Appendix-I

CAPACITY BUILDING AND INSTITUTIONAL DEVELOPMENT

THE STUDY
ON
CRITICAL LAND
AND
PROTECTION FOREST REHABILITATION
AT TONDANO WATERSHED
IN
THE REPUBLIC OF INDONESIA

Volume-III

APPENDIX-I

CAPACITY BUILDING AND INSTITUTIONAL DEVELOPMENT

Table of Contents

List of Tables

List of Figures

Attachment

THE STUDY
ON
CRITICAL LAND
AND
PROTECTION FOREST REHABILITATION
AT TONDANO WATERSHED
IN
THE REPUBLIC OF INDONESIA

Volume-III
APPENDIX-I

CAPACITY BUILDING AND INSTITUTONAL DEVELOPMENT

CHAPTER 1 INTRODUCTION & SUMMARY

Good management of water resources is rapidly becoming an absolute necessity on an international scale. Experts have warned that impending water crises will become the next major international environmental problem. This is particularly true for regions in which population continues to grow, industrial development is taking place, and increasing income levels drive lifestyle improvements. Lifestyle improvements, in turn, increase the demand for more freshwater to support improvements in community health, power generation, and recreation, as do increased urbanization, and direct needs for industry, and agriculture. This document is concerned with the institutional developments required to ensure that the Tondano Watershed is managed appropriately, and in a sustainable manner with appropriately balanced levels of community involvement and government authority.

The appendix provides a more detailed outline of the present institutional conditions and some background information that will help the reader to put things into perspective with regard to the current perceived and actual roles, strengths and weaknesses of the institutions included in the survey. Chapter 1, consists of this brief introduction.

Chapter 2 provides some general introductory information about watershed management, including an example of a watershed management/conservation problem that by default requires a multi-sector approach, i.e. the fish farming in the lake. Other general information presented includes a brief overview of the changes that will come with decentralization, and the effects of the new laws and regulations, from the perspective of central and regional official duties and

responsibilities. The central government offices in the provinces will still be able to form regional technical institutions to undertake duties and responsibilities surrendered by the districts. A brief description is also provided for the organizational structural requirements of regional institutions. It is important that two regional institutions be established, one as a venue for the community to express aspirations and participate in the watershed management process, (Watershed Conservation Committee), and one to ensure that the watershed is protected by an administrative body with an appropriate level of authority to monitor, evaluate, and coordinate sustainable development programs at watershed level (Badan Konservasi DAS or Watershed Conservation Board within the provincial forestry office structure).

Chapter 3 provides a description of the present conditions and problems within the institutions that should be involved in the conservation of the watershed, and eventually management of the same (capacity building). The focus of the study is the relevant forestry offices, however summary information is also presented about the major weaknesses of other relevant institutions which inhibits an integrated basin management process. The chapter includes a summary examination of Water Regulation Committees, the Village Government, NGOs Government Universities and extension services.

Chapter 4 presents an overview of the institutional responsibilities, roles and functions; there is a need to provide a brief analysis of the responsibility of each level of government after decentralization is implemented. This is in order to ensure that the role of each level is clear and an understanding of the duties and functions of the central and regional government offices is promoted. There is a tendency for Regional Government Offices to take an independent stance with regard to implementation. In the interests of sustainability and conservation it is important that the central and provincial governments maintain a strong role in planning management and coordination to ensure that development and conservation is balanced equally from a national geo-spatial point of view, and the provincial geo-spatial perspective.

Chapter 5 presents an overview of institutional development needs through a list of tasks that each institution must undertake to ensure that conservation of the watershed is undertaken in the best way. This list of tasks is divided into two sections, i.e. a) the tasks required from existing institutions and b) the new institutional developments required to ensure good results. It was made clear at the outset that new institutional developments should be avoided to ensure non-proliferation of committees etc., the new developments have necessarily been kept to a minimum. These tasks are then converted into capacity gaps based on information gathered in the survey. “Capacity gaps” refers to the lack of capacity

that results from comparing tasks with the current ability of institutions. The Table of Capacity gaps is presented in Attachment I-1 and recommendations are presented in this table for each recorded gap. Recommendations are then converted into broad-based integrated institutional development plan that is presented in the main report.

General recommendations are that in order to ensure that the seeds of a watershed management capacity are sown in the Tondano watershed to support the attainment of WACSLU, a watershed conservation committee should be established. The general level of awareness of the community, with regard to integrated watershed management, should also be increased. This means that an integrated approach to institutional development needs to be applied. Capacity building should be applied to institutions in the form of hardware and software provision, formal off the job training, on the job training and technical assistance to develop and consolidate the capacity for all institutions to support, and respond to a conservation committee which will be the venue for public participation in watershed management. The watershed conservation committee should be supported by a government institution with sufficient authority to ensure that the decisions of the committee are implemented and coordinated and planning of activities is undertaken at *watershed* level rather than through uncoordinated efforts by each individual administrative region (district/municipality).

The general level of awareness and technical skills of the community are to be strengthened by the establishment of a group of village cadres, and the employment of NGOs as community education and facilitation workers.

The community is to be empowered further, and in a concrete manner, by the establishment of a community based proposal and tendering process to enable any recognized community group or institution to participate in the identification, planning, implementation and management of conservation projects.

The List of Tables provides a guide to both the Tables that are placed within the main body of the text, and those added as appendices. Those placed within the text are relevant to the discussion at the point where they appear. Those placed in the appendices are for the general reference of the reader and as background information.

The List of Figures provides a guide to both the Figures that are placed within the main body of the text, and those added as appendices in similar style to the List of Tables. The figures presented within the main text are relevant to the discussion at or near the point they appear. The Watershed Conservation Committee figure at the end of the Appendix provides an overview of the

authority linkages needed to support the effectiveness of the committee in the longer term. Figures I.3.1 to I.4.1 povide a general reference to the past, and expected future organizational structure of the relevant forestry offices. It needs to be pointed out however, that these structures are not yet set in concrete. A change of President or Government in Indonesia (which is highly likely in the current atmosphere) could effect the structure of the national administration system, these figures are therefore only presented as broad guidelines. At the time of writing the detailed tasks and responsibilities for each section of the structure was not available.

Figure I.5.1 provides an illustration of the proposed integrated watershed conservation process in which the linkages between the institutions can be seen.

The attachments list provides the table of capacity gaps that is referred to above (Attachment I-1), and a list of all participating institutions and sections within institutions according to the latest available organizational structures (Attachment I-2). The remaining attachments are a tentative development schedule for each minor component, a revised list of material requirements needed for successful implementation of the project and sustained conservation management, and a detailed list of institutional development activities.

CHAPTER 2 GENERAL

2.1 Introduction & Preamble

Given that the annually renewable freshwater supply is relatively fixed, and that the resource must be shared among diverse user groups for a vast mix of different economic and non economic purposes ranging from daily recreation to income generation and power generation, it is of utmost importance that the resource be maintained in optimal condition. The United Nations Conference on Environment and Development (UNCED, Rio de Janeiro, 1992), warned that "concerted actions are needed to promote the principle of integrated water resources management, and to reverse the present trends of excessive consumption, pollution, declining health of aquatic ecosystems and their associated biodiversity, the impacts of climate changes, and increasing threats from natural hazards, such as floods, droughts, and sea level rise". Ultimately other natural hazards that can create problems for watersheds include fires and other things that destroy important forests, and erosion which depletes the soil resources.

2.1.1 Watershed Management

In order to maximize protection and sustainability of watershed health, water resources management needs to be strengthened through improved policies and information. Mechanisms need to be established to address trans-boundary/inter-regional water resource issues, and integrated water demand management systems need to be developed through economic and regulatory mechanisms. The International Conference on Water and The Environment in Dublin, 1992 "stressed that river basins are usually the most appropriate geographic unit for planning and managing water resources and that the integrated management of river basins provides opportunities to safeguard aquatic ecosystems and make their benefits available to society on a sustainable basis". This means that for successful watershed management, all user groups, representatives of all geographical zones or administrative territories that are included within the geographical scope of the catchment/watershed/basin, and generally all stakeholders in the sustained availability of water resources should be involved in management. Management decisions affecting the watershed should, where possible, be made through consensus between these diverse user groups and stakeholders.

The population of the Tondano Watershed is well educated by Indonesian standards, however, the general level of education is at present not sufficient to

produce widespread awareness of the need for unified/integrated management strategies.

In developing countries, the concept of quality education systems remains a development problem, this is particularly valid in Indonesia where in recent years the struggle to achieve universal basic education from the quantitative perspective has resulted in sub-standard quality of the content of education. This sub-standard quality of education combined with a large number of the population from previous generations who did not have the opportunity to attend more than basic education provides a major constraint to integrated management. To develop and manage water resources, communities must understand that water resources are of critical importance to continued welfare, economic well-being, and a healthy environment.

Communities must also understand that all residents of the watershed have a right to a share of the resource, and a right to provide input into the way the resource is managed. It is also necessary to realize that the downstream resource users have a right to use water that is of the same or similar quality to that used by upstream users. If a user or a user group creates undesirable environmental impacts that are either considered detrimental to other downstream users or the overall quality of the environment, then the user must be held responsible for the damage, and be also responsible for the repair and compensation. These are some of the problems that need to be considered within the framework of watershed management. A certain average level of education is generally considered necessary for people to fully appreciate the need for good environmental management. The only alternative to general high levels of education among the population is specific educational programs designed to promote awareness of environmental conditions among the community.

Within the Indonesian context, good, reliable and accurate information systems, to provide regular updates on the condition of the resource, and community education programs to promote understanding of the idea of unified/integrated watershed management strategies are of paramount importance. This should be encouraged by the formulation of the nucleus of a watershed management committee in the form of a multi-sectoral watershed conservation committee to promote integrated development management in the first instance, and promote also the understanding of integrated water resources management among various stakeholder groups (see Box 1, below). The committee should involve all stakeholders who live in or are concerned about the health of the watershed, which means a healthy hydrological function based on both the quantity and quality of water resources available for all purposes.

2.2 Decentralization and the Structure of Regional Government

The current move to decentralization will create a situation in which the central government structure in the regions will be removed. At the beginning of 2001 all provincial level ministry representative offices (Kanwil) will be removed from regional areas along with any lower level regional supporting infrastructure. Article 129 of Law No. 22 of 1999 states that "vertical agencies in the regions other than those handling foreign affairs, security and defense, the administration of justice, monetary and fiscal matters, and religious affairs" shall become regional apparatus. The structural and functional personnel will be transferred to province and district (kabupaten) level Regional Government Services Offices (Dinas). This means that all of the former duties undertaken through this regional structure will need to be transferred to these offices. The regions in Indonesia now have extensive autonomous authority to "operate an administration that covers all governmental authorities, except in the fields of foreign policies, defense and security, the administration of justice, monetary and fiscal, religious affairs and responsibilities in other sectors which will be regulated by a Government Regulation". Other sectors refers to national planning and control of macro national development, balanced fund allocations, the state administrative system, state economic institutions, development and empowerment of human resources, efficient use of resources and strategic high technology, conservation and national standardization.

Box 1 Fish Farming in Lake Tondano

There is a need to consider the diversity of uses to which the watershed can be subjected, and successful overall management would require a diversified approach to development. An example that serves to illustrate this purpose well, is if we consider the value of the lake as a recreational resource for both local and non-local users. As the City of Manado develops along with continued urbanization of the Indonesian population, it is likely that the demand for quality natural recreational resources will increase, Tondano lake is an important resource with high potential in this regard. This increase in demand would create employment opportunities in tourism and recreation that would eclipse fish farming from the perspective of income and efficiency. However, it has been found that the fish farming is a major contributor to eutrophication of the lake, which makes it unattractive as a recreational resource. Given the fact that the type of fish farming undertaken in the lake is to produce fish that are traditionally farmed in man-made mud walled dams (Ikan Mas & Mujahir) then the use of the lake for this activity seems counterproductive from the Watershed Management point of view. More in depth research would be required to confirm this position, however, an integrated management perspective would recommend

this, and consider the feasibility of banning fish farming in the lake. Farmers currently involved in fish farming could be transmigrated to terrestrial sites and re-established with project funding. Research through interviews with these farmers has indicated that they are former clove farmers who migrated to fish farming to compensate for the low price of clove. The farmers already have the land, they possibly only need assistance for establishing the facilities for fish farming. This is an example of the type of integrated management problems that need to be approached from a multi-sectoral platform, to develop long term plans and lobby for the creation of regulations to support them. Some questions that may arise are: What is the real reason for eutrophication of the lake? Several government services offices are involved here, i.e. Water Resources, Fisheries, Agriculture, Health, Food Crops, etc. or What is the best use to which the lake as a resource should be put? this involves Tourism, Agriculture, Fisheries, Health, and Water Resources to name a few.

This indicates that the central government will no longer have a direct role in regional forestry management or watershed management in the regions. However the central government role remains in control of macro national development, and conservation. Forests as a national strategic resource would automatically fall under this category. The central governments' role in these areas will be only at the macro planning and policy development, balancing of regional development, and setting standards and regulations. This implies a need for data and information to support macro level planning for national conservation monitoring and macro national forestry management. A strong link to provinces and districts will still be needed within the framework of national strategic management. This is particularly true for watersheds which cross administrative boundaries.

2.2.1 Law No. 5 of 1974

Under Law No. 5 of 1974 Indonesia is divided into level 1 and level 2 autonomous regions (Daerah), which corresponds to provincial level and district levels respectively. There are also central government administrative areas (Wilayah).

Regions, or Daerah did not have any hierarchical relationship with each other, although the autonomous regions were subject to some supervision from higher level regions and central government officials. The administrative areas on the other hand were managed through a definite hierarchical structure, provinces were divided into district and municipality areas. Districts and municipalities were further divided into sub-district areas. The areas or what is known as

wilayah reflected an administrative central government hierarchy in which sub-district heads were subordinate to district heads, and district heads were subordinate to provincial heads, and provincial heads were subordinate to central heads. This structure enabled the central government to wield great power in regional areas. Villages were dealt with in a separate legislation, i.e. Law No. 5 of 1979. Under this legislation urban villages were administered by an appointed official (Lurah), and rural villages were governed by an elected village head, and a village council.

2.2.2 Law No.22 of 1999

Under Law No. 22 of 1999, Indonesia is divided into both autonomous regions (provinces, districts and municipalities) and administrative areas. However, the administrative areas are now limited to provinces which are the only regional infrastructure of the central government. Districts and municipalities are no longer administrative areas of the central government. This means they are no longer subordinate to the provinces. Article 4 of Law No. 22 of 1999 about Regional Administration states as follows:

(1) In order to implement the principle of decentralization, it is required to establish and organize Provinces, Districts and Municipalities that have the authority to regulate and take care of the interests of the local people based on their own initiatives and public aspirations.
(2) The Areas as referred to in clause (1) above are independent and do not have hierarchical relationship with one another.

The expression “do not have hierarchical relationship with one another” means that the provinces are not in charge of the Districts and Municipalities, but that in implementing the administration there should be coordination, cooperation, and /or partnership with the Districts and Municipalities in their respective capacity as Autonomous Regions. In the mean time, in the administrative areas, the Governor as the (central) Governments’ representative will conduct development and supervisory coordination with the Districts and Municipalities.

The idea of level 1 and level 2 regions and organizations is no longer valid. Under Law No. 22 there are three processes by which government activities may be given to the regions as follows:

(1) Decentralization

Decentralization as the transfer of legislative authority and responsibility from one level of government to another level of government: A government to government process. A transfer of activities, functions authority and responsibility between the levels, this means that the Districts are now able to

form their own institutions for regional management based on localized needs. This also means that all districts may have different organizational structures for local government. However, if this was to occur without deconcentration it would be analogous to independence being granted to each district.

(2) Deconcentration

Deconcentration is the delegation of administrative authority and responsibility from one level of a government organization to a lower level of that organization: An intra government and organizational process. The delegation of activities and functions to regional from central organizations and officials. This is where the idea of Indonesia as a nation is still expressed. Deconcentration is applied to provide the infrastructure for national government processes. Indonesia still needs to be governed as a nation so the duties that were undertaken by the central government are now transferred to the regional Government while maintaining the necessary links to the center. Deconcentration also ensures that essential services are available in the regional government.

(3) Co-administration

Co-administration is the implementation on an agency basis of the responsibility of a higher level of government (or its departments/agencies) by a lower level of government (or its departments/agencies): a government to government process . The assistance or co-administration function is where one level of government uses a lower level of government as its agent especially for the purpose of program or project implementation which implies a shared responsibility by central and regional government.

2.2.3 Delineation of Duties

Under law 22 also, there is definite delineation of duties and sectors between central and regional governments.

The autonomous provinces will handle inter-district/municipality matters, and matters that the districts and municipalities cannot or cannot yet manage. Under law 22 the Regional Government Services Offices (Dinas) will replace the Provincial Offices (Kanwil). The BRLKT are basically an extension of the Directorate General of Land Conservation and Rehabilitation. This means that under the current decentralization they would be abolished, and the facilities and infrastructure will become the property of the regional government, in this case Kabupaten Minahasa. Alternatively the Governor as the representative of the Central Government may see the need to create an office with a minimized set of

duties to replace the former Kanwil offices and Province level Forestry Services Office.

