The regional stakeholders, such as governor, head of district and municipality play a key role in supporting *Dinas* financially and politically.

2.3.2 Basic Stipulation for Forestry and New Forestry Law

In 1967, GOI passed a law No. 5 which became the basis of forestry law in the country. In 1999 after long debate and anticipation for a decade, a new forestry law was passed. Law 41/1999 was formulated based on the recognition of obsolete nature of the old law. On a whole, the new forestry law contains more detailed guidelines for forest management than the previous one. The comparison between the old and new laws is shown in Table D.2.1.

A major difference between the old and new laws can be found in the detailed measures for forest protection. Article 50 and 51 are the examples of thorough regulatory guidelines of the new forestry law. The unofficial English translations of

both articles are attached in Table D.2.2.

Another prominent difference between both laws is that the new law recognizes the existence of customary law forest and the rights of people in the communities, though in Minahasa District, GOI is yet to determine the customary law forest. There is another category called "private forest (*Human Rakyat*)." The private forest is located in the privately righted land and the size of the private forest recognized by GOI reaches 39,078.4 ha in Minahasa, of which 3,539 ha (9%) exists in the 11 Sub-Districts in Minahasa as shown below.

The private forest is either man-made or natural forest for mainly the purpose of fulfilling the local needs on forest products. For man-made community forests, *GOI* provides subsidies in some cases. The average ratio of private forest per non-rice field land in Minahasa is 5.3% in 1999, while the average ratio in the 11 Sub-Districts is 3.1%.

Size of Private Forest

Sub-District	Private Forest (ha)	Private Forest / Non-Paddy Field Land (%)	Total Non-Paddy Field Land (ha)
Langowan	1,831.9	16.5	11,087.3
Tompaso	0.0	-	25,025.5
Pineleng	275.0	2.0	13,510.0
Tomohon	181.1	1.7	10,611.5
Tondano	0.0	-	3,052.4
Remboken	75.0	2.3	3,257.0
Kakas	775.0	7.2	10,775.1
Eris	20.0	0.5	4,087.0
Toulimambot	221.0	7.8	2,834.0
Kauditan	160.0	1.0	15,791.0
Airmadidi	0.0	-	15,975.0
Total	3,539.0	3.1	116,005.8

Source: Rangkuman Hasil Pengolahan PODES 1999

2.3.3 Comparison among Forestry Law, Agrarian Law and Customary Law

Sharp discrepancy between the forestry or agrarian law and customary law (*hukum adat*) can be found in the formality of rights. The principle of forestry or agrarian law, as all official laws in the country, stands on the public rights, whereas for *hukum adat*, there is no distinction between public and personal rights. Thus GOI provides official guidelines and restrictions based on official land rights, which are not applicable to the *adat* land whereby the land rights are protected and managed in private.

In the new forestry law, the stipulations over a customary forest were recognized. GOI provided *adat* communities with the management rights of their forests. For this, the conflict between the forestry law and *adat* was alleviated to such an extent

that the privately realized rights in respect of utilizing and maintaining the customary forest became legitimate.

It does not mean, however, that the discrepancy between the government authority and community rights was completely eradicated. Even though the agrarian law recognized the customary land rights, the rights remain informal since there is no formal registration system or certificate for the customary land rights. The co-existence of "legitimacy" and "informality" over the customary rights creates an administrative dilemma. For example, it will be unclear for GOI to determine over which forest the community has the management rights since the ownership rights over their forests are informal. When the community fails to identify the location and boundary of their customary law forest, which should be the most cases given the informality of their land rights, the state would have no choice but to dictate the determination of the forest and formalization of land rights. GOI, in this sense, still has an authority in the decision-making. More detailed regulations for determining *adat* communities and customary forests are underway, but the inconsistency between law (formality) and *adat* rights (informality) should present a great challenge to legislators.

CHAPTER 3 MASTER PLAN STUDY FOR THE STUDY AREA

3.1 Population

In 2000, the total population all villages within the Study Area was 338,246[2]. For District Minahasa, 194,524 individuals resided in the Study Area in 2000, which corresponded to approximately one fourth of Minahasa's total population. For Municipality Manado, 143,722 people lived in the Study Area in 2000, which equaled to approximately 30% of Manado's total population. In terms of the area, about 13% of Minahasa (approximately 417,000 ha) and 19% of Manado (approximately 15,700 ha) are included in the Study Area.

Demographic Data in the Study Area 2000

District/ Municipality	Sub-District	# of village	Area (ha)	House-hold	Population	Growth % 90-00	Population Density	Ave. # of fmly mbers[3]
Minahasa	Langowan	21/28	7,069	11,645	38,108	0.39%	539	3.27
	Kakas	14/20	5,560	4,810	16,550	0.09%	298	3.44
	Tompaso	9/11	2,040	2,731	9,163	0.22%	449	3.36
	Remboken	11/11	3,880	3,158	10,876	0.96%	280	3.44
	Tomohon	3/34	769	963	3,619	1.19%	471	3.76
	Tondano	17/17	5,277	9,798	33,205	1.10%	629	3.39
	Toulimambot	14/14	4,353	4,696	16,761	0.94%	385	3.75
	Eris	6/7	2,986	2,717	9,497	0.30%	318	3.50
	Kauditan	3/19	1,836	1,347	4,383	0.10%	239	3.25
	Airmadidi	20/20	15,612	12,112	43,686	2.31%	280	3.61
	Pineleng	6/17	5,338	2,618	8,673	1.01%	162	3.31
	Sub total	124/198	54,720	56,595	194,524	0.99%	355	3.44
Manado	Wenang	13/19	1,477	21,428	78,791	1.18%	5,333	3.68
	Molas	6/21	735	10,785	42,092	3.84%	5,727	3.90
	Sario	1/12	122	1,306	17,788	1.60%	14,580	3.11
	Mapanget	2/11	588	1,306	5,051	2.16%	859	3.87
	Sub total	24/63	2,923	39,236	143,722	1.98%	4,918	3.66
	Total	148/261	57,643	95,831	338,246	1.40%	587	3.53

Source: Sensus Penduduk 1990 and 2000

The average annual population growth rate of Minahasa between 1990 and 2000 in the Study Area was 0.99%, while the growth rate in the Manado part was 1.98%[4]. The significant gap on the growth rate between the study and non-Study Areas in Manado was derived from the fact that the most population increase occurred in Sub-District Malalayang, the south of Manado, which is the outside the Study Area. It seems that the city is also expanding to the north whereby visible phenomena possibly caused by

[2] *See Table D.3.1 for population by villages.*
[3] *The word "household" as a statistical term in Indonesia means "head of family".*
[4] *Based on the demographic data shown above, "Development Risk Map I – Demographic Aspect" was completed as shown in Figure D.3.1*

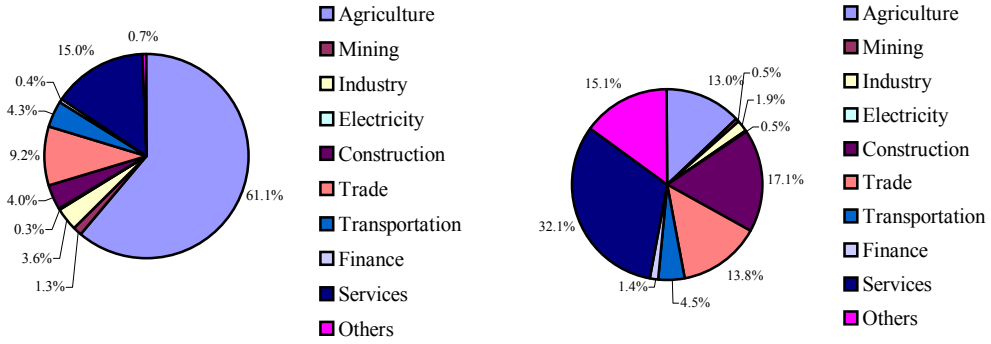
the population pressure are noticed, such as the increase of shanty houses.

Historically, Manado has been experiencing a rapid population growth. In 1961 when the first national census was conducted, the population of Manado was 129,248. By the next census in 1971, the population reached to169,943 at 3.1% increase in average annual growth rate. By year 1980, Manado's population became 217,159. During the 9 years, the average annual growth rate was 2.7%. In 1990, the area of Municipality Manado had expanded, and from 1980 to 1990, its population had grown at average 4.7% annually and became 320,600.

For District Minahasa, the population growth was relatively moderate. In 1971 when the national census was conducted, the total population in Minahasa was 616,453. In 1980, the population in Minahasa reached to 677,342. The average annual population increase during this time was 1.05%. From 1980 to 1985, the population increased by 41,240, which equivalent to 1.2% average annual growth rate. In year 1990, Municipality Bitung was separated from District Minahasa, and Minahasa's population became 720,604. During the 5 years, the annual growth rate was low (0.06%) due to the separation of Bitung. The average growth rate from 1980 to 1990 was 0.6%.

3.2 Labor Force

Labor Force in 11 Sib-Districts at Minahasa Labor Force in 4 Sub-Districts at Manado



Source: Data base Kecamatan se Sulawesi Utara, 1998

As shown above, the majority of labor force (approximately 60%) is involved in agriculture in the 11 Sub-Districts at Minahasa. For Manado, one third of working population is engaged in the service sector. The table below is the labor distribution by sector for each sub-district in Minahasa and Manado.

Labor Force by Sector

	Agriculture	Mining	Industry	Electricity	Construction	Trade	Transportation	Finance	Services	Others
Minahasa										
Langowan *)	16,329	30	303	17	650	2,056	380	28	2,101	-
Kakas **)	12,380	6	676	-	296	530	498	15	1,072	667
Tompaso **)	4,099	-	22	-	192	-	23	-	464	-
Remboken **)	4,076	-	203	-	120	120	75	9	485	-
Tomohon**)	11,331	538	413	2	641	1,209	744	84	2,706	403
Tondano *)	18,795	553	1,414	84	1,579	4,046	2,188	116	6,227	-
Toulimambot **)	3,870	321	652	215	989	878	909	58	1,625	-
Eris **)	2,869	-	232	10	243	131	50	-	1,045	-
Kauditan *)	5,810	55	221	-	320	1,286	475	-	-	-
Airmadidi *)	15,575	412	1,713	130	1,028	3,507	796	86	5,596	-
Pineleng *)	4,373	123	61	94	463	1,238	872	268	3,139	-
Sub-total	99,507	2,038	5,910	552	6,521	15,001	7,010	664	24,460	1,070
Manado										
Wenang ***)	719	-	-	-	6,695	2,851	-	-	7,182	6,173
Molas **)	10,165	435	949	393	9,042	8,359	3,505	861	5,521	6,807
Sario **)	515	112	543	134	1,303	2,756	957	455	17,503	2,262
Mapanget **)	1,703	-	431	-	245	-	40	108	2,155	-
Sub-total	13,102	547	1,923	527	17,285	13,966	4,502	1,424	32,361	15,242
Total	112,609	2,585	7,833	1,079	23,806	28,967	11,512	2,088	56,821	16,312

*Source: *) Data base Kecamatan se Sulawesi Utara, 1998, **) Pendataan Profil Kecamatan 1997, ***) Kantor Kecamatan Wenang, Juni 1999*

The data, however, is not complete due to the absence of some information on official statistics. The official statistics do not include labor force in informal sector, such as street vendors or unlicensed taxi drivers. The size of informal sector in the area is unknown but believed to be significantly large.

3.3 Economy

3.3.1 Economic Role of Lake Tondano

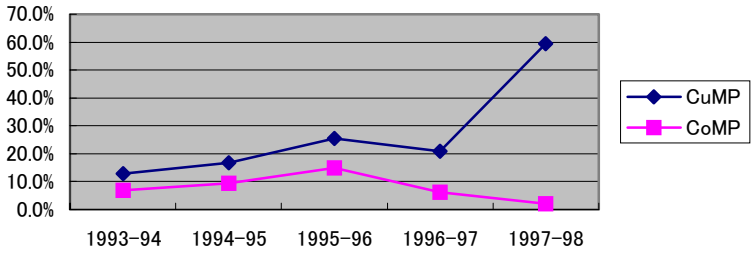
Lake Tondano plays key roles in the economy of the area. The lake provides irrigation water for agriculture, and a number of fishermen and aquaculture laborers rely on the lake for their production. The water from the lake has been utilized for hydroelectric power plants as well. The lake is also a source for tourism. Along with the natural features of the area, including the number of hot springs and volcanic mountains, the lake provides a leisure space for local population. However, tourism in the area is still underdeveloped due mainly to the lack of investment.

3.3.2 Economic Conditions and Trends in District Minahasa

The GRDP growth rate at Current Market Prices (CuMP) in Minahasa was 12.9% in 1993, 16.8% in 1994, 25.5% in 1995, 20.9% in 1996, and 59.5% in 1997. During this period, Indonesian Rupiah depreciate significantly, and the adjusted GRDP

growth rate (Constant Market Prices at 1993 price level or CoMP) is far lower. Especially since the beginning of the economic crisis in 1996, the economic growth in Minahasa has been significantly decelerated. The GRDP growth rate at CoMP in 1996 was reduced to 6.08% and fell further to 2.12% in 1997.

The GRDP Growth Rate of Minahasa between 1993-1998



Source: Produk Domestik Regional Bruto Kabupaten Minahasa 1993-1998

The sluggish economic growth in 1998 in Minahasa is attributed mainly from negative growth in the Construction (minus 39.7%) and Financial (minus 6.8%) sectors. Overall construction activities have faced stagnation due mainly to the increased prices of construction materials, particularly imported ones. The depreciation of currency after the crisis caused the price increase. The negative growth in financial sector was attributed from the rampant delinquency and financial failure of banking institutions after the crisis. Nevertheless, vivid GRDP growth is observed in the mining and quarrying sector (33.47%). The trade, hotel and restaurant sector has grown almost 120% between 1993 and 1998. It represents the urbanization of Minahasa District in the last decade.

GRDP of Minahasa at Current Market Prices 1993-1998 (Million Rp.)

Sector	1993	1994	1995	1996	1997	1998
Agriculture	320,050	348,391	392,677	451,155	552,368	865,930
Mining and quarrying	27,558	34,670	45,278	114,563	147,152	368,925
Industry	72,066	78,801	99,291	119,755	136,650	191,451
Electricity & Water supply	6,544	7,416	8,525	10,142	11,851	13,035
Contraction	102,778	125,248	145,841	178,830	213,929	353,376
Trade, Hotel and Restaurant	53,003	60,632	85,107	120,233	151,152	234,676
Transport and Communication	70,640	82,179	89,164	99,771	118,944	197,918
Finance	32,038	37,686	43,850	48,547	54,419	74,721
Service	122,120	136,069	154,247	192,114	228,002	275,092
Total GRDP	806,797	911,092	1,063,980	1,335,110	1,614,467	2,575,124

Source: Produk Domestik Regional Bruto Kabupaten Minahasa 1993-1998

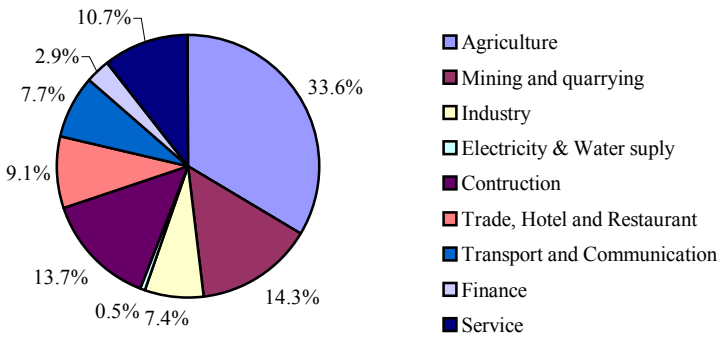
GRDP of Minahasa at Constant Market Prices 1993-1998 (Million Rp.)

Sector	1993	1994	1995	1996	1997	1998
Agriculture	320,050	333,642	356,922	375,236	394,453	428,945
Mining and quarrying	27,558	30,595	35,261	88,123	98,658	131,678
Industry	72,066	76,905	84,606	90,857	95,000	97,948
Electricity & Water supply	6,544	7,205	7,777	8,859	9,808	10,134
Contraction	102,778	117,126	129,834	150,353	159,760	96,354
Trade, Hotel and Restaurant	53,003	57,268	75,782	100,211	107,052	116,052
Transport and Communication	70,640	76,685	79,692	86,106	93,687	99,733
Finance	32,036	34,416	37,005	38,086	39,523	36,829
Service	122,120	129,028	137,030	147,453	153,362	157,984
Total GRDP	806,795	862,870	943,909	1,085,284	1,151,303	1,175,657

Source: Produk Domestik Regional Bruto Kabupaten Minahasa 1993-1998

Agriculture is the leading sector in Minahasa, contributing approximately 34% of total GRDP in 1998 as shown below.

GRDP Share in Minahasa by Sector in 1998



Source: Produk Domestik Regional Bruto Kabupaten Minahasa 1993-1998

However, the share has been constantly decreasing from 39.67% in 1993, except slight increase in 1997 as shown in the table below. The increase in 1997 was mainly derived from the greater impact of economic crisis on other sectors.

Economic Structure of Minahasa, 1993-1998 (%)

Sector	1993	1994	1995	1996	1997	1998
Primary						
Agriculture	39.67	38.24	36.91	33.79	34.21	33.63
Mining and quarrying	3.42	3.81	4.26	8.58	9.11	14.33
Secondary						
Industry	8.93	8.65	9.33	8.97	8.46	7.43
Electricity & Water supply	0.81	0.81	0.80	0.76	0.73	0.51
Contraction	12.74	13.75	13.71	13.39	13.25	13.72
Tertiary						
Trade, Hotel and Restaurant	6.57	6.65	8.00	9.01	9.36	9.11
Transport and Communication	8.76	9.02	8.38	7.47	7.37	7.69
Finance	3.97	4.14	4.12	3.64	3.37	2.90
Service	15.14	14.93	14.50	14.39	14.12	10.68
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Produk Domestik Regional Bruto Kabupaten Minahasa 1993-1998

The GRDP per capita of Minahasa in 1998 was Rp. 3,595,086 at Current Market Price (Rp. 4,877,796 for the national average). The real growth of GRDP per capita in Minahasa was hampered after the economic crisis in 1996. The adjusted GRDP per capita (at CoMP) was Rp. 1,641,314 (Rp. 1,847,061 for the country).

GRDP Per Capita of Minahasa, 1993-1998

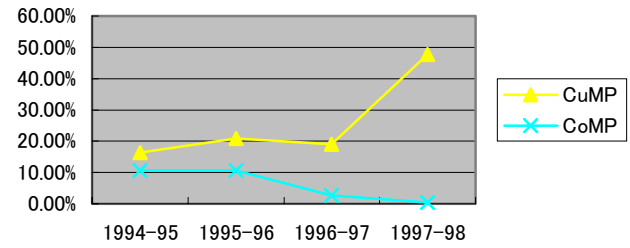
Year	at Current Market Prices		at Constant Market Prices	
	Value (Rp.)	Growth %	Value (Rp.)	Growth %
1993	1,138,576	-	1,138,576	-
1994	1,282,506	12.64	1,214,626	6.68
1995	1,494,144	16.50	1,325,529	9.13
1996	1,870,950	25.22	1,520,858	14.74
1997	2,258,470	20.71	1,610,552	5.90
1998	3,595,086	59.18	1,641,314	1.91

Source: Produk Domestik Regional Bruto Kabupaten Minahasa 1993-1998

3.3.3 Economic Conditions and Trends in Municipality Manado

The GRDP growth rate at Current Market Price in Manado was 16.36% in 1994, 20.99% in 1995, 19.98% in 1996, and 47.69% in 1997. During the same period, the GRDP growth rate at Constant Market Price was significantly lower as it was for Minahasa. The growth rates at CoMP were: 10.62% in 1994, 10.74% in 1995, 2.67% in 1996, and 0.32% in 1997.

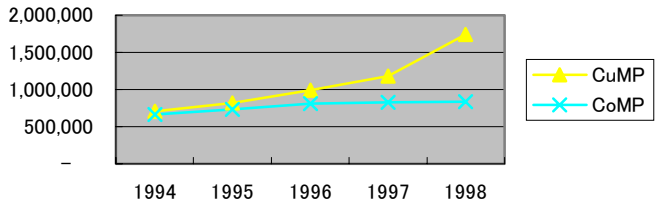
The GRDP Growth Rate of Manado between 1993-1998



Source: Produk Domestik Regional Bruto Kotamadya Manado 1993-1998

The following is the graphic expression of GRDP between 1994 and 1998.

GRDP of Manado 1993-1998 (Million Rp.)



Source: Produk Domestik Regional Bruto Kotamadya Manado 1993-1998

The stagnant economy in Manado in the recent years was attributed mainly from the negative growth of construction and financial sectors, as it was in the case of Minahasa. The growth of construction sector in 1996 was minus 4.7%, of financial sector was minus 77.1% in 1997. On contrary, agricultural sector has grown 18.3% on average annually between 1994 and 1997. But agriculture sector in Manado shares only 3% of GRDP in 1998.

GRDP of Manado at Current Market Prices 1993-1998 (Million Rp.)

Sector	1994	1995	1996	1997	1998
Agriculture	17,560	19,555	23,738	28,089	51,554
Mining and quarrying	953	990	1,005	1,206	1,607
Industry	51,874	62,959	70,127	87,119	119,218
Electricity & Water supply	3,399	4,182	5,398	6,524	12,247
Construction	76,225	85,539	101,515	121,494	209,964
Trade, Hotel and Restaurant	150,460	179,104	218,728	256,554	383,226
Transport and Communication	168,494	186,184	225,833	265,293	385,608
Finance	66,005	68,912	85,818	98,767	56,076
Service	168,902	211,609	258,780	314,014	521,814
Total GRDP	703,872	819,034	990,942	1,179,060	1,741,314

Source: Produk Domestik Regional Bruto Kotamadya Manado 1993-1998

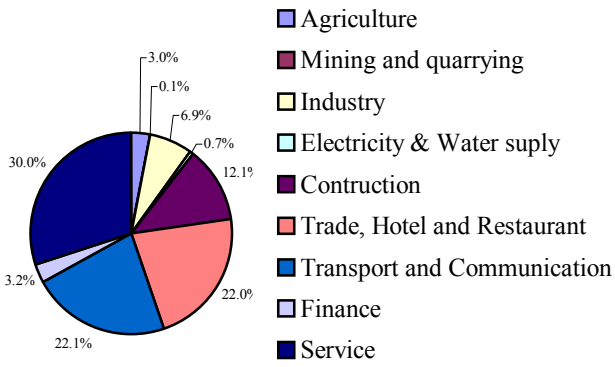
GRDP of Manado at Constant Market Prices 1993-1998 (Million Rp.)

Sector	1994	1995	1996	1997	1998
Agriculture	16,310	17,519	21,321	24,881	31,259
Mining and quarrying	840	821	864	960	981
Industry	46,200	53,920	62,698	64,880	70,803
Electricity & Water supply	3,262	3,614	4,809	4,836	4,765
Construction	71,000	81,675	85,288	81,279	79,046
Trade, Hotel and Restaurant	145,014	168,423	179,913	181,853	216,887
Transport and Communication	154,977	171,759	201,161	209,301	218,086
Finance	62,982	64,905	78,037	78,464	17,935
Service	159,180	167,186	174,160	183,375	192,753
Total GRDP	659,765	729,822	808,251	829,829	832,515

Source: Produk Domestik Regional Bruto Kotamadya Manado 1993-1998

There are three major sectors in Manado: service, transportation and communication, and trade, hotel and restaurant. The GRDP contributions by sector in 1998 were shown below.

GRDP Share in Manado by Sector in 1998



Source: Produk Domestik Regional Bruto Kotamadya Manado 1993-1998

The economic structure in Manado has been fairly stable except a slight increase in service sector. The real contribution of service and trade sectors to GRDP might be larger than they are on the statistics because they embrace informal economy.

Economic Structure of Manado, 1993-1998 (%)

Sector	1994	1995	1996	1997	1998
Primary					
Agriculture	2.49	2.39	2.40	2.38	2.96
Mining and quarrying	0.14	0.12	0.10	0.10	0.09
Secondary					
Industry	7.37	7.69	7.08	7.39	6.85
Electricity & Water supply	0.48	0.51	0.54	0.55	0.70
Construction	10.83	10.44	10.24	10.30	12.06
Tertiary					
Trade, Hotel and Restaurant	21.38	21.87	22.07	21.76	22.01
Transport and Communication	23.94	22.73	22.79	22.50	22.14
Finance	9.38	8.41	8.66	8.38	3.22
Service	24.00	25.84	26.11	26.63	29.97
Total	100.00	100.00	100.00	100.00	100.00

Source: Produk Domestik Regional Bruto Kotamadya Manado 1993-1998

The GRDP per capita of Manado in 1998 was Rp. 3,748,333 at Current Market Price (Rp. 4,877,796 for the national average). When it is adjusted at CoMP, the GRDP per capita was Rp. 1,792,121(Rp. 1,847,061 for the country).

GRDP Per Capita of Manado, 1993-1998

	At Current Market Price		At Constant Market Price	
Year	Value (Rp.)	Growth %	Value (Rp.)	Growth %
1994	1,753,482	-	1,652,900	-
1995	1,912,505	9.07%	1,736,131	5.04%
1996	2,262,899	18.32%	1,884,332	8.54%
1997	2,635,174	16.45%	1,889,463	0.27%
1998	3,748,333	42.24%	1,792,121	-5.15%

Source: Produk Domestik Regional Bruto Kotamadya Manado 1993-1998

3.3.4 Unemployment

In Indonesia, unemployment referrers to people who are looking for work actively and did not work for more then one hour in a previous week. Unemployment rate in Minahasa at the end of 1998 was 8.06% and 18.53% in Manado. The Unemployment in North Sulawesi at the end of 1998 was 10.63% and 5.46% for the nation as a whole. At the end of 1998, underemployment rate, which is defined as the ratio of working population and those who work less than 35 hours a week despite of their wish to work longer, was 23.1% at the national level, though there is no such a category as “underemployment” according to the classification of the Bureau of Statistics of Indonesia. The category is popular in the international literature.

3.3.5 Local Financial System

There are a number of formal banking institutions in the area. Below is the number of government bank offices. In addition to these government banks, a number of commercial banks and their branch offices exist in the area. These formal banking institutions provide a wide range of financial services, including various kinds of loans and savings. The main clients of these formal banks tend to be individuals and institutions with an established credit, such as landlords and businessmen.

Number of Government Bank Offices at Minahasa, 1998

Bank	Branch office	Assistant branch office	Rural office	Assistant cash office
Bank Rakyat Indonesia	1	0	14	0
Bank BNI	0	4	0	0
Bank Pembangunan Daerah (BPD)	2	2	0	1
Total	3	6	14	1

Source: Minahasa Dalam Angka 1998

Among these government banks, Bank Rakyat Indonesia has a unique characteristic. The bank provides small-scale financial services to the local people with the requirement of small-scale collaterals or credit. It offers the variety of unsecured loans as well.

For farmers in Minahasa, the major provider of financial resources for agriculture is the trader. These traders, most of who are Chinese or Chinese descendants provide farmers with farm inputs and monetary credit in exchange to the purchase of farm products from the farmers.

At the village level in Minahasa, credit often flows inside multi-dimensional social networks among people of long established connections. The connections extensively, but not exclusively, involve kinship and marriage ties. Credit at the village level is often conceived not only as something refers to debt of money, food or services but further more as vaguely, and sometimes clearly recognized the complex sets of commitment and demand. Debts are lent without immediate returns with the expectation and promise of future repayments. Most villagers have perpetual debt relations with each other, which is very much based on, and at the same time the source of, mutual trust.

In addition to the personal credit system described above, there are local moneylenders whose interest rates are usually higher than the market rate. Some villagers in Minahasa utilize the moneylenders in the case of immediate cash needs because of the promptness of their loan disbursement. There is also a relatively organized credit scheme at the village level called ROSCA (Rotating Saving and

Credit Association) system in international literature or *arisan* in the local term. A ROSCA calls regular meetings, and the members of association make contributions in cash, which will be put in their fund. The fund will be given to a host of the association, and the turn of a host will be rotated for coming meetings. The size of ROSCA membership and contributions vary, but remarkably successful and active associations are observed in the area. ROSCA is popular not only in District Minahasa but also in urbanized Manado.