At the beginning of 2001, decentralization will begin in full force, at this time the districts and municipalities will receive their full power as autonomous units and will be funded mainly through local sources. According to Government Regulation No. 25 of 2000, article 3 paragraph 1, the authority of the provinces as autonomous regions includes authority in Government affairs that occur within the boundaries of a province but that include more than one district. In this case, the management of watersheds such as the Tondano watershed will be a provincial government role. However, to undertake this role successfully good cooperation will be required from the districts. This is where the ministries are separated into two groups. There are those that should routinely manage interregional problems, and those that don't. For example, national education can be applied solely through districts (administrative areas delineated by lines drawn arbitrarily on a map) because the target of education is the population within the administrative area and educational planning can deal exclusively with the population of the area. However in the case of watershed management or conservation the management of land within a district is a district responsibility, but if the land forms a part of a watershed that spans two or more districts then the management of the land must be planned and coordinated by a higher level of government. Implementation of management activities will still be the role of the district government but within the framework of, and according to the plans from a higher level of government. In other words, things such as education can be run entirely by the districts with a central/national government role in balancing regional development etc., but effective watershed management and forest and soil conservation, by default requires a district government controlled by a provincial government for management matters that cross district boundaries, and a provincial government controlled by a central government in cases where management matters cross provincial boundaries. All these entities need to be served by cascading information systems developments to ensure up to date information for monitoring and evaluation purposes is available at all times at all levels.

Given the temporary authority vacuum that has developed in the regions as a result of the decentralization process, it is necessary to create a management structure that incorporates both the role of the central Government and the regions, in a way that provides a reliable watershed, forest and soil conservation infrastructure that satisfies the local needs, as well as the needs of the central Government and Indonesia as a nation. Authority for watershed conservation is granted to the Central Government through the Provincial infrastructure, this is

clear from the abovementioned Regulation 25 of 2000, however, according to Law No. 22 the districts now have the power to determine their own future. If there is no authoritative managerial structure developed, the lower level infrastructure will not be available for implementation, and the management of the watershed will be ineffective because of uncoordinated activities at the watershed level. There is a need to create a watershed management/conservation planning institution at watershed level for planning and overall management, supported by district level institutions for implementation purposes.

Currently, there is a tendency for some districts to take and independent stance with regard to their perceived role. However, the need to work together with the provincial infrastructure of the Central Government is realized by most. A structure is needed to provide legal authority in matters that incorporate the whole watershed, and to create a harmonious working environment between the provinces and districts.

In order to create the desired infrastructure for effective watershed conservation, the co-administration function needs to be employed. A province level agency for planning and management of the Tondano watershed is a primary necessity in the new government administration system. The district level Dinas should be given the role of implementation of projects based on the master plans created by the province. The specific roles of each should be stated clearly in a legal document, in the form of a joint decree between The Governor of North Sulawesi, The Bupati of Minahasa, and the Walikota of Manado and Bitung.

2.2.4 Establishment of Regional Technical Institutions

According to Government Regulation Of Republic Of Indonesia No. 84 of 2000 about the organizational guidelines for regional apparatus, regional level technical institutions may be developed. Considering that the sustained health of the watershed is the primary local need, this need should be protected by an institution with an appropriate level of power and authority:

Article 4

1) The Provincial Office is the implementation element of the Provincial government that is led by a Head who exists under and is responsible to the Governor through the Regional Secretary;
2) The Provincial Office has the duty to implement the de-centralization authority and de-concentration duties;
3) In the implementation of duties as mentioned in (2), the Provincial Office has the following functions:
    a. the formulation of technical policy according to its working scope;

b. the issue of permits and the implementation of public service;
c. the organization of duty implementation according to its working scope;

4) The Provincial authority that still exists in the District/Municipality, based on the current and valid laws, can be executed by the Field Technical Implementation Units;
5) For implementing the authority that has been transferred by the District/Municipality to the Province, the province can form working units in the District/Municipality in which the working area could consist of one or several Districts/Municipalities;
6) Field Technical Implementation Units and the Working Unit as mentioned in 4) and 5) is a part of the Regional Apparatus at the Provincial level that is responsible to the Governor and operationally is coordinated by the Regent/Mayor.

Article 5

1) The Regional Technical Institution at the Provincial level is a supporting element of the Regional Government that is led by a Head who exists under and is responsible to the Governor through the Regional Secretary;
2) The Regional Technical Institution at the Provincial level has the duty of supporting the Governor in the implementation of the Regional government according to its working scope;
3) In executing the duty as mentioned in 2), the Regional Technical Institution at the Provincial level has the following functions:

a. the formulation of technical policy according to its working scope;
b. supporting services for the implementation of Regional government

Article 6

The Regional Technical Institution as mentioned in Article 5 can be in the form of Boards and/or Offices.

2.2.5 Organizational Structure of Regional Apparatus

Part One Regional Apparatus at the Provincial Level

Article 13

1) The Regional Secretariat at the Provincial level consists of the Regional Secretaries' Assistant; The Assistant comprises Bureaus; Bureaus consist of Sections; and Sections consist of Sub-sections;
2) The Services Office consists of Administration Division and Sub-office (sub-dinas); Administration Division consists of Sub-divisions; and Sub-dinas

consists of Sections;

3) The Regional Technical Institution in the form of a Board consists of a Secretariat and Sectors (bidang); Secretariat consists of Sub-divisions; and Sectors consist of Sub-sectors;
4) The Regional Technical Institution that is in the form of an Office consists of Administration Sub-section and Sections.

Ideally, the Provincial Government would need to reflect a structure that provides a watershed management body with significant power to enforce its mandate. The following structure is recommended. Relevant units in the current structure to be transferred to the Watershed Management Board, and removed from new Forestry Offices Structure.

CHAPTER 3 PRESENT CONDITIONS AND PROBLEMS

3.1 Water Resources Committees

In order to successfully implement the master plan for watershed management, a catalyst is required to bring all organizations and stakeholders together. This catalyst organization needs to be established through an institutional development process, and the improvement of organizational and inter-organizational capability. As part of the project planning period, a structural development has taken place through the development of a working committee. In the interests of a watershed conservation strategy, and to ensure that all possible avenues are explored with regard to holistic watershed management, this approach needs to be developed and consolidated, ideally, the leading role in management of the watershed would be occupied by the Forestry and Regional Planning Departments.

A workshop was held in November 1994 to discuss the legal and institutional aspects involved in forming a Provincial Water Resources Development and Management Board to operate at watershed level. This board was known as Panitia Tata Pengaturan Air (PTPA). Another River Basin Water Resources Development Implementation Board at Kabupaten level or Panitia Pelaksana Tata Pengaturan Air (PPTPA) was also established. The institutional aspects were discussed for forming a Water Resources Management Unit (WRMU) or Unit Pengelola Sumberdaya Air (UPSDA) based on Minister of Home Affairs Ordinance (Permendagri) No. 80/1994.

In 1995 a decree was signed to make the PTPA of North Sulawesi Province official. The first PTPA meeting was held on April 1998 in North Sulawesi. The meeting was chaired by the head of BAPPEDA (Province). At the meeting several conclusions were arrived at:

1) The Provincial Water Resources Services will play a key role and should start to assist in having the committee functional and prepare a clear program,
2) The committee will meet regularly,
3) Different sectors should work together in an integrated fashion.

Following this meeting, a working group (11 members) was established through Vice Governor decree signed in November 1998. They have started to meet regularly and two PPTPAs (one for Limboto-Bone, and the other for Tondano) were formed during 1999/2000.

Although the PTPA and PPTPAs have been influenced heavily by the former Ministry of Public Works, no single ministry has the overall responsibility for

watershed management in the Tondano Watershed.

The PTPA is attended by all province level government representatives including regional and central Government agencies. Leaders of the government electrical generation company (PLN), and the government (public) water supply company (PDAM) are also present. The community are represented by leaders of NGOs, and the head of a farmers association. The composition of the committee is heavily biased toward government officials. It is quite likely that community considerations do not carry much weight, nor would the community have any input other than the concern for equal distribution of water supply. There are no creative long-term management strategies employed.

The Panitia Pelaksanaan Tata Pengelolaan Air (PPTPA) are in each major watershed area. Watershed areas are referred to as River Development Territories (PWS) and River Management Units (SWS). North Sulawesi is divided into five water resource management areas, two PWS and three SWS. The PWS are the Tondano Watershed and the Limboto-Bolango-Bone Watershed. These two areas are considered as PWS due to the fact that they are in areas of high development or high development potential.

While the PTPA has a stated holistic development foundation, this only applies at province level, and given the fact that this committee operates at such a high macro level, far removed from the actual conditions in the field, and given also the fact that it is populated mainly by high ranking officials, on the ground, its effectiveness is questionable. In practice the lower level implementation network is the PPTPA.

The PPTPA was to coordinate annual water allocations, establish water allocation priorities, and coordinate water quality, pollution control, flood warning and flood control management. All provinces in Indonesia were to have PTPA (Minister of Public Works Ordinance No. 67/PRT/1993) and were to be set up by year 1994 according to DGWRD letter No. 08/SE/1994.

The PPTPA, while being the perfect unit in scope is weak from the perspective of management, it operates with the watershed as its management unit which is good, but its responsibilities are restricted mainly to water quota allocations, and reactionary management measures, which at present are focused only on short term economic benefits, and disaster control measures (flooding). There is no real concern for sustainability or any other environmental impact other than water shortages that may come about as a result of dry season, or unexpected seasonal changes and fluctuations in supply. There appears to be no real integrated forward-looking management strategies.

These watershed management institutions are fraught with organizational

problems that render them ineffective as true integrated management units. The major problem with the BRLKT is the fact that its future is unclear, while the problem with the PTPA and PPTPA is that apart from having weak foundations and strategies, these organizations are based on "musyawarah" which means they are only advisory units and they lack authority in any real sense. There are also other problems related to the perceived role as is expressed by the members. It seems that while the objectives as stated are:

a. To improve the status of water users by improving participation and giving a voice to the needs and priorities of represented members, in an effort to optimize economic utility, integrated management, balance and sustainability
b. To increase income of users by optimal use of natural resources
c. To increase the welfare of users through environmental preservation, and
d. To ensure preservation of natural resources

The major motivations are short-term economic benefit that is reflected in the demands of water users.

The actual foundation that these committees are based on is also questionable, watershed management depends not so much on the way in which water is used, but rather on the way that development is managed throughout the watershed. If the development is managed well, the results will be reflected in the increased quality of water that is available, and perhaps a reduction of floods. This is much different to the distribution of existing water resources. The watershed management committees should ideally be based on, and led by an interest in maintaining and improving the ecological and hydrological conditions of the watershed in the longer term. Distribution of water should be subservient to this process.

Prior to decentralization the BRLKT office had the formal role of macro planning, monitoring and evaluation of watershed management, land rehabilitation, soil conservation, evaluation of annual planning and technical design of land rehabilitation and soil conservation. This formal role implies an important role in watershed management, however in reality this role is not realized. However, from the environmental perspective, and management for long term sustainability of water resources the BRLKT probably has the most relevant position. This function will still be available in the new post decentralization structure. A technical implementation unit with a similar function has been included in the draft structure of the province level Office of Forestry Services, and the central government has indicated that the BRLKT office will continue to operate in the regions to provide technical support and oversee the de-concentration and co-administration process after decentralization. Ideally any future watershed management committee developments would be led

by forestry services, and all forestry representatives should take a leading position.

3.2 The District Office of Forestry Services

The current institutional capacity of the Minahasa District Forestry Services Office (MDFSO) or Dinas Kehutanan Minahasa is generally weak, and would require significant investment to bring it up to a reliable standard for forestry management. Human resources, material resources, improvement of financial management and budgeting arrangements, general disciplinary and leadership improvements and work practices enhancement before any real capacity for key roles in project management would be possible. The current conditions in this office are reflected in the lack of data, and the general overall lack of awareness that becomes evident in a site visit. It is recommended that this institution play a counterpart role with a higher level institution as a mentoring unit. Ideally the district level office would be involved in supervised implementation in the first instance. The writer had great difficulty in having this office fulfill commitments for the data gathering process of the institutional assessment. It seems that data that is generally available in personnel lists or equipment lists etc, is not in existence in this office. Enthusiasm of personnel to be involved was very low.

3.2.1 Organizational Setting

The ideal role for the MDFSO is as an implementation and monitoring unit, however, in its current state, it would need significant overhaul to provide the expected capacity. The current structure is such that several key capabilities are virtually non-existent, and it is highly likely that considerable overlap in duties occurs, along with general abuse of the organizational structure.

The current structure includes the following:

Administration Division, (Program and Reporting section, Finance section & General section), Forest Product Distribution section (Distribution sub-section, Sales sub section, Protection sub section), Social Forestry section (Maintenance sub section, Development sub section), Technical guidance and land conservation section, (Program sub section, Human Resources sub section and Land Conservation sub section) (Figure I.3.1).

To carry out its mandate as expected and to support the attainment of the project objectives the following roles would also need to be included within the current structure.

There is a need for organizational support to undertake forest trail re-

establishment and maintenance, application of physical measures for soil conservation purposes, and collection of data, processing, analysis and dissemination of information about the condition of forests. Apart from this there is also a need for a venue to be created for public input about watershed conservation, and to disseminate information to the public. Finally, there is a need to establish a district forest inventory, and nursery system to support re-greening and the unsatisfied demand from farmers for seedlings. Ideally, any government administrative structure that is preparing for an increased role within the framework of decentralization, deconcentration and cooperative working arrangements, would require also a section dedicated to information, in which the major goal would be to gather data from control points throughout the watershed and maintain a database for local policy development as well as act as a lower data entry window for the national Minister of Forestry data network.

There is an information function in several departments, but although these functions and activities are split between organizational homes a sufficient coordination mechanism does not exist, and clearly not all of these functions are currently running in an optimal manner. All information functions should be brought together in one unit.

Part of the development of this office capacity would include strengthening of the extension services through development of a group of village cadres, there should also be an organizational home to support extension services development.

The structure of the organization has a number of key fuctions accounted for, but the MDFSO lacks an organizational home for an information function to support project monitoring and evaluation, collection, processing, analysis and report writing about general forestry conditions in the watershed. It also lacks a home for forest boundary management and management of physical measures for conservation. As mentioned above there is also a need for an extension services management section. The remaining needs can be accommodated in the existing structure.

There are significant problems also within each component of the organizational structure, which applies significant constraint to performance of key functions. The structure is institutionally inadequate in that the idea of authority through structural position does not necessarily apply. Often the person assigned to a particular task will be assigned because he/she is trusted in a personal sense by the relevant leader, rather than for any particular technical or managerial skill. The components of the structure however are generally managerially and technically inadequate. Although it is difficult to supply hard data to support this assertion, a walk around the office on any weekday combined with conversation

with the staff provides adequate evidence. It is difficult to find anybody in the office that is responsible for anything. Those who are responsible for anything are rarely available in the office, and the staff that are available, generally appear to be underutilized.

At the moment there is also likely to be quite considerable abuse of the existing structure. It is likely that most of the "profitable" work done in the organization is dominated by a certain core group who monopolize the project process, while a majority of staff are underutilized and as a result do not actively carry out their designated role because they lack the direction and will.

The people within each division are not likely also to share objectives, for the above mentioned reasons, as well as the fact that there are no clearly stated objectives, and no coordination or leadership dedicated to protecting the intangible long-term benefits of forests. If objectives are shared, then they will be pursued objectively, however in this case the general indication is that objectives are neither shared or pursued collectively, other than in a project oriented sense in which a core group would share a common objective, however the core group would likely originate from several homes.

3.2.2 Leadership

The vision of the Organization is quite straightforward and simple, although, it could be improved by putting more focus on the most pressing need, which is to protect the forest resources for future generations. This is important, especially in Minahasa District where forest resources are already at a minimum.

The vision:

"Professionalism and effectiveness of forestry personnel for optimal services and monitoring in forest, soil and water conservation"

It would be much more appropriate to leave professionalism, effectiveness and services out of the vision, this vision focuses on the personnel and not the mandate. The vision should focus on the overall role, and preservation of forests should be the focal point. The professionalism and effectiveness and services can be incorporated into the mission however, the improvement of these three things would be more appropriately assigned to the Ministry of Home Affairs or State Administration at a higher level to apply to the public service training programs. The District Office should focus on the forests, and the vision should encompass the long-term idea of conservation and a return to the optimal hydrological cycle.

The mission complicates matters by including elements that should be related to specific units within the organization. The mission should be simplified to

promote understanding of the main elements of the job at hand, which is generally:

"Protection and enhancement of forest resources as both an intangible long term regional asset, and a tangible short term economic asset, within the framework of optimum conservation of soil, land and watershed resources"

The complicated mission of the organization from a personal sense may not be fully appreciated by the employees, sections of the mission make the organization sound more like an independent business than an organization dedicated to services for the community.

There are terms of reference for each units and structural positions, however some are quite ambiguous and others have significant overlap with other units.

Clearly, there is a commitment to the vision, and mission expressed through the stated priorities of the organization, the problem being one of degree and approach. Because of the fact that the vision and mission are flawed, it is difficult to judge the commitment, however a questionnaire distributed to staff members about motivating factors of the organization indicates that organizations' motivation is perhaps dominated more by political needs than care for the environment.

3.2.3 Financial Resources

The MDFSO is now in a very good position to mobilize internal funds because of the new decentralization process. There are a number of special funds that have been utilized for project purposes such as the District and Province Development Budget through APBN funding and Special funds from Presidents Instructions for Re-greening (Table I.3.1). However there capacity is currently limited to accessing funds from these sources. It is doubtful if the current structure would be capable of securing funds from foreign or central sources without support from the Central and Provincial Government.

There is no visible evidence of a capacity for the MDFSO to present its case to any other funding institution than the local government. It is hard to understand how the regional government can justify the disbursement of large amounts of funding to this office, without better monitoring and evaluation systems in place.

Judging by the existence of supporting hardware software and human resources the capacity to gather accurate and reliable information and analyze it well would be very limited, as would be the capacity to generate alternative action plans. In fact, alternative action plans probably are not considered, as outcome is not necessarily a priority in the project development and management stages.

There is no evidence of cost-benefit analysis, or trade-off analysis for comparison of alternative scenarios.