3.4 Infrastructure

3.4.1 Market Outlet

In the area, there are a number of market facilities, most of which are a simple, outdated complex for the trade of consumer goods. Although the physical conditions of most market outlets are poor, they play a focal point of local economy.

Number of Market Outlet in Minahasa 1999

Sub-District	General Market	Fish Market	Meat Market	Total
Langowan	3	0	1	4
Kakas	2	0	0	2
Tompaso	1	0	0	1
Remboken	1	0	0	1
Tomohon	1	0	0	1
Tondano	2	0	0	2
Toulimambot	0	1	0	1
Eris	1	0	0	1
Kauditan	2	0	0	2
Airmadidi	2	0	0	2
Pineleng	0	0	0	0
Sub-Total	15	1	1	17

Source: Data Monografi Kecamatan, 1999

3.4.2 Sanitation Infrastructure

Below is the table for the dominant garbage disposal methods in villages whereby either collection service, berried or burnt in a hole, disposed into a river or others are practiced. Solid domestic wastes in the area are mostly disposed in holes and either berried or burnt. Those holes are usually located at the individual household properties, but sometimes placed at a public space when it is available and accessible. The holes are utilized by individual households, while in some cases, shared by several households. Garbage collection services, carried out through either governmental or private collection agencies are limited to urban areas. The majority of households in most villages at 11 Sub-Districts in Minahasa have a private toilet at their residents. Although the data for the toilet systems (septic tank, deep hole, ditch, river, and etc.) are not available, the prevalent system seems to be

the deep hole in the area. The conditions of infrastructure for liquid domestic wastes and drainage in the Sub-Districts are shown below.

Garbage Disposal System 1999 (Number of Villages)

Sub-District	# of village	Collection Service	Berried or Burnt	River	Others
Minahasa					
Langowan	28	0	27	0	1
Kakas	20	0	20	0	0
Tompaso	11	0	10	0	1
Remboken	11	0	11	0	0
Tomohon	34	3	30	1	0
Tondano	17	3	14	0	0
Toulimambot	14	0	11	3	0
Eris	7	0	7	0	0
Kauditan	19	1	18	0	0
Airmadidi	20	0	20	0	0
Pineleng	17	2	15	0	0
Sub-Total	198	9	183	4	2
Manado					
Wenang	19	19	19	0	0
Molas	21	13	19	2	0
Sario	12	12	12	0	0
Mapanget	11	5	10	1	0
Sub-Total	63	49	60	3	0
Total	261	58	243	7	2

Source: Draft of Potensi Desa 1999 Kabupaten Minahasa & Kotamadya Manado

Toilet and Drainage Facilities 1999 (Number of Villages)

	Toilet Facilities				Drainage			
	Private	Shared	Public	No Toilet	Paved canal	Unpaved canal	Canal stagnant	No drain
Minahasa								
Langowan	27	0	1	0	28	0	0	0
Kakas	18	2	0	0	15	4	1	0
Tompaso	7	3	1	0	10	0	0	1
Remboken	11	0	0	0	11	0	0	0
Tomohon	34	0	0	0	33	1	0	0
Tondano	16	1	0	0	16	1	0	0
Toulimambot	11	2	1	0	13	1	0	0
Eris	7	0	0	0	6	0	1	0
Kauditan	18	0	0	1	18	1	0	0
Airmadidi	20	0	0	0	2	0	0	18
Pineleng	16	1	0	0	12	0	0	5
Sub-Total	185	9	3	1	164	8	2	24
Manado								
Wenang	19	0	0	0	18	1	0	0
Molas	20	1	0	0	17	1	3	0
Sario	11	1	0	0	11	1	0	0
Mapanget	11	0	0	0	11	0	0	0
Sub-Total	61	2	0	0	57	3	3	0
Total	246	11	3	1	221	11	5	24

Source: Draft of Potensi Desa 1999 Kabupaten Minahasa & Kotamadya Manado

3.4.3 Other Infrastructure

The national average of electricity coverage in Indonesia was 80.74% in 1998. The average ratio of households with electricity in the 11 Sub-Districts at Minahasa was 71.64% in 1999. In Manado, the average of electricity coverage in the 4 Sub-Districts was 73.49% in 1999.

Electricity Coverage 1999 (Number of Household)

Sub-District	State Electricity	Privately Generated Electricity	Sub-Total	Electricity Coverage
Minahasa)*				
Langowan	11,556	-	8,163	70.64%
Kakas	5,537	-	2,760	49.85%
Tompaso	3,760	-	2,351	62.53%
Remboken	3,015	-	1,642	54.46%
Tomohon	19,292	21	13,993	72.53%
Tondano	8,158	618	7,563	92.71%
Toulimambot	4,400	-	2,866	65.14%
Eris	2,780	-	1,938	69.71%
Kauditan	8,182	-	5,663	69.21%
Airmadidi	9,976	1	8,050	80.69%
Pineleng	9,434	-	6,688	70.89%
Sub-Total	86,090	640	61,677	71.64%
Manado				
Wenang	23,662	30	17,590	74.34%
Molas	24,331	2,341	18,961	77.93%
Sario	19,853	334	12,975	65.36%
Mapanget	9,547	1,270	7,351	77.00%
Sub-Total	77,393	3,975	56,877	73.49%
Total	163,483	4,615	118,554	72.52%

*Source: *) Draft of Potensi Desa in Minahasa 1999*
***) Draft of Potensi Desa in Manado 1999*

The conditions of other infrastructure, including transportation means and communication equipment are shown in the table below[5].

[5] *Based on the data shown above, "Development Risk Map II – Access Aspect" was completed as shown in Figure D.3.2.*

Transportation and Communication 1997 (Number of Household)

District	# of Household	Automobile	Motorcycle	Motor Boat	Small Boat w/ Engine	TV	Telephone**)
*Minahasa *)*							
Langowan	11,556	141	221	0	4	2,113	607
Kakas	5,537	112	154	0	20	1,070	86
Tompaso	3,760	16	17	0	0	569	94
Remboken	3,015	30	52	0	12	1,250	6
Tomohon	19,292	653	412	0	0	4,692	2,212
Tondano	8,158	341	316	0	5	2,781	990
Toulimambot	4,400	196	124	0	6	1,419	326
Eris	2,780	52	42	0	15	0	13
Kauditan	8,182	106	231	0	61	2,363	1,195
Airmadidi	9,976	321	220	0	0	6,000	1,450
Pineleng	9,434	113	18	0	2	1,108	655
Sub-Total	86,090	2,081	1,807	0	125	23,365	7,630
Manado)*							
Wenang	23,662	1,413	1,385	0	0	12,086	4,585
Molas	24,331	625	1,637	8	52	4,270	1,781
Sario	19,853	1,140	896	0	8	10,436	3,126
Mapanget	9,547	120	16	0	0	0	1,280
Sub-Total	77,393	3,298	3,934	8	60	26,792	10,772
Total	163,483	5,379	5,741	8	185	50,157	18,402

*Source: *) Pendataan Profil Kecamatan 1997*
***) Draft of Potensi Desa 1999 Kabupaten Minahasa dan Kotamadya Manado*

3.5 Culture and Religion

3.5.1 Cultural Identity

People in Minahasa identify themselves as Minahasans. They recognize their unique culture, and distinguish themselves from people in the other parts of the archipelago. Their identity is derived mainly from their historical background through which they enjoyed independence and less political influence from the Java authority. Minahasan's strong tribal identity culminated when they had fought against the Jakarta government during the independence after the World War II. Although Minahasa became a part of the Republic after the fight, they were proud of the fact that they held against the Jakarta government for more then two years. Minahasans often stress their physical differences, particularly by the lighter color of their skin. They also emphasize their unique delicacies.

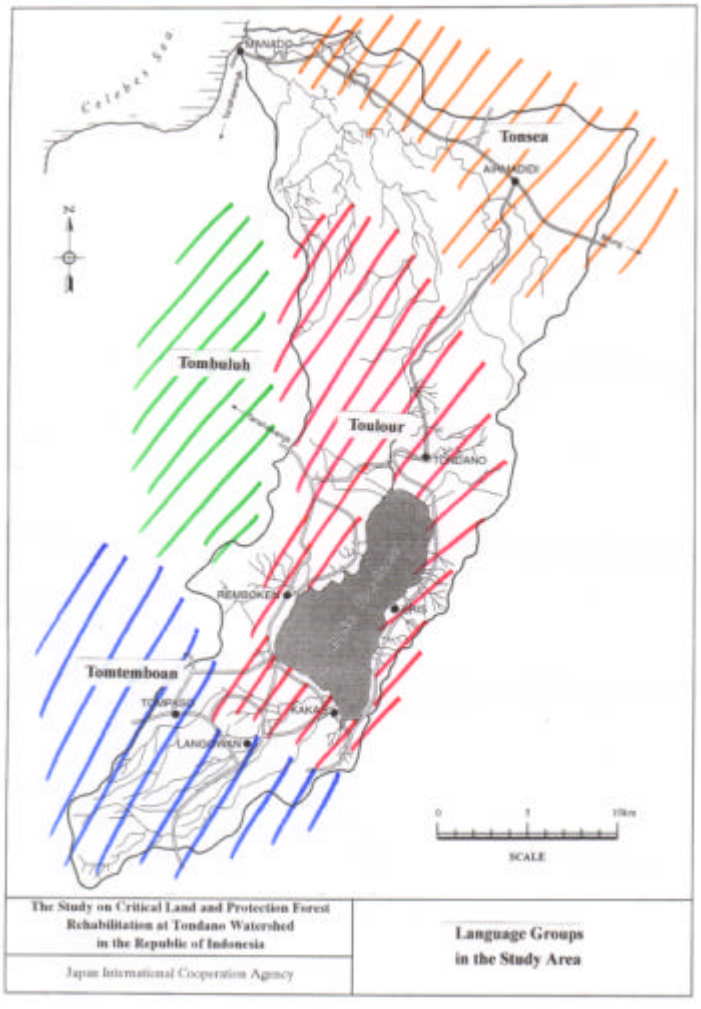
Minahasans, contrary to their strong tribal identity, is said to have a tradition of "change." People in Minahasa have been adjusting their way of life to existing political, economic and cultural environment at each period of their history. For example during the colonial time, Minahasans were considered to be well adapted to the western culture, including Christianity. According to the history books, Minahasans, from the early stage of Dutch colonization, started accepting the western religion, wearing western clothes and learned the foreign language. Even

western religion, wearing western clothes and learned the foreign language. Even in modern days, people in Minahasa maintained its openness, which for example, enabled them to establish a close economic relationship with Chinese traders. Wearing fashionable jeans and T-shirts is common among younger Minahasans.

The flexibility and openness of Minahasans is said to be somewhat misleading. Underneath their modernization, there is a persistent traditional way of life and belief, which can be represented by the continual practice of adat or customary law explained later. These complex and contradictory characteristics of Minahasan are described as "the split of the Minahasan tradition into two universes."

3.5.2 Language

Minahasans speak seven indigenous languages of Malayo Polynesia language group (*Tontemboan, Tonsea, Tombuluh, Ponosaken/Bentenan, Toulour, Tonsawang, Bantik*), four of which are spoken in the study area (*Tontemboan, Tonsea, Tombuluh, Toulour*) as shown below.



To a great extent, these indigenous languages have been losing their ground as the mobility of population had been enhanced in modern days. Manado-Malay, which is spoken in Manado have become a common means for oral communication in Minahasa, and Bahasa Indonesia, the national language is the main language for written communication in the area.

3.5.3 Religion

As shown below, the majority of Minahasans are Christian.

Estimate Number of Population by Religion in 2000

(Unit: million)

District/ Province	Muslim		Protestant		Catholic		Hindu		Buddhist		Total
	Pop.	%	Pop.	%	Pop.	%	Pop.	%	Pop.	%	
Minahasa	0.056	5.2	0.935	86.8	0.086	8.0	0	0.01	0	0.03	1.078
Manado	0.098	20.3	0.346	71.3	0.035	7.2	0	0.1	0.005	1.6	0.484
N. Sulawesi	1.071	34.0	1.905	60.5	0.145	4.6	0.02	0.63	0.07	0.24	3.148

Source: Sulut Dalam Angka 1999

At the beginning of Dutch colonization, the propagation of the Islam was minimum in the region. This made the conversion of Minahasans into Christians relatively smooth. After the independence, protestant churches continued to be active in preaching the Christianity, and as a result, the protestant has become the dominant religion in the area. Explicit and organized religious discrimination or overt religious conflicts are at a minimal in the area.

Communities are often organized through the leadership of religious personnel and groups in the village. Religious leaders facilitate community activities and events, which maintains and enhances the community coherence and sense of unity. Religious facilities are utilized as an arena for community gatherings and activities. The number of religious facilities are shown below.

Religious Facilities, 1999

Sub-dist.	Mosque	Chapel	Church	Cathedral	Temple	Hindu Temple	Pop./ Facility
*Minahasa *)*							
Langowan	4	0	120	4	0	0	329
Kakas	2	0	72	4	0	0	272
Tompaso	0	0	36	6	0	0	312
Remboken	3	0	37	6	0	0	222
Tomohon	3	2	65	18	0	2	827
Tondano	4	0	40	3	0	0	656
Toulimambot	1	1	29	0	0	0	533
Eris	0	0	32	1	0	0	312
Kauditan	9	0	53	15	0	0	412
Airmadidi	9	2	73	12	0	0	403
Pineleng	6	1	46	11	0	0	539
Sub-Total	41	6	603	80	0	2	442
*Manado**)*							
Wenang	42	15	79	8	4	7	598
Molas	49	9	89	3	0	0	592
Sario	24	1	71	2	1	1	857
Mapanget	17	3	50	6	0	0	411
Sub-Total	132	28	289	19	5	8	620
Total	173	34	892	99	5	10	513

*Source: *) Draft Potensi Desa di Minahasa, 1999*
***) Draft Potensi Desa di Kotamadya Manado, 1999*

3.6 Customary Law (*Hukum Adat*)

3.6.1 Principle and Feature

Despite of modern strives in Minahasa, customary law called *hukum adat* still governs many matters of Minahasans' daily lives today. Customary law is an established, unwritten and extremely complex set of traditional rules that have survived during the modernization process. Customary law is considered as a legitimate contract law within the judicial system in Indonesia, and the aspects and principles of customary law are incorporated into various modern laws such as Forestry Law and Agrarian Law as explained in Chapter 6. The scope of customary law ranges from marriage to inheritance, land use, economic activities, politics and others.

The main feature of customary law is that decisions are made collectively, and consensus among the related parties is emphasized. For example, when a conflict or dispute occurs, it is usually settled by mutual agreement of all the parties involved, rather than judged by an authority. In this sense, customary law differs from the aspect of modern judicial system thereby an absolute authority makes decisions. For this, customary law is considered a vague law. The co-existence of two different legal principles, modern and customary law, is puzzling, but Minahasans manage to employ both. Below is the main characteristic of customary law.

- *Unwritten principles and rules that govern daily activities/events within a community*
- *Decisions based on consensus*
- *No distinction between real and personal rights, movable and immovable properties, civil and criminal deficits, public and private laws*
- *Guidance for resource distribution/sharing among community members and rules for inheritance practices. The organization of marriage, which is traditionally determined by customary law, is the catalyst of resource distribution and inheritance practices.*
- *Guideline for land tenure and land use*
- *Partly diminishing, changing and continuing simultaneously during modernization*

3.6.2 *Adat* Marriage

According to customary law, parents had an authority to decide marriages. Traditionally, marriage was discerned as a means to expand family linkages within the society, as to establish a social safety net. Thus the family's priority tended to overrule individual favors. However, this aspect of customary law has been dramatically diminishing. In most cases to date, individual couples make decisions on their own possibly with the consultation to their guardians.

Adat marriage had a significant characteristic of matriarchy: a wedding traditionally took place at a bride's house with many guests as witnesses; many couples decided to live in a wife's family house. Also upon the wedding, a groom must have given "bride-price" to the bride's family. It is important to note that the term "bride-price" is somewhat misleading. It is not a physical compensation for the acquisition of a wife. Rather, it is a gift from a groom's family for asking permission to be a part of the bride's family.

Bride-price varied in size and form but usually a piece of land or a house. Today, bride-price in many occasions is provided in a form of cash, a car or other expensive appliances. *Adat* marriage did not require official registration of marriage but recognition of fellow villagers. Today, Christian marriage (registering marriage at a church) and legal registration for marriage at a government office are common among Minahasans.

Under customary law, divorce and re-marriage are allowed under mutual agreement. In such a case, both spouses have equal rights to their possessions and custody of their children. A wife's family does not have to returned bride-price to an ex-husband.

3.6.3 *Adat* Inheritance

Based on customary law, the inherited properties of both spouses respectively remained their own in marriage, while they could claim the use and support of each other's possessions. After one of them had perished, the surviving spouse inherited his or her property. All of their children, regardless of their gender, had equal terms in taking over their parents' possessions when both of them had passed away.

The significant feature of *adat* inheritance could be found in the practice of collective ownership. For example, when children inherited their parents' piece of land, they often did not divide the land and rather, they took over the land as a group of heirs. As a result, a piece of land had several right holders. When a husband had more than one spouse, or parents had illegitimate children or a history of divorce, the collective inheritance became a more complicated issue. In case of a conflict, a village leader was often involved in settling the dispute. Parents sometimes left a verbal or written will to their children, indicating the distribution of parents' possessions to their children.

Heirs discussed the use of inherited properties especially the land. In the case of farmland, those who were engaged in agriculture would collectively use the land. When heirs decided to sell their land, the heirs whose livelihood was relying on the

land would express their frustration if other heirs who did not use the land claim the same shear upon the sales. The dispute was often brought to a court when heirs failed to settle.

Adat inheritance and collective property ownership have been shifting to modern and individualistic practices in some parts of the study area, particularly in the urban areas such as Municipality Manado and a few towns in Minahasa. But *adat* inheritance is widely practiced around Lake Tondano.

3.6.4 Mutual Community Aid (*Mapalus*)

Mutual community aid (*Mapalus*) comprises different forms of both mutual aid and habitual gathering among fellow villagers. The most important mutual community aid takes place at a community during farming activities, construction, weddings, funerals, and more recently, the Christian celebrations and New Year. These mutual community aid events involve heavy expenditure of labor services, goods, food and financial resources. Mutual community aid events are organized in accordance with the rule of customary law. Even though hiring manpower with the provision of monetary compensation has earned its popularity in the area, mutual community aid continues to be a prominent feature of Minahasans' social lives.

3.7 Land Rights

3.7.1 Agrarian Law

The foundation of present agrarian law in the country was established in 1960. The stimulation of the law was derived from the outdated agrarian law that had been used since the colonial time. Apparently, the old agrarian law was no longer applicable to an independent state, and the Indonesian government had been seeking democratic guidelines and principles for land tenure.

According to the agrarian law established in 1960, two types of land are recognized: the government land and righted land. The government land is a land with no land rights. The government, however, does not have an ownership over the land but an authority to manage the land. In Minahasa, most government land is either a forest or former colonial plantations.

The righted land is a land whereby someone possesses land rights. The land rights are classified in 4 major categories: ownership right (*hak milik*), exploitation right (*hak guna-usaha*), building right (*hak guna-bagunang*), use rights (*hak pakai*) as shown below:

Basic Agrarian Rights

Name	Description	Feature	Pre-requirement	Limitation
Ownership Rights (*Hak Milik*)	Tenure rights for territorial properties.	Permanent Transferable Can be a collateral	Indonesian citizen Laws agencies established by the government	Rights to be eliminated for public interest or if abandoned
Exploitation Rights (*Hak Guna-Usaha*)	Rights to use government land for large-scale agriculture, fishery, or animal husbandry.	Transferable Can be a collateral The term of rights 25 years maximum, and 35 years for enterprises Can be extended for another 25 years Minimum size: 5 ha For more than 25 ha, must prepare proper capital investment.	Indonesian citizen Laws agencies established in accordance with Indonesian laws and located in Indonesia	Rights to be eliminated for public interest or if abandoned Rights to be terminate upon the expiration of term
Building Rights (*Hak Guna-Bangunan*)	Rights to construct building on someone else's land, including government land	Transferable Term: 30 years maximum Can be extended for another 20 years	Indonesian citizen Laws agencies established in accordance with Indonesian laws and located in Indonesia	Rights to be eliminated for public interest or if abandoned Rights to be terminate upon the expiration of term
Use Rights (*Hak Pakai*)	Rights to use land or collect land products on or someone else's land, including government land	Term: No limits. Defined case by case	Indonesian citizen Foreigners Foreign law agencies Laws agencies established in accordance with Indonesian laws and located in Indonesia	

According to the law, a right holder can be not only an individual, but also a group of people. The requester(s) of land rights will submit to the National Land Agency an application form with necessary documents for land registration. To register, claimers pay fees in accordance with the regulation. After the submission of necessary papers and fees, the agency will review the documents, and the decisions will be made in accordance with the regulation summarized below. The right holders will receive a certificate upon the approval of their requests.

Decisions on Land Rights

Authority	Ownership Rights	Exploitation Rights	Building Rights	Use Rights
Home Affairs Minister	Decisions on rights transfer and cancellation	Decisions on rights extension, transfer and cancellation	Decisions on rights extension, transfer and cancellation	Decisions on rights extension, transfer and cancellation
Governor	Decision on provision of rights for: - Agricultural land not more than 20.000m² - Resident land not more than 2.000m² Request for land status confirmation Provision of rights over stated land for transmigration, land reform implementation and ex-colonial land	Decision on provision and extension of rights for: - Land less than 25ha - Land without perennial plants - Extension less than 5 years	Decision on provision and extension of rights for: - Land less than 2.000m² - Term less than 20 years.	Decision on provision and extension of rights for: - Land' less than 2.000m² - Term less than 10 years.
Head of District/Mayor	Decisions on rights transfer		Decision on rights transfer	Decision on rights transfer

Besides the formal land rights mentioned above, the customary land rights are recognized in the law. A land with customary land rights is called *adat* land (*tanah adat*). *Adat* is a customary law that governs certain communities in Indonesia as explained in the previous section. *Adat* land is a land that have been occupied, used or owned by private parties for decades under the customary rules. Because unwritten customary law traditionally determined the status of *adat* land, there is no formal document or certificate for land rights, and fellow members in the community informally recognized the rights.

The rights of private parties over *adat* land are recognized in the agrarian law thus legitimate. However, because of its informality, the government has been promoting the conversion of *adat* land to a formally registered land since 1960. For the conversion, the respective right holders need to submit, with a formal application form, a letter from a person (usually a leader or head of village) who can prove the applicant's customary land rights over the land subject to the rights. The types of *adat* land is summarized in the table below:

Type of *Adat* Land

Judicial Term	Regular Term	Type of Right	Remark
Pasini Land (*Adat* Land)	*Pasini*	Individual	Usually newly cleared
	Kalakeran	Family	Usually cleared long time ago
		Community	Usually non-cleared production forest

In Minahasa, a local regulation in respect of agrarian law states that *adat* land ought

to be called *pasini* (alone) land, which can be divided into 2 categories: *pasini* and *kalakeran* (many) land. *Pasini* land is the land that has an individual customary right holder, whereas private parties collectively own or manage *kalakeran* land. *Pasini* land is almost exclusively a cleared land for farming or settlement. *Kalakeran* land can be cleared or non-cleared land. The cleared *kalakeran* land usually has a history of being *pasini* land when it was cleared, but the individual land rights over the *pasini* land became collective after the joint inheritance for generations. A cleared *kalakeran* land, therefore, tends to have a longer history as an agricultural or residential land compare to *pasini* land.

The holding of kalakeran land can be divided into 2 kinds: by family and community. The 2 kinds of kalakeran land are explained later.

3.7.2 Present Land Status

Since the agrarian law took in place in 1960, the implementation of the law have been encountering tremendous difficulties because certain areas had already been cultivated, managed, utilized or occupied by private parties both with Western and native origins at 1960. The difficulties in determining the ways to convert to new land rights from the land rights that are established under the colonial rules still continues in Minahasa to date to such an extent that the significant size of areas is yet to be officially registered.

Another reason for many people having been utilizing and occupying the land without acquiring the official land rights can be found in the lack of their incentives to register. People have retained their land rights according to customary law for decades, and many *adat* land owners find that the benefit and advantage of proceeding to the official land rights acquisition is marginal.

The government has been implementing a program called PRONA (National Agrarian Project), through which the government provides subsidies for the conversion of customary land rights. The government also has different kinds of programs to promote the conversion, including the advertisement on the benefit of official land registration. Nevertheless, the lack of fund for each program led to the unsatisfactory results of promotion.

Taking the forestry law into account, the table below is the summary of present land status in Minahasa. There is no existing data that indicates the

size and ratio of each type (A to H) in the study area, except Type C (See Table below for the data on Private Forest).

Present Land Status

Land status	Conditions of land	Use	Type
Righted land	Officially registered		
	Cleared	Farm, resident	A
	Not cleared	Production forest	B
		Private forest	C
	Managed by the state	Protection land	D
	Managed thru *adat*		
	Not cleared	Customary law forest (*kalakeran*)	E
	Cleared	Farm, resident (*kalakeran* or *pasini*)	F
Gov't land	Illegally used by private parties	Farm, resident or production forest	G
	Managed by the state	State forest and others	H
	Managed by community	Community forest	I

Size of Private Forest

Sub-District	People's Forest (ha)	Private Forest / Non-Paddy Field Land (%)	Total Non-Paddy Field Land (ha)
Langowan	1,831.9	16.5	11,087.3
Tompaso	0.0	-	25,025.5
Pineleng	275.0	2.0	13,510.0
Tomohon	181.1	1.7	10,611.5
Tondano	0.0	-	3,052.4
Remboken	75.0	2.3	3,257.0
Kakas	775.0	7.2	10,775.1
Eris	20.0	0.5	4,087.0
Toulimambot	221.0	7.8	2,834.0
Kauditan	160.0	1.0	15,791.0
Airmadidi	0.0	-	15,975.0
Total	3,539.0	3.1	116,005.8

Source: Rangkuman Hasil Pengolahan PODES 1999

(1) Type A and B

Type A and B are officially registered land. The holders of the land rights have a certificate issued by a governor. The management rights of the land belong to the carrier of the certificates, and laws protect the rights. However, the owners of the land have responsibilities to maintain their land in good conditions, particularly for the forest. The government intends to supervise the maintenance of production forest through licensing and regulations. For agricultural land, the agrarian law limits the size of land per owner according to the population density of the area. Therefore, land right requesters must notify in the application form the size of all lands owned by the requester.

Maximum Size of Agricultural Land per Owner

Population Density (/km^2)	Wet Agricultural Land (ha)	Dry Agricultural Land (ha)
Less than 50	Maximum 15	Maximum 20
51 to 250	Maximum 10	Maximum 12
251 to 400	Maximum 7.5	Maximum 9
More than 401	Maximum 5	Maximum 6

Source: Undang-Undang No. 56 1960 Pasal 1 (2) dan ayat 3

The government has an authority to overrule the individual rights over a private land for the sake of national interests according to the law, but such cases rarely occur.

(2) Type C

Type C is called private forest (*hutan rakyat*) and usually a quasi man-made forest subsidized by the government or established through community's self-effort. The intension and objectives for creating such forests vary case by case. For one, the forest is made by the government in order to protect environment, and for the other, it was created because the members of a community sought forest products for their daily needs.

(3) Type D

Even on the privately righted lands, there are certain areas, such as 500 meters from the edge of a lake or 100 meters alongside of streams are restricted for development. These lands are called protection land, which are determined in accordance with the forestry law (Article 50).

(4) Type E

Type E is *kalakeran* land but not cleared. Unlike the *kalakeran* land in Type F below, a community as a whole usually manages the land. According to the new forestry law inaugurated in 1999, the government recognized the management rights of certain communities over this non-cleared *kalakeran* land that is officially called "customary law forest".

According to customary law, villagers are allowed to collect from the *kalakeran* forest fruits, nuts, mushrooms, animals, branches for cooking and other forest products needed for their daily lives. Villagers are also allowed to plant annual crops without providing major damages to the forest. Traditionally, it is limited to annual crops so that people can rotate their terms of cultivation, and the land clearance is prohibited. *Kalakeran* forest is often located close to a resident area in a community, while Type F below can be found relatively far from a village center. Nonetheless, Type F dominates the watershed area in Tondano, which leaves little room for Type E. *Kalakeran* forest has significantly depleted already, and the government has not yet determined the customary law forest in Minahasa.

A community that is given a management authority over the customary law forest must be practicing customary law intensively. *Walak*, a social unit described in the following section, is the topographic guideline for determining which forest belongs to which community. A draft regulation indicates criteria for determining

the *adat* community, but the regulation is yet to be in effect. The draft criteria are as follows:

Criteria of Customary Law Community

A customary law community should fulfill the following aspects:
The community is in the form of 'paguyuban' (community organization based on ascribed status);

1. There is a functioning institution in the form of customary leaders who lead the customary law community
2. It has obvious customary forest boundaries which were acknowledged/agreed by the community and customary law communities around it
3. There is a customary law institution that connected to the forest, and the institution still obeys the customary judicature/judgment
4. The community is still execute the utilization of the forests products for fulfilling their daily needs and/or there still be an existing religious and social relationship with its customary forest.

Source: Rancangan Peraturan Pemerintah Tetang Hutan Adat, 2000

Due to the vague boundary of customary law forest as well as the introduction of cash crops and prevalence of cash economy resulted in the dissolute land clearing on Type E.

(5) Type F

Type G is another form of *adat* land. The difference between Type E and F is the condition of the land. Type H is a non-cleared land, while Type G was a cleared land. Type G can be divided into 2 categories: *pasini* and *kalakeran* land as mentioned above. It is important to note that there is a significant difference in their styles of management between *pasini* and *kalakeran*. For *pasini*, the use rights are limited to an individual of certain families that inherited the land from their ancestors who cleared it, whereas for *kalakeran*, a number of family members utilize the land.

Type F is to be converted to Type A, given the stipulation of the agrarian law. However, many customary right holders do not proceed to the application process due mainly to the lack of incentives, the time-consuming application procedure and monetary expense.

(6) Type G

Within the government land, there are lands unofficially managed by private parties. These lands are occupied, cultivated or utilized in various manners without obtaining the official rights or license for the utilization of the government land. The unofficial occupation and utilization have continued for decades in some cases. In a judicial sense, any development on the government land without proper state permission is illegal. However, the illegality of Type B is somewhat pardoned in

practice.

When these lands are inherited in accordance with customary law, the land will be formally classified as Type E or F explained above. If one apply for the land rights, he or she should be able acquire the rights, then the land becomes Type A. This is the problematic system embedded in the current agrarian and forest laws, whereby the government land, mostly forest has been depleted over the years. In the study area, Type G is thought to have expanded significantly, which left only small areas for the protection forest.

(7) Type H

Type H includes the different types of state forest managed by the government: protection, conservation and production. The access to the state forest is limited in accordance with the current legislations. The exploitation of forest products without a proper license issued by the government is considered illegal. Within the study area, approximately seven per cent of the total land is determined as the protection forest. However, the illegal encroachment to government land is evident as mentioned above.

(8) Type I

Type I is a protection forest not managed by the government but local people. This category of state forest is called community forest (*hutan kemasyarakatan*) affirmed in a decree (No.2/Kpts-II/2000) issued on January 2000. The idea behind the delegation of management responsibilities and implementation to local people is 2 holds. For one, the government intends to provide the forest products needed for the local use and contribute people's welfare. For the other, the government tries to provide local people with a guideline for the sustainable utilization of state forest. Before the new forestry law and decrees, the role of the state was to prevent the encroachment of local people into the protection forest. But the government decided to give local population responsibilities to manage a part of protection forest since local people have been anyway using forest products from some protection forest. The state, in other words, employed a realistic policy in addition to the idealistic and bureaucratic measures.

3.7.3 Issues on Current Agrarian Law (A Case)

The agrarian law clearly stated that all customary land rights, along the colonial land rights, should be converted into formal land rights stipulated in the law 1960. However, as previously illustrated, the conversion process is still in progress after

40 years of law enforcement. As the society has been increasingly modernized, the principles of individualism have prevailed. When the traditional values and customary law have faded away on the ground without the logistical transformation of land rights from informal to formal, certain confusion was inevitable. To illustrate the confusion, a real legal case based on an interview with related personnel is shown below.

A Civil Case: Conflict over Customary Land Rights

In 1996, the government launched a project that required the acquisition of a piece of land at a village in sub-district Tomohon. The first step of the project was to send a broker for the purchase of a selected land. A broker, together with head of village approached to a person who was considered a right holder of 2 plots (2 ha) in the area. She was living in Manado with her oldest son. When she refused the sale, the broker and village head intimidated her family by repeatedly asking her and her oldest son to sign a paper for sale. The broker claimed that the land was not theirs, and it was the government land because there was no land certificate for both plots.

The husband of the right holder obtained one plot through purchase. The family had a legalization letter for the land seller, and in the letter, the husband and wife were jointly stated as the owners. The plot was yet to be officially registered.

The husband inherited the other plot from his father, and the inheritance was noted at a notebook in the village office. The husband had passed away a few years ago, but the family, a wife and her 4 children, undertook no formal actions for inheritance. They thought formalization of their land is unnecessary because everyone in the village knew that the land is theirs.

After the broker and village head failed to persuade the wife and her son, they approached to a younger son in Jakarta. He signed the paper and sold the land without noticing to his family members. He received a reasonable amount of money for the sale. The wife and oldest son started a civil case claiming that the sale was illegitimate. They claimed that the mother has all rights over the land, not the younger son because she should be the solo heir of the land after her husband perished, according to the law.

In the local court, the oldest son and mother won the case. But in the higher court, the broker was the winner. The court pronounced that the plots were inherited from the husband in accordance with customary law, and the family collectively held the rights of plots. After several testimonies of related personnel, the court enunciated that the sale was made based on the family consensus. The mother and oldest son claimed that they had never agreed on the sale and brought the case to a higher level. The broker offered a deal to settle with them, and they accepted the deal. The oldest son and mother lost their land and received the compensation, which was equivalent to the total cost of the legal case.

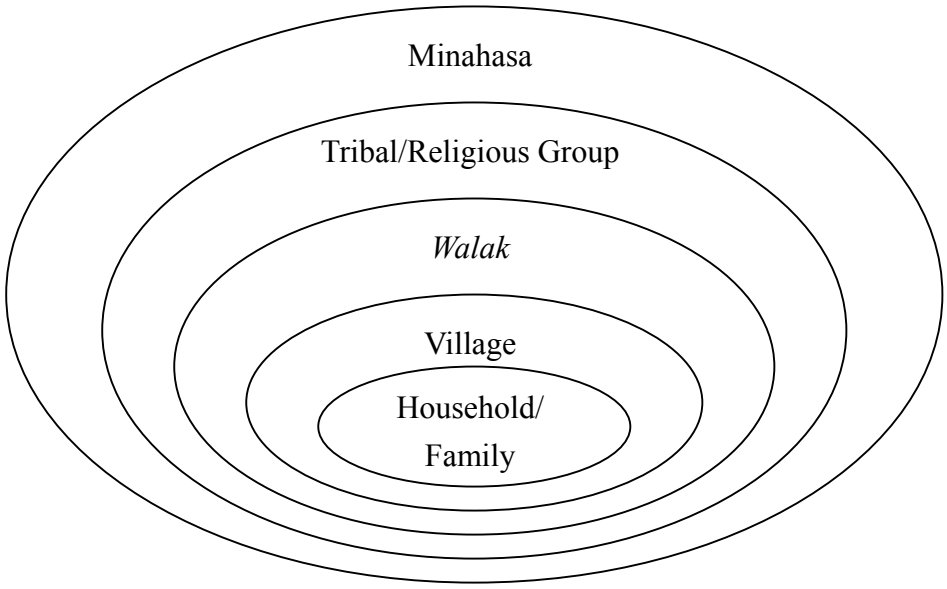
3.8 Tribe and Social Unit

Minahasans can be divided into seven linguistic/territorial groupings that correspond to the language groups explained in the previous section. In a juridical sense, these tribal groupings no longer exist: however, people still use these categories to identify themselves in terms of their origin and language. The bond among the members of each tribal group is more psychological, rather than physical or political. Religious groupings are more perceptible in urban areas.

The tribal groupings are subdivided into *walak* (group). *Walak* is composed of a number of related villages. Usually its members identify themselves as the common descendants of specifically known ancestors. The villages within *walak* are often extended communities in which the residents were migrated from a same "mother village" in the past. The social and mental bonds among the members of *walak* still exist today, though it has diminished in larger towns. A lower social unit is a village (*desa*), and unlike *walak*, it is an official jurisdiction. In addition to the jurisdictional functions, a village is an important social unit for Minahasans, particularly for social and economic activities. The fellow members of a village gather when *mapalus* is carry out.

The smallest social unit is a household or family (*rumah tangga*). As a statistical term, a *rumah tangga* means a nuclear family with a head of household. But as an ordinary term, it includes extended families, most particularly those who live in a same property and share a kitchen. Traditionally, the several generations of Minahasan families dwelled in a longhouse together. This sort of extended families is losing its ground in the area, yet a family bond is still sound.

Structure of Social Unit in Minahasa

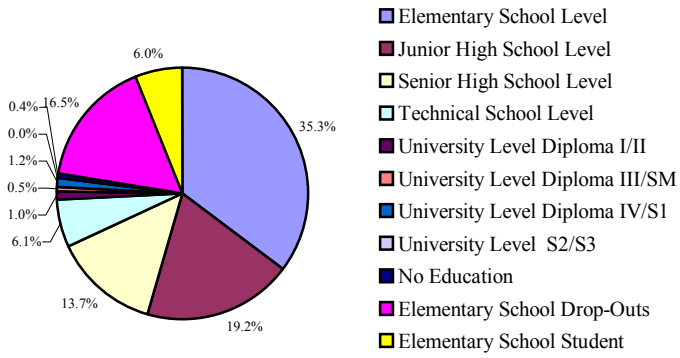


3.9 Education

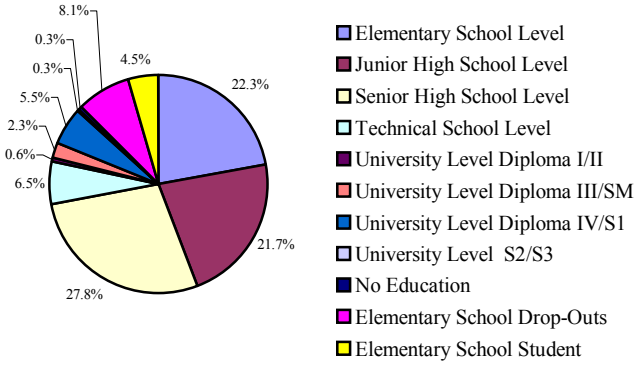
3.9.1 Education Level

Minahasans in general are known to be well educated. The statistics shown below support the claim. The highest level of education in Minahasa in most aspects is higher than it is in North Sulawasi as a whole.

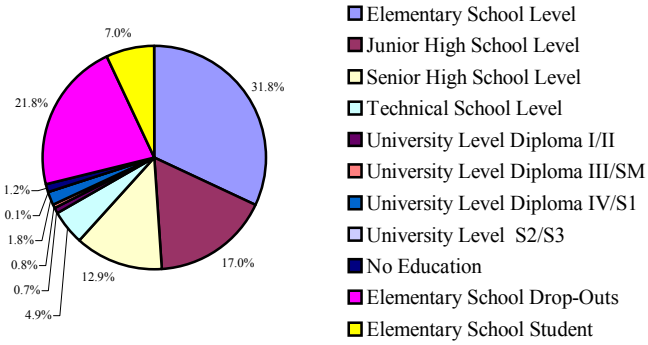
Highest Education Level in Minahasa (10 years old or above), 1998



Highest Education Level in Manado (10 years old or above), 1998



Highest Education Level in North Sulawasi (10 years old or above), 1998



Source: Data base Kecamatan se Sulawesi Utara 1998

3.9.2 Schools and Teachers

All sub-districts in the area have at least one senior high school as shown below. Relatively urbanized sub-districts as Tomohon, Tondano or sub-districts in Manado have the greater numbers of junior and senior high schools.

Number of Schools (Public and Private) and Classrooms

District / Sub-District	Elementary School	# of c.r.	Junior High School	# of c.r.	Senior High School	# of c.r.
Minahasa)*						
Langowan	44	271	7	68	3	35
Kakas	42	181	4	25	2	20
Tompaso	19	121	4	22	2	15
Remboken	21	109	2	22	1	3
Tomohon	65	438	17	120	10	90
Tondano	27	180	5	66	9	68
Toulimambot	15	89	3	21	3**)	-
Eris	14	87	4	39	1	5
Kauditan	40	224	11	42	6	44
Airmadidi	40	234	11	67	4	52
Pineleng	34	230	13	54	3	7
Sub-Total	361	2,164	81	546	44	342
*Manado***)*						
Wenang	85	580	31	221	17	190
Molas	75	496	21	124	11	-
Sario	56	358	19	102	17	-
Mapanget	23	169	10	50	4	-
Sub Total	239	1,603	81	497	49	190
Total	600	3,767	162	1,043	93	532

*Source: *) Kabupaten Minahasa Dalam Angka 1998, **) Data base Kecamatan Sulawesi Utara 1998, ***) Kotamadya Manado Dalam Angka 1998*

District Minahasa has a total number of 4,772 teachers, and Municipality Manado has 3,839 teachers. The numbers of pupils per teacher in both Minahasa and Manado are fairly low, which implies the decent quality of their education.

Number of Teachers and Pupil/Teacher Ratio

District/ Sub-District	Elementary School	Pupil/ Teacher	Junior High School	Pupil/ Teacher	Senior High School	Pupil/ Teacher	Total # of Teacher
Minahasa)*							
Langowan	364	11	142	13	101	17	607
Kakas	243	9	73	8	50	9	366
Tompaso	171	8	48	15	27	20	246
Remboken	153	8	26	21	21	11	200
Tomohon	666	12	174	24	149	27	989
Tondano	211	18	128	11	216	12	555
Toulimambot	152	11	68	14	nd)	nd)	220
Eris	191	6	65	7	6	8	262
Kauditan	241	15	77	17	44	11	362
Airmadidi	301	14	143	13	73	14	517
Pineleng	322	12	113	11	13	12	448
Sub-Total	3,015	11	1,057	14	700	15	4,772
*Manado**)*							
Wenang	875	18	415	18	220	17	1,510
Molas	659	16	248	16	86	13	993
Sario	554	12	219	15	248	22	1,021
Mapanget	214	17	28	52	73	11	315
Sub Total	2,302	16	910	25	627	16	3,839
Total	5,317	14	1,967	18	1,327	15	8,611

*Source: *) Kabupaten Minahasa Dalam Angka 1998, **) Kotamadya Manado Dalam Angka 1998*

The percentages of population between 7 and 12 years old who attended elementary school in 1999 were 98.39% in Minahasa and 97.05% in Manado. The enrolment rates of junior high school among the population between 13 and 15 years old were 85.66% in Minahasa, 82.22% in Manado. 50.22% of the population between 16 and

18 years old in Minahasa and 61.20% in Manado attended senior high school. The enrolment rate of the population between 19 and 22 years old for the higher education in Minahasa was 9.88%, and 22.53% in Manado. These school enrolment data shows outstanding results, which might have contributed the high education level among the population in the area.

School Enrolment Rate 1999 (Unit: %)

District/ Municipality	Sex	Elementary School	Junior High School	Senior High School	Collage or University
Minahasa	Male	98.18	82.79	52.44	10.33
	Female	98.62	88.45	47.89	9.36
	Sub-Total	98.39	85.66	50.22	9.88
Manado	Male	98.27	77.77	64.14	25.13
	Female	95.55	89.57	58.74	20.44
	Sub-Total	97.05	82.22	61.20	22.53

Source: Hasil Survei Social Ekonomi Nasional Provinsi Sulawesi Utara 1998

3.9.3 Illiteracy Rate

Illiteracy rates in the area shown below are significantly low, compare to the national average of illiteracy rate 10.58%. Both oral and written abilities of national language in Minahasa and Manado are also impressing.

Illiteracy Rate by District 1998 (Unit: %)

District/ Municipality	Sex	Illiteracy Rate (10 years old or above)	Pop. w/ No National Language Ability (5 years old or above)
Minahasa	Male	0.66	0.54
	Female	1.04	0.76
	Total	0.85	0.65
Manado	Male	0.75	0.80
	Female	0.44	0.93
	Total	0.60	0.86
North Sulawesi	Male	2.21	
	Female	2.16	
	Total	2.19	

Source: Susenas 1998

3.10 Health

3.10.1 Health Facilities

With regards to the number of health facilities in the area, all sub-districts have at least one public health center as shown below. All sub-districts have drug stores whereby people can purchase modern medicines, and few people practices traditional healing methods to date.

The number of doctors in response to total population differs from one sub-district to the other. Kakas, Eris and Pineleng lack doctors, although people in Kakas and Eris have an access to doctors in Langowan. People in Pineleng can easily go to Manado when necessary. There are significant numbers of female doctors in the

area.

Number of Hospital, Public Health Center, Maternity Clinic and Family Planning Clinic, 1999

Sub-district	Health Facility (unit)				
	Hospital	Public Health Center	Maternity Clinic	FP Clinic	Total
Minahasa)*					
Langowan	2	2	0	7	11
Kakas	0	1	0	1	2
Tompaso	0	1	0	2	3
Remboken	0	1	0	1	2
Tomohon	2	2	0	8	12
Tondano	0	1	0	6	7
Toulimambot	1	1	0	6	8
Eris	0	1	0	1	2
Kauditan	1	2	0	3	6
Airmadidi	1	2	0	5	8
Pineleng	0	2	0	2	4
Sub-Total	7	16	0	42	65
*Manado**)*					
Wenang	1	4	6	2	13
Molas	1	3	3	0	7
Sario	2	4	5	1	12
Mapanget	1	2	0	0	3
Sub-total	5	13	14	3	35
Total	12	29	14	45	100

Note: "FP Clinic" is an institution for maternity health care mainly located within health facilities.

*Source: *) Draft of Potensi Desa in Minahasa 1999*
***) Draft of Potensi Desa in Kotamadya Manado 1999*

Number of Doctors and Population/Doctor Ratio, 1999

	Pop./Doctor Ratio	Male	Female	Total
Minahasa				
Langowan	6,463	5	2	7
Kakas	21,425	0	1	1
Tompaso	6,611	1	1	2
Remboken	5,477	0	2	2
Tomohon	4,099	9	9	18
Tondano	3,470	4	5	9
Toulimambot	5,451	1	2	3
Eris	10,682	1	0	1
Kauditan	4,833	4	2	6
Airmadidi	3,315	8	4	12
Pineleng	9,017	2	2	4
Sub-Total	5,042	35	30	65
Manado				
Wenang	2,791	19	19	38
Molas	5,442	12	9	21
Sario	3,855	12	12	24
Mapanget	3,406	5	5	10
Sub-total	3,731	48	45	93
Total	4,270	83	75	158

Source: Draft of Podes in Minahasa 1999 and Draft of Podes in Manado 1999

3.10.2 Infant Mortality Rate and Life Expectancy[6]

The infant mortality rate for less than 5 years old was estimated 41 per 1,000 at Minahasa in 1997. For North Sulawesi as a whole, the infant mortality rate for boys under 5 years old was 47 per 1,000, 36 per 1,000 for girls, the average 41 per 1,000 in 1995. The national average for infant mortality rate in 1995 was 57/1,000 for boys under 5 years old and 45/1,000 for girls. Estimated life expectancy in Minahasa was 64 years old while life expectancy in North Sulawesi in 1995 was 64.73 years old for male, 68.64 years old for female. The average of male and female was 66.74 years old. Life expectancy for Indonesia as a whole was 62.42 years old and for female, 66.24 years old. It is 64.39 years old when male and female combined.

3.11 Poverty

A family below poverty line in Indonesia is defined as a family that falls under the categories of "*Pra-Sejahtera*" or "*Keluarga Sejahtera I*." The criteria for the classification are shown below, and a family must meet all the criteria under each category in order to be classified in the group respectively.

Category	Criteria
Pra-Sejahtera	Families which cannot afford to fulfill their basic needs described in the next box
Keluarga Sejahtera I	1) Participation to religious worship; 2) Two meals or more per day; 3) Sets of clothes for different activities; 4) Major part of house floor not being soil/ground; 5) Access to health facilities when children are ill
Keluarga Sejahtera II	1) Regular participation to religious worship; 2) Meals with meat, fish or egg at least once a week; 3) Purchase of at least a set of clothes per year; 4) Size of floor wider then 8 m^2 per person; 5) good health for at least 3 months; 6) Constant income; 7) Literate; 8) Schooling at the age between 6 and 15 years; and 9) Family Planning Program when a family have more than 2 children
Keluarga Sejahtera III	1) Improved religious understanding; 2) Family safety; 3) Family having a meal and discussion together; 4) Participation of social activities; 5) A recreational activity every six months; 6) Access to information from the newspaper, radio, TV and magazine; and 7) transportation means
Keluarga Sejahtera III Plus	1) Regular provision of material contribution; and 2) Being an active social organizer

Source: Pengembangan Sumber Daya Manusia Potensial 1999

Based on the classification above, the number and percentage of poor families in the areas are shown as follows.

6 Estimated by JICA Study Team based on the data in "Evaluasi dan Analisa Hasil Pembangunan Kabupaten Minahasa 1997/1998" and "Supas 1995".

Number of Families below Poverty Line, 1999

	Total # of family	# of family below poverty line	%
Minahasa			
Langowan	11,556	3,606	31.20
Kakas	5,587	2,492	44.60
Tompaso	13,221	1,775	13.43
Remboken	3,015	2,001	66.37
Tomohon	19,292	6,547	33.94
Tondano	8,158	1,994	24.44
Toulimambot	4,400	969	22.02
Eris	2,780	1,578	56.76
Kauditan	8,182	1,186	14.50
Airmadidi	9,976	2,805	28.12
Pineleng	9,434	5,151	54.60
Sub-Total	83,377	27,510	32.99
Manado			
Wenang	23,662	5,352	22.62
Molas	24,331	12,239	50.30
Sario	19,853	5,554	27.98
Mapanget	9,547	2,286	23.94
Sub-total	77,393	25,431	32.86
Total	160,770	52,941	32.93

Source: Draft of Potensi Desa in Minahasa and Manado 1999

Among the sub-districts, there are significant differences in the ratio of poor families. To find out the reasons for great gap among the sub-districts require further investigation.

3.12 Gender Issues

Minahasa women are known to be relatively independent. It is derived partly from their religious background. Most Christian women in Minahasa enjoy their social freedom unlike the women in other parts of the country where Islam, the more discriminatory religion against women is prevalent. A relatively high social status of Minahasa women is also attributed from the traditional matriarchal social system in the area. As delineated in the previous section ("Customary Law"), women play an important role in *adat* inheritance. Therefore, the birth of a son is not regarded as more important than that of a daughter.

Minahasa women are major executors of domestic work. However, other people, particularly the members of a household, will support the work. It is common for a husband, sons and daughters to carry on fetching water, preparing firewood, taking care of domestic animals, cleaning the house and cooking. But the majority of breadwinners are men.

Many women in Minahasa are involved in farming directly and indirectly. Directly in a way that women actually engaged in farm production, such as planting, weeding,

harvesting and processing. Some women share the decision-making with their husbands on land trading as well. An existing research[7] points out, the poorer their families, the more women involved in farm production.

Many Minahasa women are indirectly responsible for farming, meaning that women are involved in the marketing of farm products and aid for their husbands/farm laborers by serving food at the field. Women not only execute marketing, but also share decision-making on marketing with their husbands. As farming shifted from an activity of self-sufficiency to that of income earning, the importance of marketing has become greater. The influence from enhanced importance of marketing has expanded women's decision-making power within their households. It may create overburden of women, especially for poor women, but more in-depth investigation is necessary to prove it.

Many Minahasa women today are engaged in other type of non-domestic, non-agricultural occupations both on full-time, but more part-time basis. There are more female teachers than male teachers in Minahasa, and many petit traders and shopkeepers are women. The increase in the number of workingwomen contributes to the evolution of women's roles to the family business management. However, this changing phenomenon is applied mostly to better-off, educated women excluding the poor.

Many Minahasa women are active in participating social organizations and community gatherings. They look upon community activities (*mapalus*), including mutual aid for wedding, funeral, farming or financing, as a way of socializing and benefiting economically. Within a household, a wife predominantly makes decisions on giving gifts or making contributions at the wedding. Some women, particularly those educated, have particular interest in community organizations and associations, including the PKK (Family Welfare Programme) or the Christian Women's Organization. The women leaders recognize those institutions as a means to empower fellow women in the area. However, the level of women's participation in a village seems to be spontaneous. So far, women have not played a main role in local politics in the study area or Minahasa on a whole.

3.13 Farmers' Behavior towards the Conservation of Lake Tondano

In 1997, a team of researchers from Sam Ratulangi University in Manado conducted a research on the farmer behavior in respect to the conservation of Lake Tondano[8].

[7] *Lalamentik, Ulaen and Inkiriwan, year unknown*
[8] *Tuyuwale and Benu "Analisis Perilaku Petani Dalam Hubungannya Dengan Kelestarian Danau Tondano", 1997*

The team took 60 samples randomly from 3 villages within the Tondano watershed area for in-depth interviewing. The results of research shown that: 1) a number of farmers did not hold the correct understanding and positive attitude toward Tondano Lake and its surroundings, 2) the attitude of some farmers were inconsistent in comparison with their natural and behavioral understanding, 3) the usefulness aspects of the lake was well understood and positively treated by most farmers, although the conservation aspects were not fully understood. The summary of research results is as follows:

Respondents who knew the benefits and problems of Tondano Lake conservation

Item	Total (%)
General benefit from the lake	76.70
Source of electricity	91.70
Source of water	95.00
Source of irrigation	93.30
Source of living	91.70
Decreasing Tondano Lake capability to fulfill the source of, electricity water, irrigation and living	78.30
Soil sedimentation	81.70
Water volume	78.30
Lake damage	78.30
Cause of damage / factors affecting the lake damage	63.30

Respondents who knew factors affecting the lake damage

Item	Total (%)
Improper cultivated	68.30
Cultivation on slope land	70.00
Careless garbage disposal	95.00

Respondents who agreed on Tondano Lake conservation

Reason	Total (%)
Benefit from Tondano Lake for living	88.30
Tondano Lake needs conservation	86.70
Everyone is responsible for conservation	81.70
Lake conservation must start from ourselves	76.70
To love our heritage	76.70
Agricultural activities relate to lake conservation	75.00

Respondents who accordingly acted on the conservation principles

Item	Total (%)
The way of land cultivating/ The way of preparing the land	83.30
The way of planting	70.00
To handle/manage plant stubbles	78.30

Household waste management

Method	Total (%)
Make hole for garbage	51.70
Burn the garbage	33.30
Throw away	15.00

The analysis is still inconclusive given the small number of samples. Since the applied interviewing method is unknown, it is difficult to determine the reliability of their data. However, the finding in the discrepancy between the farmers' understanding on the usefulness of the lake and their behavior toward its conservation is understandable since there are few organized conservation effort has been undertaken in the area. The research implied that the favorable behavior would be established when the conservation actions were initiated.

3.14 Community Organizations

3.14.1 Community Organizations in Minahasa

Community organizations in Indonesia can be classified into two types according to their origins of establishment. First type is the community organizations that are established mainly through the government initiatives. The second type of organizations is established through the community self-effort.

The government implemented several programs to establish government-initiated organizations in every village. Generally, the government-initiated organizations have a characteristic of top-down management. Annual budget for those organizations is provided from the central government as a part of village development fund. The table below shows the number of those organizations in the Study Area.