There are no data gathering mechanisms or data processing systems in place, to provide the data and information needed for on going management purposes.

Most of the expenditure would be applied through an ad hoc project implementation mechanism which would be controlled by the Head of Dinas, almost all of the control originates here and enforcement of rules, and inter unit resource coordination are in the hands of the Dinas Head. Effective capacity to analyze projects, cover all costs, during project implementation and ensure post project sustainability would depend on the project manager who would also work very closely with the Head. In general, planning for sustainability is a major problem area. Most projects are approached in a "one off" manner.

Expenditure in the organization is basically controlled by the Head of Dinas as well, and it seems that inter unit resource coordination would be minimal, in fact there seems to be an almost total lack of concern for maintenance. Finance reporting systems are not highly developed, and it was difficult to access any financial information. However, annual reports were provided, but, reliability and accuracy could be called into question.

Budget override is also controlled by the Head of Dinas locally, however, there is a regular general budget tracking mechanism in place, auditors are sent periodically from the central and provincial level, as well as from the Regional (District) Government to examine expenditure. There are penalties for overspending, but again, locally this is controlled fully by the Head of Dinas. No specific penalties were mentioned, although it seems that generally, any serious problems are dealt with by removing the offending party from the position of budget control. However, at the higher levels there is likely to be a loose informal system of control.

3.2.4 Material Resources

The MDFSO has a significant problem with regard to material resources, the building that it currently occupies is in poor condition and is not owned by MDFSO. The building is on loan to MDFSO from the Department of Defense. Obviously this creates problems with maintenance. Because MDFSO do not own the building, they are reluctant to spend on maintenance due to the temporary nature of occupancy. The Department of Defense has relieved themselves of maintenance by loaning the building to MDFSO. In fact MDFSO shares the building with several other District level Government Services Offices. Outwardly, the building often seems unoccupied and the poor condition from the

point of view of maintenance and cleanliness indicates that there are some significant management problems.

The office has a shortage of equipment, in all respects. There is only one computer in running order, and the only other equipment that was visible in the office was furniture such as cupboards, desks and chairs.

Judging by the conditions in general, it is unlikely that any significant share of the available funding is devoted to, or at least finds its way to maintenance or sustained operations. As mentioned above, it is likely that most of the operational and project funds are utilized by a core group, with close linkages to the leadership, these few people would be supported by adequate funding while the other personnel would find it difficult to perform any duties on a regular sustained basis due to lack of operational funding.

There is sufficient technical capacity to utilize the material resources fully, however the material resources are currently almost non existent. Any material resource improvements such as computers for example, would need to be accompanied by significant amounts of formal and on the job training and coaching to ensure that the technology is used effectively.

3.2.5 Human Resources

Almost all of the key positions and functions are staffed, with only one vacant position in the structure. The Extension Services Program and Methods Development Sub-section, which is a key position, is currently without a head. Two of the key sections, the social forestry and extension services and land conservation sections are only staffed by one person each.

All of the personnel with forestry qualifications (senior secondary vocational or degrees) have been working for 1 year or less in this office.

According to the data as provided, there are no personnel with forestry qualifications in any of the structural positions, although some have had long experience. Normally one would expect to find someone in the structure with formal forestry qualifications.

In general there is a shortage of staff with technical skills for forestry and the lack of technology currently within this office would indicate that skills to support any sort of technology based improvements would be in short supply (Table I.3.2).

3.2.6 Work Practices

There are mixed feelings about the working environment, discussions with employees showed that they tended to contradict each other about their level of happiness at work. The available data indicated that newer employees (especially the very newly employed starting in 2000, had a very enthusiastic outlook and positive attitude) which is to be expected. However the disgruntled attitude of some longer term employees did tend to indicate that there are problems with work practices which in this case are linked to leadership and management problems, including the generally low wages.

Judging by the difficulty experienced in finding people in the work place, including the Head of Dinas, It would seem that the single most important motivation for many is a supplementary source of income.

Visible coordination, (other than for choir practice) was difficult to find, as was any evidence of monitoring and supervision of planned activities

There is no available information about the timeliness of managerial decisions.

Authority is not delegated effectively within this office. During the survey, the head of the office introduced the surveyor to several staff, and a letter was obtained from the head to help in the data gathering process. However, this authority was not enough for most to disclose information voluntarily and freely. Collection of data, and getting personnel to fill out questionnaires was a difficult process.

Management communicates with staff, but generally only in a formal meeting once a month. The meeting that was to be attended by the writer for information purposes was not undertaken in the usual manner. In this case, around 60 people were sitting idle for two hours while waiting for the meeting to begin. The survey team eventually departed without attending the meeting. It is unclear whether the meeting eventually took place or not.

3.3 The Provincial Office of Forestry Services

The current institutional capacity of the Minahasa Province Forestry Services Office (MPFSO) or Dinas Kehutanan Sulawesi Utara, is generally good in some departments, and the leadership and work practices in general reflect a reasonable amount of planning and good management practices. The current conditions in this office are reflected in the general level of awareness about the problems of the watershed, and the level of activity that becomes evident in a site visit. It is recommended that this institution play a leading role in project management and implementation. This office would be the ideal unit to which

the district office should be attached in a counterpart role. Data about personnel and equipment were already in existence and readily available at the time the survey was being undertaken. Enthusiasm among personnel was quite noticeable. This office also has evidence of some good skills among staff members such as GPS and computer operation. The following sections explain the situation as is evident through observation and informal unstructured interviews with key persons in the structure, and where possible as reflected in hard data.

There is at present some doubt about the future form of this organization after decentralization is fully implemented.

3.3.1 Organizational Setting

The current structure includes the following:

Administration Division, (consists of General Affairs sub-division, Personnel sub-division, Finance sub-division, Equipment sub-division & Administration sub-division), There are five sub-dinas, each as follows: Sub-dinas of Program Organization (consisting of Forest inventory section, Forest Area section, Planning section and Measurement and Mapping section). Sub-dinas of Production (consisting of Production Infrastructure section, Forest Product Management section, Forest Product Taxation section, and a Technical Manpower section). Sub-dinas of Farm Enterprises (consists of Forest Product Testing section, Market Information section, Tax Collection section, and Legality section). Sub-dinas of Forest Development (consists of Seeds and Silviculture section, Rehabilitation and Reforestation section, Forest Versatility section, and Forest Protection section), and Sub-dinas of Security and Extension Services (which consists of a Legal Procedures section, Extension Services Infrastructure section and Special Police section) (Figure I.3.1)

The most important of these is the Sub-dinas of Program Organization, and Sub-dinas of Forest Development. At present, these two Sub-dinas are quite well developed and have a good range of skills that will be needed for provincial watershed management needs of the future. Technically, within the framework of decentralization, the operational role of the remaining sub-dinas' can and should be undertaken through other venues.

There are a number of key fuctions within the MPFSO that will be required for the future watershed and forest management role at province level. There exists a good organizational structure to support an information function for project monitoring and evaluation, collection, processing, analysis of data and report writing about general forestry conditions in the watershed. The key functions within this organizational structure would serve the future provincial needs well

with a minimum of restructuring, and investment in human resources and material needs.

3.3.2 Leadership

The vision of the MPFSO is quite straight forward and focuses on the problems at hand.

"A dual role for forest resources, including production and conservation through professional management and quality services in the framework of holistic regional development"

And, the mission has 4 major components

1) To realize the clean and strong implementation of government and forestry development and a capacity to enforce the current valid laws and regulations within the framework of providing quality services to the community
2) To increase the coordination and develop active participation of all stakeholders while maintaining a priority on the needs of the community (rakyat kecil)
3) To make optimal the function of forest resources as both an ecological resource, and a productive economic and social resource according to allocations
4) To realize the institutional capacity and economic empowerment of the community through participation, and in the framework of economic endurance and increasing the competitive edge.

The MPFSO has a demonstrated commitment to the vision and mission and has backed up the vision and mission with a five year strategic development plan and a one year priority development plan. The plan includes the major strategies needed to manage the forestry aspects of North Sulawesi, and reflects an informed insight into the problems and challenges of the future.

3.3.3 Financial Resources

The MPFSO, like most government agencies, particularly at province level has a problem with funding. However, clearly, from the quality of reports produced, and other work carried out by this organization with regard to forestry problems, there exists a base capacity to present their case and possibly secure funds from foreign sources without support from the Central Government, however, the limitations that they are faced with at present are the lack of resources available to them as a provincial level unit. They are also constrained by lack of a reliable data and information system.

The MPFSO has a critical mass of staff with basic computer operation skills that would respond well as a catalyst for future capacity development. There is a need for some training and systems development activities in order that it is able to present its case well to funding institutions or the local government. The Regional Government would do well to link up with this organization as a coordinating unit.

Judging by the existence of supporting hardware software and human resources the capacity to gather accurate and reliable information and analyze it well would be very easily achieved, as would be the capacity to generate alternative action plans.

At the time of the survey the head of the Program Development section was preparing/translating a guide for his staff for training in, and increasing the understanding of, cost-benefit analysis, to be used in the program development process. There is a strong indication that the capacity to undertake trade-off analysis to compare alternative strategies would also be available, or at least easily developed within a short span of time, and present it well.

There are no data gathering mechanisms or data processing systems in place, to provide the data and information needed for on going management purposes. However, there is a system of stand alone computers and a ready and willing team to operate them.

The MPFSO has key rules of the game with regard to budgeting, in that they must report all budgets to the provincial audit board which means that they need to follow a set of procedures in order to secure funding.

There is a capacity to control expenditure through the government financial reporting system, which is operated through a periodic finance reporting system (monthly). There are also rules of no budget override in place. If anything needs to be changed in the budget, it must be done through a committee based on consensus.

The organization has an effective capacity to analyze projects, cover all costs during project implementation and ensure post project sustainability but the major problem at present is that the funding allocations in the budget are not sufficient to cover all activities (Table I.3.3).

There are some significant penalties for mismanaging budgets, any overspending must be accounted for. If overspending cannot be accounted for, there is a strong possibility that the budget manager will be removed from this position in the future.

3.3.4 Material Resources

The MPFSO also has a significant problem with regard to material resources, however, generally, it is currently much better off than the Minahasa Office. The building that it currently occupies is in good condition and is owned by MPFSO. It is reasonably well maintained and clean.

The available resources in the office are not utilized fully, and while the writer believes that there is effective logistical ability, the funds at present are just not available for sustained operation and maintenance of an adequate level. There is sufficient technical capacity to utilize the material resources fully, but the lack of a good information system limits the ability to get to the root cause of management problems.

The MPFSO owns substantial tracts of land for office purposes in North Sulawesi, there is around 21,000 M2 in 11 plots of between 1,000 and 3,000 M2 (Table I.3.4-I.3.5). There are also around 50 offices for forest patrol and extension services throughout the province.

Mobility is a problem that all offices suffer, and the number of vehicles that are available for operational purposes will have a direct influence on the ability to undertake a sufficient management role. The MPFSO has fifteen operational vehicles (five cars, nine motorcycles and one speed boat) with which to support operations (Table I.3.6). Four of these vehicles are around 9 years old, which indicates that the reliability would be sub-standard. It is difficult to see how an office with five sub-dinas and around 19 specific operational sections can operate effectively at province level with only 5 cars. Presumably the motorcycles are used mainly for running messages locally, and are used mainly in the Manado area. There are more vehicles spread out among the districts, however only around 10 cars and 5 motorcycles (one motorcycle is over 10, and three over 20 years old) for the entire province.

There are only 8 stand-alone computers in this office, and very few printers and peripherals. Ideally a network would be required to link key sections and provide them with a channel to information in the international knowledge base of forestry, pest control etc. (Table I.3.7)

3.3.5 Human Resources

The human resources of MPFSO are by local standards generally well educated with more than half of the personnel with senior secondary education or higher. Around 10 percent hold university degrees or higher.

While the general level of education is relatively high there is a shortage of personnel with forestry specific education. Only around 5% have technical forestry related educational background. Ideally this figure should be around 40% of the workforce.

Human Resources of

North Sulawesi Office of Forestry Services

Level of Education	Total	Percent
Masters	1	0.2
Degree	46	10.6
Diploma	3	0.7
Senior Secondary General	218	50.5
Senior Secondary Vocational	105	24.3
Junior Secondary General	52	12.0
Junior Secondary Vocational	1	0.2
Elementary School	6	1.4
Total	432	100

There is a sufficient number of personnel to support the key functions and activities, The structure is such that the more highly educated are employed in the provincial office in Manado. This is appropriate given the types of duties that are required in this office. Most positions in the structure (managerial) are occupied by people with either appropriate qualifications or long experience in the department. Operational staff are also generally appropriately qualified, with a good mix of skills for operational duties. Only one position stands out as a risk of mismatch and that is the Head of Legality Section, who has only 11 years experience in the Forestry Department and an agriculture degree with an agro-forestry specialization. This position would be more suited to a legal qualification, and perhaps the agro-forestry specialization could be more productively exploited in a different position. The problem however, is only minor, when viewed in terms of the overall situation.

It seems also that there are sufficient technical skills to utilize and support the technology used currently. However, the introduction of new systems would require more focused HRD programs and training. At the moment it is clear that there is a palpable capacity for further development. One of the major constraints to technology use is routine funding for consumables and maintenance. Many staff are quite capable of operating GPS and the existing computers and software.

3.3.6 Work Practices

In general, the people appear happy in their working environment, although, there is room for improvement in working conditions. Most staff at the moment, particularly in the Sub-dinas of Program Development are quite helpful and enthusiastic about their work, this became clear during the survey when the head left to attend a meeting. He delegated roles to his staff before leaving, and they independently went about them, indicating that leadership is reasonably good

and there was visible coordination.

There are written programs and plans, however, at the time no budgets were available to be accessed. The writer suspects that the budgets would be well prepared and recorded.

It is difficult to present any conclusive evidence about visible coordination, monitoring and supervision of planned activities because of the current state of the government in the disorganization leading up to decentralization.

Managerial decisions are generally made on time, according to key informants, the problem that is most likely to occur is delays in fund disbursement.

Management communicates with staff on a regular basis, as mentioned above, at the time of the survey the Head of the Sub Dinas was preparing for an on-the-job training program for staff.

There was no evidence of appropriate technology use in the appropriate places

3.4 The Tondano Office of Land Rehabilitation and Soil Conservation

The Tondano Office of Land Rehabilitation and Soil Conservation will be abolished at the beginning of 2001 along with the Regional Office of Forestry (Kanwil). Given the fact that this office will no longer be in existence the human and material resources will be examined only to shed some light on the possible use of this capacity in a future role. It bears mentioning however, that the general skills level of staff is quite high, and the management reasonably good, although it is difficult to make any definitive judgment in the current climate. The building that is currently the site of the study team office, is in good condition.

3.4.1 Organizational Setting

The Tondano Office of Land Rehabilitation and Soil Conservation (BRLKT) has a generally well developed structure to undertake its duties as described.

The organizational structure of BRLKT is as follows

Administration Sub Division, (General and Financial Affairs), Planning and Program section , Technical Guidance section and Functional Working Group,

All personnel are assigned a specific role in the structure, which indicates a specific set of duties and responsibilities.(Figure I.3.2)

3.4.2 Financial Resources

The BRLKT is now in a very difficult position to mobilize internal funds because of the new decentralization process, and the fact that it will be abolished next year. Informal discussions with key informants indicated that the operational budget was never sufficient. Currently, the operational budget is around Rp. 60,000,000 per annum, of which around 6 million is allocated for transport. Based on this budget the personnel can spend a maximum of 20 days per year in the field.

Clearly there is a capacity for the BRLKT to present its case to any other funding institution than the local government. However, the destiny of this institution is such that it is currently irrelevant.

Judging by the existence of supporting hardware software and human resources the capacity to gather accurate and reliable information and analyze it well would be quite advanced, counterpart staff working in the office during the feasibility study demonstrated a good range of skills, especially in GIS operation. The general level of education among the staff is also quite high.

It is clear also from discussions that this organization has the following structures in place under the same arrangements as the Provincial Office of Forestry Services:

1) key rules of the game with regard to budgeting and mechanisms to effectively enforce the rules
2) an effective inter unit resource coordination system
3) and an effective capacity to analyze projects, cover all costs, during project implementation and ensure post project sustainability
4) the capacity to control expenditure
5) a periodic finance reporting system
6) rules of “no budget override” and
7) penalties on overspending

3.4.3 Material Resources

The BRLKT has a reasonable supply of material resources, (Table I.3.8) including land, offices several cars, computers, and other items, Discussions with key informants indicated that although there are a number of vehicles (5 cars, 8 motorcycles) in good condition, and computers, there is never enough to do the job properly. Every person who undertakes fieldwork should have access to a car and a fuel and maintenance budget.

There is a good supply of technology resources such as computers and

supporting equipment in this office however, the budgeting is not enough to ensure that operations and maintenance are carried out in a regular and reliable manner, even though there is effective logistical ability and technical capacity to utilize the material resources fully.

Distribution of Education Qualifications: BRLKT Staff

Education Level	Total	Percent
Post Graduate	2	4
Graduate Degree	6	11
Diploma	1	2
Senior Secondary	44	83
Total	53	100

Financial support for such things as paper and ink cartridges for the plotter to create maps with is not available through a regular budget.

3.4.4 Human Resources

The structure of this organization is well staffed although the total number of higher education holders is relatively high. Seventeen percent of BRLKT staff have higher education qualifications.

All the key functions except one are occupied by holders of higher education qualifications. This organization appears to be very efficient in that it is not too top heavy. There are only six leader positions from 53 staff, and the general level of the quality of work suggests that there is an appropriate match of skills with jobs, and the qualifications and experience of managerial staff are commensurate with their jobs (Table I.3.9).

The current skills levels also are matched reasonably well with the technology used. However, the current level of technology in use is quite low again due to the problems with operational funding.

3.4.5 Work Practices

People appear happy in the work environment, however the general insecurity that has accompanied the decentralization process, and the impending threat of loss of employment with the BRLKT being abolished has created a situation in which it is difficult to judge the work practices in any depth. The Personnel at province level seem to generally have a more objective and product oriented approach to their work. This is in stark contrast to the district level staff, who in some ways appear confused when questioned about their work.

At this level written programs, plans and budgets are common-place and there is visible coordination, monitoring and supervision.

The hiring, training, job assigning process as well as the promotion/transfer

process is based on a number of criteria, however these criteria are not clear at this stage.

According to administration officials managerial decisions are generally made on time, but the fund disbursement is the most likely source of delays.

Authority is generally delegated effectively, this is evident in the ease with which employees of the BRLKT communicate with survey staff.

Management communicates regularly with staff through a number of forums both formal and informal.

3.5 Forest Management Units

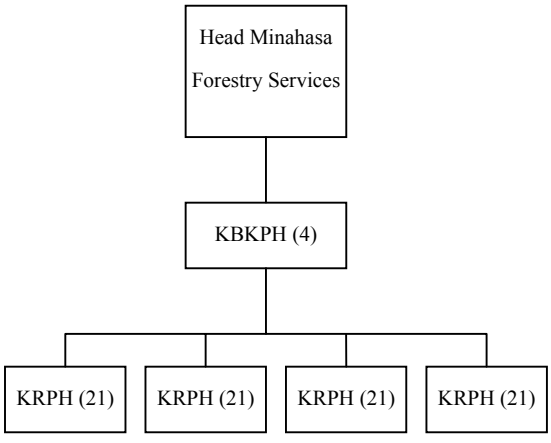
A brief survey of the Forest Management Units or Kesatuan Pemangkuan Hutan was undertaken to find a general description of the institutional conditions in these offices. These units are an extension of the Minahasa Forestry Services Office. This is only valid for the Minahasa office, because it was an experimental district for decentralization that began to be implemented in 1996, and since, has developed along its own lines. This structure does not apply to other districts, and the forestry services for the remainder of North Sulawesi Province operates under a different organizational structure, under the Provincial Forestry Services Office.

Minahasa is divided into four forestry administration areas as follows:

1) Central Minahasa
2) Southeast Minahasa
3) North Minahasa, and
4) South Minahasa

Each of these areas has an officer assigned as the Kepala Bagian Kesatuan Pemangkuan Hutan (KBKPH) or Head of Forest Management Unit Division. The KBKPH reports directly to the Head of the Minahasa Forestry Services Office, at a monthly meeting. Under each of the KBKPH are Kepala Resort Pemangkuan Hutan (KRPH) there are a total of twenty one in Minahasa District. The staff of these units undertake

Organizational Structure Forest Management Units



forest patrols and extension services. The Resort Pemangkuan Hutan (RPH) or Forest Management Post is also sometimes referred to as Anak Ranting Dinas Kehutanan (ARDK) or Forestry Services Sub Branch and the office of KBKPH is known as Ranting Dinas Kehutanan (RDK) or Forestry Services Branch.

The activities of these units are severely limited due to the lack of an adequate operational fund. Each KBKPH has a number of permanent employees (approx 1-2 personnel at each station, and around 35 assistants. The Central Minahasa KBKPH for example has 9 KRPH, 12 station personnel and 35 assistants. The forest patrols are very limited, as are the extension services. The following table shows typical monthly activities schedule as reported by a KBKPH.

Clearly the activity levels are very low. Most employees do not have a proactive role. Although this office should also provide extension services, the only evidence is in the training and awareness programs for users of forest products. Also in a report from the KBKPH, which covered a six-month period from October 1999 to March 2000, only 9 days were devoted to any type of activity that might be related to extension services. However, the focus of this extension was on following regulations, and giving advice about improving the quality of forest based products in order that they may compete in the marketplace.

Activities in KBKPH Central Minahasa, November 1999 to January 2000

Month	Date (1999-2000)	Activity
October	23	Checking mining location in forest
	25-29	Monitoring/explaining regulations (wood housing industry)
	30	Internal meeting
November	2	Forest patrol
	8-12	Internal training for staff and assistants
	18	Forest patrol
	25	Monitoring forest boundaries
December	2-4	Forest patrol
	7-12	Training (forest firefighting)
	20	Monitoring of forest products/wood, ensure regulations are followed
	30	Evaluation meeting
January	3	Attend ceremony at Office of Regent
	5	Monthly meeting at Forestry Services Office
	10	Monitoring/training for product quality (Wood Houses)
	14	Monitoring protection forest project (forest road 2 km)
	17	Constructing border markers
	25	Monitoring of furniture industry (regulations)
February	5	Monthly meeting Dinas Kehuatanan Minahasa
	8	Internal motivational/training meeting
	11-12	Measuring forest with Team UGM from Jogjakarta
	16	Forest patrol
	22	Monitoring/training for product quality (Wood Houses)
	28	Evaluation meeting
March	3	Monitoring of forest products/wood, ensure regulations are followed advise about quality
	6	Monthly meeting Dinas Kehuatanan Minahasa
	9	Forest monitoring
	11	Forest product monitoring
	14	Accompany data gathering team from Kanwil Kehutanan
	18	Forest patrol
	27	Socialization of regulations at Kanwil Kehutanan
	30	Reserve forest development ceremony (tree planting)
	31	Evaluation meeting

It seems that these offices are rarely involved in any activities from the Forestry Services Office in Minahasa. Reports were completed with recommendations and the themes were often similar, i.e. requests that any activities be coordinated with the KBKPH. According to the interview with staff members, they are never consulted about rehabilitation or re-greening activities, or included in the identification, planning, management or implementation. There is also a problem expressed in that the KBKPH reported that the Forestry Services Office is only interested in large forests, many small forest areas are not included as protection forest, but should be.

The need for good extension services for environmental education and communication is also mentioned. Other recommendations made include the

need for planting programs around springs, physical measures development for erosion/sedimentation control. There is also a list of things needed to support forest patrols and general activities such as uniforms or at least Forestry Service shirts, decent boots, backpacks, thermos flasks, hats, and radios/*handi talky* to support good communications between patrolmen.

In general however, the RPH forestry offices are very underdeveloped. While several good buildings exist, furniture, and supporting technology such as typewriters, telephones, forest measuring equipment etc., are not available. Many of the RPH are just empty offices. The KBKPH offices are in much better condition, and include accommodation (rumah dinas) for the office head. But, these offices are bereft of furniture and fittings, and appear deserted when visited.

One of the KRPH offices was destroyed in a recent demonstration and period of political unrest. The officer currently resides in Manado.

It is difficult to understand why the Minahasa Forestry Services Office is now in its present location. The existing 4 KBKPH offices would be adequate for the task and would ensure that the employees are closer to the community, which they must serve.
The entire inventory of material resources for 9 offices under the Central Minahasa KBKPH is as follows: 4 blocks of land, 3 offices with housing, 1 office only, 4 work huts, 1 communication radio (communicate with provincial office/Jakarta), a tack hammer, 9 rubber stamps (one at each office), 1 desk and 1 filing cabinet .

3.6 Extension Services

The institutional conditions with regard to extension services are very unclear as well. The latest available formal information about extension services is from a document produced in 1995 . Because of the fact that this is around the time that Minahasa was assigned as an experimental district, for the trial decentralization it is likely that the forestry office of Minahasa developed along a different path. However the following is useful as background information, and sheds some light on the general situation with regard to extension services. This is the formal approach to forestry extension services that is relevant for all forestry extension services apart from those involved as experimental decentralization districts.

3.6.1 Organization

According to this document, the organizational aspects of the extension services were as follows:

At the central level there is a Forestry Extension Services Center charged with planning, developing, controlling and evaluating the implementation of extension services. This office has the following functions:

1) Formulate methods, materials and programs for extension services
2) Technical cooperation and evaluation, as well as reporting on implementation
3) Organization and development of extension services manpower and facilities
4) Management of household administration for the center

At province level the extension services are handled by the Provincial Office of Forestry (Kanwil). This office has the following functions:

1) Formulation of plans
2) Organization
3) Monitoring and Evaluation
4) Implementation of extension services

At district level the extension services are handled by the Forestry and Land Conservation Services (Dinas Dati II). This office has the following functions:

1) Formulation of extension services plans
2) Implementation of extension services
3) Monitoring and evaluation

In the field, extension services are applied by the sub district level staff. The sub district staff, must identify problems, arrange programs, and implement extension services directly in the community. The actual extension services should be coordinated with other departments at sub district level. In special cases, the Forestry Extension Services Consultation Post should work together with the Food Crops Extension Services Center at district level.

Extension workers should have good communication skills, a good understanding of their duties, have confidence in the material being disseminated, and get on well with the community. Extension workers should also have a good understanding of the socio-economic aspects of the community, as well as all the reasons why the community may be resistant to change.

3.6.2 Working Mechanism

The working mechanism for extension services involves several levels from district to central. The district level Forestry and Land Conservation Services office prepares annual plans and sends them to the Regents Office, with a copy sent to the Provincial Office of Forestry where it is analyzed and forwarded to the Central Office. At central level the Forestry Extension Services Center

cooperates with the Planning Bureau to finalize annual plans and formulate 5 year, and long term plans.

Training materials are developed through cooperation with the Forestry Research and Development Board, who send the results of research about extension services to the Forestry Extension Services Center. At the Forestry Extension Services Center the results of research are converted into extension services training materials by sector experts, to be applied in the field. In the first instance, the materials are sent to the Provincial Office of Forestry, and the appropriate programs are selected for each region. The appropriate materials are then forwarded to each district office, according to the needs.

This system was valid in 1995, and is likely the last formal recorded method of applying extension services. It is possible that this system has also experienced many changes since 1995, along with the political unrest, and leadership crisis that has caused a number of sudden organizational changes in the ministries.

3.6.3 Minahasa Extension Services

It appears that the current Forestry Services Office in Minahasa has attempted to operate through a different system, and has generally assigned a low priority to extension services. This maybe be due to lack of operational budget and personnel. However, the general picture that springs to mind is that extension services are currently mismanaged. This office has a general tendency to focus more heavily on the policing aspects of the forest, and project activities that distract staff from routine activities, at the expense of development.

According to interviews, there are currently no formal extension services developed for the role of this office. At the moment all forestry extension services are undertaken on an extemporized basis, and usually through re-greening or rehabilitation funding. There are no sustained extension services based on an operational budget. Interviews with traditional village leaders (Hukum Tua) and other villagers showed that the rates of successful implementation of conservation projects was very low. (See relevant section of field report) much of it due to the low capacity to manage projects and apply extension services. According to the Head of the District Forestry Services Office, both the current skills levels of staff, and the number of staff available to support these activities are just not sufficient (Table I.3.10)

There are 64 extension services workers employed under the Minahasa office. Many of these workers have very low skills levels (only 2-3 are able to attend training each year). In 2000, they were all employed in extension services funded by the Regional Budget (APBN) (Routine wages are paid by BRLKT, as

most extension services staff originate from BRLKT, originally, prior to 1995 the District Level Forestry Services were only active in forest policing) under the re-greening assistance project, which was to be implemented over a 9 month period. Apart from the above mentioned, a number of other general interesting observations were made by a JICA Study Team field assistant, who has been gathering summary information on the extension services. Most extension workers do not have any real connection to the villages in which they must work, as a result, the work that is undertaken is not always successful because the extension services workers are rarely able to be on site. One example was made that indicates that if there is a connection to the village through family or for other reasons extension services can be more successful. One extension worker lives in the village in which he works, as a result his efforts are quite visible and obviously the local villagers have more faith in his services, naturally if he lives in the village, and has family in that village, he will be under more social pressure to perform.

It also appears that government extension workers have a role that is more related to project field supervision than extension services per se. Given the fact that re-greening projects are generally small in scope, and distributed broadly around Minahasa, and that the Forestry Services seem generally understaffed when considering the combination of lack of mobility (transport) and underdeveloped infrastructure, it is perhaps important that they maintain this role. Actual extension services should be located closer to the action, in the village, and monitored by the community.

3.7 Village Government

The villages have a Village Representative Board or Badan Perwakilan Desa (BPD). Members of the BPD are elected by the village residents and the village head is elected by the village from a list of potential applicants. Having this BPD is one way to increase the process of democracy in the village, the BPD has the right to question the decisions of the Village Head. In this respect, the rural village community is perhaps the most democratic environment in Indonesia.

The Village Government in Minahasa District is now regulated by a number of regional regulations including Regional Regulations of Minahasa District No. 1, 2, 3, 4, 5 and 6 of 2000, respectively about “The Process of Recommending, Electing, Installing and Dismissing the Village Head”, “The Village Representative Assembly”, “The Organizational Structure of Village Government”, “The Selection, Appointment and Dismissal of Village Apparatus” and “The Formulation, Extension, Erasure and Combining of Villages”. These regulations are also supported by The Decree of the Minahasa Regent No. 129

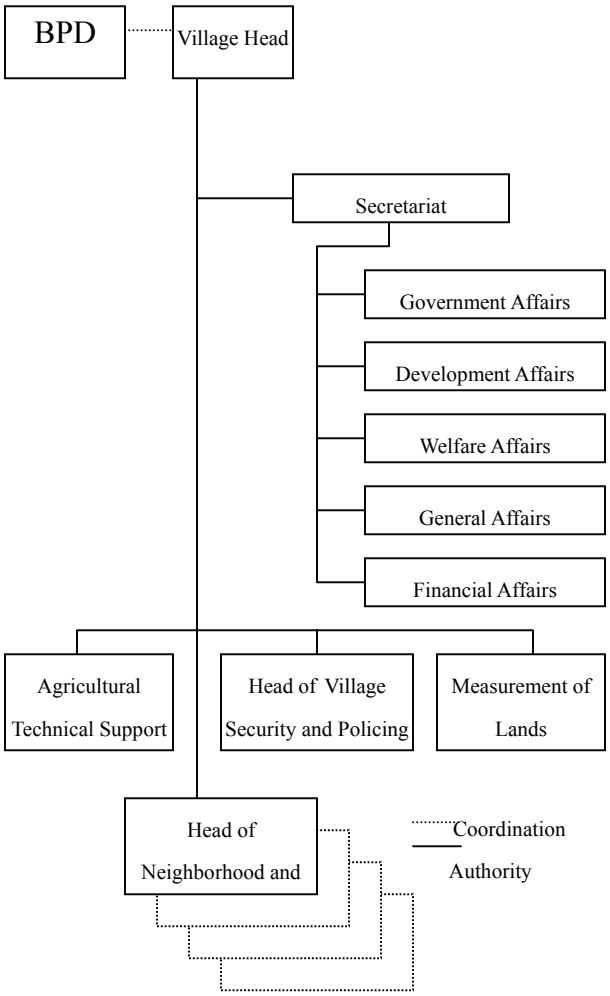
and 130 of 2000 respectively about "The Procedure of Recommending, Electing, Installing and Dismissing the Village Head", and "The Village Representative Assembly". In the case of village government some of the terms such as *Hukum Tua* and others have been used in accordance will local traditional law (*adat*).

The organizational structure of Village Government consists of the Village Head, or *Hukum Tua* and Village Apparatus or *Perangkat Desa*.

The Village Apparatus consists of the Village Secretariat or *Sekretariat Desa,* Field Technical Implementers or *Pelaksana Tehnis Lapangan* and Neighbourhood Head and Assistant or *Kepala Jaga dan Meweteng.*

The Village Secretariat consists of the Village Secretary or *Sekretaris Desa* and a number of Heads of Affairs or *Kepala Urusan*. The positions in the apparatus are appointed by the Village Head, however they are subject to minimum education and personality requirements, and must also be appropriate and agreed to by the members of the BPD.

Organizational Structure of Village Government



This study has set one of its priorities as community empowerment, so the village community becomes the target for project assistance. It is hoped that village groups can become involved in the identification, preparation and implementation of local level projects. Through general discussions, it has been recommended that applying top down institutional development directly to village institutions be avoided in order to leave any bottom up structures undisturbed, and unpolluted by direct intervention.

This will improve the prospects for sustainability. However, a process will need to be developed to enable village institutions to take part in programs. The major

institutional development need in this respect is training and facilitation.

There are two important institutions that should be involved in this process. The BPD or village government due to the interest in village development should be involved, this would imply that the general structure of Village Government should be utilized, i.e. the village secretariat and the agricultural technical support which is linked to the BPD through the village head. This capacity is already allowed for in the organizational structure of the village government.

Although on paper this structure is convincing, in reality it is likely that all villages are at a different level of development and the structures are likely to reflect an assorted range of conditions. In the absence of hard data about all these institutions it was decided that the analysis should be undertaken on a small selection of villages in order to provide some "broad brush strokes" or general information that could shed some light on the average conditions within these institutions. Material resources are not included specifically, due to the fact that in general, analysis of material resources would include mainly technology support (computers etc., transport, and buildings). From the village perspective these things are largely irrelevant due to the fact that it would be difficult for many village governments to support technology resources. As mentioned above it is necessary to avoid any top down influences that would jeopardize sustainability. The geographical scope of villages is such that local and traditional transport is adequate, and existing technologies and procedures would be sufficient for general management purposes (typewriters, manual calculations etc.)

3.7.1 The Limitations of Village leaders & Village Level Institutions

A SWOT analysis carried out on a group of village leaders has indicated that the village leaders have a number of strengths and weaknesses that help to shed some light on their capacity to undertake soil and forest conservation and management of the watershed. While the analysis only incorporated a small number of villages, it is important to realize that perceptions of the process, and the range of strengths, weaknesses, opportunities and treatment available to most villages will be similar.