Number of Community Organization and Village with Comm. Org. 1997

Sub-District	# of Total Village	Social Welfare Group (# Village)	Youth Org. (Karang taruna) (# Group)	Scout Group (Pramuka) (# Village)	Women Group (PKK) (# Village)	Village Security Org. (# Village)
Langowan	28	28	28	0	28	28
Kakas	20	22	20	19	20	7
Tompaso	11	11	11	11	11	10
Remboken	11	11	11	3	11	10
Tomohon	34	34	33	33	33	32
Tondano	17	17	17	17	17	4
Toulimambot	14	0	14	12	14	9
Eris	7	7	7	7	7	3
Kauditan	19	19	19	19	19	11
Airmadidi	20	20	20	20	20	8
Pineleng	17	16	17	13	17	2
Total	198	185	197	154	197	124

Source: Hasil Evaluasi dan Analisa Hasil Pembangunan Kabupaten Minahasa Tahun 1997/1998

There is an association called LKMD (*Lembaga Ketahanan Masyarakat Desa*). The purpose of LKMD is to assist the head of village in the form of the provision of advice on development plan or arrangement for village programs and solution to

problems, if any. The members of LKMD are consisted of informal local leaders, including customary leader, retired principals, teachers, church leaders, and former village head. Village officials and representatives of women groups are often listed as members of LKMD.

In the Study Area, all villages have PKK and youth organizations, except one village in Kecamatan Tomohon. The activeness of these organizations heavily depends on their leaders, most of who are the head of village or his/her spouse. There are some PKK and youth organizations not active, and virtually exist only by name.

Scout organizations are usually established through the leadership of school at different levels (elementary to university). Thus, the number of scout organizations often corresponds to the number of school in the area.

To guard a village and its residents against disturbers or criminal actions, the government created security organizations led by head of village. The members of security organizations are selected from the residents in the village. Kecamatan Tondano has the lowest percentage of security organization per population and Kecamatan Langowan has the highest number.

Community-initiated organizations are often established through the leadership of religious groups. Local population groups themselves by age and sex as a child group, teenager group, youth group, women group and men group. The activities of these groups involved worship and other religious events. These religious organizations are structured in certain hierarchy, comprising the lowest level groups at the village level to the highest level (regional level and central level). The fund for their activities comes from the members, but direct expense often comes from church.

3.14.2 Voluntary Organizations in Minahasa

In the agricultural communities, there are voluntary organizations known as *mapalus* (Mutual Community Aid). Mutual Community Aid is an informal, institutionalized organizations called upon on an ad-hoc basis. The community, usually with the leadership of certain personnel, encourages the member of the village to participate in activities such as collective agricultural work, regular social gatherings for *arisan* (ROSCA)[9], family or kinship ceremonies, worships and others social activities. Mutual Community Aid is also used for collecting a social fund to provide financial support to needy families in the community.

[9] *See* ***Section 3.3.5*** *for ROSCA*

According to the Wahongan study report, mutual community aid is fading out in North Minahasa and has survived in Central and South Minahasa. The weakening of mutual community aid activities is accompanied by the shifted from labor-intensive mutual community aid to social gathering. Some factors affecting the shift especially in the North are: increasing education level, dissemination of modern technology and prevalence of monetary market. However, mutual community aid activities still occurred in wedding and funeral activities in North Minahasa. The women roles are increasing in this new pattern of mutual community aid.

There is another voluntary organization known as voluntary labor service (*kerja bakti*). The voluntary labor service is called upon for public works as the rehabilitation of village roads, churches, village halls, and school facilities. Usually the leaders in the village or religious sector mobilize the community members for voluntary work. The participation of labor service, though voluntary, is seen as a duty for community's common good. Each head of family in the village feels peer pressure. When he or she cannot participate the labor service, someone else from the family must replace them. For women, they prepare meals or snacks for the participants of labor service.

3.14.3 Cooperatives and User Organizations in Minahasa

With the initiation of Indonesian government, KUD (village unit cooperatives) was established for mainly the distribution of agricultural inputs and marketing of agricultural products. KUD buys farm products from its member farmers and sell them to the government. In this sense, KUD activities are the key component in the national food distribution policy. Regardless of their membership, farmers can purchase farm inputs from KUD, including fertilizers, insecticides and seeds.

Recently, the establishment of KUD was called a halt. Instead, the specialized cooperatives have been established. The specialized cooperatives are known as "non-'KUD," including the producer cooperatives, marketing cooperatives, multi enterprise cooperatives, and credit cooperatives.

Number of KUD and Cooperation by District in Minahasa, 1997

District	KUD	Non KUD	Total
Langowan	4	7	11
Kakas	7	7	14
Tompaso	2	1	3
Remboken	3	4	7
Tomohon	9	32	41
Tondano	6	43	49
Toulimambot	5	6	11
Eris	5	5	10
Kauditan	8	49	57
Airmadidi	4	14	18
Pineleng	3	2	5
Sub-total	56	170	226

In 1985, the government established Farmer Water User Association (P3A) in Minahasa in accordance with the technical irrigation development plan. The association aims at the proper management in the construction and maintenance of irrigation facilities and water. In general, the associations have greater number of members in the area with extensive wetland cultivation. The government officials often control the associations dominantly with weak participation of water users (farmers). In many instances, the associations are still inactive and have not implemented institutionalized programs or projects in Minahasa.

Number of Water User Association in Minahasa 1997

Sub-District	# of Water User Ass.
Langowan	0
Kakas	2
Tompaso	1
Remboken	0
Tomohon	8
Tondano	0
Toulimambot	0
Eris	1
Kauditan	4
Airmadidi	0
Pineleng	0
Sub-Total	16

Source: Pendataan Profil Kecamatan, 1997

3.14.4 NGOs' Activities

There are a number of non-governmental organizations (NGOs) in North Sulawesi, according to NGO lists issued by the Social and Politic Directorate, Regional Social Office, and Regional Environmental Impact Prevention Agency (*BAPEDALDA*). For the list of NGOs in North Sulawesi, see Table D.3.2.

In general, the NGOs above are still underdeveloped; most of them have a little or no

permanent staff possibly with a few temporary staff members or volunteers who participate certain activities, if any, in the ad-hoc bases. The numbers of the staff members vary from one NGO to the other, depending on the volume of fund and the number of activities. Based on our telephone survey, most NGOs in the table above are inactive and existing only by name.

A number of NGOs in the area during the last decade were established in connection with a program known as 'KUT' (Farm Enterprise Credit Program). The government launched KUT after the economic crisis in Indonesian, and the program aims to give credit for farmers as agricultural capital. The government delegated to NGOs to channel the credit to farmers. Most NGOs established through KUT failed due mainly to the delinquency of their credit. Many of them were established prematurely and recklessly and often lack organizational capability to manage their security. Only a small numbers of these organizations could have been able to endure for a long time, and the majority is inactive at present.

The relationship between NGOs and the government in general is fair as long as the NGOs' activities do not contradict with the government policy or government interests. The fair relationship between NGOs in the area and the government does not mean that they have been collaborating each other. In general, the government just accepts the existence of NGOs, without the provision of institutional and programmatic support to them.

3.15 Institutional Development

3.15.1 Strategy

Strategy 4 (Institutional Development) has been applied. All development plans described above require a catalyst for their implementation. One of the means of implementation is institutional development. Institutional development means the improvement of organizational and inter-organizational capability to be able to analyze present conditions, identify problems, design programs, implement projects, monitor the progress and evaluate the achievement. It requires structural development, policymaking, legal re-arranging and capacity building including training, managerial reengineering and financial restructuring. These developments need to be achieved not only within one specific organization, but also a cross-sectoral mechanism consisting of several organizations and stakeholders.

It is important to stress that the institution for the implementation of this Manster Plan should be multi sectoral: various sectors (forestry, agriculture, public works, planning, judiciary, education, industry and community development) should work

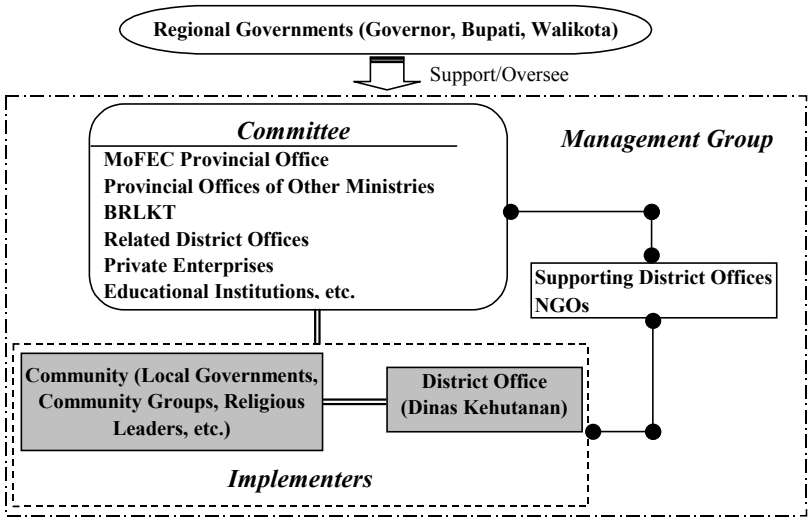
collectively and develop a multi sectoral institution for the promotion of sustainable land use in the Area. As previously explaned, one of the main pillars of WACSLU was the multi sectoral approach since the multi-dimensional human activities have been prevailing in the Study Area. The institution, thus, needs to be inter-sectoral.

Specific development plan in respect of institutional development is explained as follow.

3.15.2 Development Plan

(1) Structural development

Inter-Sectoral Institution Structure for Master Plan



A working committee has been formulated for the Study, and it functions as an advisory entity. The committee has provided its members with an arena for exchanging ideas and different viewpoints. For the implementation of Master Plan, the JICA Study Team stresses the importance of the expansion of the committee possibly through the integration and/or coordination with existing inter-organizational establishment, such as *PPTPA* and *Tim Pembina TKT I*.

The implementation of Master Plan needs to involve regional and local governments. Related regional technical agencies (*Dinas*) should be part of the committee and supporting groups, governor, head of district, head of municipality and other local political leaders should play a key role in initiating and overseeing the implementation.

Forestry Service Office and local community are particularly important given the progressing administrative decentralization in the country. Representatives from

academe, schools, private sector and civil society (i.e., NGOs) should be involved and give inputs on their capacities.

(2) Policymaking

In order for the multi-sectoral team to function, there has to be a clear guideline through which participating organizations can understand the direction and rationale of program implementation. For this, policy with a clear vision and objectives needs to be formulated. The policy to be formulated should be endorsed by appropriate personnel with the description of the adequate task distribution and responsibility allocation.

(3) Legal rearrangement

For an institution to operate, proper laws and regulations need to be put in place so that actions to be taken have proper legal bindings. Following the principles of new forestry laws and decentralization laws passed in 1999, local regulations and decrees should be issued for the implementation of Master Plan.

(4) Capacity building

For the effective and efficient promotion of sustainable land use in the watershed, each executing organization or group needs to improve its organizational capacity, including technical expertise, managerial capability, morale and financial capability. Specific activities for capacity building are: training (particularly technical training for extension workers and management training for managers), policy formulation, strategic planning, reallocation of managerial responsibilities, financial revitalization, incentive creation and the improvement of infrastructure (e.g., vehicles and office appliances).

3.16 Community Empowerment

3.16.1 Strategy

Strategy 5 (Community Empowerment) has been applied. Institutional development is not the only vehicle needed for implementation. To carry out countermeasures/development components in protection, buffer and farming zones, active support and contribution from local population and groups are indispensable. The members of communities should be mobilized for the implementation because they are the ones who own and manage the potential critical land in Tondano watershed. Thus, a bottom-up approach, instead of a top-down approach, should be

applied. For this, the JICA Study Team stresses the importance of community empowerment so as to increase the capability of community organizations and local leaders.

Nonetheless, the empowerment of local people and their participation closely links with institutional development. As a result of institutional development, when carried out properly, government agencies and other organizations should be able to acquire capability to encourage local people to join the promotion of watershed conservation. Followings are the concrete development plan of community empowerment.

3.16.2 Development Plan

(1) Organizing watershed conservation groups

The promotion of sustainable land use needs collective actions. To empower the local population through organizing individuals are essential. The villagers can create new community groups for watershed conservation activities, or they can utilize existing community groups, when available and appropriate. Organizing collective actions for conservation might require certain external inputs, such as community organizers, training or physical investment. Implementers and supporters of Master Plan shall be able to provide these inputs when needed.

(2) Micro planning for sustainable land use

An empowered community should be able to develop its own plan for the promotion of sustainable land use. Creating a micro plan requires a systematic process, including the identification of problems, needs assessment, prioritizing, formulation of logical framework and designing a plan of operations, all of which shall be executed in a participatory manner. Micro planning requires the unity of the community, commitment, leadership and skills. Implementers and supporters of Master Plan shall be able to provide assistance to communities in these respects.

(3) Environmental education and awareness raising

Based on the result of the Phase I Study, the perceptions and attitudes of local population towards watershed conservation holds a key for the successful promotion of sustainable land use. Therefore, to encourage favorable perceptions and attitudes shall be part of community empowerment. Extension workers, local teachers and religious leaders should be mobilized for technical as well as behavioral education and training.

(4) Gender and conservation

Through the international literature, it has been revealed that the natural conservation and gender relation in many societies have a close connection. It is important to examine the implications of gender and sustainable land use at Tondano watershed, and design and initiate actions to maximize women's contributions to the conservation and minimize adverse impact of gender relations on watershed conservation.

CHAPTER 4 FEASIBILITY STUDY FOR THE INTENSIVE AREA

4.1 Surveying (Detailed Socio-Economic Survey)

4.1.1 General

During the Phase II Study conducted from September 2000 to January 2001, the JICA Study Team examined the feasibility of watershed conservation plan and finalized the plan. From the outset, the JICA Study Team emphasized that the feasibility study must reflect the present status, needs and priority of local people at a community level. For this, the detailed socio-economic survey using Rapid Rural Appraisal (RRA) was conducted for data and information collection directly from local people and leaders. During the survey, the JICA Study Team identified indicators and executed the data and information analysis and feasibility study. After RRA, the Feedback Workshops were conducted with local people, at which participants confirmed the findings from RRA and discussed the systems of people's participation in watershed conservation and institutional arrangement of executing agencies.

4.1.2 Objectives

The main objectives of detailed socio-economic survey during Phase II can be summarized as:

- To collect quantitative data and qualitative information on the present conditions, needs, priority of local people at the community level,
- To analyze and compile data and information for the feasibility study and prepare reports,
- To disclose findings and information obtained from RRA to local people through a feedback workshop, and
- To transfer skills of detailed socio-economic survey to counterpart personnel from the Ministry of Forest, regional governments and village leaders.

4.1.3 Major Activities

4.1.3.1 Selection of Contractor

In accordance with the JICA tendering procedure for the selection of contractors, Pt. Ardes Perdana has been selected out of 6 companies and organizations on the short list for the tender. The duration of contract with Pt. Ardes Perdana was three months from October 6, 2000 to January 5, 2001.

4.1.3.2 Identification of Target Villages

(1) RRA

The following four criteria and the scoring method was employed for the selection of target villages for RRA:

- Location (if the village is within the Intensive Area or not),
- Size of village area included in the Intensive Area,
- Access to forest areas from village center, and
- Even geographical dispersion of villages throughout the sub-district

As a result of selection, 26 villages within the Intensive Area were chosen as target sites for the survey (See Figure D.4.1). The result of scoring is shown in Table D. 4.1.1. The result of selection was then consulted with key personnel from the Ministry and regional governments. From each village, 12 to 17 samples have been interviewed, and 25 to 45 people from each sub-district have participated in other information gathering activities (See Table D.4.1.2).

(2) Feedback Workshop

Five villages within 26 villages have been selected as target sites for the feedback workshop. In each workshop, 85 people have participated. The village-selection criteria are as follows:

- Access to forest areas from village center,
- The level of cooperation from village leaders during RRA,
- The level of people's awareness towards natural conservation, and
- The frequency of natural disasters (landslides, flooding and forest fire).

The process/scoring and result of selection using the criteria above are shown in Table D.4.1.3.

4.1.3.3 Pre-Testing

A one and a half week pre-testing has been executed to provide ideas for the modification of survey items, interview guidelines, analytical indicators and work schedule. Target villages for pre-testing have been selected randomly based on a preliminary plan for pre-testing activities. The JICA Study Team trained RRA specialists and facilitators of the contractor during the pre-testing.

4.1.3.4 Completion of Detailed Survey Plan

Before starting the major RRA exercises, a detailed survey plan has been developed

based on the results of the pre-testing activities. Survey outlines have been re-examined after pre-testing. As a result of the finalization of survey outlines, the following major survey items are identified (See Table 4.1.4):

- Systems and activities of governmental agencies, community organizations and NGOs in response to watershed conservation,
- Agricultural land use, farming and land management at community level,
- Natural resource conditions and management at community level,
- Local people's behavior towards watershed conservation,
- Educational systems and social services at the village level, and
- Gender relations.

4.1.3.5 Data and Information Collection

Both quantitative data and qualitative information necessary for the feasibility study have been collected using various RRA tools listed below:

- Semi-Structured Interview[10],
- Community Resource Mapping[11],
- Transect Walk and Mapping[12],
- Venn Diagram[13],
- SWOT Analysis,
- 10 Stone (Production),
- 10 Stone (Priority),
- Natural Resource Ranking,
- Trend Analysis[14],
- Access and Control Profile,
- Participation Analysis, and
- Secondary Data Review.

10 Stone Analysis (Production)

The JICA Study Team gave criteria and guidelines for the selection of participants for RRA to a Head of Village in the target village who chose the survey respondents. Criteria for the participants in one village were:

- 1 administrative local leader
- 2 community group leaders

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[10] *See Attachment-D.1 for the interview guidelines of Semi-Structured Interview.*
[11] *See Attachment-D.2 for the outcome of the maps from 24 villages. The mapping was not conducted in 2 target villages due to a logistical reason.*
[12] *See Attachment-D.3 for the outcome of the maps from 24 villages.*
[13] *See Attachment-D.4 for the outcome of the analysis from 7 sub-districts.*
[14] *See Attachment-D.5 for the outcome of the analysis from 7 sub-districts.*

- 2 traditional/religious leaders
- 2 relatively better-off farmers
- 2 middle class farmers
- 2 relatively worse-off farmers
- 5 women

For the selection of farmers and women respondents, the Wealth Ranking method was discussed but not employed due to logistical reasons.

4.1.3.6 Feedback Workshop

To give feedback to local people with regards to the findings of RRA and to discuss further details of organizational and institutional settings for watershed conservation in the Area, a one-day workshop at five selected villages has been organized.

4.1.3.7 Compilation and Analysis of Data and Information

The compilation and analysis of collected data/information has been implemented simultaneously during the collection of data/information and feedback workshop.

4.1.4 Schedule

The schedule for the detailed socio-economic survey (RRA and Feedback Workshop) is shown below:

Overall Schedule

Stages of Work		Period (weeks)	Oct.	Nov.	Dec.	Jan.
RRA	Identification of target villages	2.5				
	Pre-testing	1.5				
	Finalization of survey plan	1				
	Data/information collection	5				
	Analysis and feasibility study	7				
Feedback workshop		0.25				
Report preparation		6				
Technology transfer		12				

The start of survey has been slightly delayed comparing to its original schedule due to the postponement of contractor's dispatch from Jakarta and the replacement of the first team leader. To catch up the delay, the information collection period was shortened through increasing the number of facilitators and a different survey mechanism from the original plan. The feedback workshop has been conducted for three weeks ahead of its original plan to avoid the holiday seasons in the area. The work was completed by the mid January of 2001.

4.2 Present Condition of Community in Intensive Area

4.2.1 General Area Features

4.2.1.1 General

After conducting the detailed socio-economic survey, the JICA Study Team has found out the "richness" of communities in the Intensive Area, that has the population of approximately 58,000[15]. The term "richness" in this case does not refer to the economic wealth of the community. Rather, it means the high level of holistic human development. The level of education is decent, the number of families under the extreme poverty line seems to be fairly small, and social, economic and political opportunities are equally available to both female and male population. The crimes and political instability are still at a minimal, and access to information and external societies is reasonably easy. On top of these, the area still embraces abundant natural resources.

The richness is mainly derived from environmental factors such as sufficient rainfalls, warm and humid climate, plentiful clean water, fertile soil and the existence of sizable and useful lakes. The richness is also attributed from the historical factors, including the absence of oppressive political entities throughout the history. The area has been playing the role as a hub for the spice trading since the medieval time and has enjoyed the intensive socio-economic supports from the Dutch and Japanese colonial governments.

The richness of community influences the mindset of local people. Local people in general are quite optimistic: they subconsciously feel that they will not go hunger whatever they do. As a result, local people do not have to possess sophisticated problem-solving skills, thus the strategic planning for their future is somewhat foreign to local people in the community. They are usually quite relaxed in respect not only to punctuation or social responsibility but also livelihood in general. Seriousness is considered to be a status of spiritual poorness and dangerous in certain occasions.

Community, however, is no paradise. It has the common problems of economic underdevelopment. Urbanization with the pollution and deterioration of moral is visible. Community is famous for the high numbers of alcoholics and politically corrupted actions. Many local people expressed that the gap between the rich and poor has been rapidly widening even though the gap seems to be relatively small at present.

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[15] *The estimated population is not statistically accurate due to the absence of defined village boundaries in the area. See Table D.4.2.1 for the population in the Intensive Area.*

On top of these, the richness of natural resources is facing a high potential of degradation due to the lack of elaborated conservation measures and management.

The following sections will describe the general area features of each area, and see also Table D.4.2.2 for the present condition of village facilities identified by survey respondents[16].

4.2.1.2 East Area

The East Area is a narrow, steep sloped area stretching along the east side of the lake.

Visual Representation of Present Condition of Typical Community in East Area

Administratively, the East Area includes Sub-district Toulimambot, Eris and eastern Kakas. The settlement area is located at the narrow area between the lakeshore and shirt of the mountain range, and some houses are hanging over the steep slopes along the roads developed by the lake and valleys.

Most agricultural land is located on the slopes, and there are limited sizes of paddy areas along the creeks, irrigation cannels and lake. The slopes are designated to the clove cultivation for decades. The soil and climate are known to be suitable for the crop, and most steep slopes are covered by cloves, except areas where the slope is too steep for people to climb up for agricultural activities. Because of the heavy dependence on one cash crop, which is known for the fluctuation of production level and price, the local economy is highly unstable. People in the East Area are known for

[16] *The list of village facility may not be complete due to the limited knowledge of respondents.*

their risk-taking mentality and thriftless.

During the last few decades, local people developed two other economic sectors in the area: fresh water fish production and furniture industry. Their ancestors had used a traditional wooden boat and fishing tools and carried out traditional fishing in the lake. The fish culture using floating cages and nets was introduced a couple of decades ago, and some people started investing their resources gained from clove production to the aquaculture.

The capital from clove production is also used for the development of small-scale, home-based furniture industry in the area. There are several small furniture factories, most of which are a family business. Each factory employs less than 10 workers, who are both relatives of the owner and laborers from outside the area who used to be farm laborer for clove cultivation. Both fishery and furniture industry function as an economic shock absorber for the volatility of clove business.

There are small forest areas remaining in the area. The forest is subject to human activities because of its high accessibility.

4.2.1.3 South Area

The South Area is located at the east skirt of the Soputan mountain range, stretching

Visual Representation of Present Condition of Typical Community in South Area

until the steep edge of the Kawatak mountain range. Administratively, Sub-district Langowan and Tompaso belong to the South Area. Gently angulated plateau continues to the west until the land slopes up near the craters located on the top of the Soputan mountain range.

The settlement areas are located along the edge of plateau where underground water appears on the surface ground. All villages are the satellites of either the town center of Langowan or Kawangkoan and have relatively shorter histories of intensive resettlement (between 80 to 50 years). Farming area can be found on the plateau, and upland crops, such as maize, vegetables, various kinds of beans and nuts and estate crops are cultivated in the area. The extensive pasturing is also observed on the plateau. Many people own and work at paddy field located outside the Intensive Area.

There is a relatively large size of forest area around the peaks of mountain ranges. The forest, especially the private forest is subject to human activities, providing vital resources for local people. The area is a pure agricultural region without very limited industries or other economic opportunities within the community.

4.2.1.4 West Area

The West Area is located between the west side of the lake and the west border of

Visual Representation of Present Condition of Typical Community in West Area

Intensive Area. The middle part of the area is a rocky plateau continuing from the peak of Mount Tampusu, and the plateau ends abruptly at the lakeshore. The

lakeshore is quite steep, while one can get a relatively open view once on the plateau. The north of plateau is a flat, swampy area used for paddy cultivation. The flat land ends at the edge of Mount Masarang. The south of plateau is also a flat and swampy paddy field with patchy hills. The West Area includes Sub-district Tondano, Remboken and the west part of Kakas.

The residential area can be found along the edge of the plateau or in the middle of paddy field. The plateau is designated for the upland crop cultivation and pasture, and many people are involved in the paddy production at the lowland. Paddy field is not included in the Intensive Area but provides the major source of local income. As in the East Area, some people are involved in the inland fishery at the lake.

The area has two non-agricultural industries: earthenware industry and tourism. People in Pulutan village, Sub-district Remboken started producing earthenware since 1916. By the time, people employed simple production methods using open firing and a hand wheel. In 1977, a method to use kiln was introduced to local people by the Department of Industry, and two sets of brick made, fuel wood updraft kiln were constructed. The earthenware production, including the painted flower vase, dinning set and flower pots started to take off in the late 1990s. The number of kilns was 4 in 1994 increased to 7 in 1996, 12 in 1999. There are more than 50 households engaged in the cottage industry in Pulutan village. The industry grew during the currency crisis in the country when the prices of imported earthenware and ceramics became extremely expensive.

By the road along the lake, there are a few leisure spots as restaurants, boathouses and hot springs for tourists. The Department of Tourism organizes a few annual events such as the Bunaken-Tondano Festival and the Minahasa Birthday Festival. In general, the tourism is still underdeveloped due to the lack of investment. The potential for tourism, however, is questionable due to the lack of tourism objects.

4.2.2 Natural Resources

4.2.2.1 Forest

In general, both protection and private forests in the Intensive Area provide local people with a vital source for their daily necessities. From the forest, local people acquire timber for their houses, non-timber products such as fruits, nuts, seedlings, sap for sugar and alcoholic beverages, materials for brooms, honey, herbs and wild animals. Forest is also used as a leisure object and resting area during farming and traveling. At the same time, local people recognize the benefit of forest for the hydrological stability and soil conservation. Many survey respondents expressed

that they have experienced negative environmental impacts as flooding and dried springs due to the forest declination.

Most survey respondents were able to describe the approximate location and present condition of protection forest and private forest[17] near their villages. During the group discussions, all survey respondents stated that the number of trees in the Intensive Areas has been decreasing during the last few decades. Based on the survey result, the kinds of trees in the protection forest and private forest are as follows.

Kinds of Trees in Forest

Area	Forest	Kind of Trees
East	Protection	Mahogany, Tropical Magnolia, *Nantu*, *Kumariit*, *Pulutan*, *Beringin*, *Tampeseng*, *Tias*, *Aperu*, Sugar Palm and Durian
	Private	Cloves, Mahogany, Tropical Magnolia, Acacia, *Beringin*, *Rumbia*, Cinnamon, *Banuang*, Sugar Palm, Pines, *Nantu*, *Pulutan* and *Kumeriit*
South	Protection	Mahogany, Tropical Magnolia, Pines, *Banyan*, *Resin*, *Gadog*, *Kaliandra*, *Tayapu*, *Mamalapa*, *Wakan*, Sugar Palm, *Lincaro*, *Walempuket*, Rattan and Bamboo
	Private	Tropical Magnolia, *Tayapu*, *Dadap*, *Godog*, *Kayu Gasing*, Cinnamon, Pines, Sugar Palm, *Pulutan*, *Nantu*, Cloves, Coffee, Rattan and Bamboos
West	Protection	Mahogany, Tropical Magnolia, *Kaliandra*, Sugar Palm, *Nantu*, Pines, *Pulutan*
	Private	Tropical Magnolia, Cinnamon, Sugar Palm, *Nantu*, Cloves, Durian, Oranges, Avocado, Coffee, Rattan and Bamboos

(1) East Area

Fairly large protection forest is located at the Lembian mountain range, a part of which is located in the Intensive Area. The protection forest, according to survey respondents, is approximately 2,400ha. The forest is in a good condition, although survey respondents mentioned illegal cuttings near the forest control roads. Another protection forests is located at Touliang Oki village (174ha), Sub-district Eris and Kaweng village, Sub-district Kakas.