The implementation of the SWOT resulted in consensus among the leaders from several villages, indicating that the following are the major characteristics of villages, village populations, and village based management and administration. The characteristics under each major heading are listed in order of importance, i.e. the group that participated in the session agreed on the order of priority of each.

(1) Strengths

Strengths, Weaknesses, Opportunities and Future Development Strategies

Strengths	Weaknesses
Support of religious leaders	Capital/funding
Good cooperation between village residents	Skills
Traditional values of mapalus	Top down planning
Responsible administrators	Information
Natural resources/area that needs management	Local regulations
Facilities	Technology
Human resources	Awareness
Opportunities	**Treatment**
External funding	Increase cooperation
Natural resources	Training/Skills Devpt.
Labor force	Bottom up planning
Regional autonomy	Attempt to attract subsidy
Investment/investors	Extension
Overcome difficulties	services/conservation
Natural potentials	Appropriate technology
Village Government Board (BPD)	Improve farming techniques
	Supremacy of law
	Re-greening programs

The consensus reached indicates that from the point of view of strengths the village institutions have good support from the religious leaders, in Minahasa the religious leaders represent a strong and trusted force, which has evolved locally. This, in turn indicates good support from their populations, as religion is one of the more important sides of village life, and the majority of the village population are devoted to religious pursuits. According to one informant, some church groups have in the past, and still do regularly implement reforestation and conservation programs with the voluntary help from their parish members. Both the second and third priority strengths also support this in that good cooperation among village populations is commonplace. The concept of "mapalus" is basically a local term that describes the willingness the villagers have for working together to achieve common goals and the high social value that is placed on this tradition that has evolved through the need for social cohesion. The idea of responsible administrators is also related to the above and, of course, the fact that in the small tight-knit social structure of the village the visibility of the administrator is a social control that ensures his/her devotion to the needs of the community. Village leaders in the small villages don't enjoy the anonymity and psychological distance that their higher-level political counterparts are accustomed to. It can be expected that leaders of rural villages will in general be devoted to the development of their villages, because in the

rural psyche the welfare of the village is likely to reflect success and respect more-so than personal wealth.

The remaining strengths i.e. those described as, facilities and human resources refers to the overall form of the village structure, and indicates that there are buildings and shared resources such as local forms of transport, roads and land available to be used for public purpose. Human resources in this context, refers to the quantitative aspects of supply and the cooperative character of the human resources of the village. It is an indication that the village residents are quite prepared to work together for implementation of development. Finally, the area that needs management refers to the local land resources of the village.

(2) Weaknesses

From the perspective of weaknesses, the classic problem faced by most rural villages has been expressed as the number one priority weakness, that is, capital/funding, clearly this is something that villagers feel is out of their control. Lack of capital/funding is followed by lack of skills, top-down planning and information. Lack of skills is also an important factor and the fact that it is mentioned here as a weakness indicates that the villagers are aware of the need for good skills. The top-down planning refers to the methods of the past, which are now being addressed at least to some extent through implementation of decentralization and development of the Badan Pemerintahan Desa (BPD). The appearance of top-down planning as a weakness is evidence of the strong commitment of the local population to have their voice heard when it comes to government funded and other development projects (informal discussions with local Forestry Services staff has revealed that they also agree that the community should also have a much more prominent role in project identification, implementation, monitoring and management).

Information is one of the more pressing local needs, and although it has not been given a higher priority here, it is likely that it would have been if the leaders understood the real value of information both from the point of view of on-going management problems and project identification, implementation, monitoring and evaluation.

The inclusion of information as a weakness refers also to the general lack of information about new and appropriate technologies that may help to increase productivity or provide new ways to approach local problems. It indicates that villages would find it advantageous to have access to international information services, perhaps in the form of public libraries etc. The number 5 priority weakness refers to the lack of local regulations, and the difficulty of applying the law to local populations who see the forest as their livelihood and believe that it

is a public resource to be used as they see fit. This perception is based on the traditional unwritten laws of the village society, which do not necessarily incorporate the idea of downstream resource users, or a viewpoint that examines the watershed as a primary environmental unit.

The identification of technology (or lack of) as a weakness is closely related to the recording of information (or lack of) as a weakness. In one sense information refers to the information about new technologies. It can also mean information about markets etc. to ensure that farmers produce the right type of product according to the demand.

General awareness is another weakness that would benefit from development of a good information function.

(3) Opportunities

The group of village leaders is well aware also of the opportunities that are available for them to develop their villages. External funding was the most prominent opportunity that they could see because they believe that this is the springboard that they need to develop the skills and technologies for sustained village development. The natural resources of the village provide the foundation for sustained development, while the cooperative labor force would be its prime input to exploit the resource. The group sees regional autonomy as an opportunity in that they themselves will now hold the key to their future prosperity rather than placing it in the hands of someone else, who may well have other motives than village welfare to consider. The village leaders are well aware of the advantages of self-government, but, they are possibly feeling slightly in awe of undertaking the tasks and responsibilities without a decent system in place. Investment/investors are fairly low on the list because the group of leaders likely feel that they need to develop at least a core set of skills and managerial knowledge to ensure that a) they can develop the ability to attract investors, and b) they are able to manage the investment and maximize their benefit while not opening themselves to the risk of being exploited (in the negative sense of the word). The remaining opportunities are related closely to the above, and are generally self explanatory.

(4) Treatment

The best actions for the future, to apply, in order to develop the village was seen as increasing cooperation. This can be interpreted as not only internal village cooperation between residents but also cooperation between villages, and village institutions. They must work together to reduce inefficiencies, pool resources, and strive for better economies of scale. For example, villages could cooperate to attract or even develop their own extension services through education of key

persons in their structure, or develop their own appropriate technologies. Training and skills development was also high on the list, which fits this approach quite well and rings true to project objectives within the framework as was mentioned, as does bottom up planning. The attempts to attract subsidies, also depends heavily on the ability to establish cooperation between villages with similar products or commodities. Extension services was seen as an important ingredient in development and conservation, and the use of appropriate technology was also an important perceived way to ensure success. The remaining treatments were quite straightforward, although an important treatment that is mentioned here at the lower priority levels is supremacy of law, this indicates that village leaders are perhaps finding it increasingly difficult to manage their populations under the customary traditional legal systems, which would likely put individual or family welfare at the center of their existence rather than the health of the national, provincial or watershed level natural resource base.

In general, there are a number of formal community organizations in each village of the Tondano watershed (Village Community Development Committee (LKMD), Youth Organization, Scouts, Womans Group, NGOs and Village Security Committee) . There are also a number of voluntary organizations such as *Mapalus* which is more a concept of ad hoc organization than an institution, as is the idea of *Kerja Bakti*, however the existence of these ad hoc organizations strengthens the indication of the willingness of village people to work together for development. There are a number of cooperatives and water user associations as well, however, these do not exist in all villages.

From the institutional development perspective, it is important to utilize existing institutions, and at village level most institutions that are still active could be considered as being on strong foundations. It is therefore recommended that village institutions be developed through environmental education and communication activities that include study tours for members, on the job training programs, and/or development of a strong village based extension services capacity, along with a community proposal development process based on local identification, planning, management, and implementation of conservation projects through regreening and rehabilitation funding. In this case, the institutions of importance are the BPD and Village Government in general, as institutions that are distributed broadly in all villages, and exist on strong foundations. They are also deeply rooted into the structure of the village community. The LKMD is an organization that also exists in almost all villages, and often members are leaders of other organizations. These two institutions should be developed for cooperation with Minahasa Forestry Services Office in a

village proposal selection and management process. Any formal community organization that can provide evidence of responsible leadership should be included in the proposal process for conservation activities. This includes Farmers Regreening Groups and village based NGOs.

3.8 Non Government Organizations

NGOs in general are underdeveloped, most have very few, or no permanent staff at all. Activities are generally only undertaken on an ad hoc basis. A telephone survey undertaken by the community empowerment expert indicated that most NGOs are inactive, and likely opportunity based organizations.

A number of NGOs sprung up in the past 10 years in response to Government programs. In general they have only been initiated to exploit funding from the Government. As a result NGOs are generally not taken seriously. However, there are two grass roots organizations that are currently being surveyed. There development would generally require funding inputs to ensure good mobility to strengthen the monitoring of watershed health in general, and some training for key staff members.

Several NGOs were present at the BRLKT seminar at which a presentation was made by the JICA study team, and were invited to join in informal discussions after the meeting. Manguni and Forum Kelompok Pelestari Sumber Daya Alam (KPSDA) were the only two that responded and were supported by the government. The KPSDA is a highly trusted institution locally and nationally.

3.8.1 Manguni

The Manguni Organization is an NGO that has its roots in a political new order youth organization that was closely linked to the military. It was established in 1982. The actual Manguni NGO was established in 1999. According to interview with the president (Ketua) it has generally developed in a bottom up manner without support from external sources. The main focus of Manguni is preservation of forests, and representatives were present at seminars about watershed management. This organization is highly motivated, and is active in the field, undertaking monitoring of the forests, and forest product use. At the seminar the president provided some interesting background information about the condition of the forests, which indicates that perhaps there are more significant amounts of unrecorded illegal tree cutting than is discovered or reported by patrols. This group had recently traveled on foot into the forest to monitor the situation. Manguni is a village based NGO with a broad network of members and counterpart organizations. At the time of discussions, according to

the president they were actively facilitating environmental awareness among villages around Lake Tondano.

This NGO has been utilized by government forestry services, and has been approached by the government to help with facilitation of environmental awareness, and to help improve the communication between the government and the community. However, most of the activities have been motivational only, and do not involve any real devoted effort to develop any fundamental basic foundations such as members taking the time to raise seedlings. The organization also lacks an organized approach to reporting of activities. Past programs have generally been applied with Indonesian Government funding.

Several recent newspaper articles ("Bila Boy Maleke 'Jatuh Cinta' pada Lingkungan" Manado Post March 27, 1997; "Libatkan Kehutanan, Himpun Warga Rehab Lahan Kritis" Manado Post October 10, 1997; "150 ha Lahan Tampusu Dihijaukan" Manado Post August 4 1998, indicate the determined nature of the leader of this NGO. These articles explain the activities which include leading voluntary regreening activities with assistance for seedlings from the Forestry Department, bringing extension services to villages, and coordinating youth, church and other groups for voluntary environmental activities. However, these activities were all prior to the 1998 political crisis which indicates that they were likely dependent on the former political connections, and these activities may have been politically motivated rather than undertaken for purely altruistic or philanthropic reasons.

Several more recent articles indicate the high profile involvement in daily environmental activities, "Opsus Dephutbun Sita Ratusan Kubik Kayu" Manado Post December 14, 2000, "Manembo-Nembo Kritis, Dephutbun Geber Opsus" Manado Post December 11, 2000.

This NGO currently operates at community level and has no equipment or vehicles, however, according to the President Mr Boy Robert Maleke, the main thing that is required at present to enable them to act as effective village facilitators is some training and human resource development activities. Many of the members are village residents so they can act directly in the village.

The former organization was used by the Forestry Office in 1997 to introduce and socialize the idea of the Study on Critical Land and Protection Forest Rehabilitation in Tondano Watershed. The problems that this NGO faces are related to the general education level of the members and leadership. It would benefit by some assistance for training and mobility. According to key informants, there is also a problem with the reporting skills, so assistance for installation of a computer at head office, and development of monitoring and

evaluation skills would also be helpful and would strengthen conservation efforts in general.

3.8.2 Forum Kelompok Pelestari Sumber Daya Alam

The Forum Kelompok Pelestari Sumber Daya Alam (FKPSA) is an NGO that operates in the environmental arena. It is a national organization. The focus of this organization in Minahasa is preservation of lake Tondano, watershed management, and general environmental management. It is also highly motivated in this respect, and it is endorsed by the Regional Planning board (Bappeda), it also has strong linkages to the local education system, and is recognized and supported by the forestry department. The president is a Professor from the University of Manado who has long experience in community education.

Activities have generally been limited to self-funded rehabilitation programs which have been undertaken independently by this group based on membership fees and donations. The members raise their own seedlings. In Ratahan 75 ha have been replanted in this manner. The group has been active in self funded extension services and regreening programs for over 30 years.

There current problems that limit the effectiveness of this NGO are the lack of transport to facilitate coordination of the many regional offices, the general lack of funding to support office activities and incentives for the management staff. There are two permanent staff members for administrative purposes. The organization would benefit by installation of computers and training for staff. Key staff should receive management and administration, as well as information technology training.

The organization does not own a building, and equipment to support administration is limited to a typewriter. At the moment a building is rented in Manado.

FKPSA has 469 recorded structural members in North Sulawesi with assorted levels of skills, and the group is rooted well in the village community.

Organizational structure booklet was supplied during the survey, in which a list of structural members is available for the province, district and sub district level chapters of the organization. A number of letters of recognition were also provided as introductory material from the Governor of North Sulawesi, the Minahasa and Bolaang Mongondow Regents, and The Mayors of Manado and Bitung. All these local authorities support FKPSA.

It is recommended that this NGO receive assistance to develop its material

resource base and provide training to members for management, facilitation and application of re-greening activities. Assistance to develop small scale social marketing strategy for increasing environmental awareness in the Tondano Watershed would also be useful. This could be done through working with the local content curriculum in the first instance. This activity should be linked to development of a watershed management or conservation center at the University of Manado.

3.9 Universities

At present the North Sulawesi region is lacking an integrated watershed conservation program and research capacity, and an agro forestry research and development capacity these are two important needs that must be addressed in the near future. Particularly with regard to conservation of the Tondano Watershed.

There are two government universities in the Tondano Watershed, the Sam Ratulangi University in Manado, and the University of Manado in Tondano. It is important for each to have a role in management of the watershed.

3.9.1 Sam Ratulangi University

The Sam Ratulangi Univerity is a well established university with a good local and national reputation as a strong regional university. At present it has a well developed research institute with research centers for Environment and Natural Resources, Population and Human Resources, Industrial Technology and Trade, Regional Development, Social Culture and Policy Development, and Womens Studies. There are also a number of faculties including a Faculty of Agriculture with five relevant study programs including Agricultural Cultivation, Soil Science, Pests and Diseases, Socio Economics, and Agricultural Technology, and an Environmental Study and Natural Resources Center.

Apart from the campus in Manado, the university also owns land in Sea Village, Walian Village and Pandu Village. In Sea there is 60ha, while in both Walian and Pandu there are blocks of between 5-10 ha each. This land is currently unutilized. It is expected that this land will be developed for agricultural research.

The university has recently taken steps to establish a forestry study program in the Faculty of Agriculture. The proposal focuses on Forestry Sciences development, and is currently in the process of being accredited. The program consists of a number of relevant topics useful for producing academic and applied specialists in several fields. However, the program lacks the most

important need for application of the Tondano master plan. There is no agroforestry research and development capacity. This is a most important need to bring international agroforestry practices into line with local needs. The most appropriate planting patterns need to be developed through applied research to find patterns and tree/plant combinations to suit the local conditions while ensuring that on farm productivity is enhanced, local markets are served and erosion is brought to a minimum. It is recommended that this institution be strengthened through technical assistance to develop an applied agro-forestry research and development capacity on the vacant lots indicated above. This development will be treated in more depth by the agro-forestry specialist.

3.9.2 University of Manado

The University of Manado was the former Manado Teachers College. At the moment the university is going through a stage of restructuring to establish as a research and teaching university. It has three major programs of study, which are natural sciences, Social Sciences (Education), and Social Sciences (Non-education and Pure Sciences). The Social Sciences (Non-education and Pure Sciences) program includes a geography stream with a focus on geographical management. The university wishes to develop a capacity for watershed conservation research and development, and a Lake Tondano Study Center. The current theme of this stream is “Save the Lake” which refers to lake Tondano. During interviews with university staff it was also revealed that one major constraint to further development of the university is water supply. Given this situation, the university has an extra strong motivation to become prominent in watershed conservation and water resources management.

The current head of the Geography stream is a holder of an International Social Sciences Doctorate from OHIO State University (USA). His Masters was also undertaken in Geography.

The Geography Stream currently has around 50 lecturers with masters level education or higher.

The university has a good supply of staff, but according to the Rector, the focus in the past has been teaching and education. These are good foundations for development of expertise in management, however, a catalyst and technical assistance is required to move the focus from narrow research and teaching skills to a focus on local resource conservation and management.

The university currently has an oversupply of infrastructure such as buildings but would require some technical assistance, to work together with the local staff and develop expertise in watershed management. There is also a need for

investment in equipment for teaching and research purposes. The geography laboratory lacks good modern equipment to support these functions and the staff wish to establish a watershed research center.

The existing equipment however does not suit a social geographical research and management role. Most equipment in this laboratory is for measurement of physical phenomena, which suits micro-physical applications. The maps are very general in nature and could only be used for teaching purposes. Ideally the center should have more equipment to support research such as computers, GIS, data management and statistics software, research journals, aerial photographs and maps of the local area, a good set of text books and GPS units, census and survey data.

The staff of the geography stream have in the past, donated their own money to purchase a computer, however, they scrapped the idea when the computer broke down. They also have a book listing and borrowing network, in which privately owned books and texts are made available to people who need them. This was developed to help overcome the book shortage.