Private forest in 8 villages in the East Area is about 400ha. A part of private forest is utilized as agricultural land with both perennial and annual crops. Both protection and private forests are frequently encroached by local people for non-timber forest products.

[17] *Private forest (hutan rakyat) in their term means a privately owned land that is or used to be an area with many trees. Although the area has already become agricultural land with a number of trees, local people still call the area "forest." It indicates that they the land classification based on both spatial and historical viewpoints, which implies that they believe that the area is supposed to be a forest. They also consider hutan rakyat an area targeted for reforestation activities mostly implemented by the government.*

(2) South Area

There are 2 protection forest areas: Mount Kawatak and Soputan ranges. A part of protection forest in the Kawatak mountain range is located at 2 of the target villages, Manembo and Kaayuran Atas, and a part of protection forest in the Soputan mountain range exists at Noongan, Ampreng, Tumaratas and Toure villages. According to survey respondents, the forests are in good conditions, though there are illegal logging within the forest. Larger trees are already cut, and remaining trees are small in size though many in numbers.

Private forest identified by survey respondents is 136ha. As in the case of the East Area, a part of private forest is used as agricultural land. Both protection and private forests are frequently encroached by local people for the collection of non-timber forest products.

(3) West Area

There is a small forest area around the peak of Tampusu mountain. Survey respondents in Tampusu village said that the size of the protection forest is 25ha, and the forest, with a lake on the top of the Mt. Tampusu, is utilized as a leisure object for local people. There are relatively large private forest areas in Tuatara II village. The areas are called Kasuang and Roark Garden. A part of the gardens has been used as agricultural land, and a remaining woody area is exploited for non-timber products.

4.2.2.2 Fuel Wood

According to the result of survey, local people in the Intensive Area use fuel wood for their domestic and productive activities. Almost 80% of respondents said that they use fuel wood for cooking, and approximately a half of them use kerosene stove in addition to fuel wood. They usually collect wood both by foot and a cow cart, sometimes purchase it when the wood or collection time cannot be found. A bundle of fuel wood (0.5 – 1.5 kg) costs Rp. 175 – 500.

When local people collect fuel wood by a cow cart, men are usually in charge of collection, whereas women collect by foot. The present condition of fuel wood collection for domestic use is studied during the survey and summarized in the table below.

Fuel Wood Collection for Domestic Use

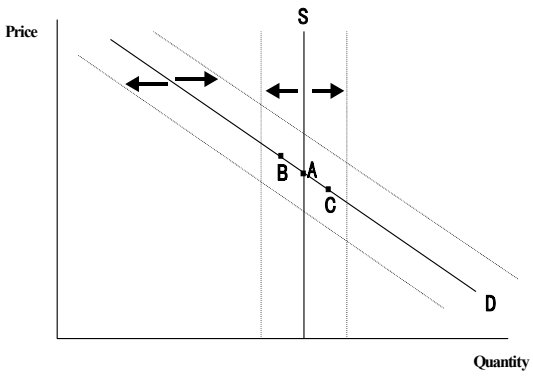
Sub-district	Volume/week	Kind of wood	Remark
Eris	10-15 bundles	Dried clove trees, *Kaliandra*, *Lamtoro*, other bush braches	Wood from agricultural land. Use kerosene stove. Mainly men collect wood.
Touli -mambot	50-60 kg	Dried clove trees, *Kaliandra*, *Nantu*, *Sengon*, *Sirih Hutan*	Wood from agricultural land & forest. Some people sell wood. Mainly men collect wood.
Kakas (E)	38-63 kg	Dried clove trees, *Kaliandra*, *Lamtoro*, bamboos, *Kayu Sombar*, *Piper*, *Tanjung*, excess timber	Wood from agricultural land & forest. Mainly men collect wood.
Langowan	40-240 kg	Dried clove trees, *Kaliandra*, *Lamtoro*, bamboos, *Dadap*	Wood from agricultural land & forest. Used for local wine production. Both men and women collect wood.
Tompaso	15-30 kg, or 0.13-0.25 m^3	*Kanonang*	Wood from agricultural land. Women and children collect wood
Remboken	30-150 kg, or 1 m^3	Dried clove trees, *Kaliandra*, *Lamtoro*, bamboos, cinnamon trees	Wood from agricultural land. Both men and women collect wood.
Tondano	40-60 kg	Dried clove trees, *Kaliandra*, *Lamtoro*, bamboos	Wood from agricultural land & forest. Most people use a kerosene stove near town center
Kakas (W)	45.7-52.5 kg	Dried clove trees, *Kaliandra*, *Lamtoro*, bamboos, *Kayu Sombar*, *Piper*, *Tanjung*, dried fruit trees	Wood from agricultural land. Mainly men collect wood.

Note: The quantitative volume of fuel wood consumption is an erratic estimate because survey respondents may not be familiar with the measuring unit as kg or m^3.

20% of respondents use only a kerosene stove because their family members, most of who are professionals, do not have time and willingness for wood collection.

To understand to the present condition and expectation of balance between the demand and supply of fuel wood in the Intensive Area is critical for the designing, planning and implementing of re-greening activities because it will provide important information about the needs, motivation and justification of re-greening.

As shown below, the price of fuel wood is represented in the form of labor cost (time) since the wood in many cases does not have monetary value when collected and used by local people. Therefore, the relationship between the quantity of consumption demanded and price is determined by the amount of time required to collect fuel wood. The fuel wood supply is almost inelastic at least in the short



term because the resource is accessible to the public with no financial costs.

After the detailed socio-economic survey, it is still difficult to determine whether the level of demand for fuel wood at present is at Point A, B or C on the diagram. Some respondents expressed that fuel wood is still abundant (excess of supply, thus Point B), but others said they experience the shortage of fuel wood (Point C). It is important to note that the level of supply in a short term is determined by not only the endowment of fuel wood in the area but also a weather condition, since drying fuel wood requires a significant effort under the heavy rainfall especially during the rainy season. Irregular weather condition might be the major cause of the inconclusive survey result in respect of the balance between fuel wood supply and demand.

Based on the survey result, the supply curve (S) has historically been shifting to the left. Almost all survey respondents said the endowment of fuel wood in the area has been decreasing during the last few decades. It implies that, even if there would be no shortage of fuel wood at present, the demand will exceed the supply in the future when the supply curve continue to shift to the left. Therefore, the re-greening activities or introduction of improved wood drying system should be undertaken in order to maintain or shift the supply curve to the right.

For the demand side, it is difficult to predict the change of demand in the Intensive Area in the future. The shift of demand curve will be influenced by the following factors:

- Income and wealth of population
- Prices of related goods
- Number of population
- Expectation
- Tastes

As a result of survey, on one hand, income and wealth, number of population has been gradually increasing, which will the force for the demand curve (D) to shift to the right. On the other hand, the price of related goods, mainly the kerosene price, has been controlled by the government and gradually increasing during the last several years. In addition, the tastes have been changing to preferring the use of kerosene stove as the society slowly becomes modernized. Many respondents expressed that younger generations do not like to carry heavy fuel wood, and fuel wood collection tends to be the task of elder people in the community. These factors make the demand curve to shift to the left. Assuming that people's expectation to the change in labor time for collection is stable, one still cannot tell

the future of fuel wood demand in the area. Further survey is recommended for the implementation of fuel wood planting.

In terms of the management and maintenance of fuel wood in the Intensive Area, almost no significant effort or system is observed. Based on the survey, most local people do not have the intension to improve the efficiency of energy consumption using innovated cooking stoves. Replanting activities are implemented as both collective and individual efforts in a small scale although organized replanting activities, mostly led by the government and ad hoc individual planting activities has been observed on the private agricultural land. Several respondents expressed that they do not feel the necessity of wood maintenance because the resource is still plenty.

In the area, fuel wood is also used for the production of local alcoholic beverage (*Captikus*) and red sugar from sugar palm, as well as the earthenware production in Pulutan village. Fuel wood consumption for those productions is shown in the table below.

Fuel Wood Consumption for Home Industry

Production	Consumption	Remark
Captikus	60 kg (or 0.25 m^3) / process / producer	For example in Simbel village, there are 60 people produce *Captikus*, twice a week. Total 7.2 t or 30 m^3 of fuel wood is consumed in one week.
Red sugar	60 kg (or 0.25 m^3) / process / producer	Compare to *Captikus*, not so many people produces red sugar.
Earthenware	3,200 m^3 / month / village	Approximately 12 kilns are active in Pulutan. Mostly larger hard/quasi-hard wood such as coconut trees or old clove trees.

Note: The quantitative volume of fuel wood consumption is an erratic estimate because survey respondents may not be familiar with the measurement unit as kg or m^3.

The earthenware industry in Pulutan village has been experiencing the severe shortage of fuel wood during the last few years. The price of fuel wood for earthenware has risen from Rp. 15,000 per m^3 in 1998 to Rp. 25,000 in 1999, Rp. 30,000 in 2000. According to the interview, some producers had to stop their production due to the insufficient fuel wood. The shortage is derived mainly from the increase of production. After the drastic Rupiah devaluation and economic crisis, the demand for the earthenware of Pulutan increased. The number of producers has increased during the last few years.

4.2.2.3 Non-Timber Forest Products

As the result of survey, non-timber forest products in the area are identified as follows:

Non-Timber Forest Products in Community

Area	Non-timber forest products	Remarks
East	Durian, herbs, red sugar, *Saguer*, *Captikus*, honey, rats, wild pigs, deer, cuscus	Plenty wild animals in the protection forest, though outside the watershed
South	Herbs, fruits, red sugar, *Saguer*, *Captikus*, honey, rats	Major local alcoholic beverages production area, and many rats.
West	Durian, mangos, bananas, avocado, herbs, red sugar, *Saguer*, *Captikus*, rats	Many fruits in the private forest. Limited forest area as a whole

Most non-timber forest products are for household consumption, except a part of wild animals, honey, red sugar, and local alcoholic beverages as *Saguer* and *Captikus* are sold at the local markets. The detailed socio-economic survey revealed that all non-timber forest products are vital sources for the reduction of household expenses and additional income.

Saguer and *Captikus* made from sap from sugar palm. *Saguer* is a fermented drink, which is distilled for *Captikus*. Both local drinks are produced by individual farmers, and production processes are very simple and unorganized. The price of a bottle of *Saguer* (0.5 to1 liter) is about Rp. 1,000 to 2,000 and of *Captikus* is about Rp. 8,000 to 15,000. Both beverages are sold at the residents of individual producers, small vending stands and local markets (though the trade of *Saguer* and *Captikus* is prohibited through official regulations).

Local people catch rats in the forest using traditional traps. People usually stay in the forest for several days for hunting. A survey respondent said that he caught 500 rats in one week during the holiday season. Rat hunters interact with the forest to a great extent. During the survey, the survey team encountered a number of farmers on farm roads who collect rats, *Saguer* and *Captikus*. Because it was the holiday season (Christmas), the demand for those products increased significantly. A rat is an important ingredient for Minahasan cuisines for parties and events.

4.2.2.4 Water Resources

During the survey, a number of water resources for local people are identified. They are used for drinking, irrigation, sanitation, inland fishery and leisure for local people. The water resources identified are summarized in the table below.

Water Resource in Community

Area	Item	Name
East	Spring	Lembean, Brein, Salosot, Teterian linta, Lineleyan, Wawo, Wiow, Pangeranan, Rumorong, Benuang, Kapok, Tetiberungan, Rumanbunang, Pesawangon, Louroki, Sengit, Panungeen, Samonirawang, Watuma, Watuliney, Ranomea, Pulutan, Pakowa, Witereiyan, Sarikat, Talep, Tolawa, Sisipan
	River	Pangeranan, Karisan, Weru, Nyabrang, Korors, Pasawangan, Saper, Watu, Taler, Talong
	Lake	Tondano
South	Spring	Suembak, Wurisen, Ranotelu, Tongkoya, Ranolesi, Kambi, Tombok, Sinoita, Makebo, Lalakoan, Ratamu, Passo, Welen wayong
	River	Panasen, Bondur, Sepert
	Lake	None
West	Spring	Sawa, Kering, Wolo, Londey, Rendeina, Lawaing ireng, Welewangko, Samberong, Gagaran, Tandengan, Okura, Pinasuluan, Sapal, Mapaso, Amian, Tungus, Pamirotan, Kembuan, Tou kagegeran, Lowe, Ranowangko, Huluwa, Minensel
	River	Not identified
	Lake	Tondano, Limaney

Due to the limited knowledge of survey respondents, the water resources identified above do not cover all springs and rivers exist in the area. In the East area, most drinking water is from springs. There are both deep and shallow wells developed by the Public Works Office, and local people have not experienced any problems or shortage of clean water in the East Area. However, during the group discussions, survey respondents pointed out that the volume of water discharge from springs has been declining last few decades. They stated that the cause of decline is the reduction of tree number in the area.

There are a number of check dams for irrigation at the downstream of larger springs. Local people use the water at dams and the lake for bathing, washing and fish cultivation. Local people complained the degrading water quality at Lake Tondano represented by the expansion of water hyacinth habitat.

In the South Area, there are a number of large springs that supply drinking water to 3 sub-districts (Langowan, Kakas and Tompaso) through water pipes. A largest spring is called Suembak spring located in Noongan village, whose water discharge is approximately 400 liters per second. In addition to those large springs, the area also has both deep and shallow wells for clean water. Local people pointed out that some of the wells dry up during the dry season, and water discharge declines. Local people stated that there is a causal relationship between the decline of water quantity and number of fewer trees in the area. The paddy field is developed along the downstream of springs in the South Area.

The Panasen River is relatively large, and local people use it for washing. They

emit both liquid and solid wastes to the river, which flows into Lake Tondano.

In the West Area, people use water from wells as the major source for drinking. People who reside close to the forest area use spring water as well. Some of the springs are hot springs and used for bathing, tourism and irrigation. In general, the water discharge of the springs in the West Area is relatively small, and paddy field is the major consumer of spring water. Some people who are located near the lake pump up the lake water and use it for sanitation. They also use the lake water for drinking when wells dry up during the dry season. A few respondents complain that they tend to get sick when they drink lake water. They also stated that the water quantity of wells has been declining during the last few decades, and there is causal relation between the lesser trees and water quantity.

4.2.2.5 Mineral Resources

Small-scale mining activities can be observed in the area. There is *Domato* (tuff) mining in Eris, Simbel, Papakelan (East Area) and Tampusu (West Area). Tuff is used for the *Batako* production. *Batako* is a small concrete block used for house construction, and tuff is mixed with cement. The tuff mining is not commercial basis, and local people simply ask permission from landholders to mine and give certain compensation for exchange.

In the South Area, sand mining is popular. In Noongan village, local people take volcanic sand that was washed away from the mountain along dry rivers and roads. The sand is for construction. There was an individual who are an owner of a truck and active in sand mining. He used to produce 10 to 15 truckloads of sand a few years ago, but his involvement in sand mining has been dropped during the last few years.

Stone mining was mentioned during the survey in Makalensow, Kaweng (East Area), Noongan (South Area), Leleko, Sinuian and Tataaran II (West Area) villages. All stone mining is a commercial basis, and the material is used mainly for road and building construction. Stones from Makalensow are used for the construction of Tanggiri-Dormato road. The material from Leleko, Sinuian and Tataaran II are used for the construction of a new main street in Tondano. In Leleko and Sinuian, 5 m^3 of stones are excavated daily, and in Tataaran II village, 20m^3 is excavated per day. The price of stone is Rp. 25,000/m^3. The stone mining in Kaweng was undertaken at the lakeshore of Tondano, which created damage to the landscape of the lake, according to survey respondents. The mining stopped a few years ago.

In Pulutan village, clay is excavated for the earthenware production. The mining

sites at paddy field are owned by the village government, and the sales of clay are managed by the local administration. The clay is sold at the price of Rp12/kg when the buyer mine him/herself, Rp. 50/kg with labor and transportation costs. The income from clay sales is important revenue for the Pulutan government.

4.2.2.6 Natural Disasters

Table below shows the situation of natural disasters in the Intensive Area pointed out by local people.

Natural Disasters in Community

Area	Disaster	Frequency	Remark
East	Flooding	Annual	Flooding occurs annually during the rainy seasons around the Tondano lake. Floodwater comes from the lake and rivers from mountains.
	Landslide	Occasional, 1977	There was a fairly large-scale landslide in Simbel village. There have been irregular small-scale landslides.
	Forest fire[18]	1989, 90, 92, 97	Forest fires occurred during the drought (El Niño in 1992 and 97) and after the drastic clove price drop in the late 80s. Some farmers put fire on clove estate.
South	Flooding	Annual	Small flooding in village centers.
	Landslide	Occasional, 1940s and 1993	Small slides take place after heavy rain. A slide occurred at a stone mining site in Noongan village near the large spring Suembak, and fairly larger slide happened in 1940 and 1993 in Manembo village.
	Eruption	Every 5 to 10 years	Mt. Soputan eruptions damaged crops and farm stations on agricultural land, domestic and wild animals and roads. Volcanic ashes are carried by rain to town centers and paddy field. Fish and crops on paddy field are ruined.
West	Flooding	Annual, 1972, 86, 95, 2000	Flooding occurs annually during the rainy seasons, and fairly sever ones occurred in those years on the left. Floodwater comes from the lake and rivers from mountains.
	Landslide	Occasional	Small landslides occur near Mt. Tampusu.
	Forest fire	1980	Small forest fires occur after the long drought.

In terms of actions take by the community, local people in Passo village undertook mutual community aid to broaden and deepen the drainage and water channels at the residential and wetland areas. In Kaweng village, local leaders are trying to control the solid waste disposal to the river, which they believe is one of the causes of drainage default. Some villages implemented re-greening activities to prevent landslides. Some survey respondents stated that re-greening activities also prevent flooding in the long run. There has been no active prevention of forest fire in the area, but community members get together to extinguish the fire when occurs.

[18] *It seems that many survey respondents consider estate fire as a forest fire.*

4.2.2.7 Natural Resource Management at Community Level

The detailed socio-economic survey revealed various type of natural resource management at a community level. First, farmers pay great attention to soil conservation and management at their agricultural land. Based on the information from local people, soil conservation practices in the area can be classified into four types: contour ridging, terracing, intercropping and crop rotation. Farmers employ a simple and unsophisticated ridging, called *Guludang* and *Bedengan* in local terms, on a geographically steep-sloped area to prevent topsoil loss. Several farmers said that they make ridges because it is an easy way to prepare land as well. The ridging technique was handed over from their parents, or farmers taught themselves through observation.

Terracing is a popular practice for paddy field. Most terraces in the Intensive Area were developed through the traditional mutual aid (*Mapalus*) executed long time ago, and the government intervention is at a minimal. During the survey, the Team found 2 public works projects for the development of terraces at arable upland in Tandengan village, Sub-district Eris and Tampusu village, Sub-district Remboken.

Intercropping, according to survey respondents, is the technique to maximize their land use and to slow down the decrease of soil fertility. Maize, red beans, groundnuts, chilies and leaf onions are the popular crops for intercropping in the Intensive area. Many farmers also practice crop rotation to maximize their land use and maintain soil fertility. They plant different crops on agricultural land to prevent the deprivation of production level. Farmers also practice fallow periods and gaze domestic animals, mostly cows during the resting time.

All four conservation practices are individual basis, and there is no organized soil conservation activities found in the area during the survey.

Although the observation revealed that some farmers practice line planting for their estate crops, no survey respondents considered the practice as a form of soil conservation technique.

Local people undertake community-based replanting activities. Replanting of trees is carried out individually at private agricultural land to maintain fuel wood, fruits production and shade for their personal use. The customary laws (*hukum adat*) with regards to natural resource management that were found during the socio-economic survey for illegal cultivators[19] were not found during the detailed socio-economic

[19] *A survey was conducted separately from the detailed socio-economic survey. The survey targeted local people who cultivate the protection forest in Ampreng village. See Attachment-D.6.*

survey, except there is a traditional, unwritten rule that people should plant a few trees when they cut a tree. This customary rule is practiced in Noongan village and Sub-district Toulimambot, but all survey respondents did not know the rule in other target villages.

Comparing with replanting, re-greening activities are more organized. The survey revealed that all re-greening activities are initiated by either the government or religious organizations. The Study Team did not encounter any re-greening activities that are purely community-led, meaning voluntarily planed and implemented by community members. The summary of re-greening and reforestation activities[20] is shown in Table D.4.2.3.

The re-greening activities are usually supported by village governments and religious organizations. Local people are hired as laborers for re-greening activities, though they never participated in the planning or decision-making of program. Several survey respondents stated that the absence of maintenance fund for re-greening is a problem. There is no physical protection facility established for re-greening, and seedlings are always free. People in Papakelan and Makalensow expressed their frustration because people from other sub-district were hired as laborers for re-greening, but not them. Some local people stole the seedlings after the planting because they were angry. Planting activities are also undertaken for the farm edge and roadside protection by plating *Tawaang*, *Jarak*, *Kaliandra*, *Lamtoro*,

Toulawa Farmer's Group

Near the end of Dutch colonization, a group of local people collectively requested to the government their rights over the state forest in Papakelan. The request was consented and re-recognized by the Indonesian government after its independence. When the land rights were granted to the farmers, the area was entitled as *hutan rakyat* (private forest), and farmers promised to manage the forest properly for community sake.

After a few decades, most part of the forest has turned into clove land. In 1998, the owners of private forest organized themselves in order to initiate re-greening activities in the private forest. The need for better management of the private forest seems to rise from the increased severity of flooding at Taler River, from where local people draw irrigation water for paddy cultivation. The fountainhead of Taler River is located in the protection forest, and the river run through the private forest. Group members, however, are more interested in their short-term economic benefits than the conservation. Members hope to get fund and clove seedlings from external supporters through the organized group. Many members disinterested the group since no external organizations provided resources to the group so far.

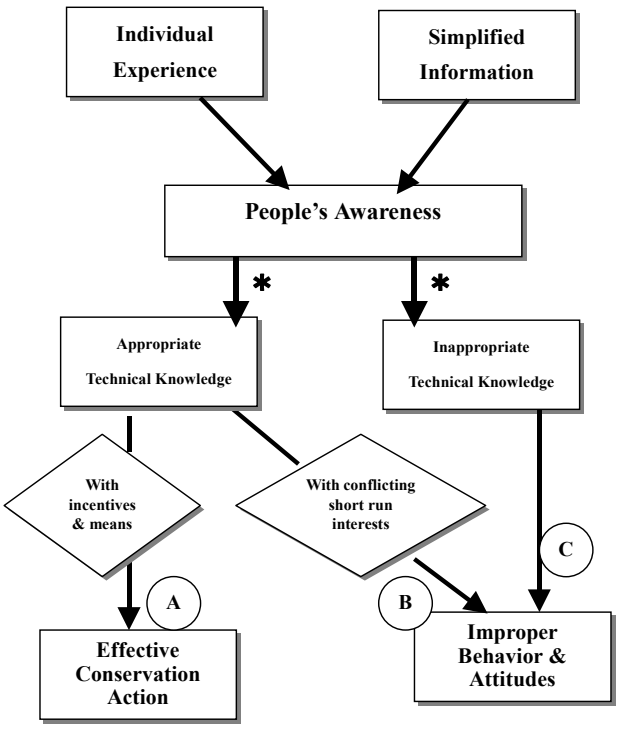
[20] *The Table is merely based on the explanation of survey respondents whose knowledge ought to be limited. Also, it is important to note that survey respondents could not distinguish the deference between re-greening at private land and reforestation in the protection forest.*

bamboos, cassavas, bananas and other fruits trees.

In terms of the maintenance of Lake Tondano, people in the target villages in Sub-district Eris, Kakas, Remboken and Tondano said that they try to control the increase of water hyacinths at the lake. They believe that the plant gives negative impact on the fish cultivation in the lake because the plant hinders the growth of algae on which fishes lay their eggs. They also said that the water hyacinths accelerate the reduction of lake size. People work as a volunteer to remove the plant regularly, but they said the plant grows back soon or blown from the other sides of the lake. There have been no lake-wide cleaning attempts.

With regards to most appropriate organizations for watershed conservation, the comments from survey respondents can be summaries that the village government, sub-district government, district government and provincial government must work together. NGOs can potentially give contribution in the collaboration with the governments. The local people' mindset appears to be heavily depending on their governments, and it is observed that the collective self-help and bottom-up initiatives are foreign to them. It is understandable since the country is so used to the Jakarta-led top-down approach during the last few decades.

4.2.2.8 People's Awareness, Behavior and Attitudes towards Natural Resource Conservation and Forestry Extension Services



Mechanism of Awareness and Actions towards Conservation

Based on the detailed socio-economic survey, the mechanism of awareness, behavior and attitudes of local people towards the conservation of Tondano watershed can be expressed in the figure below:

The significant number of local people, especially farmers are affected by or observed forms of natural resource degradation in the area, according to the survey result. In addition to the personal experiences of negative impacts from the degradation, local people are usually informed about the

environmental problems and watershed degradation through media and members of the community. The information, however, tends to be simplified and exaggerated, if not scientifically inadequate or politically manipulated. Basing on the personal experiences and additional information, local people form their awareness towards watershed conservation. The survey revealed that the level of awareness of local people reaches to a certain level, which appeared in their comments during interviews. For example, approximately 90% of survey respondents were able to identify various environmental problems as the degradation of water quality of the lake, soil erosion, physical change of the lake, decline of forest and water resources, increase of water hyacinths and natural disasters. The important finding during the survey was that the level of awareness was not uniform among the population. Local leaders were able to display the higher level of awareness than farmers.

The consequences of raised awareness in the case of Tondano community are two holds as shown at (*) in the figure: appropriate and inappropriate technical knowledge. The appropriateness of local people's knowledge seems to be affected by their level of education, awareness and gender, but the factors should be more complex. It needs further investigation. When an individual has proper awareness, technical knowledge, incentives and means, the person seems to take appropriate conservation actions as seen in (A). This pattern was observed during the survey in respect to soil conservation on their agricultural land and water management for their paddy field. Soil conservation measures as ridging and water resource maintenance as the up-keeping of check dams and water channels were carried out continuously, though may not be proper, by the local people.

Even though a person has proper awareness and technical knowledge, the person ends up with the Pattern (B) when there is no incentives or other short-term interest as the maximization of economic interests conflicting with conservation. A person without proper awareness and technical knowledge ought to fall into the pattern (C).

The survey revealed that women's participation to conservation activities is lower than men. Many women respondents expressed their disinterest in conservation activities, except the conservation of clean water, because "they do not know about natural resources." The reason that women in the area have limited information about natural resources is because they tend to stay home and rarely interact with the resources, according to several women respondents.

Many local people do not know the existence of the forestry extension services or officers (PLP) as shown the table below, and some local people pointed out that forestry extension officers only visit Head of Village when come to their villages.

Land Status in Community

	East	South	West
Official Land Certificate	36%	3%	6%
Letter-C	13%	28%	14%
Registered at vill. office	51%	69%	80%

They claimed that the purpose and activities of forestry extension services are unclear, and they mention that PLP should have had a great role for community's welfare through conservation. Several local leaders said that they expect PLP to be more active in socialization of re-greening, reforestation and other conservation activities and environmental education, and local people's expectation toward PLP is high.