Equipment of Geography Laboratory

Item	Condition	Number
Maps	Good	19
Globes	Good	2
Atlas	Good	1
Aerial Photos	Good	4
Drawing tables	Good	10
Rulers (1m)	Good	5
Rulers (folding)	Good	8
Triangles	Good	20
Dividers	Good	10
Pantograph	Good	2
Planimeter	Good	1
Clinometer	Good	7
Altimeter	Good	7
Pocket Compass	Good	10
Surveyors Compass	Good	1
Theodolite	Good	1
Planmaster	Good	2
Ph meter	Good	2
Thermometer	Good	2
Stereoscope	Good	1
Telescope	Good	1
Microscope	Good	5
Magnifying glass	Good	5
Geologists hammer	Good	1
Stopwatch	Good	5
Mineral samples	Good	2 sets
Rock samples	Good	1 sets
Radiograph	Good	2
Stencils (alphabet)	Good	10
Computer	Good	1

The staff of the Geography stream have prepared a detailed master plan and proposal for future development. The proposal includes a 25 year mission in which the development and conservation of Tondano watershed has a significant place, with a major part of the mission devoted also to improvement of research and development, and cooperation between government, the private sector and universities for watershed conservation.

According to staff at the interview, The University of Manado currently has around 6,000 – 7,000 students and 890 teaching staff, and 600 administrative staff. There are around 800 foreign students, while most students are from

Eastern Indonesia, including many from Papua.

CHAPTER 4 INSTITUTONAL RESPONSIBILITIES ROLES AND FUNCTIONS OF CENTRAL, REGIONAL AND LOCAL GOVERNMENT

In order to clarify the roles, there is a need to provide a brief analysis of the responsibility of each level of government after decentralization is implemented.

4.1 Central Office: Ministry of Forestry

Presidential Decree No. 177 of 2000 about Organizational Structure and Departmental Duties was ratified by the Vice President on December 15, 2000(Figure I.4.1) According to this decree the national administration system in Indonesia consists of 17 departments. One of these departments is the Ministry of Forestry, which now stands alone as a single department, it was formerly the Ministry of Forestry and Estate Crops. Part Nine of this decree, outlines the general structure of this ministry.

Article 18 provides a list of the important positions and directorates in the Ministry as follows:

The Department of Forestry consists of:

a. The Minister
b. The Secretariat General (Sekjen)
c. The Directorate General of Forest Protection and Conservation of Nature (DGFPCN)
d. The Directorate General of Land Rehabilitation and Social Forestry (DGLRSF)
e. The Directorate General of Forest Product Development (DGFPD)
f. The Inspectorate General (Itjen)
g. The Forestry Spatial Planning Board (FSPB)
h. The Forestry Research and Development Board (FRDB)
i. Expert staff: Institutions, Forestry Administration and Law (EIFAL)
j. Expert staff: Forestry Development (EFD)
k. Expert staff: Socio-economics of Forestry (ESEF)
l. Expert staff: Forestry Partnerships (EFP)
m. Expert staff: Forestry Human Resources Development (EFHRD)

Article 19 provides an outline of the duties and functions of each of these entities, as follows:

1) The Sekjen has the duty to organize and coordinate departmental duties and administration

2) The DGFPCN has the duty of formulation and implementation of policy and technical standards in the field of forest protection and conservation of nature.
3) **The DGLRSF has the duty of formulation and implementation of policy and technical standards in the field of land rehabilitation and social forestry**
4) The DGFPD has the duty of formulation and implementation of policy and technical standards in the field of forest product development
5) The Itjen has the duty of functional supervision within the department
6) The FSPB has the duty of formulation of macro plans in the field of forestry and consolidation of forest areas
7) The FRDB has the duty of undertaking research and development in the field of forestry
8) The EIFAL has the duty of reviewing institutional, legal and forestry administration problems
9) The EFD has the duty of reviewing problems in forestry development
10) The ESEF has the duty of reviewing socio economic problems related to forestry
11) The EFP has the duty of reviewing problems related to forestry partnerships
12) The EFHRD has the duty of reviewing problems related to forestry human resources development

The relevant institution with regard to the Study on Critical Land and Protection Forest Rehabilitation at Tondano Watershed is the DGLRSF. This directorate has the overall responsibility for Land Rehabilitation and Social Forestry in Indonesia. The central governments' role in these areas will be at the macro planning and policy development, balancing of regional development, and setting standards and regulations. This implies a need for data and information to support macro level planning for national conservation monitoring and macro national land rehabilitation and social forestry management. A strong link to provinces and districts will still be needed within the framework of national strategic management. **The role of the DGLRSF within this framework is of extreme importance, and a strong linkage will need to be developed with the North Sulawesi Forestry Services to ensure regular data and information are provided to contribute to the national stock of data to be used for policy development, and monitoring and evaluation of balanced regional development within the field of land rehabilitation and social forestry.** There is also an important role in the establishment of criteria and national standards for such things as inventory, consolidation and administration of social forests, establishment of these areas, and the revision and application of policy with regard to maintenance of the hydrological cycle of watersheds, and social

forestry. In the absence of a consolidated organizational structure and set of duties and functions for the present Central Ministry of Forestry (still forthcoming at the time of the study) it is difficult to make more specific assertions with regard to future duties and functions. However, the central role has probably never been more crucial to promote efficiency and a standard approach to national problems in these areas. A national monitoring and evaluation capacity for land rehabilitation and social forestry should be developed through a standardized cascading national Land Rehabilitation and Social Forestry Management Information or Statistics System based initially on the development of district forestry services offices as lower level data input points, and province level offices as aggregation and forwarding points.

4.2 Province Office of Forestry Services

The organizational structure of the new Province Forestry Services office has been finalized on December 12, 2000. At the moment the responsibilities of each new structural section are in the process of being ratified. Organizational Structure is presented in Figure I.4.1 The relevant sections for Tondano watershed conservation and implementation of the master plan are available in attachment I-2.

The authority of the Provinces as autonomous regions covers authority in government matters that cross district boundaries, and certain other areas that are included in Article 9 of law No. 22 of 1999 about Regional Government.

The phrase “certain other areas” in the above paragraph, which are relevant to forestry refers to macro planning and control of regional development, training in certain fields, allocation of potential human resources, research at provincial level, handling of pest and infectious diseases control, and spatial planning within the province.

More specifically within the field of forestry the following roles are provincial office responsibilities: Establishing guidelines for forest inventory and mapping, demarcation and securing of borders for production and protection forests, establishing guidelines for the management and reconstruction of production and protection forest borders, formulation of macro forestry planning that cross district/municipality borders, establishing guidelines for the supervision of erosion, sedimentation, productivity of land in watersheds that cross district/municipality boundaries, establishing guidelines for the rehabilitation and reclamation of production and protection forests, supervision of seedlings, fertilizers, pesticides, equipment and machinery in forest areas, observing and taking pre-emptive action on plant pests and diseases and the supervision of

integrated pest control in forests, conducting and supervision of rehabilitation and silviculture systems, managing national parks that cross district/municipality boundaries, participating actively with the Central Government in establishment of forest areas, and changing of function and status of forests within the framework of provincial spatial planning based on agreement between provinces, districts and municipalities, protection and security of forests that cross district/municipality boundaries, and providing support for the implementation of technical education and training, and research and development in the field of forestry.

4.3 District Office of Forestry Services

The new organizational structure is still being formulated. At the time of reporting it was not available. It is expected that this office structure will be finalized in the near future. In general, according to Law No 22 of 1999 on Regional Administration, Article 11, the authority of the Districts and Municipalities covers all Government authority except those excluded in Article 7 and regulated in Article 9.

Article 7 states that authority of the regions covers all sectors of Government except foreign policy, defense and security, administration of justice, monetary and fiscal affairs, religious affairs and other sectors which refers to the more obvious central roles of policy for national planning and control of macro national development, balanced fund allocations, the state administrative system, state economic institutions, development and empowerment of human resources, efficient use of resources and strategic high technology, conservation and national standardization.

Article 9 states that any governmental matters that cross district/municipal boundaries, authority that the districts/municipalities are as yet unable to implement, and authority that is delegated to the Governor as a representative of the Central Government.

4.4 Brief Discussion of Roles

The formal regulations and laws with regard to the roles and functions of forestry offices are presented in the above sections. In reality, many of these roles are shared among the different levels, however, in general the following roles are assigned to each level, and each office must implement them thoroughly to ensure that conservation and forestry management is undertaken in the best possible manner.

(1) Central Office

DGLRSF should coordinate and organize national forestry management particularly with regard to land rehabilitation and social forestry. This implies a central role in policy research and development and national macro master planning in these fields. This directorate must provide the guidelines to the provincial offices, and provincial offices must follow the guidelines as closely as possible, and apply the national standards from this office exactly. The province office must also provide the information and data needed regularly in standard format to the DGLRSF for national monitoring and evaluation purposes, and balancing of regional forestry development. The DGLRSF may deploy regional technical implementation units to assist with this function until such times as the regional government can handle it independently.

(2) Provincial Forestry Services Office

Is responsible for coordination and organization of forestry matters at province level. For the most part, the provincial role is much the same as the former central role, only at a smaller scale. The province office should coordinate and organize provincial forestry management particularly, in this case with regard to land rehabilitation and social forestry. This implies a central role in provincial forestry research and development, which should be coordinated with local universities and research institutions and provincial macro master planning in these fields. This office must provide the guidelines to the district/municipality offices, and district offices must follow the guidelines as closely as possible, and apply the standards from this office exactly. The district office must also provide the information and data needed, regularly in standard format to this office for provincial monitoring and evaluation purposes, and balancing of regional forestry development. This office has a major role in planning, coordination and organization of district/municipality activities, particularly with regard to the Tondano Watershed which spans one district and one municipality.

(3) District Forestry Services Office

Is basically the implementation arm of the province office. This office should have a major role in implementation. Re-greening and rehabilitation programs, and other duties should all be managed by this office, but always based on the master plans and guidelines from the provincial office. This office should also provide the forestry management data and information, and monitoring and evaluation data and information regularly to the province office. The District Forestry Services Office is also responsible for forest patrols and general policing management.

CHAPTER 5 INSTITUTIONAL DEVELOPMENT PLAN

5.1 Needs and Tasks of Institutional Development

The following institutions have been identified as crucial to the soil conservation process, and to provide an integrated approach to conservation and development (Figure I.5.1). Each institution is to perform specific tasks with regard to conservation of the Tondano Watershed.
The development of the tasks list will provide insights into the current personnel needs, and the scope of capacity development that will be needed in the future, for effective management of the Tondano Watershed.

5.2 Community Institutional Development

5.2.1 Village Government and Village Development (BPD)

The new Village Government structure has a well thought out development role and an organizational structure to accommodate it. The development affairs sections under the secretariat is to be developed by way of on the job training and mentoring, in the actual process, and the development of a village proposal selection process, guidelines and technical manual. The tasks are to be as follows.

1) Select proposals from village community

5.2.2 Village Community (General)

The village community in general will assume a more prominent role in the identification, planning, management and implementation of conservation projects. Capacity will be developed through on the job training, provision of standard formats, assistance from village cadres, guidelines and technical manual development. Their tasks will therefore be as follows:

1) Establish permanent nursery systems
2) Identify priority conservation projects
3) Plan conservation projects
4) Prepare proposals for conservation projects (rehabilitation, regreening, reforestation)
5) Implement and manage conservation projects
6) Identify appropriate technology physical measures needs
7) Prepare proposals for simple appropriate technology physical measures
8) Implement physical measures construction projects
9) Identify complex engineering technology physical measures needs

10) Lobby district office for physical complex engineering technology measures
11) Provide transport and maintenance for forest patrols
12) Provide information on village conditions

5.2.3 Village Community (Encroachers)

The JICA study team has discovered that the major reason for encroachment is lack of land in certain villages which results in reduced income levels and relative poverty. A social forestry plan is to be developed to find the best way to enhance the hydrological cycle and provide income for the encroachers. It is envisaged that the implementation of conservation and maintenance activities will now be undertaken by village based institutions under guidelines from the local government. The encroachers are to be included as priority employees on these projects to supplement the income and discourage further encroachment. The following tasks are therefore recommended for this group.

1) Construct Boundary Indicators (encroachers as project employees)
2) Construct Forest Trails (encroachers as project employees)

5.2.4 Village Cadre Group

The village cadre group is an imperative within the context of dissemination of technical skills and environmental awareness among the members of village society. The advantages of the relationship between village populations and extension workers who live among them has been described above. This approach will also sit well with the new structure of village government. Village based extension workers will provide a catalyst for village conservation and environmental management development. The following are the tasks of this group.

1) Provide extension services to village community (for project identification, planning, management and implementation, technical assistance)
2) Provide the linkage between government and community
3) Provide a credible form of local assistance
4) Promote environmental conservation and preservation of the hydrological cycle.

5.2.5 Pilot Project

The pilot project for six villages is not a real pilot project per se., i.e. it is not a separate part, but a period in which the project would only be implemented on a small scale in the villages to consolidate the overall development approach, a

testing and consolidation period if you like. The pilot period is a time to work with cadres and village government to prepare, test and modify (if needed) the village proposal process, and the foundation structures and supporting infrastructure for sustainability of the process.

The pilot period would eventually roll into a full implementation of regreening or rehabilitation based on the agro-forestry and other plans recommended in the report. (e.g., if the final report recommended that all villages need to undertake regreening in certain specified areas, then a selection of these villages would be piloted in the first instance).

It is expected that this period would occupy the initial two years of the project, after which the consolidated process would be applied to all villages. The initial period would also provide the opportunity for the cadres and supervisors to undertake on-the-job training in the actual implementation with constant support from the project management, financial management and other consultants.

It is expected that several small scale village level projects are to be implemented in this manner in the first instance, while the current project implementation framework runs in parralel in the background (Dinas Kehutanan Minahasa). It is essentially institutional capacity building to support community involvement in the project selection process, but its main focus is to build local capacity to implement and manage small environmental projects based on government funding (i.e. dana reboisasi, dana penghijauan etc.) Eventually it is expected that developing this capacity at village level will empower village institutions to apply independently to the Dinas Kehutanan for funding, or to other development agencies such as local development foundations (Yayasan Minahasa Raya for example).

(1) The major goal of this period:

To establish and consolidate the administrative process for community implementation based on government or donor agency funding:

(2) Objectives

- Prepare, test, modify and consolidate the guidelines for community proposal submission and selection process.
- Prepare, test, modify and consolidate the standard operating procedures for community proposal submission and selection process.
- Work with village government, cadres, project supervisors from Dinas Kehutanan and NGOs to identify priority village level projects.
- Work with village government, cadres and project supervisors from Dinas Kehutanan and NGOs to select and implement projects based on the

proposed activities.

- Maximize community involvement in these activities

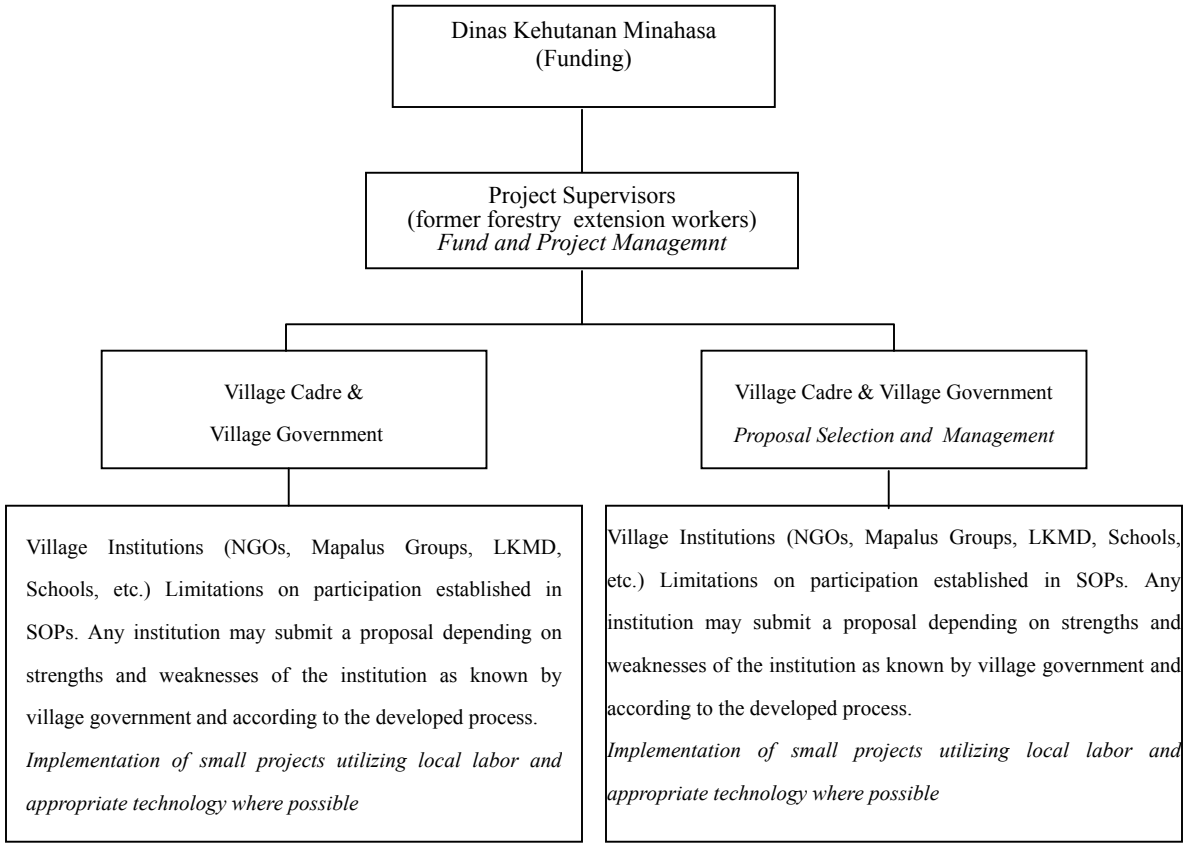
(3) Scope

Initially six villages during first two years

(4) Output

- finalized guidelines for community proposal submission and selection process (hardcopy technical manual).
- SOP for community proposal submission and selection process (hard-copy)
- Cadres, supervisors, and NGOs with working field experience of project identification, community proposal submission and selection. Ready for full implementation
- Guidelines for Dinas Kehutanan Minahasa regreening or project fund management.
- Consensus and agreement from Village Government, Dinas Kehutanan, and other relevant stakeholders involved in the process including adoption of final regulations and standard operating procedures.