People's perception towards Forestry Extension Services (PLP) (Unit: %)

Sub-district	"PLP is active"	"PLP is inactive"	"Do not know PLP"
Eris	0	33.3	66.7
Toulimambot	0	0	100
Kakas	0	22	78
Tompaso	0	0	100
Remboken	43.25 ("Attended at least one PLP activity")	17.5	39.25
Tondano	0	57.1	42.9

** No quantitative data for Sub-district Langowan.*

4.2.3 Agriculture

4.2.3.1 Farm Size and Land Ownership

In general, the average farm size in the area is relatively small, attributed mainly from the limited number of large-size landlords in the area. Based on the detailed socio-economic survey, the average farm sizes in the three areas are: East 2.63ha, South 0.89ha, West, and 1.33ha. The numbers differ from the statistical data because RRA is a sample survey. Even though the numbers are different, the tendency is the same that farmers in the East Area have the largest size of agricultural land while farmers in the South Area have the least. It is because farmers in the East are engaged in the estate farming, mainly clove cultivation that requires larger land. I seems that the farming in the South is relatively less organized with comparatively short history of farming, which might attribute to the smaller farm size.

According to the survey, however, the larger-scale landlords outside the South Area started to invest on the agricultural land in the area during the 1970s and 80s when the economy in the island was fairly strong. Many farmers in the South Area complained that the shortage of land are felt due mainly to the low productivity, i.e., expensive farm inputs, labor and transact costs (time), rudimental farming techniques and unstable farm gate prices.

There is no existing statistical data about land status in the area at present. It is

known generally that only a few people have official land certificate from the Land Agency (BPN), and most land ownership are documented in other forms such as Letter-C (a form of local land registration) and other form of registration at a village government office. The table was developed based on the result of survey to show the ratio of different forms of land registration. The numbers in the table, however, are not statistically accurate due to the limited number of samples during RRA. It seems that more farmers in the East Area have completed the official land registration process than other areas, which might have a logical relationship with the relatively larger farm size. The limited numbers of agricultural land being officially certified creates a problem as explained in Section 3.7.3.

4.2.3.2 Farming System and History

(1) Farm Labor and Mutual Community Aid (*Mapalus*)

One of the key findings during the survey was the extensive involvement of farmers in the seasonal wage labor on farm. Farmers in the area, both owner farmers and tenant farmers are engaged in farm labor for land preparation, planting, weeding, application of fertilizers and pesticides, harvesting, processing and transporting. The crop budget is generally tight in the area, which gives farmers motivation to work for additional income. According to the survey, approximately three fourth of farmers in the area strive as a farm laborer. The population of "pure" farm laborers, who do not own or rent a piece of land for their farming and work only as a farm laborer, is unknown, but the empirical evidence based on the hearing from local people suggest that approximately one fifth of total labor force in the area, especially younger people, are the farm laborers without land.

The wage is usually paid on a daily basis in cash and kind, as shown below.

Daily Wage of Farm Labor (Unit: Rp.)

Type of Service	Service Included	Daily Wage
Land Preparation & Transport	Animal, cart and driver	25,000 for 1 animal
Planting, Weeding, Harvesting	Meal, transpo. and cigarette	20,000–16,000
	W/O meal, transpo. and cigarette	17,500-15,000
Application of Fertilizer & Pesticide	Meal, transpo. and cigarette	16,000-15,000
	W/O meal, transpo. and cigarette	16,000-13,500
Processing	Tools	Output basis

Despite of the probable difference in labor availability in one area to the other, a significant wage difference was not observed during the survey.

The arrangement of farm labor is generally based on the kinship and neighborhood, except for clove farming. Some laborers are from outside the kin/neighbor network for cloves. There used to be a significant number of migrated farm laborers in the

Noongan village area during the Dutch and Japanese time for a larger-scale coconut and cotton plantation, according to the explanation of several people in the area. Many of the laborers decided to stay in the area after the independence, and there are many descendants of those migrants in Noongan village to date.

While many farmers work as a farm laborer, some farmers find a non-agricultural work, such as a driver, vendor, carpenter or miner both inside and outside the village.

At the community level, the mutual community aid (*Mapalus*) is actively applied to farm labor. The mutual community aid is explained in Section 3.6.4, and the compensation for laborers after the mutual community aid in the case of farming is usually provided in kind, whether a part of the harvest or food. The mutual community aid is most practiced for paddy production where an intensive labor is required.

(2) Tenant Farming (*Sistim Tomoyo*)

Tenant farming is also very popular in the Intensive Area. Approximately one third to a half of farmers rent agricultural land for tenant farming. The rent is usually executed informally without a written contract, and a renter and landowner in many cases have a kin relation with the tenant farmer.

Because of its informal arrangement, the length of rent is usually undecided. The rent is usually paid in kind, where the landlord shares the harvest (called *Sistim Tomoyo*). A tenant farmer usually takes two third of harvest while the landowner would be given the rest, except in the South Area, the agricultural products are divided into a half and shared by a tenant and landlord. The reason for the higher rent in the South is unknown.

It is important to note that many landowners do not ask any share from the tenants, especially for upland crops, holding tenants responsible for the production and land maintenance. In this case, a tenant and landowner are close relatives, or a landowner has little incentive to share the harvest either because the harvest is marginal and/or the landowner has low incentives to gain from farming for various reasons.

(3) Farm Finance

The survey revealed that financing for agriculture in the area is executed by farmers themselves. The revenue from a harvest is invested to a next harvest, in some cases through traders, which leaves limited income in the hand of farmers. Several farmers expressed that farming for them is not exactly an income generating activity, but a routine work handed over from their parents. Some farmers consider that

farming is “a ritual” that they must practice because they are born to be a farmer. Farming for them simply provides resources for the repetitive cycle of harvest which provides food for household consumption, and farm labor and other ad hoc cash earning activities are the source of income to support their livelihood.

In spite of the existence of financial institutions and mechanisms described in Section 3.3.5, the limited number of farmers uses those financial services to finance their farming. The survey revealed that established financial institutions as a bank, cooperative and moneylender have served exclusively to larger landowners or agricultural entrepreneurs in the area.

(4) *Sistim Ijon* (trade before the harvest)

For certain crops, a trading system called *Sistim Ijon* is practice. *Sistim Ijon* is an informal trade arrangement between a producer and middleman, whereby the farm gate price is decided before the harvest. In this system, a middleman visits the farm and observes the size and condition of land. Based on his/her evaluation, the middleman offers a buying price, and a deal would be made when the producer agrees on the price. When the deal is completed, the middleman pays cash immediately. After the payment, the middleman will undertake maintenance, harvest, processing and marketing. In some cases, the original producer will be hired as a farm laborer.

The farm gate price in *Sistim Ijon* is almost always lower than the market price. In spite of low price, many producers in the area prefer to employ the system because it gives cash in advance to the harvest. Also, farmers do not have to spend time, money and energy for remaining farming activities. Farmers can also alleviate the risk of market where the price might be plummeted in the future. The system is popular for relatively high-value corps as cloves, tomatoes, red beans and vanilla.

(5) Farming History

During the survey, farmers illustrated some of the changes in farming in the area. Regarding the variety of crops planted, the extension of tomato cultivation is relatively recent, started approximately 10 years ago. Tomatoes, according to several tomato growers, used to generate significant income until a few years ago, then the price declined due to overproduction.

Another crop that use to produce good farm revenue was red beans. Red beans had been produced in the area for a long time, and the demand increased gradually over the years. The price of red beans became very attractive for producers during the last few years. However, the price just started to decrease recently.

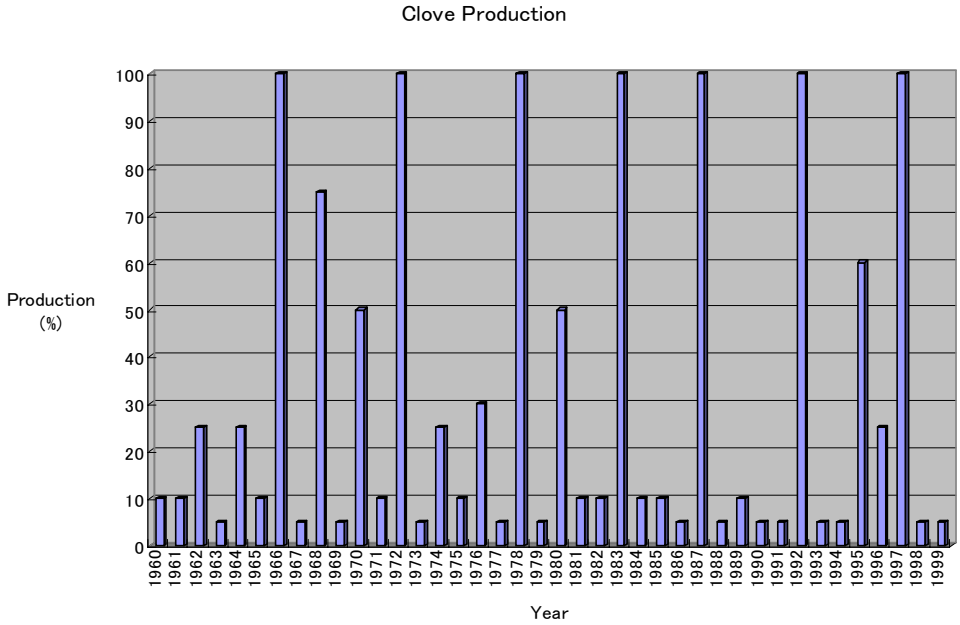
Cloves have been a symbolical crop in the area for centuries. It has been symbolic because of its large fluctuation of price and production. There is a cyclical big harvest once every four to five years, and because of the fluctuation in the level of production, in addition to the control by a monopolistic corporation, the price of clove fluctuate greatly. When the price is good, cloves provide significant wealth to producers.

People in the area still talk enthusiastically about the economic boom during the 1980s when the price of cloves was quite high. Many clove producers made a fortune during the time, and the typical Minahasans are known to be an over night millionaire by people in other regions. The fortune vanished after the clove monopoly controlled by the Soeharto family collapsed during the overturn of national politics in the early 90s. Many clove producers abandoned their estate, and many farmers started cultivating other crops for survival. The clove price at the time of this survey has rebounded, and farmers started paying more attention to their abandon clove land.

The graph below was created by clove producers during the group discussion showing the cycle of clove production.

Since farmers do not know the absolute figures of clove production, the level of production in the graph is expressed in the estimated percentage basing on the full/big harvest as 100%.

In 1995 and 96, the clove production was expected to be 25 to 60% of big harvest, but most fruits fell from the trees due to the strong wind before the harvest. Clove farmers become particularly keen to clearing the land under the clove trees after the



incident. Many farmers also believe that cutting grasses under and around trees will provide more nutrients to the trees and increase production, which was claimed as scientifically insubstantial by a professor at Sam Ratulangi University.

4.2.3.3 Crop Production

(1) Farming Techniques

Local people describe their general farming techniques as “traditional” or “semi-traditional” at best. According to them, their farming is traditional because they use rudimental tools, compost and manual labor for farming. Their farming can be semi-traditional when they use animal force, fertilizers and pesticides. According to the result of groups discussions held at 7 sub-districts, farmers started using chemical fertilizers and pesticides extensively during the 1970s to 80s when the fertility of soil started to decrease and demand of farm products began to increase. Farmers consider their farming traditional or semi-traditional also because they use rudimental post-harvest methods.

Their farming is traditional or semi-traditional from the perspective of seedling. They usually use seedlings from the previous harvest for certain crops and rarely use hybrid seeds for their production. Therefore, the advanced variety is slow to be introduced in the area. However, many farmers purchase seedlings for maize, tomatoes and cash crops.

There are no systematic methods for crop selection in the area. Individual farmers decide what to plant and how much based on their perceptions. The un-institutionalized crop selection in the area seems to be mainly derived from the lack of market information and absence of area-wide organizations for production management. Because of the individualistic farm management, the prices and productions of farm products in the area tends to fluctuate greatly.

Their cropping patterns are explained in detail in other parts of this report, and farmers employ forms of agroforestry, crop rotation and intercropping in order to maximize the production from the limited land, to maintain soil fertility and prevent soil erosion, according to the semi-structured interviews.

(2) Production Level

To understand the overview of crop production, especially the production level of each crop and descriptive status of production in the area, an RRA tool called Ten Stone Production was employed (See Table 4.2.4). It is a tool for a group of farmers to identify the comparative level of contribution that each crop gives to household

welfare. Thus, the level production is not expressed in an absolute numbers, and the numbers of stones on the tables does not represent the physical production level or revenue from the production but the relative degree of "importance" of each crop to farmers.

The survey revealed that cloves are the most important crop in the East Area as expected. Maize and paddy are also important crops in the area, especially for the household consumptions. Other upland crops as groundnuts, red beans, onions, chilies, tomatoes provide critical source for living as well as some estate crops as coffee, vanilla, coconuts and various fruits. Domestic animals, especially fish at the waterfront villages are also identified as important agricultural products.

In the South Area, the primary crops are maize, paddy, red beans, onions and tomatoes. Secondary crops are groundnuts, leaf onions, soybeans and some vegetables as Chinese cabbage (*petcai*), cabbage, pumpkins and carrots. Cloves in the South Area do not give as much contribution to farmers' welfare as in the East Area. Tomato production is a prominent feature in the South Area.

The West Area produces the most agricultural products in terms of varieties. The primary crops are maize, paddy, groundnuts, tomatoes and various kinds of fruits including oranges, durian, mangos and bananas. Sub-district Tondano produces a lot of cloves, gingers, fish, bamboos and timber near the mountains and the lake while Sub-district Remboken produces an indigenous green called *kangkung* and domestic animals particularly cow.

During the group discussions with farmers, important and interesting narrative comments with regards to crop production were mentioned. Major information is summarized in the table below.

Narrative Information about Crop Production in the Area

Crop	Description
Maize	Volatile price. Consumed by domestic animals and humans. Easy and inexpensive maintenance. Suitable soil. Easy to find market. Vulnerable to mice attack.
Paddy	Relatively high price, maintenance cost and labor requirement. Needs capital. Vulnerable to pests. Easy to market. High household consumption.
Ground nut	Stable price but requires capital and fertilizers. Vulnerable to pests. Suitable soil.
Red bean	Relatively high farm gate price but fluctuate from one season to the other. Short harvest cycle. Easy maintenance but difficult to process. Not so suitable to climate (needs a lot of rain).
Red onion	Requires capital. Intensive maintenance. Suitable soil.. Volatile price.
Chili	Easy maintenance, small capital but high production cost. Stable farm gate price and production in all seasons.
Tomato	Requires capital. Short harvest cycle (2.5 to 4 months). Relatively high farm gate price but volatile. Suitable soil and climate. Intensive maintenance.
Leaf onion	Needs capital for land preparation and seedling. Stable and relatively high farm gate price. Needs fertilizers.
Petcai	Suitable climate. Vulnerable to pests. Low farm gate price.
Cabbage	Suitable climate. Vulnerable to pests. Low farm gate price.
Cassava	Easy maintenance. Suitable soil.
Potato	Easy maintenance. Suitable soil but damages soil.
Eggplant	Relatively high price. Needs fertilizers. Difficult to find market. Lack of seedling
Cucumber	Suitable soil. Easy to preserve.
Kangkung	Easy maintenance.
Ginger	Relatively high farm gate price but fluctuate. Easy to preserve. Difficult to find market.
Cacao	Relatively high price. Difficult to find seedling and market.
Cloves	Needs large capital. Vulnerable to pests. Volatile price and production but can be extremely lucrative. Suitable soil and climate.
Coffee	Relatively high farm gate price but fluctuates. Needs labor for maintenance. Used for household consumption.
Coconut	Low/no maintenance. Useful crop for household. Can be sold but limited traders. Volatile price. Unsuitable to climate.
Cinnamon	High farm gate price. Easy maintenance. Difficult to find market and seedling.
Vanilla	High farm gate price but fluctuates. Needs large capital. Suitable soil but difficult maintenance.
Sugar palm	Sap used for alcoholic beverages, sugar and broom making. Stable prices. Easy maintenance.
Fruits	High price and suitable soil. Easy maintenance and vulnerable to pests. Competitive market. Lack of seedling.
Pig	Needs large capital. Volatile but relatively high price. Difficult maintenance.
Cow	Needs large capital. High price. Easy maintenance.
Duck&Egg	Stable price. Needs capital.
Chicken	Stable price. Easy maintenance.
Fish	Relatively high farm gate price and high demand. Volatile price. Needs large capital.
Timber	Useful for house construction. Takes a long time to grow. Difficult to find seedling.
Bamboo	Useful for household activities. Lack of seedling.

(3) Pest and Disease

One of the technical problems pointed out during the survey with regards to crop production were the pests and diseases that have been giving the negative impact on both production level and quality. Most prevailing pest in the area is mice. They eat

maize, beans, nuts and various vegetables before and after the harvest. Farmers claimed that there are no effective solutions to exterminate the pest, and farmers usually use a simple trap to catch mice. Several farmers mentioned that they lost nearly a half of their expected maize harvest at the time of outbreak in the past. The statement might be exaggerated but displays the seriousness of the pest in the area.

The most devastating pest for cloves is a kind of caterpillar that pokes into the trunks, and trees die down due to the holes made by the insects. Some farmers use pesticides to exterminate the caterpillar, but the amount of pesticides are limited. They are expensive as well. Farmers simply cut affected trees and burn them to prevent the further prevalence of the pest.

Farmers also experience various kinds of diseases for crops especially under an unusual weather condition, such as a long rainy season or unusually severe dry season. Most diseases seem to be originated in the inadequate nutrient and high/low humidity. The knowledge of farmers on diseases seems to be limited to the symptoms and a part of causes, and they do not possess appropriate knowledge and means to protect their crops from the attack. Farmers' expectation towards agricultural extension services in respects to pest and disease controls is high.

4.4.3.4 Marketing

Three types of marketing practice for farm products are employed in the Intensive Area, as shown below.

Type A	Producer → Consumer
Type B	Producer → Distributor → (Retailer) → Consumer
Type C	Producer → Middlemen → Retailer → Consumer

Type A is a simplest marketing method in which producers or family members of the producer transport and sell their products mainly at a pubic market or directly to consumers.

Type B will involve distributors (*Tibo* in local term) who will come at a farm gate and purchase farm products from farmers. According to the survey result, the fees that farmers pay to distributors are at a minimal, Rp.500 to 1,000 per sack for most farm products, which can be lower than the transportation fee that farmers might have to pay when they transport their products by themselves.

Distributors then bring the products to a public market and sell them either directly to consumers by themselves or retailers who will sell the products to consumers. Distributors are in many cases farmers themselves who have a means to

rent/purchase vehicles for transport and pay fees for a trading post at a public market. Distributors in the Intensive Area reside in the village where they execute trading and are not well organized. The trade volume that a distributor handles is generally small because there are many distributors in one village in the context of perfectly competitive market for trading.

More organized middlemen play a key role in the Type C method. Middlemen are usually from outside their village, possibly from larger towns or cities as Tondano, Langowan, Kawangkoan, Tomohon or the city of Manado. They come to a farm gate and purchase the products, and in many cases, the trade is agreed informally before the harvest either using *Sistim Ijon* or without determining the trade prices. Middlemen than bring the products to large wholesale markets and sell them to retailers. Some of the middlemen are landowners or owner with processing facilities, whose family might be originally from the area. Some middlemen have no kinship to people in the area but have a business means.

The determinants for the types of marketing method are: a distance to public market and type of crop. Farther becomes the agricultural land from a market, more involved distributors and middlemen in the marketing. Also, distributors and middlemen are involved in the trade for cash crops as cloves, vanilla or relatively high-value products as paddy, tomatoes, *Captikus* or large-volume products as maize. Higher the value or volume of the product becomes, more middlemen, rather than distributors are engaged in trading.

4.2.3.5 Agricultural Extension Services

With regards to the agricultural extension services in the area, approximately three fourth of respondents during the semi-structured interview mentioned that the agricultural extension workers (PPL) are inactive or rarely undertake extension activities. One third of respondents have ever received extension activities as a field visit, presentation and workshop, and a half of those who participated explained that the service was not useful for them.

During the survey, many local people complained about the inactiveness and inappropriateness of the agricultural extension services in the area. The summary of major complains are as follows.

- PPL only visit village government office and do not come to see the field.
- When PPL visit the village, they just get a signature of Head of Village to receive honorarium without providing any services. They do not have any motivation or ability to carry out their tasks.

- The contents of their activities are useful sometimes, especially with regards to animal husbandry but they are not useful most occasions because farmers already know the knowledge and technology. PPL always asking questions, rather than teach farmers.
- PPL were active only during the KUT program, but almost invisible during other times.
- PPL do not understand the enthusiasm of farmer's groups.

Although farmers made many negative comments about the present situation of agricultural extension services during the survey, they seem to be generally sympathetic about extension workers because farmers know that the workers do not have sufficient means, resources and incentives to execute their tasks.

4.2.4 Community-Based Organizations

4.2.4.1 Local Administration

One of the most influential establishments at the village level is the village government. In Indonesia, there are two kinds of villages: *Desa* and *Kelurahan*, both are translated as a village. A chief of *Kelurahan* is called *Lurah* or Head of Village who is a civil servant at a district government and appointed as a head by Head of District (*Bupati*). *Kelurahan* is a relatively urbanized village compare to *Desa*. 4 target villages in Sub-district Toulimambot and Tondano are *Kelurahan*. There has been a discussion among the provincial legislatures to abolish *Kelurahan* and change to *Desa*.

A chief of *Desa* in the Intensive Area is entitled *Hukum Tua* (a senior ruler), who are elected through a general election at the village level. The Head of Village used to be called *Kepala Desa* between 1974 and 1999 in accordance with a guideline given by the Jakarta government, and changed its name in 2000 through a local decree. The change intended to emphasize the traditional value of a village chief in Minahasa who was respected as an informal leader. In the context of decentralization, people in Minahasa hope to transfer the bureaucratic village government into a more people-oriented entity.

The difference between the 2 systems, *Kelurahan* and *Desa* influences the socio-political atmosphere of community. Generally, *Lurah* understands his roles as a channel between the village and district. His thrust is derived from the amount of project fund he draws from his district government. Thus, he feels his responsibility less to the village parliament, and his consciousness tends to be directed towards the district office. The psychological distance between *Lurah* and local people seems to

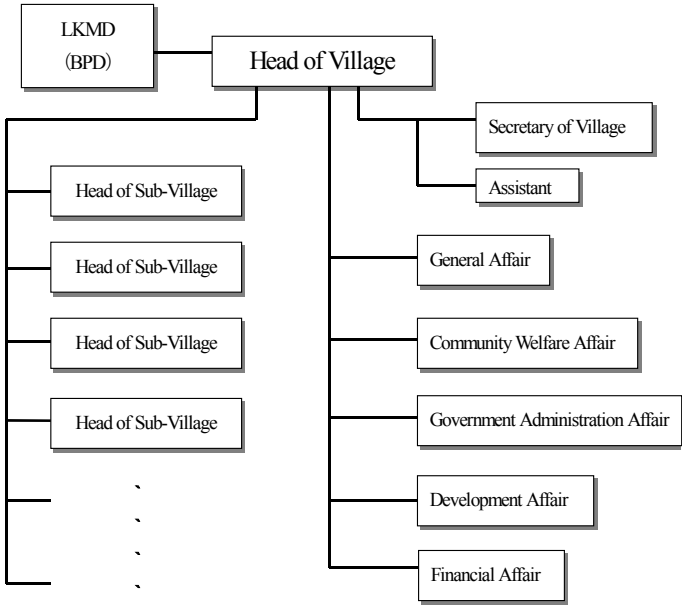
be relatively far.

Contrary, *Hukum Tua* attends more to local people because his political popularity is critical for him as a politician. Although drawing projects to his village is an important political means to earn his positive reputation, he usually knows the way to develop his fame without palpable accomplishment as *Hukum Tua*. Thus the *Desa* administration in general is more receptive to non governmental projects, and enthusiastic about an internationally supported project.

Both *Hukum Tua* and *Lurah* are supposed to be a full-time position, but many of them have unofficial second jobs.

All villages have a village parliament body called LKMD (Village Community Resistance Institution), which has the legislative responsibility and authority at the village level. However, LKMD is in the process of reformation at the time of the Study, and LKMD should be change to BPD (Village Representative Board), which has stronger decision-making power than LKMD, according to a local decree. Some target villages already completed the election of BPD members, but others were yet to hold an election. Head of Village is fully responsible for the decisions made by BPD.

Head of Village is supported by various personnel within the village government. The structure of village government is shown below.



Structure of Village Government

Head of Village is supported by Secretary of Village, assistant, heads of sub-village (*Jaga*) whose main task is to collect taxes. Head of Village also work with the heads of village sections including General Affair, Community Welfare Affair, Government Administration Affair, Development Affair and Financial Affair. The survey revealed that some of these positions are not filled in a few villages, either intentionally or unintentionally. Some Head of Village claimed that the village does not have

qualified personnel for the positions, and other confessed that the positions are not filled because the fund for the positions disappeared.

The detailed socio-economic survey included an analysis of the leadership of Head of Village using indicators of: 1) the level of his/her understanding in the mission/vision of government, 2) the degree of his/her understanding in the management system of village government and decentralization, 3) the ability to explain his/her village development plans and implementations. The Study Team concluded that leadership, the level of his/her education and incentives are directly proportional. Higher their final education, the head tends to show better leadership. Also, a head possess a strong leadership when he/she possesses skills in finding monetary compensations and physical aid for village programs.

4.2.4.2 Local Organizations

A number of local organizations that are established through both government interventions and people initiatives exist in the target villages as shown below.

List of Local Organizations in Community

Local Name	English Name	Remarks
Kelompok Tani	Farmers' Groups	All target villages have several farmers'/fishermen's groups. Some villages have a farmers' group focusing on conservation as GMPLH (Community Campaign for Environmental Conservation). Farmers' groups in general suffer from chronicle shortage of fund.
PKK	Family Welfare Program	All target villages have a PKK headed by a wife of Head of Village. PKK in general are active in implementing various programs.
KUD and non-KUD	Village Cooperative	Most village cooperatives function as a small store for farm inputs, or do not operate at all. Its function is limited since a large portion of farmer population is not a member.
___	Church Organizations	Church organizations at a community level include BPMJ (Working Board of Congregation Council), BKSAUA (Inter-Religion Cooperation Board).
P3A	Water Users' Association	WUA for irrigation is created by the government but faces a chronicle shortage of fund. Most water users do not participate to the organization, and WUAs are not active in the area.
KWT	Female Farmers' Groups	A few female farmers' groups exist in the most rural villages.

(1) Farmers' Organizations

There are a number of farmers' groups (*Kelompok Tani*) in the community. Each farmers' group has a board, leaders and 20 to 150 members, who hold regular meetings to discuss about their activities. Many farmers' groups have been established since the beginning of the Farm Enterprise Credit Program (KUT) in the late 1990s. This nation-wide governmental program aimed to provide farmers'

groups with the farming capital in the form of credit. According to the program, a group must have more than 20 members and a management structure in order to receive the credit. For this, many farmers' groups were formulated. According to the survey result, a large portion of members did not pay back their credit, and the farmers' groups have faced liquidity. Several survey respondents explained that only limited farmers' groups were able to maintain the credit scheme. After the capital had run out, the farmers' groups have no activities and exist only by its name.

A number of farmers' groups have existed before the KUT Program. Those groups were managed by the fund raised by the members, who pay the membership fees regularly and participate to the general meetings and activities. Their activities vary one group to the other, including the formulation of work plans, collective marketing of farm products, collective farm laboring (*Mapalus*), purchase of agricultural land for collective production, collective management of farm inputs, implementation of technical seminars, rearrangement of fish cages and nets, collective planting activities of estate crops, saving and credit activities.

There are fishermen's groups in the East Area, female farmers' groups in the South Area, and a furniture craftsmen group in Sub-district Eris. All of those organizations implement a regular rotating credit activity (*arisan*) among members. Most farmers' groups suffer from a chronicle shortage of work capital, lack of leadership and members' commitment, according to the survey.

(2) Family Welfare Program (PKK)

Every target village has PKK led by a wife of Head of Village. PKK is established through a national program, composing of female members who aim at the improvement of family welfare and women's participation to the development process. In the Intensive Area, the activeness of PKK groups differs one village to the other. The survey revealed that the activeness and success of PKK heavily depend on the leadership of the board members and technical, political and financial support from the village government.