(5) The Process to be Institutionalized



5.3 Technical Institutional Development

5.3.1 Sam Ratulangi University

The Sam Ratulangi University has an important role to play in watershed conservation and management. It is also the only local government university with a capacity for general agricultural and geo-systems scientific research. However, there is no capacity for agro forestry research and the technological support for watershed management research from the pure sciences perspective is lacking. Capacity building will be concentrated in these two areas. However all of the following tasks are responsibilities of this university.

1) Agricultural research and development
2) Develop appropriate local applications of agro-forestry
3) Facilitate application of social forestry
4) Monitor and evaluate social forestry programs
5) Gather and analyse micro watershed management information (water quality, rainfall, soils, erosion, etc.)

5.3.2 Ujung Pandang Training Center

The Ujung Pandang (Makassar) Training center is the formal government extension workers training venue. The village cadres are to be trained at this location. Capacity of the center is good for basic extension worker training. However, each year only a small number of government employees from each office in North Sulawesi are trained, however the head of the center clarified that the actual capacity is much higher from the quantitative perspective. The capacity building for this program will include qualitative improvements in the form of recommendations and training materials from the university research programs, and funding for the cadre training.

1) Provide initial training program for cadres (60 from villages)
2) Provide training for supervisors (15 from district office)
3) Provide training for NGO staff (25)

5.4 Institutional Development of Forestry Services

5.4.1 Provincial Forestry Services Office (North Sulawesi)

As mentioned above, this office will require capacity development activities to develop a strong monitoring and evaluation capacity as well as a general forestry information and data management capacity to support a role in provincial policy and planning, and the provision of guidelines. A capacity needs to be developed for the following tasks.

1) Provide policy input about the conservation conditions of the watershed
2) Design watershed conservation database and data collection strategy (WCIS)
3) Establish information linkage to central office & international community
4) Process data
5) Analyze watershed data
6) Prepare reports on current watershed conditions
7) Report on conservation projects in the watershed (monitoring and evaluation)
8) Formulate standard data forms
9) Supervise conservation projects at watershed level
10) Establish inventory of equipment, facilities, fertilizers, pesticides, diseases, pests, and innovations in forestry
11) Confirm plant pests and diseases that occur in the field
12) Develop a knowledge base on plant pests and diseases
13) Monitor outbreaks of pests or diseases
14) Establish watershed GIS
15) Prepare watershed conservation master plans and medium term and annual plans.
16) Prepare planning guidelines for district office
17) Coordinate conservation programs
18) Update master plans based on latest information

5.4.2 District Forestry Services Office (Minahasa)

Also as mentioned above, this office will require the focus of capacity development activities to develop a strong monitoring and evaluation capacity as well as a general forestry information and data management capacity to support a role in provision of information to the community, and general management of forest rehabilitation and social forestry. General capacity of this office will need to be strengthened for project management and good communications with the community as well as a strong capability for quality fieldwork and supervision. Capacity needs to be developed for the following tasks.

1) Gather data from RPH
2) Process data (forward to Province Office)
3) Analyze local data and information
4) Record accurate location of physical measures and conservation projects on the map
5) Prepare simple reports on district forest conditions
6) Call tenders for trail construction
8) Design of physical measures in the field

9) Design recruitment process for cadre extension workers
10) Manage recruitment and development process for cadres
11) Verify plant pests and diseases that are reported, report to province
12) Provide information to the community
13) Manage project funds
14) Planning and cost estimation
15) Coordinate rehabilitation and conservation programs at district level
16) Develop annual conservation plans
17) Supervise conservation programs in the field
18) Supervise data gathering
19) Manage extension services in the field
20) Supervise and manage construction of physical measures in the field

5.4.3 Sub-District Forestry Services (Forest Management Units)

These offices need training and supply of standardized data gathering formats for the field, improved transportation and field mobility, and general improvement of capacity through appropriate hardware provision to undertake the following activities.

1) Apply integrated pest control
2) Establish and mark trails and borders on the ground
3) Monitor construction of trails and border indicators
4) Establish and maintain forest patrols
5) Supervise maintenance of trails and border indicators
6) Provide data to district office about accurate location and scope of forest destruction or encroachment
7) Anticipate, deter and fight forest fires
8) Gather watershed conservation data in the field
9) Provide information in the field (extension services)
10) Deter or prevent criminal activities (enforce the law) prevent further destruction and encroachment
11) Implement forest patrols regularly

The capacity improvement will be made through on the job training, which is included in the "Forestry Management and Rehabilitation Plan" in Appendix-F. Meanwhile, general expenses for the office operation will be provided in the "Institutional Development Plan".

5.5 Accurate Village Boundary Mapping

5.5.1 Office of Sub-District Head

There are currently no accurate village boundaries available for use in GIS. Village boundaries are an important need for the application of the master plan, and to provide each village with an accurate guideline map for village level conservation planning within the context of watershed management and conservation. While this has in the past been the role of the Department of Lands, this office is currently incapable of providing the said maps. The Office of Sub-District Head undertakes village boundary mapping. This process is to be coordinated and standardized as part of the Tondano Project. It is envisaged that accurate village boundaries can be provided with a minimum of effort. The model would later be surrendered to the Department of Lands for consideration as a sustained national process

1) Accurately record and monitor village boundaries

5.6 Institutional Integration and Strengthening of Legal and Regulatory Frameworks

5.6.1 Office of Governor, Regent and Mayor

The Office of Governor, Regent and Mayor would need to undertake at least the following tasks, it is expected that the resources to support these tasks are generally already in place. However some assistance in the form of legal consulting would be required to research and coordinate inter institutional activities.

1) Strengthen the working relationship between provincial, rural district and urban district forestry offices
2) Provide a revised legal and regulatory framework for forestry administration
3) Visibly support watershed conservation
4) Finalize organizational structure for application of government forestry services

5.6.2 Watershed Conservation Committee (PTPA sub-committee)

The Watershed Conservation Committee is the catalyst to bring all stakeholders in the watershed together to discuss the multi sectoral approach to resource management. The committee should meet on a quarterly cycle with conservation as the underlying motivation. In order to be successful the committee will be supported by up-to-date information and data about water resources. At each

meeting different stakeholders will present their perspective of longer term planning with a view to maximizing the conservation of the watershed and minimizing sectoral interests. (Page I-67, Watershed Conservation Committee-Below).

1) Provide general integration forum for watershed management (all stakeholders)

5.6.3 Government Services Integration Forum

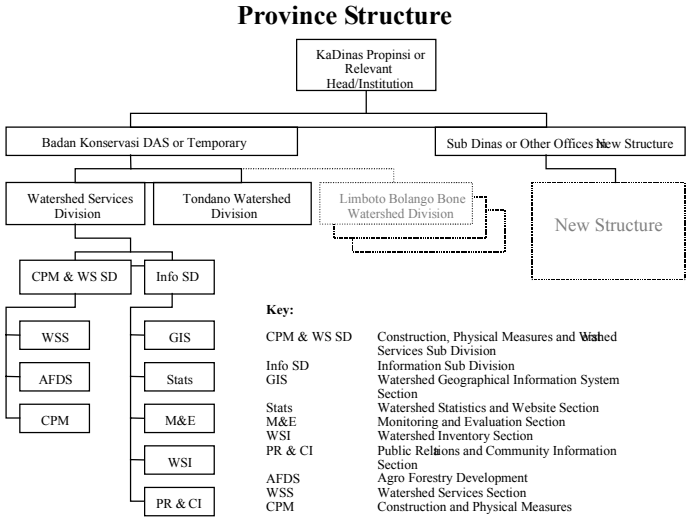
This forum is a quarterly meeting run in a non formal, non threatening atmosphere as a stimulant for integration of government activities. The objective being to eliminate overlap in activities and clarify specific roles. Ultimately recommendations would be made to integrate activities in the following year.

1) Provide a forum for discussion and integration of government activities

5.6.4 Structural Organization for Development of Government Institutional Capacity

Institutional Development of Government is also recommended, in that the new decentralized structure have a "Badan Konservasi DAS" or "Watershed Conservation Board" or similar structure. Ideally this would involve the former BRLKT structure for master planning purposes.

(1) Provincial Offices



Due to the current lack of clarity with regard to the future departmental structure at province and district level it is difficult to make any plans that include the decentralized forestry services structures. However, the following are recommended minimum requirements in line with the above developmental approach. The following structures are recommended for the future government organizational structure of 2001. However, in the event that this structure is not installed, it should be established as a temporary project

office to manage implementation of the above development approach. If the new organizational structures for decentralization are finalized with a different structure, the units considered vital to sustainability will be formalized at project end, and recommended for installment into the new structures.

The following sub divisions should be included in the Watershed Conservation Board or temporary office at province level, and are in line with Government Regulation No. 84 of 2000 about Organization of Regional Apparatus.

An Information Sub Division

To house an information systems development effort including standardization of forms at local level, routine data gathering, data entry and processing at district office, forwarding of data to province office in digital format, development of a watershed database at province level, environmental impact signaling system, watershed GIS, data processing, analysis, report writing and preparation, and information dissemination strategy. Tondano Watershed website to share information and experiences with the international community would also be developed as part of this sub-division, and the internet connection would allow communications with the international community to access the latest innovations in forestry and soil conservation. The information Sub Division would consist of five sections. One each for Public Relations and Community Information, GIS, Watershed Statistics and Website, Monitoring and Evaluation, and Watershed Inventory (flora and fauna, diseases, pesticides, fertilizers, machinery and forestry management innovations) the personnel of this section would maintain constant communications with the international community.

A Construction, Physical Measures and Watershed Services Sub Division,

To house engineers to supervise the construction of physical measures by the community and ensure that standards are met consistently, and to provide an organizational home for engineering consultants who would work closely with local staff (province and district) and the Ujung Pandang Watershed Management Technology Center to develop training programs for construction of physical measures (for village cadres).

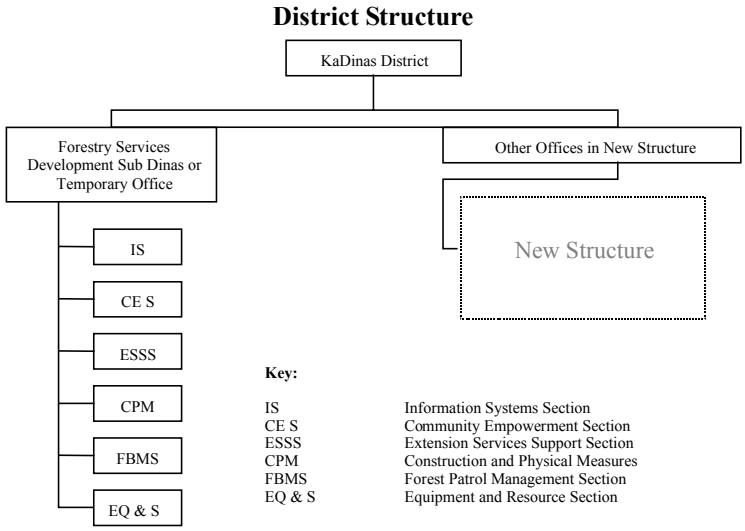
Watershed services would include integrated pest control services, firefighting technology, and general forestry protection services and information.

Also to house agriculture consultants to supervise the development of an agro forestry research and development capacity, trial plots and demonstration farm at Sam Ratulangi University. The consultants would also work closely with local staff to ensure that standards are met consistently, and work closely with local staff (province and district) and the Ujung Pandang Watershed Management

Technology Center to develop training programs for agricultural and agro forestry methods to enhance soil conservation, including project identification, planning, and proposal development (village cadres).

(2) District Office

The same problem exists at district level due to the current lack of clarity with regard to the future departmental structure. However, the following are recommended minimum requirements in line with the above developmental approach. Temporary office should also be established to implement this approach if needed.



A Forestry Services Development Sub Dinas should be installed. The Forestry Services Development Sub Dinas would operate under and work closely with the District Office Head to establish the district capacity in information systems including monitoring and evaluation, agro forestry and physical measures support, forest patrols, and provision of operational hardware software and resources.

1) Information Systems Section

Responsible for all information services including coordination and supervision of village boundary updates from Kantor Camat, coordination of branch office data gathering, processing of data and information, analysis and report preparation and dissemination. The Information Sub Division would be the home of a District Geographical Information System (GIS), a Monitoring and Evaluation System (M&E), and District Conservation Information System (DCIS)

2) A Community Empowerment Section

to house the public relations and community information function is also

recommended as part of the new District Office structure. Initially under the Forestry Services Development Sub Dinas, this section would be charged with dissemination of the relevant information about watershed conditions, and constant provision of information to the community through maintaining a village information and awareness building function through construction of village public information boards and constant updating of information. A “loket informasi” to provide information to the general public about programs, forestry and soil situation in general would also exist in this section. The Community Empowerment Section would work closely with the village cadres.

3) Extension services support section

A program section to manage local development of extension service para-professionals as field supervisors and supervision of village cadre development activities. Provide the link between agro forestry research and development and the cadre training center.

4) Construction and Physical Measures Section

A program management capacity for management of physical measures construction funds and the village proposal development process, also to supervise, monitor and evaluate construction activities

5) Forest Patrol Management Section

This section would be responsible for forest boundary identification on the ground, development and management of patrols, and general forest boundary and trail maintenance.

6) Equipment and Resource Section

To manage and control the use of equipment, tools and physical resources to be used in the institutional development and ongoing administration process (GPS units, forest measuring equipment, firefighting equipment, vehicle maintenance, computer equipment, spraying and pesticide equipment, uniforms etc.) This center would operate as a government store and maintain a tight inventory, and track resources use.

(3) District Branch Offices

Utilize the current structure but provide good equipment and facilities, transport for station leaders, appropriate transport for patrols, training and standards for information collection and reporting.

5.7 Strengthening of Watershed Conservation Capacity at Local University

5.7.1 University of Manado (Tondano)

The University of Manado has the capacity to undertake good social geographical research which means it is ideal for integrated policy research and development, specifically research with regard to watershed management. The university would require capacity building through technical assistance and sponsorship of watershed management research. The results of research are to be presented at quarterly watershed conservation committee meetings to clarify several issues in the management of the Tondano watershed. This university is located in the center of the watershed which also makes it an ideal location for a differential GIS base station to provide differential GPS services to the public.

1) Provide integrated policy input about general watershed conservation and water resources management, and conditions of lake Tondano
2) Research watershed conditions and current issues
3) Monitor water quality and lake conditions
4) Provide differential GPS capability and services
5) Develop strong linkage to watershed conservation committee

5.8 Strengthening of Local NGO

5.8.1 Prominent NGOs

NGOs in general suffer a number of problems such as financial management and mobility as mentioned above. They will however be strengthened through training and provision of supporting hardware, after which the following tasks will be expected.

1) Facilitate and socialize village regreening programs
2) Provide an alternative macro monitoring and evaluation capability
3) Provide an environmental pressure group
4) Alternative extension services
5) Constant promotion of environmental awareness
6) Assist with project implementation

5.9 Relevant Issues

5.9.1 Role of the Central Ministry of Forestry

The central Ministry of forestry would need to undertake at least the following tasks, it is expected that the resources to support these tasks are already in place. No specific capacity building measures are required.

1) Provide standards for border indicators

2) Provide standards for trail construction
3) Documentation of standards
4) Provide engineering standards for physical measures
5) Provide recommendations to provinces about forestry planning
6) Undertake policy research about national forestry

5.9.2 Churches

Churches have been identified as an efficient medium through which to disseminate short but effective environmental conservation messages. Although at this stage no specific capacity building will be implemented. Ideally a social marketing strategy would be applied at province or national level. This is beyond the current scope of this project. However the following task is presented as the recognized role of the churches.

1) Disseminate efficient conservation messages to community

5.10 Capacity Gaps

The approach for this institutional capacity assessment is to focus on the needs to support the successful attainment of conservation through the application of the master plan and integration. Capacity gaps are identified by comparing tasks with present conditions and capacities. Capacity gaps are presented in Attachment I-1 below.