Popular activities in a PKK group are the rotating saving, gardening, education and support for expectants and mothers, home industry and nation-wide social welfare saving program called TAKESRA. Many TAKESRA programs, according to survey respondents, failed due to the similar reasons with KUT described above.

(3) Village Cooperative (KUD and non-KUD)

Village Cooperative (KUD and non-KUD) is a governmental nation-wide program

to organize farmers. Cooperatives are established to provide farm inputs, conduct marketing, provide farm capital, achieve technical advancement and production management at a village level. The creation of integrated Village Cooperative has been in a halt since the Habibi administration, and village cooperatives exist today are the ones established during the Soeharto regime. New cooperatives are called non-KUD and are divided into different types, such as producer cooperatives, marketing cooperatives, multi-purpose cooperatives and so on. Those cooperatives manage farm input shops, farmers credit, post-harvest processing and marketing. The survey revealed that a few cooperatives are active in the target villages, and majority is inactive due mostly to the lack of fund and leadership.

(4) Church Organizations

Local population considers the existence of church organizations important for their daily lives and has great influence to the welfare and development of the community. In the target villages, the church organizations are arranged in accordance with the religious sectors. The major religious sects in the village are: GMIM (Christian Evangelical Church in Minahasa)[21], Pentecost, Advent, KGPM (Protestant Church Association of Minahasa) and Catholic. GMIM is the largest religious sect in the Intensive Area.

Church, though varies one sector to the other, composes of member groups as its functional bodies. BPMJ (Working Board of Congregation Council) is the decision-making entity for all actions taken by church. Therefore, the board and its members have strong influence over the church and eventually community. BPMJ holds a regular meeting, and the board is relatively well managed in general in accordance with a guideline created by the higher stratum of the church structure.

Most target villages have BKSAUA (Inter-Religion Cooperation Board), which aims to coordinate the church of different sectors. However, the board tends to be dominated the sector of majority.

Most religious sectors have extension churches at a neighborhood level, called *kolon* in the case of GMIM. Each *kolon* has a priest, who organizes worship and other community activities for the church members in a neighbor block. According to the survey, a few *kolon* have implemented conservation-related activities as replanting of trees at private forest and yards.

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[21] GMIM is going to launch a nation-wide program called "One Million Trees," to which all church members participate and plant trees. The program is coordinated with the Forestry Department at a central level in Jakarta, but the details of program have not been socialized yet at the community level.

4.2.4.3 Informal Groups

The detailed socio-economic survey revealed a number of informal groups and collective activities at the community level. Those groups are informal due to the absence of established organizational structure, institutional regulations, bylaws as well as the spontaneous nature of their activities.

Rukun Keluarga (united kinship) is an extremely popular gathering in Minahasa, through which kinship members within seven generations gather at a house and re-confirm their unity. During the gathering, the kinship members organize the rotating saving activity and events as a dinner and dance party. During the survey, the Team observed a high frequency of gathering at the community level, and at least one gathering can be found in a village everyday.

Rukun Desa (united village) and *Rukun Sosial* (social unity) are other forms of *rukun* participated by the members of whole village. The activities and events during the gathering are similar to *Rukun Keluarga*, but they are more organized and somewhat formal than the previous one. Survey respondents pointed out the possible utilization of *rukun* for conservation activities, though it seems that there is no previous cases of *rukun* involved in conservation.

Mapalus is a voluntary mutual aid at the community level, traditionally exists in Minahasa. The survey revealed that *Mapalus* emerges in the forms of *dana sehat* (health fund), *dana social* (social fund), *dana duka* (funeral fund), or *serikat/rukun gotong royon* (united mutual aid). Health fund is a casual health insurance in which the members of community pay a certain amount of money regularly to the fund, and the insurance will cover a part of or whole medical expense of the members in accordance with the guideline agreed by members. The function and operation of social fund, funeral fund and united mutual aid are identical to the health fund, except that the funds cover any emergency expenses for social activities including wedding and funeral. The funds are managed a group of people, usually belong to same church.

Mapalus is also common for collective farming activities and construction. Survey revealed that local people put a great cultural value to *Mapalus*, and the tradition has survived during the modernization process in the area. *Mapalus* has been managed by religious groups, neighboring groups or community organizations as PKK or formers' groups.

BIPRA (Church Board for Fathers, Mothers, Youths, Teenagers and Children) are a religious gathering of church members. Gatherings are organized in accordance

with different gender groups, and participants will join worship activities, sports events and art affairs. Survey respondents mentioned that a few BIPRA have involved in conservation related activities such as planting of trees and gardening.

4.2.4.4 Actual Situation (Venn Diagram and SWOT Analysis)

In order to determine the actual situation of identified community-based organizations and groups in the area, the survey team employed two sets of RRA analytical tools: Venn Diagram and SWOT Analysis. During the group discussions, local leaders produced diagrams (See Attachment-D.4) and matrices following the two methods. The results of analysis can be utilized for the identification of organizational approaches for conservation programs.

The size of circle on Venn Diagram represents local people's perception of the importance of organization, and the size and importance are directly proportional. The distance between each circle represents the intensity of organizational relationship. When the distance of two circles is small, the organizations interact greatly. The arrows are supposed to explain the nature of organizational relationship, for example one control the other or equally support each other. However, the meaning of arrows seems not to have been understood by the participants of group discussions due mainly to the complexity of concept.

Based on the series of Venn Diagram from 7 Sub-districts, most important community-based organizations/groups are LKMD (Village Community Resistance Institution), church organizations and Family Welfare Program (PKK). In addition to the three organizations and institutions above, farmers' groups and village cooperatives are identified as important ones in a few sub-districts.

In terms of the organizational relationships, the community members interact with the organizations and institutions that are identified as important for them. Further, the agricultural organizations and groups (village cooperatives, farmers' groups and others) maintain their close relationships because they usually share several leaders and members. Administrative organizations (village government and LKMD) seem to have an intimate organizational relationship with Family Welfare Program (PKK) because a head of PKK is a wife of village chief by regulation.

SWOT Analysis is a collective and systemic reflection of both internal and external situations of an organization. SWOT stands for Strengths, Weaknesses, Opportunities and Threats, representing various aspects for the evaluation of organizations. SWOT Analysis helps to identify strategic options for an organization, in this case an organizational choice for the conservation of Tondano

Watershed. The table below summarizes the result of SWOT Analysis conducted at 7 sub-districts.

Result of SWOT Analysis (Summary)

Organization	Strength	Weakness	Opportunity	Threat
LKMD/BPD	- Legitimacy - Appropriate personnel - Clear work scope and regulations - High morale - Democratic management - Availability of equipment	- Improper facilities - Inappropriate personnel - Lack of fund - Inappropriate compensations - Conflict among members - Top-down management style	- Support from gov't - Support and participation from community members - Discretion - Strong influence to the community	- Lack of support from community members - Controlled by government - Lack of programs - Poverty among members - No sanction regulation for misconducts
PKK	- Legitimacy - Appropriate personnel - High morale and commitment of members - Unity of members - Consistency of activities - Good communication - Increasing membership - Training opportunities	- Improper facilities - Inappropriate personnel - Lack of fund - Dependency - Inconsistency of activities - Lack of coordination with other groups - Lack of women's skills	- Support from gov't - Support and participation from community - Discretion - High social status as members - Additional fund - Popularity of women' rights	- Controlled by government - Lack of support from community members - Lack of training opportunities - Lack of women's time - Disinterest of young generations
Farmers' groups	- Legitimacy - Clear objectives - Solidarity - High morale - Strong leadership - Adequate coordination with other groups - Availability of equipment - Democratic management	- Improper facilities - Inappropriate personnel - Lack of fund - Lack of skills and knowledge - Inconsistency of activities - Low participation of members - Discrepancy between board and members	- Tradition of mutual aid - High expectation - Economic growth - Market potential and decreasing farm input prices - New technologies - Credit programs - Abundant natural resources and land - Independence	- Lack of market opportunities - Lack of technical support from government - Instability of production - Attitude of farmers not repaying their loans - Poverty
Cooperatives	- Legitimacy - Active management - Adequate coordination with other groups - Established organizational structure - Independence	- Inactive management and monitoring - Improper facilities - Inappropriate personnel - Lack of fund - Unclear work scope - Lack of coordination with other groups - Discrepancy between board and members - Insufficient membership	- High demand for farm inputs - Credit programs - Independence	- Inadequate support from community - Decreasing expectation and enthusiasm - Attitude of farmers not repaying their loans
PPL	- Availability of facility and equipment - Availability of financial compensations for officers	- Office being outside the village - Infrequent visitations - Lack of discipline of personnel	- Support from the government - High demand	- Decreasing expectation and enthusiasm
Church groups	- Availability of facility - Clear organizational structure - Unity - Consistency of activities and length of history - Ability to implement incentive programs	- Improper facilities - Inappropriate personnel - Lack of fund - Lack of skills and knowledge - Discrepancy between board and members - Dogmatism	- Support and participation from community - Support from higher congregates - Discretion	- Inadequate support from community - Inconsistent support for congregates - Poverty - Members disinterests - Fanaticism
Informal social groups	- Unity and solidarity - Voluntarism - Programs with long history	- Improper facilities and equipment - Lack of fund - Lack of skills and knowledge - Discrepancy between leaders and participants	- Support and participation from community - Support from village government - Past experiences - High demand and expectation	- Modernization - Population drifting away to larger cities - Poverty

As seen in the table, there are a few contradicting results of the analysis (for example, Strength is appropriate personnel while Weakness is inappropriate personnel). A part of inconsistency is derived from the local difference and complex nature of

organizations. For example, a part of the personnel in the organization might be appropriate, while not whole human resources are appropriate in the organization. The contradiction can be also explained from the viewpoint of the variety of perceptions of local people, including favoritism and political intension. The analysis might be reflecting the different personal and political interests among survey respondents.

4.2.5 Gender

Research items and analytical activities are included in the survey to determine the actual conditions of gender relations in the area. It was proceeded based on the assumption that gender relations play key roles in the watershed management and conservation. In this connection, the gender equality (labor distribution, participation and access and control) in the target community were examined because the implementation of recommended sustainable land use plan, when implemented, would affect and be affected by the gender relations which eventually change of socio-economic settings of the area.

4.2.5.1 Labor Distribution

One of the key indicators of gender relation is the distribution of labor among various gender groups. For this survey, two gender groups, men and women, are selected, and questions with regards to labor division were asked during the semi-structured interviews. The result is summarized, as shown below.

Typical Daily Activities by Women and Men

Time	Women	Men
Morning 5:00 – 11:00	- Wake up at 5:00 and prepare breakfast - Send children to school - Go to a market to buy/sell food - House chores as fetching water, washing, ironing and cleaning	- Wake up at 6:00 and fetch water - Help preparing breakfast - Cleaning yard and feeding livestock - Go to work or farm
Noon 11:00 – 14:00	- Go to farm, yard, market or small shop for business - Continue house chores when necessary - Prepare lunch - Take a rest	- Continue work - Take a rest
Afternoon – Evening 14:00 – 22:00	- Continue house chores when necessary - Go to farm and collecting fuel wood - Feeding livestock - Prepare dinner and educate children - Community activities as participating rotating credit association (*arisan*) and *rukun* - Worship - Watching TV - Go to bed at 21:00	- Continue work - Go to farm and collecting fuel wood - Feeding livestock - Community activities as participating community meetings, rotating credit association (*arisan*) and *rukun* - Worship - Help house chores - Watching TV - Go to bed at 23:00

Contrary to the findings in Section 4.2.2.8 arguing that women in general posses less awareness towards conservation due to their lacking interaction with natural resources, the table shows that women in the area actually interact with key resources as water resources, soil at agricultural land, fuel wood and livestock. Most women involved fetching water, farming and processing, collecting fuel wood collection and taking care of domestic animals not as a primary executer but collaborator for male household members. They are exposed to their environment, which enables them to observe the degradation and depletion of natural resources and affecting factors. The reason for the contradicting results needs further investigation in the future.

4.2.5.2 Access and Control

Another indicator for gender relation is "who has the access to key resources/activities within the community, and who makes decisions on the management of those resources and activities." For this, Access and Control Analysis was executed during RRA.

Access and Control by Women and Men (Unit: %)

Item	Access		Control		Supporting Factor	Hindering Factor
	F	M	F	M		
Capital	60	74	82	58	Government assistance, existence of credit programs, income generation activities,	Complex application process, high interest rates, no collateral or initial capital, inflexible credit schedule,
Farming	64	84	62	76	Traditional mutual aid, availability of farm inputs, marketing as women's responsibility,	Lack of capital, farm inputs and vehicles,
Farming Technology	64	82	63	83	Availability of advanced technology and farm inputs, high expectation,	Lack of capital and means,
Labor	65	83	80	60	Strong willingness to work, skills	Lack of qualifications and fund, inadequate physical capability,
Water Resources	65	75	85	55	Existence of infrastructure,	Inappropriate infrastructure and maintenance fund, instable climate, scarcity of sources
Re-Greening	78	85	60	85	Existence of projects, high motivation of local people, traditional value, high awareness	Lack of fund, ineffective distribution process, disinterests,
Fuel Wood	82	70	83	57	Economic incentives, easy access to wood and vendors, availability of other alternatives as a kerosene stove,	Inadequate transportation means,
Education	68	72	85	66	Availability of scholarship, infrastructure and materials,	School fee, lack of time, distance to school,
Information/ Informal Education	64	76	67	74	Existence of training programs, media (TV, radio, news papers),	Limited training facilities, fund and equipments, lack of communication infrastructure, passive attitude of local people, unavailable women's time, training cost,
Medical Services	68	76	88	54	Existence of clinics, medical personnel and pharmacy, relatively active extension services, availability of herbal medicine,	Unsanitary environment, insufficient medical equipment and field check-ups,
Politics	68	80	68	81	Supportive leaders, gender equality promotion, supportive husbands and fathers,	Unavailability of women's time, prejudice,
Total	68	78	75	68		

Note: F = Female, M = Male

Access and Control Analysis is one of the gender analysis tools to evaluate the

equality among gender groups by looking at the choices available for each gender group. The table shows the result of analysis, and the numbers in the boxes represent the percentages of population who has a easy access and decision-making power among relevant population[22].

As a sum, 68% of relevant female population in total at the target villages has fairly easy access to various sources and activities whereas 78% for male. With regards to control, 75% of female makes decisions, while 68% for male. The result shows that the mobility and activity of female population is restricted in the Intensive Area, due most probably to the reproductive responsibility of women while their decision-making power within the household is high. This can be clearly in the case of "education." The survey result shows that women do not have an easy access to an educational opportunity probably outside their houses, although they make decisions with regards to the education of family members. It is because educating family members is considered a reproductive activity while educating themselves is to become a productive labor force, which is considered a productive activity.

Women dominate the control aspects of financial and physical resource management. It implies that women in the area are respected to be capable in managing daily activities, and they actually make decisions, possibly with their male partners. With the combination with the low accessibility to the resources, the result delineate clearly the typical Southeast Asian patriarchal society where public sphere of community is dominated by male population while female plays key roles in a private sphere.

The result suggests two critical propositions. First, women could not be an effective contributor for conservation when it is too public oriented. Secondly, women could not be empowered when the conservation activities are inapproachable for women. To make activities easy to access for women, planners and implementers must pay great attention to the cultural restriction of women in the public space. In Minahasa, the restriction is especially difficult to recognize because it is intangible.

4.2.5.3 Participation

"Participation Analysis" is another tool of gender analysis aiming to understand the detailed arrangement of women's participation to various daily activities.

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[22] The term "relevant population" was abstractedly defined during the analysis as "a group of people who are within the age range that is culturally considered appropriate for the management and control of those resources and activities."

Participation Analysis revealed the real dynamics of women's livelihood, as shown in the table below.

Form of Participation of Women

Items	Description	Form of Participation				
		Decision Maker	Labor	Fund provider	Material supplier	Info. provider
Org.	PKK, farmers' group, church group, political party, social group (arisan)	A	A^-	A	B^-	B
Farming	Harvesting, crop selection, planting, maintenance, processing, marketing, cooking for farm laborers,	B	A	C	B^-	B
Fuel Wood	Searching, collecting, drying, selling and buying, using for cooking	C	A	C	C^-	C^-
Education	Education at home, schooling, teaching children domestic work	B	A	A^-	C	A
Medical Services	Daily healthcare, extension services, caring sick child, cleaning, growing herbs	B	A	A^-	D	B
House Keeping	Cooking, childcare, gardening, budgeting, animal husbandry, washing, tailoring, organizing party cleaning, home industry & business	A	A	A^-	B	A

Note: The extents that women carry the role are ranked in A to D as: A = All women participated, A^- = Almost all of women participated, B =Many women participated, B^- = Some women participated, C = A few women participated, C^- = Almost no women participated, D = No women participated.

Being a laborer is the most common form of participation for women who participated in the items identified above. Even they participate to those activities, their participations as a decision-maker are limited to particular women, except in the cases of organization and house keeping. This finding implies the lack of women's empowerment in the area, although they are relatively free to participate to daily activities as a laborer.

The functions of women as an information/knowledge provider seems to be limited to selected women during the participation to organizations, farming, fuel wood related activities and medical services. It may be attributed from the lack of women's information, but also from the lack of their realization that their knowledge is a valuable and viable input for those activities. Women may have been participating to those activities as an information provider without recognizing it.

4.2.5.4 Women's Needs

Women's priority was analyzed to determine their needs. An RRA tool called Ten

Stones Analysis was employed for this during the group discussions, and the result summary is shown in the following table.

Women' Needs – Ten Stone Analysis

Rank	Item	East Area		E&W	West Area		South	Total
		Eris	Toul.	Kakas	Rmb.	Tond.	Lang.	
1	Capital	0000000000	0000000000	0000000000	0000000000	000000000	0000000000	**59**
2	Health	0000000000	000000000	0000000	0000000000	0000000000	0000000	**52**
3	Education	0000000000	00000000	0000000000	0000000	00000000	0000000	**50**
4	Skill	00000000	0000000	0000000	0000000	000000000	000000	**44**
5	Drinking Water	0000000000	000000000	-	0000000000	-	0000000000	**39**
6	Organization	00000000	-	00000000	0000000	00000000	00000	**36**
7	Economic opportunity	00000000	000000000	-	-	00000000	00000000	**33**
8	Agricultural tools and technology	00000000	-	000000000	-	0000000	00000000	**32**
9	Natural resource conservation	-	0000000	000000000	-	-	00000000	**24**
10	Fuel wood or fuel	-	-	0000000	000000000	-	0000000	**23**
11	Labor	00000000	-	0000000	0000000	-	-	**22**
12	Agriculture	-	-	000000000	000000000	-	-	**18**
13	Transportation and road	-	0000000	-	-	-	00000000	**15**
14	Agricultural extension	-	-	-	-	00000000	000000	**14**
14	Technology	-	-	-	0000000	-	0000000	**14**
	Food	-	000000000	-	-	-	-	**9**
	Housing	-	000000000	-	-	-	-	**9**
	Family basic necessity	-	-	-	-	000000000	-	**9**
	Irrigation	-	-	-	-	-	00000000	**8**
	Time division	-	-	-	-	-	00000000	**8**
	Waste can	-	-	-	-	-	000000	**6**
	Security	-	000000	-	-	-	-	**6**
	Clothing	-	00000	-	-	-	-	**5**
	Animal	-	-	-	-	-	00000	**5**
	Telephone	-	-	-	-	-	000	**3**

Female participants in all sub-districts selected capital as the highest priority, which earned 9.8 points on average. According to the local people, capital could improve the household activities, including agriculture, business and education for children.

Most women desire additional incomes and income stability.

Health was placed in the second priority at the average of 8.6 points. Women recognize the necessity of healthy conditions for their family members in order to carry out their activities, and usually women pay great attention. The third and forth priorities are education and skills at the average scored 8.3 and 7.3 points respectively. According to the respondents, women in the area in general are eager to try new things to develop and improve their personal potentials. However, women claimed that the capability of women and access to education and skill training at present are inappropriate.

The fifth needs is drinking water because it is believed to be the primarily source of basic activities for women and family members. The sixth priority is organizations for agriculture and social activities. Women are aware of the importance of organizations or cooperatives for their survival within the society that would broaden the viewpoints of women in the area. The seventh priority is economic opportunities in the agricultural and non-agricultural sectors, through which the additional income would be gained from business activities and economic enterprises.

The eighth priority is agricultural tools and agricultural technology which are believed to facilitate plantation activities. Next priority is the natural resource conservation, which includes reforestation and the conservation of land. At the tenth, fuel wood is selected because it has a significant effect on the household expensive as well as the forest conservation.

4.2.6 Farmers' Needs

Ten Stones Analysis was also employed to identify men's needs during the group discussions in the target sub-districts. The scores and ranks in the following table represent the comprehensive priority of farmer's needs within the Intensive Area.

Farmers' Needs – Ten Stone Analysis

Rank	Item	East Area		E&W	West Area		South Area		Total
		Eris	Toul.	Kakas	Rmb.	Tond.	Lang.	Tomp.	
1	Capital	0000000000	000000	0000000000	0000000000	000000000	0000000000	000000000	**65**
2	Farm inputs	000000	0000000	00000000	000000	0000000	000000	0000000	**54**
3	Education	000000000	0000000	-	00000	0000000	0000000	0000000	**47**
4	Drinking water	0000000	00000	-	00000000	00000	0000000	0000000	**45**
5	Primary Seed	-	0000000	0000000	0000000	000000	00000	-	**36**
6	Road	-	000000	0000000	00000	0000000	00000	-	**35**
7	Health	-	000000	-	0000000	000000	00000	00000	**33**
8	Reforestation	000000	000000	-	-	00000	0000000	-	**29**
9	Irrigation	0000000	-	00000	0000000	00000	-	-	**28**
10	Livestock	000000	000000	-	-	-	0000	000000	**25**
11	Product marketing	-	0000	0000	00000	-	-	00000	**19**
12	Extension services	00000	-	00000	0000000	-	-	-	**18**
13	Economic enterprise	-	-	00000	-	-	-	0000000	**14**
14	Communication	00000	-	-	-	-	-	000000	**12**
15	Post harvest process for fishery product	0000000	-	-	-	-	-	-	**8**
15	Cow breeding	-	-	-	-	0000000	-	-	**8**
17	Fry for fish cultivation	-	-	-	-	000000	-	-	**7**
18	Labor	-	00000	-	-	-	-	-	**6**
18	Ditch	-	-	-	-	00000	-	-	**6**
18	Motor Boat	-	-	-	-	00000	-	-	**6**
18	Land	-	-	-	-	-	-	00000	**6**
22	Clothes	-	-	-	-	-	-	00000	**5**
22	Equip. for Furniture	00000	-	-	-	-	-	-	**5**
24	Entertainment	-	-	-	-	-	-	000	**3**
24	Housing	-	-	-	-	-	-	000	**3**
26	Electricity	-	-	-	-	-	-	00	**2**

Same as the case of women, farmers' highest priority is capital as well. Participants in the group discussions in all sub-districts pointed out that this item has a high priority, and the score for Ten Stone average 9.3 points out of 10, which means that farmers frequently suffer from the inappropriate availability of capital to fulfill their needs for farming and other productive activities. The lack of capital is caused by the unstable farm gate prices of farm products, limited fund for loans, high interest rate, and the

difficult regulations for bank lending, according to farmers.

The second priority is farm inputs, including farming tools, facilities, fertilizers and pesticides. According to farmers, agricultural facilities and equipment are not widely available because the price and rental fees for machinery and processing facilities are expensive. It is expected that the machinery and facilities will facilitate agricultural businesses through reducing the cost and duration of farming activities. Fertilizers are needed for the satisfactory production level and maintenance of fertility, and pesticides are required to prevent pests and diseases.

Formal and informal education has placed in the third priority, and respondents stated that a numbers of facilities and teachers are limited comparing with the high number of students and the distinguished level interests for education at the community level.

The forth priority is drinking water. The conditions of drinking water vary from one village to the other, and survey respondents mentioned that: the water supply system is often out of order or has not reached yet to all villagers, wells dried up during the dry season that forces people to use water from rivers or the lake, and the quality of drinking water is poor even though the quantity is sufficient.

The fifth priority is primary seeds for agriculture, in the context where they are expensive, often hard to get and in the unsuitable quality. Next priority is road restoration to accelerate the transportation of agricultural products. Seventh priority is health. Because of the lack of facilities, inadequate medical workers and expensive medicines, the improvement health related matters have been needed.

The eighth is reforestation at the agricultural land, private forest and waterfront area. The reason of the high demand for reforestation is that valuable woods are in shortage within the area, since the seedlings are expensive and occasionally unavailable. In addition, there are no extension services on reforestation in spite of the insufficient knowledge of local people with regards to reforestation techniques. For instance, many trees died because the plantation by farmers was done during a wrong season.

During the group discussions, farmers pointed out that irrigation facilities for paddy cultivation were one of their needs. Irrigation is also good for the rehabilitation and prevention of soil erosion, according to the survey respondents. Another need is livestock for additional income, and farmers are facing problems of inadequate knowledge in diseases, unavailability of medicine and shortages of fodder for domestic animals. Marketing of farm products is the next, since the cooperatives are unable to control the production to stabilize the market prices, which allows some distributors and middlemen to abuse farmers by pressing down the farm gate prices.

Extension services are also needed while exists the inadequate frequency of extension worker's visits, improper service materials and inappropriate knowledge and skill of extension workers.

The comparison of the indispensability between men and women shows table below.

Ten Stone Analysis – Comparison between Women and Men

Rank	Women	Men
1	Capital	Capital
2	Health	Farm inputs
3	Education	Education
4	Skill	Drinking water
5	Drinking water	Primary Seed
6	Organization	Road
7	Economic chance	Health
8	Agricultural tools and technology	Reforestation
9	Natural resource conservation	Irrigation
10	Fuel wood or fuel	Livestock
11	Labor	Product marketing
12	Agriculture	Extension services
13	Transportation and road	Economic enterprise
14	Agricultural extension	Communication
15	Technology	Post harvest process for fishery products
15	Food	Cow breeding

The most pressing need identified both women and men was capital. They noted that the capital is the most critical yet lacking item in the area for managing and developing various undertakings in the framework of economic improvement of family income. Other issues with a high priority identified by both women and men were education, drinking water and agriculture for their basic needs.

A clear difference between women and men can be found in the second priority, where men pointed out that farm inputs while women chose health. On the contrary, men selected health for the seventh priority and women define farming tools as the eighth. Also, only men mentioned the needs of primary seed, irrigation and reforestation, while only women pointed out the needs of skills, organizations, fuel wood and labor as their priorities.

When farmers were asked what kind of crops they would like to plant in the future, farmers were able to mention crops that they are cultivating at present. It implies that farmers do not have enough information about species and varieties that would generate more income. The reasons for farmers having inappropriate information about valuable crops are still inconclusive, but it may be attributed from the improper agricultural extension services and lack of communication infrastructure. It might also be derived from the fact that the farmers' available capital is so limited that they are unable to explore new crops that might have a higher risk of failure. The

conservative mentality of farmers also might affect the hesitation towards now crops.

The survey also intended to identify people's needs related to natural resources. The people's needs on natural resources are examined through determining their priority on various natural resources for domestic use and income of local people. The labor requirement for the maintenance and utilization of those items are also discussed during the group discussion. The table below is the summary of analysis, and see Table D.4.2.5 for more comprehensive result of Natural Resource Ranking.

Natural Resource Ranking

Rank	For Domestic Use	For Income	Labor Requirement
1st	Spring		Lake
2nd	Tree	Lake, Spring, Tree	Clove
3rd	Lake		Spring, Tree
4th	River	Clove	
5th	Bamboo	River	River
6th	Bush	Bamboo	Bamboo
7th	Paddy and estates, Sugar Palm	Sugar Palm	Sugar Palm

During the identification of their priority, the several types of natural resources were selected such as a lake, spring, tree, river, bush, clove, paddy fields, coffee, fruits and vanilla. Moreover, several forest products are mentioned as a sugar palm, honey, stone, sand, coconut, wild animal, banana, rattan and mushroom.

Among them, a spring earned the highest priority for domestic activities for drinking, washing, bathing and for a toilet. Second, trees are considered an important resource for fuel wood, construction and conservation. Tondano Lake and a river are valuable for domestic activities. Fifth rank is a bamboo, which is utilized for construction and fuel wood. Local people also use a bush for animal food, fuel wood, conservation, erosion control, fertilizer and roof.

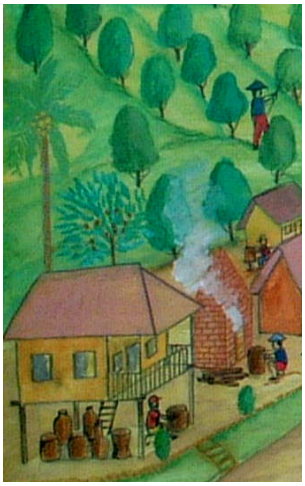
The ranking table shows that the natural resources with high value for their income are a lake, spring and tree. The lake is for tourism and fish culture, a spring is for irrigation, and trees are used for furniture and industrial material. Cloves are another important source for income. The fruits are used as a spice medicine, and old trees can be fuel wood. Another valuable natural resources for earning income are a river for irrigation, bamboo for handicraft and water pipes and sugar palm for *Saguer*, red sugar, *Captikus* and brooms.

Based on the group discussions, large manpower is required for the maintenance and utilization of the lake, which accommodates carps and *Tilapia* in bamboo baskets and floating nets. Labor is also required for the maintenance of the lake itself, for instance reforestation, terracing, fixing of check dam and ditches, cleaning of water

hyacinths and handling of domestic disposals. Clove has placed at the second rank for plantation and conservation. The third ranks of are a spring and tree followed by a river, all of which require conservation activities such as re-greening, cleaning, construction works.

4.2.7 Problems and Constraints in Community

4.2.7.1 Inappropriate Awareness and Knowledge on Conservation



Lack of Education

After the socio-economic survey, the JICA Study Team found out that many people in the community possesses a certain level of awareness and knowledge about environmental problems and conservation, but their awareness tends to be excessively simplified and biased. For example, even though local people talk about deforestation in the protection forest, many of them, especially women, do not know the location and boundary of the protection forest. Also, the survey revealed that people in the community have an inappropriate attitude towards lake water conservation. Local people emit solid and liquid domestic wastes to the lake without thinking about the consequences. The water hyacinth habitant has been increasing at the lake due to the deteriorated water quality.

Those findings imply the lack of campaign on the restrictions and importance of natural resource conservation as well as environmental education about proper conservation practices.

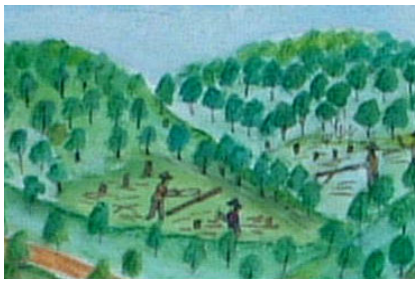
4.2.7.2 Absence of Long-Term Conservation Perspectives

Clearing under clove trees

Despite of the steep-sloped topography in certain areas, many farmers continue to use improper soil conservation methods, especially for clove cultivation. When the price of cloves is high, clove farmers tend to clear under the clove trees the land to maximize their economic benefit through picking up the fallen fruits. The land clearing would cause soil erosion.

Many clove farmers in the area share a shortsighted investor's mind due to the "high risk, high return" nature of clove

production. Long-term investment for conservation is an unfamiliar idea for many clove farmers. Long-term conservation perspectives at a community level are difficult to emerge when the prospect of local economy is uncertain.



Short-sightedness

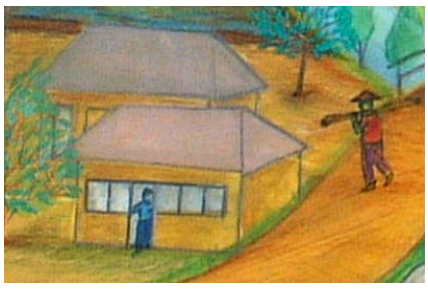
4.2.7.3 Inappropriate Socio-Economic Environment to Support Community-Based Groups

In the Intensive Area, community-based organizations and groups commonly lack financial and human resources for management. It is because of the lack of both internal and external supports for the capacity building of organizations and groups. The survey has found out that even though the sense of cohesiveness within a community is strong, the thrust to organize the community and create solid community-based institutions for collective solutions is missing. It is derived from many factors, including inappropriate awareness and knowledge on conservation, lack of socio-economic resources in the community and external inputs.

Weak Organizations

4.2.7.4 Pessimism towards Government

During the survey, respondents illustrated the reforestation activities that were initiated by the government as "top-down." According to their explanations, the reforestation activities in the area did not include local people during planning, and there was no socialization components attached to reforestation. As a consequence, local people do not possess appropriate information about the rationale, expectation and purpose of the activities. Many local people stated that they are afraid of government officials from the forestry services because they are too formal.

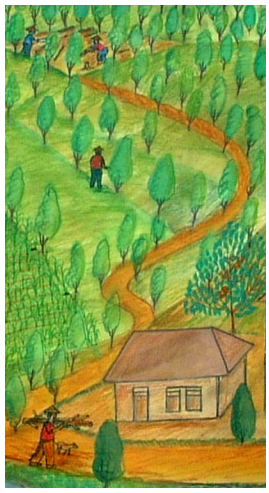


Government formalities

4.2.7.5 Improper Collective Initiatives for Conservation

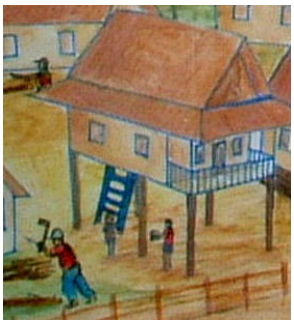
There are no explicit community-based natural resource management mechanisms or rules in the Intensive Area. The absence of management mechanisms and rules at the community level is attributed from the weakened customary laws for conservation, inappropriate sense of natural resources as their common good and lack of strategic inputs as funding for regulative undertakings or leadership training. For example, the sense of private forest as a collective property has already diminished, and individualistic exploitation of forest governs the sporadic forest management.

Weak sense of forest as a common good



The absence of explicit mechanisms and rules

4.2.7.6 Economic Instability and Inadequate Social Safety Net



High Social Risks

A problem in the Intensive Area is the instability of local economy, mainly caused by the instability of prices of agricultural products. The relationship between the unsteady economy and natural resource degradation in the area is still inconclusive, but it is reasonable to think that local people have difficulty in making a long-term conservation plan when the economic prospect is uncertain. In addition, a socio-economic survey targeted on illegal cultivators in the protection forest from Ampreng village[23], which were conducted separately from RRA, revealed that some farmers became illegal cultivators because they lost their land due to an emergency expense, which could be dealt with social welfare. The lack of social safety net and job security forced them to become a landless and cultivate inside the protection forest.

[23] *See Attachment-D.6.*

4.2.7.7 Insufficient Farming Capital

Insufficient farming capital

Traditional farming technologies, inefficient market mechanisms and rudimental production arrangement hinder the improvement of agricultural productivity in the area. Based on the socio-economic survey, insufficient farming capital is the root cause of these outcomes. The low productivity eventually drives local people to excessively exploit forest and other natural resources in order to support their livelihood, and the exploitation increasingly becomes unsustainable. Insufficient farming capital is the sign of lacking external inputs for agriculture in the area.

4.2.7.8 Lack of Women's Empowerment

One of the constraints for the degradation of woody land is the lack of women's participate to natural conservation activities in this area. Even though women are the main consumers of some natural resources as fuel wood and spring water, the survey revealed that women in general have restricted interactions with natural resources and improper awareness, knowledge and attitudes for conservation.

4.3 Community Empowerment Plan

4.3.1 Basic Approach

The ultimate goal of watershed conservation is to ensure the long-term welfare of communities. It implies, on one hand, the importance of the community members to contribute to the watershed conservation as beneficiaries. On the other hand, as a driving force, the community members are called for active participation in community-based natural resource management and problem solving. The detailed socio-economic survey has found out the various constraints faced by the community to become a contributor and executor of watershed conservation, as explained previously. To overcome the constraints, community needs to be empowered.

For that reason, the JICA Study Team formulated a community empowerment plan as a part of WACSLU. From the outset, it is important to note that external stimulus, not only physical inputs but also technologies and incentives, are necessary to empower the community in the watershed, given the fact that community exists in the significantly constrained environment. For this, government institutions and civil servants must play key roles for the provision of the stimulus. Government agencies, however, have their own limitations. At present, they do not particularly have an

effective mechanism and means for approaching to communities directly. To reach local people and empower them, NGOs, academics, consultants and international supporters need to be mobilized. The involvement of those private parties and individuals is crucial as a catalyst between the government and community. This section outlines the proposed community empowerment plan.The objective of community empowerment plan as a whole is ***to develop the capability of community to be able to improve its sustainable land use and community-based natural resource management***. The plan consists of six components: 1) micro planning for sustainable land use, 2) awareness raising and environmental education, 3) organizing local people and reorientation of officials, 4) strengthening of social safety net, 5) gender and conservation and 6) monitoring and evaluation.

As a scheme to implement the community empowerment plan, the JICA Study Team proposes a pilot project. The duration of the implementation of proposed pilot project is four years (See Section 4.7.8 for Implementation Schedule) with the estimated total cost for four years is Rp. 10,634,385,000. 6 villages should be the selected as pilot sites for the implementation. The rationale for the length and scale of the pilot project, including the number of target villages can be explained from the technical point of view. The pilot project with the proposed length and scale has its advantage for the development of methodology, approach and most importantly, human resources, all of which are inadequate in the context at present. A four-year, six-village with approximately ten billion Rupiah project is a manageable and practical one to maximize the advantage of a pilot project.

Two villages from the East, South and West Areas respectively should be the appropriate arrangement for the target villages. The recommended selection criteria for pilot villages are:

1) The access to/size of forest areas,
2) The existence of other related implementations, such as the community forestry (*hutan kemasyarakatan*) in Ampreng village,
3) The consumption level of fuel wood, such as the one in Pulutan village,
4) The level of village leader's interest in the implementation. For this, a public meeting with village leaders should be organized.

The selection of target villages can be politically sensitive; thus needs to be consulted with appropriate personnel from related governments and local communities.

The number of target population depends on the populations in the target villages, but a typical village in the Intensive Area is composed of approximately 1,500 people with 450 households. Based on this, the target beneficiaries of implementation are

expected to be approximately 9,000 or 2,700 households.

As a key external input, one full-time international consultant will be assigned as a community empowerment specialist to oversee the implementation. For other specialists, experts from academics, NGOs and governmental institutions should be considered. Research institutions, NGOs and governmental organizations can be involved in the implementation not only as a provider of specialists but also an implementing entity per se. For example, those institutions can subcontract with the project team and carry out some of the activities in the plan, such as conducting training sessions for village cadres, organizing public meetings, facilitating community-based groups and providing technical support for micro realization and awareness raising activities, all of which are described later in this section.

The approach and learning of pilot project ought to be applied to other villages in the future, and the impact of pilot project shall be eventually extended to the whole community within the Study Area and beyond. Therefore, it is important to consider an information exchange activities with the population in other villages during the pilot project. Site visits, the creation of manuals and technical papers, campaign programs and training sessions are the possible activities for this. Government officials who are trained during the pilot project will lead the extension and wider promotion of community empowerment to villages other than the six pilot villages. They, as technical consultants, will use skills, know-how and materials developed during the pilot project. The extension should be completed within 8 years after the expiration of pilot project, and its cost is included in the maintenance cost (approximately 1,782 million Rupiah).

4.3.2 Micro Planning for Sustainable Land Use

(1) Background

As it was pointed out in the previous section, the detailed socio-economic survey has found that one of the present problems at a community level is the absence of strategic natural resource management led by local population. Without strategic management at a grassroots level, the conditions of watershed is doomed to be deteriorated further. Micro planning is an advantageous venue to strengthen the capability of community for local appraisal and strategic management at a community level.

(2) Objective

To strengthen the capability of community to assess their environmental conditions

and formulate a community-based plan for watershed conservation, and to establish the network with external donors/supporters to whom the plan will be presented.

(3) Scope

- Formulate a village committee for micro planning
- Select and train village cadres who will prepare a community-based conservation plan
- Conduct a simple and participatory local appraisal in each target village, using a method as Rapid Rural Appraisal or Participatory Rural Appraisal
- Prepare the plan using a participatory planning method as ZOPP, Project Cycle Management or Action Planning
- Mobilize NGOs, universities and government agencies to establish a network with external donors and supporters and present the plan to them

(4) Major Input

1) Community Empowerment Specialist, 2) Community Organizer, 3) Participatory Planning Specialist, 4) Gender Specialist, 5) Forestry Specialist, 6) Agriculture/Agroforestry Specialist, and 7) Operation Cost

4.3.3 Awareness Raising and Environmental Education

(1) Background

The detailed socio-economic survey revealed that one of the major constraints in promoting sustainable land use in Tondano watershed is the inappropriate awareness, knowledge and attitudes of local population towards conservation. For the voluntary actions and discipline towards conservation to emerge from the people, painstaking and continuous awareness raising and environmental education are needed. Awareness raising and environmental education must also be a field-oriented process, and the learning from the activities should be compiled for the future extension of the project. Therefore, NGOs and religious groups who are effective in reaching local people must be actively involved and mobilized. Schools in the area are continuously seeking special programs and external funds for their extra curriculum, thus have a potential to be a key actor in the implementation. Media, such as local newspapers and radio/TV broadcasters are also looking for the sources of special programs and funds. It is an opportunity to maximize media's ability for the campaign of WACSLU.

(2) Objective

To nurture among target population adequate awareness and knowledge about environmental issues in the watershed, and to develop people's enthusiasm and willingness for the advancement of WACSLU.

(3) Scope

- Develop environmental education materials, or select existing materials when available
- Prepare a plan for campaign program
- Establish a network with mass media, schools, churches, NGOs, indigenous organizations and governmental institutions for campaign and mobilize them
- Train village cadres who will organize environmental events, group discussions, art caravans and environmental contests supported by the parties above
- Ensure the environmental education to be a part of school curriculum

(4) Major Input

1) Community Empowerment Specialist, 2) Community Organizer, 3) Environmental Education Specialist, and 4) Operation Cost

4.3.4 Organizing of Local People and Reorienting of Officials

(1) Background

The detailed socio-economic survey points out that the sense of natural resources as common goods has been fading away as the society becomes modernized. The modernization process weakened customary laws and traditional cohesiveness of communities, and no other norms for conservation replaced the old ones. To revitalize the collective actions should give a positive impact on conservation; for example, clove farmers organize themselves to lessen the instability of clove cultivation, which in turn would provide a long-term perspective for soil conservation.

The detailed socio-economic survey also revealed an inadequate relationship between the Forestry Service Office and local people. Personnel from the Office and the organization as a whole must be reorient to be a part of community solutions. The forestry service with local governments should be involved in the process of creation/strengthening of community groups to be able to promote social forestry more effectively.

(2) Objective

To strengthen collective actions for the community-based promotion of sustainable land use, and to transform the frame of mind of related officials to be able to communicate and negotiate strategically with local people for alliance building.

(3) Scope

- Train the selected village cadres on organizational behavior and intercultural communication
- Organize a series of village-level public meetings facilitated by the village cadres to discuss with officials about local issues related to watershed conservation
- Establish/revitalize both formal and informal groups/organizations for natural resource management. The responsibility, accountability, beneficiaries and benefactors of the community-based conservation should be clearly identified and understood by local people
- Prepare an action plan based on the WACSLU micro plan
- Prepare sufficient resources for the implementation of action plan
- Implement the micro realization proposed in action plan

(4) Major Input

1) Community Empowerment Specialist, 2) Community Organizers, 3) Gender Specialist, 4) Training of Trainer Specialist, 5) Community Forestry Specialist, 6) Cost for Micro Realization and 6) Operation Cost

4.3.5 Strengthening of Social Safety Net

(1) Background

Based on the detailed socio-economic survey, the weak social safety net in communities creates socially and economically disadvantaged people whose agricultural and economic activities produce a reverse effect on the watershed conservation. For example, some of the illegal cultivators in the protection forest located at the South Area lost their original agricultural land due to the emergency medical expense. Another example is that many farmers use rudimental contour ridging because they lack capital for the soil conservation measures, which is partly derived from the inadequate social safety net at the community level. Although there are some governmental attempts to improve social safety net at a community level, the attempts have been inadequate in terms of quality and quantity. Therefore, it is necessary to strengthen the economic and social security of local people for the sake of watershed conservation.

(2) Objective

To alleviate social and economic vulnerability of individual villagers to be able to practice community-based watershed conservation.

(3) Scope

- Assess the social and economic risks of communities and liability of villagers
- Formulate a micro credit program and other forms of community-based insurance programs that will ensure the promotion to sustainable land use
- Implement the programs

(4) Major Input

1) Community Empowerment Specialist, 2) Community Organizer, 3) Micro Credit Specialist, 4) Gender Specialist, 5) Seed Money for Micro Credit and 6) Operation Cost

4.3.6 Gender and Conservation

(1) Background

Because women in the Intensive Area in general consume and benefit from particular natural resources such as fuel wood or herbs, women should have an important responsibility as a key manager of the resources. However, women's participation to conservation activities in the area is generally restricted. It is thus critical to empower women for watershed conservation so that the community-based natural resource management will be more effective.

(2) Objective

To provide men and women equal opportunities and responsibilities for watershed conservation.

(3) Scope

- Implement simple gender analysis
- Conduct awareness raising and environmental education specifically targeting women
- Establish mechanisms to facilitate women's access to benefits from natural conservation
- Allocate sufficient resources to ensure that women are involved equally in watershed conservation activities

(4) Major Input

1) Community Empowerment Specialist, 2) Community Organizer, 3) Gender Specialist, 4) Community Forestry Specialist and 5) Operation Cost

4.3.7 Monitoring and Evaluation

(1) Background

Monitoring and evaluation is an effective management method to understand the level of progress and constraints on a regular basis. The results of monitoring and evaluation will give useful information for operation and management of ongoing or future projects to be improved.

Indicators to be monitored and evaluated should be identified in accordance with the objectives and expected outcomes of the implementation. The indicators must be objectively verifiable, and data and information for the verification must be retainable. The monitoring and evaluation process should be participatory as suggested in the scope below, and the results must be disclosed to the public as to a transparency purpose.

(2) Objectives

- To provide relevant information and data to implementers and supporting agencies to be able to facilitate decision making for community empowerment
- To develop socio-economic assessment techniques necessary for the comprehensive environmental monitoring and evaluation.

(3) Scope

- Train village cadres who will execute appraisal and information collection at a village level
- Select participatory monitoring and evaluation methods, such as ZOPP, PCM or logical framework
- Identify indicators to be monitored and evaluated, and prepare a monitoring and evaluation plan and schedule
- Gather basic data and information necessary to monitor and evaluate the implementation of community empowerment using community appraisal methods as RRA or PRA
- Implement the regular monitoring and evaluation with the leadership of village cadres
- Make the monitoring and evaluation results public and compose recommendations

for community empowerment

(4) Major Input

1) Community Empowerment Specialist, 2) Community Organizer, 3) Monitoring and Evaluation Specialist, 4) Gender Specialist and 5) Operation Cost

4.3.8 Cost Estimate

The estimated implementation cost for the proposed community empowerment is shown below.

Capital Cost of the Community Empowerment

Unit:Rp.

Items	Unit	Quantity	Total Cost		
			F.C.	L.C.	Total
1 Consulting Services Cost					
1.1 Community Empowerment Specialist	m·month	44.0	6,963,484,000	0	6,963,484,000
1.2 Commnity Organizer	m·month	44.0	0	242,000,000	242,000,000
1.3 Gender Specialist	m·month	15.0	0	82,500,000	82,500,000
1.4 Participatory Planning Specialist	m·month	3.0	0	16,500,000	16,500,000
1.5 TOT Specialist	m·month	2.0	0	11,000,000	11,000,000
1.6 Micro Credit Specialist	m·month	4.0	0	22,000,000	22,000,000
Sub-Total 1.1 - 1.6			**6,963,484,000**	**374,000,000**	**7,337,484,000**
2 Direct Cost					
2.1 Operation Cost	month	44.0	1,540,000,000	660,000,000	2,200,000,000
2.2 Micro Realization Cost (Material)	set	8.0	0	96,000,000	96,000,000
2.3 Seed Money	set	1.0	0	100,000,000	100,000,000
Sub-Total 2.1 - 2.3			**1,540,000,000**	**856,000,000**	**2,396,000,000**
3 Administration Cost					
3.1 Forestry Specialist	m·month	6.0	0	3,798,000	3,798,000
3.2 Agriculture Specialist	m·month	6.0	0	3,798,000	3,798,000
3.3 Environmental Education Specialist	m·month	8.0	0	5,064,000	5,064,000
3.4 Commnity Forestry Specialist	m·month	9.0	0	5,697,000	5,697,000
Sub-Total 3.1 - 3.4			**0**	**18,357,000**	**18,357,000**
GRAND TOTAL			**8,503,484,000**	**1,248,357,000**	**9,751,841,000**

Annual Disbursement Schedule of Community Enpowerment

Unit:Rp. Million

Items	Total		Year 1		Year 2		Year 3		Year 4	
			F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.
1 Consulting Services										
1.1 Community Empowerment Specialist	6,963	0	1,741	0	1,741	0	1,741	0	1,741	0
1.2 Commnity Organizer	0	242	0	61	0	61	0	61	0	61
1.3 Gender Specialist	0	83	0	33	0	17	0	17	0	17
1.4 Participatory Planning Specialist	0	17	0	17	0	0	0	0	0	0
1.5 TOT Specialist	0	11	0	11	0	0	0	0	0	0
1.6 Micro Credit Specialist	0	22	0	11	0	11	0	0	0	0
Sub-Total 1.1 - 1.6	**6,963**	**374**	**1,741**	**132**	**1,741**	**88**	**1,741**	**77**	**1,741**	**77**
2 Direct Cost										
2.1 Operation Cost	1,540	660	385	165	385	165	385	165	385	165
2.2 Micro Realization Cost (Material)	0	96	0	0	0	36	0	36	0	24
2.3 Seed Money	0	100	0	100	0	0	0	0	0	0
Sub-Total 2.1 - 2.3	**1,540**	**856**	**385**	**265**	**385**	**201**	**385**	**201**	**385**	**189**
3 Administration Cost										
3.1 Forestry Specialist	0	4	0	4	0	0	0	0	0	0
3.2 Agriculture Specialist	0	4	0	4	0	0	0	0	0	0
3.3 Environmental Education Specialist	0	5	0	1	0	1	0	1	0	1
3.4 Commnity Forestry Specialist	0	6	0	2	0	1	0	1	0	1
Sub-Total 3.1 - 3.4	**0**	**18**	**0**	**11**	**0**	**3**	**0**	**3**	**0**	**3**
GRAND TOTAL	**8,503**	**1,248**	**2,126**	**408**	**2,126**	**292**	**2,126**	**281**	**2,126**	**269**

Note: F.C.=Foreign Currency, L.C.=Local Currency

Capital Cost of the Monitoring System Development (Socio-Economic Items)

Unit:Rp.

Items	Unit	Quantity	Total Cost		
			F.C.	L.C.	Total
1 Consulting Services Cost					
1.1 Community Empowerment Specialist	m·month	4.0	633,044,000	0	633,044,000
1.2 Commnity Organizer	m·month	4.0	0	22,000,000	22,000,000
1.3 Gender Specialist	m·month	1.0	0	5,500,000	5,500,000
1.4 Monitoring and Evaluation Specialist	m·month	4.0	0	22,000,000	22,000,000
Sub-Total 1.1 - 1.4			**633,044,000**	**49,500,000**	**682,544,000**
2 Direct Cost					
2.1 Operation Cost	month	4.0	140,000,000	60,000,000	200,000,000
Sub-Total 2.1			**140,000,000**	**60,000,000**	**200,000,000**
GRAND TOTAL			**773,044,000**	**109,500,000**	**882,544,000**

Annual Disbursement Schedule of Monitoring System Development (Socio-Economic Items)

Unit:Rp. Million

Items	Total		Year 1		Year 2		Year 3		Year 4	
			F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.
1 Consulting Services										
1.1 Community Empowerment Specialist	633	0	158	0	158	0	158	0	158	0
1.2 Commnity Organizer	0	22	0	6	0	6	0	6	0	6
1.3 Gender Specialist	0	6	0	0	0	0	0	0	0	6
1.4 M&E Specialist	0	22	0	6	0	6	0	6	0	6
Sub-Total 1.1 - 1.4	**633**	**50**	**158**	**11**	**158**	**11**	**158**	**11**	**158**	**17**
2 Direct Cost										
2.1 Operation Cost	140	60	35	15	35	15	35	15	35	15
Sub-Total 2.1	**140**	**60**	**35**	**15**	**35**	**15**	**35**	**15**	**35**	**15**
GRAND TOTAL	**773**	**110**	**193**	**26**	**193**	**26**	**193**	**26**	**193**	**32**

Note: F.C.=Foreign Currency, L.C.=Local Currency

The estimated running cost for the proposed community empowerment after the pilot project is shown below.

Annual Running Cost of Community Empowerment

Unit:Rp.

Items	Unit	Quantity	Total Cost		
			F.C.	L.C.	Total
1 Administration Cost					
1.1 Community Empowerment Specialist	m·month	96.0	0	60,768,000	60,768,000
1.2 Commnity Organizer	m·month	96.0	0	60,768,000	60,768,000
1.3 Gender Specialist	m·month	96.0	0	60,768,000	60,768,000
Sub-Total 1.1 - 1.4			**0**	**182,304,000**	**182,304,000**
2 Direct Cost					
2.1 Operation Cost	month	96.0	0	1,600,000,000	1,600,000,000
Sub-Total 2.1			**0**	**1,600,000,000**	**1,600,000,000**
GRAND TOTAL			**0**	**1,782,304,000**	**1,782,304,000**

Year 2006 - 2013

There are no direct economic and financial benefits from Community Empowerment Plan, though the plan is considered as the pre-requisition for the whole watershed conservation plan.

4.3.9 Implementation

The proposed implementation schedule is shown below.

Implementaion Schedule of Community Empowerment Plan

Activity	Work Volume	Year			
		1	2	3	4
1 Micro Planning for Sustainable Land Use					
2 Awareness Raising and Environmental Education					
3 Organizing of Local People and Reorienting of Officials					
4 Strengthening of Social Safety Net					
5 Gender and Conservation					
6 Monitoring and Evaluation					

4.3.10 Recommendations

Community faces various constraints, and any conservation plans must address those constraints in one way or the other. This community empowerment plan is one of the ways to directly provide means, incentives and motivations to local community in order for them to overcome their constraints and problems that hinder local people to become a positive agent for conservation. Therefore, a planner and implementer of watershed conservation must stress the importance of proposed community empowerment plan as an indispensable part of the watershed conservation plan.

The implementation of community empowerment plan not only provides means, incentives and motivation, but also it facilitates community participation. After the Study, the JICA Study Team re-discovered the importance of participation of community to watershed conservation. Our findings during this Study suggest that the participation of community members to conservation will effectively and efficiently bring about the achievement in conservation, and community should be mobilized for the sustainable use of land in the area. Community participation, however, requires elaborated and strategic planning and implementation. Proposed community empowerment plan is design with a strong consideration of the participatory approach, and the JICA Team anticipates that the plan provides a guideline for community participation process.

The implementation of participatory community empowerment requires a paradigm shift of many planners and implementers. They must go out to the field and improve their communication skills with local people. They must profoundly understand the conditions and problems of community. They must start seeing local people as a driving force, not a mere, passive beneficiary. For this, the JICA Study Team recommends that the development should take place not only in the community but also in the offices and institutions. For this, the planners and implementers should

receive appropriate means and incentives necessary for them to execute their responsibilities and tasks.