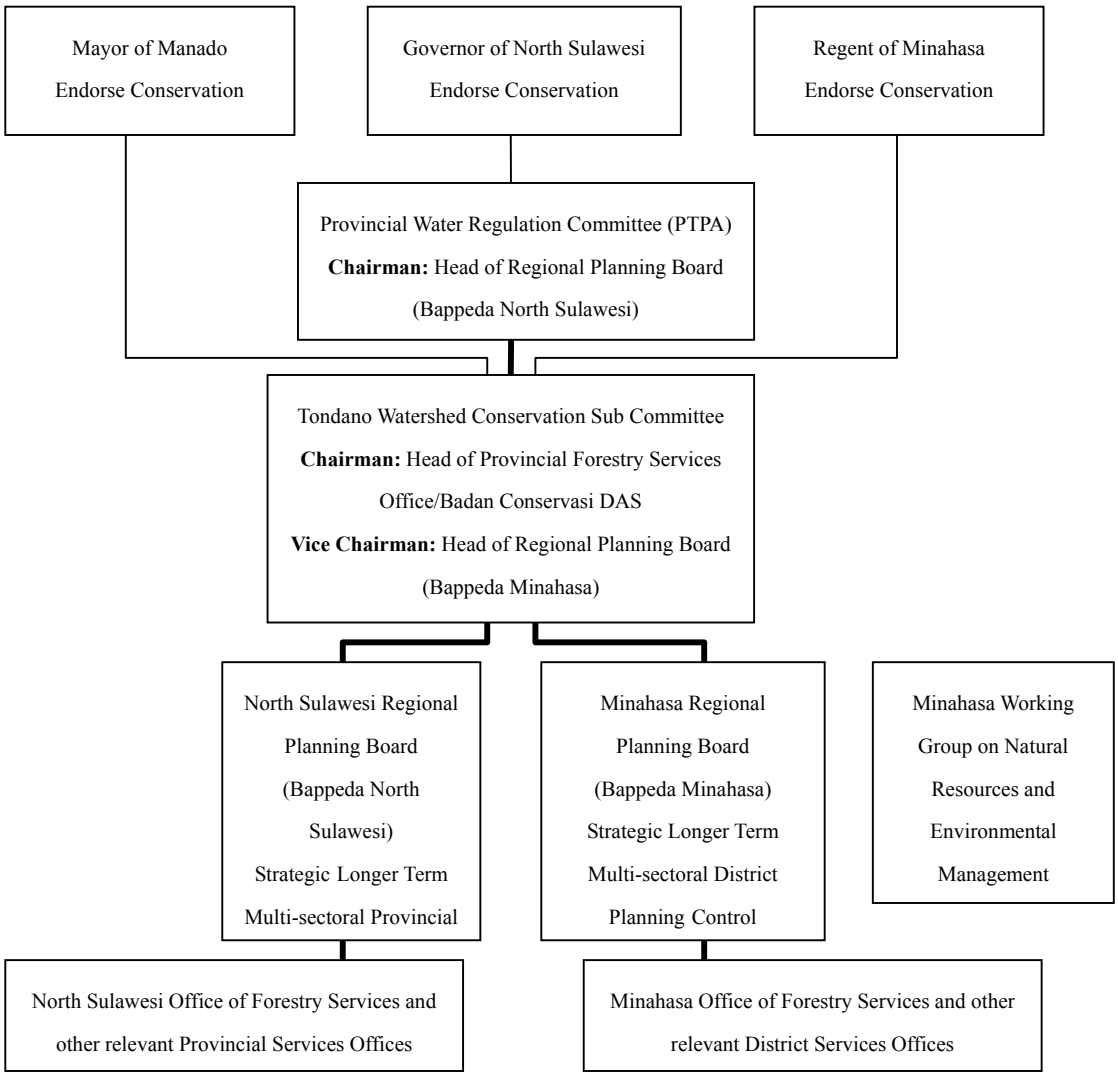
5.11 Implementation Plan

The implementation of the development plan would not require capacity building in all the seventeen institutions as mentioned above. The central Ministry of Forestry, and Churches for example are only mentioned here to clarify their role in the process. The capacity already exists at the central Ministry of Forestry, while the formulation of efficient environmental conservation messages to disseminate in churches would be an important part of a social marketing and environmental education strategy, which is beyond the scope of this current project. However, these aspects need to be mentioned to ensure the reader that the areas have been considered. The 17 components as mentioned here would fit into the development plan in a manner as follows:

Development Plan Summary Table

No.	Development Planning Component (Implementation)	Recommended Institutional Development Need
1.	None	Ministry of Forestry (Central)
2.	Institutional Integration and Strengthening of The Legal and Regulatory Framework	Office of Governor, Regent and Mayor
3.	Institutional Development of Forestry Services	Provincial Forestry Services Office (North Sulawesi)
4.	Institutional Development of Forestry Services	District Forestry Services Office (Minahasa)
5.	Institutional Development of Forestry Services	Sub-District Forestry Services (Forest Management Units)
6.	Accurate Village Boundary Mapping	Office of Sub-District Head
7.	Community Institutional Development	Village Government and Village Development (BPD)
8.	Community Institutional Development	Village Community (encroachers)
9.	Community Institutional Development	Village Community (General)
10.	None	Churches
11.	Technical Institutional Development I	University Sam Ratulangi (Manado)
12.	Strengthen a Watershed Management Faculty at a Local University	University of Manado (Tondano)
13.	Technical Institutional Development I	Ujung Pandang Training Center
14.	Strengthen a Local NGO	Prominent NGOs
15.	Community Institutional Development	Village cadre group
16.	Institutional Integration and Strengthening of The Legal and Regulatory Framework	Watershed Conservation Committee (PTPA sub committee)
17.	Institutional Integration and Strengthening of The Legal and Regulatory Framework	Government Services Integration Forum

Watershed Conservation Committee



Tables

Table I.3.1 Finance: Miahasa Forestry Services
Annual Expenditure of Forestry Services of North Sulawesi 1998/99

Expenditure	Planned	Realized
Salary of Employees		700,352,702
Operational Budget		25,000,000
Forestry Development and Improvement Project		0
Forest Boundary Maintenance Project		0
Tourism Forest Development Project		0
Urban Forest Development Project		0
Forest and Forest Product Security Project		0
Forest Rehabilitation Project		0
Protection Forest Management Project		0
Project Funding	*Penghijauan*	*875,000,000*
Control and Organization of Forest Business Activities		0
Measurement and Testing of Forest Products Activities		0
Forest Business Supervision		0
Planning, Organization and Control of Forest Business		0
Forestry Organization and Security		0
Infrastructure and Facilities Development		0
Activity Funding		0
Total		1,600,352,702

Routine Operational Budget as Propotion of Project Budget 3 Percent

Source: District Forestry Services Data gathering, Dinas Kehutanan, Minahasa, January 2001

Table I.3.2 Human Resources & Education: Minahasa Office of Forestry Services

Level of Education	Total	Percent
Masters	0	0.0
Degree	7	13.0
Diploma	3	5.6
Senior Secondary	39	72.2
No Information	5	9.3
Total	54	100

Type of Degree	Total	Percent
Administration	2	20
Socio-Economy	1	10
Agriculture	1	10
Fisheries	1	10
Forestry	2	20
Law	1	10
Animal Husbandry	1	10
Unknown	1	10
Total	10	100

Staffing of Key Functions and Activities

Function	Level & Type of Education	Exp
Head of Dinas	Administration Degree	28
Head of Administration Sub section	Administration Degree	23
Head of Programs and Reporting	Business Degree	
Head of Finance	Business Admin Degree	17
Head of General Affairs	Business Diploma	27
Head of Forest Product Distribution Section	Fisheries Degree	8
Head of Forest Product Distribution Sub section	No information	
Head of Forest Product Sales Sub section	Sen. Sec. Secretarial	24
Head of Forest Product Protection Sub section	No information	
Head of Social Forestry Development Section	Agriculture Degree	14
Head of Maintenance and Development Sub Section	Senior Voc. Electrical	19
Head of Business Development Sub Section	Sen. Sec.Natural Sciences	18
Head of Extension Services and Land Conservation Section	Social Science Degree	9
Head of Extension Services Program and Methods Development Sub Section	Vacant	
Head of Personnel and Infrastructure Sub Section	Sen. Sec. Book Keeping	18
Head of Land Cultivation and Conservation Sub Section	Sen. Sec.Natural Sciences	19

Table I.3.3 Finance: North Sulawesi Forestry Services

Annual Expenditure of Forestry Services of North Sulawesi 1998/99

Expenditure	Planned	Realized
Salary of Employees	1,361,023,200	1,361,926,850
Operational Budget	237,100,000	237,033,390
Forestry Development and Improvement Project	100,000,000	100,000,000
Forest Boundary Maintenance Project	0	0
Tourism Forest Development Project	0	0
Urban Forest Development Project	0	0
Forest and Forest Product Security Project	75,000,000	75,000,000
Forest Rehabilitation Project	2,171,090,000	2,171,090,000
Protection Forest Management Project	2,361,124,400	na
Project Funding	*6,305,337,600*	
Control and Organization of Forest Business Activities	273,350,000	272,450,000
Measurement and Testing of Forest Products Activities	0	0
Forest Business Supervision	0	0
Planning, Organization and Control of Forest Business	0	0
Forestry Organization and Security	345,151,000	340,911,000
Infrastructure and Facilities Development	521,556,000	509,760,460
Activity Funding	*1,140,057,000*	
Total	7,445,394,600	*****

Annual Income of Forestry Services of North Sulawesi 1998/99

Income	Realized
Taxation from Forest Product Income	6,036,815,266
Rehabilitation Fund	11,434,262,015
Income from Forest Business Rights	0
Checking and Testing of Forest Products	0
Retribution and Others	49,023,295
Total	17,520,100,576

Source: Provincial Forestry Services Statistics 1994/95 to 1998/99, Dinas kehutanan, Manado, July 1999, (Finance pp. D-1 to D-28)

Table I.3.4 Land & Offices of North Sulawesi Office of Forestry Services

Land

No.	Quantity M^2	Location
1	2051	Manado
2	3052	Gorontalo
3	2655	Gorontalo
4	1344	Isimu
5	1681	Paguyaman
6	1233	Tilamuta
7	2025	Buhu
8	1200	Paguat
9	2625	Tapa
10	1178	Kwandang
11	2016	Tahuna
Total	21060	North Sulawesi

Offices

No.	Type	Size M^2	Location
1	Office	140	Manado
2	Office	120	Manado
3	Head Office	1120	Manado
4	Forest Patrol Office	70	Paguyaman
5	Forest Patrol Office	70	Tilamuta
6	Forest Patrol Office	70	Bolaang
7	Forest Patrol Office	70	Kaidipang
8	Forest Patrol Office	70	Bolang Uki
9	Forest Patrol Office	70	Pinolosian
10	Forest Patrol Office	70	Bintauna
11	Forest Patrol Office	70	Modayag
12	Forest Patrol Office	70	Atinggola
13	Forest Patrol Office	70	Bone Pante
14	Forest Patrol Office	70	Popayato
15	Forest Patrol Office	70	Tibawa
16	Forest Patrol Office	70	Marisa
17	Forest Patrol Office	70	Tapa
18	Forest Patrol Office	70	Kwandang
19	Forest Patrol Office	70	Telaga
20	Forest Patrol Office	70	Kotamobagu
21	Forest Patrol Office	70	Dumoga Tmr
22	Forest Patrol Office	70	Kotabunan U
23	Forest Patrol Office	70	Molibagu
24	Forest Patrol Office	70	Poigar
25	Forest Patrol Office	70	Lolak
26	Forest Patrol Office	70	Sangtombolang
27	Forest Patrol Office	70	Kabila
28	Forest Patrol Office	70	Labanu
29	Forest Patrol Office	70	Suwawa
30	Forest Patrol Office	70	Sumalata
31	Forest Patrol Office	70	Essang
32	Forest Patrol Office	70	Lirung

Table I.3.5 Offices & Housing of North Sulawesi Office of Forestry Services (Cont.)

No.	Type	Size M2	Location
33	Forest Patrol Office	70	Beo
34	Forest Patrol Office	70	Tahuna
35	Forest Patrol Head Office	100	Siau
36	Forest Patrol Head Office	100	Tahuna
37	Forest Patrol Head Office	100	Talaud
38	Forest Patrol Office	100	Lolayan
39	Forest Patrol Office	200	Bolang Itang
40	Forest Patrol Head Office	100	Paguat
41	Forest Patrol Head Office	100	Kwandang
42	Forest Patrol Head Office	100	Tilamuta
43	Forest Patrol Head Office	100	Isimu
44	Forest Patrol Office	70	Batudaa
45	Forest Patrol Head Office	100	Bolaang
46	Forest Patrol Head Office	100	Mongondow
47	Forest Patrol Head Office	100	Kaidipang
48	Forest Patrol Office	70	Passi
49	Forest Patrol Office	70	Kotabunan S
50	Forest Patrol Office	70	Amurang
51	Forest Patrol Office	70	Tondano
52	Forest Patrol Office	70	Belang
53	Forest Patrol Office	70	Motoling
54	Duty House	70	Manado
55	Duty House	70	Manado
56	Duty House	160	Manado
57	Duty House	60	Manado

Table I.3.6 Vehicles of North Sulawesi Office of Forestry Services

No.	Type	Year
1	Diahatsu Taft	1991
2	Diahatsu Taft	1992
3	Toyota Pickup	1996
4	Isuzu Pickup	1997
5	Diahatsu Feroza	1999
6	Vespa motorcycle	1991
7	Yamaha RX	1997
8	Yamaha RX	1991
9	Yamaha RX	1997
10	Suzuki RC	1991
11	Suzuki TS125	1999
12	Suzuki TS125	1999
13	Suzuki TS125	1999
14	Suzuki TS125	1999
15	Speed Boat	1999

Table I.3.7 Other Equipment of North Sulawesi Office of Forestry Services

No.	Type	Spec.	Year	Quantity
1	Typewriter	Royal	1991	1
2	Typewriter	Optima	1990	1
3	Typewriter	Royal	1993	1
4	Typewriter	Royal	1993	1
5	Typewriter	Royal	1993	1
6	Typewriter	Royal	1993	1
7	Typewriter	Brother	1993	1
8	Typewriter	Brother	1985	1
9	Overhead Projector	Cabin	1984	2
10	Telex Machine	Lorens	1991	1
11	Computer	***	1999	1
12	Computer	Intel Pentiur	1990	2
13	Computer	TVM	1994	1
14	Computer	Goldstar	1997	1
15	Computer	***	1995	2
16	Map Cupboard	Royal	1995	1
17	Mobile File	Lion	1986	2
18	Mobile File	Lion	1995	1
19	Filing cabinet	Royal	1986	6
20	Filing cabinet	Top Style	1995	20
21	Bureau/desk	Top Style	1986	6
22	Bureau/desk	Top Style	1995	21
23	Meeting Table	Top Style	1986	1
24	Working Chair	Top Style	1995	6
25	Directors Chair	Top Style	1986	1
26	Air Conditioner (Split)	Sharp	1995	1
27	Room Air Conditioner	National	1986	1
28	Sound System	Tens	1993	1
29	Fax machine	Xerox	1992	2
30	TV	Toshiba	1993	1
31	Scales	Standard	1969	1
32	Drawing Table	Mutoh	1993	1
33	Theodolite	Leica	1993	1
34	HT	***	1996	1
35	Meeting Table	Lokal	1986	1
36	Detection tool	***	1997	1
37	Sako	Magellan	1999	3
38	GPS	Magellan	1999	2
39	Planix	***	***	
40	Scrable	***	***	

Table I.3.8 Material Resources: Office of Land Rehabilitation and Soil Conservation (BRLKT)

No.	Name	Quantity	Condition		
			Good	Need Repairs	Irrepairably Broken
1	Housing Block	525 M2	1	-	-
2	Housing Block	525 M2	1	-	-
3	Housing Block	300 M2	1	-	-
4	Housing Block	200M2	1	-	-
5	Government Office Block	2.000 M2	1	-	-
6	Government Office Block	1471 M2	1	-	-
7	Office Building	616 M2	1	-	-
8	Office Building	300 M2	1	-	-
9	Official House	120 M2	1	-	-
10	Official House	70 M2	1	-	-
11	Official House	120 M2	1	-	-
12	Official House	70 M2	1	-	-
13	Official House	70 M2	1		
14	Jeep Isuzu Panther/ Miyabi	1	1	-	-
15	Jeep Isuzu Panther/ Chalenger	1	1	-	-
16	Jeep Side Kick	1	1	-	-
17	Station Wagon/ Kijang	1	1	-	-
18	Station Wagon/ Mazda	1	1	-	-
19	Genset	1	1	-	-
20	Motorcycle Suzuki A-100	1	-	-	1
21	Motorcycle Honda Win-100	4	4	-	-
22	Motorcycle Honda Win-100	2	2	-	-
23	Motorcycle Honda GL-Max	2	2	-	-
24	Typewriter Manual□Portable 13"	2	-	2	-
25	Typewriter Manual□Standart 17"	1	-	-	1
26	Typewriter Manual□Langewagon 18"	2	1	-	1
27	Typewriter Manual □Langewagon 26"	1	-	-	1
28	Typewriter Elektronik	1	-	1	-
29	Adding machine	1	-	-	1
30	Photocopier	1	-	-	1
31	Steel Filing Cabinet	18	10	4	4
32	Wood Cupboard	25	15	5	5
33	Wood Book Rack	3	3	-	-
34	Steel Filing Cabinet	15	9	3	3
35	Safe	4	3	-	-
36	Cash Box	1	-	-	1
37	Steel Filing Cabinet	1	-	1	-
38	White Board	1	-	1	-
39	Steel Work Table	4	2	2	-
40	Wood Work Table	67	48	18	2
41	Steel Chair	49	20	20	9
42	Wood Chair	65	50	10	7
43	Guest Chair	7	3	3	1
44	Meeting Table	21	11	-	10
45	Computer Table	6	6	-	-
46	Wall Clock	1	1	-	-
47	AC Window	1	1	-	-
48	AC Split	5	5	-	-
49	Cooling Fan	4	-	-	4
50	Ceiling Fan	9	-	9	-
51	Television	3	3	-	-
52	Sound System	1	1	-	-
53	Wireless	3	1	1	1
54	Camera Video	1	-	1	-
55	Stabilizer	1	1	-	-
56	Interior Flag Pole	3	3	-	-
57	Movie Camera	1	-	1	-
58	U P S	3	2	1	-
59	Overhead Projector	1	-	1	-
60	Slide Projector	1	-	-	1
61	Copy Film	3	-	-	3
62	Drawing Table	1	-	-	1
63	Drawing Table	2	-	2	-
64	Drawing Table	2	-	1	-
65	Planitop (Pinix 5000)	2	2	-	-
66	Optical Photograph	1	1	-	-
67	Theodolite	1	1	-	-
68	Compass	5	5	-	-
69	Curvimeter	2	2	-	-
70	Geodimeter	2	1	-	-
71	GPS Pathfinder	1	-	1	-
72	GPS Magellan	2	2	-	-
73	Telephone	2	1	-	1
74	Intercom	4	-	4	-
75	Faximile	1	1	-	-
76	Computer	7	4	2	1
77	Display Monitor PC	7	4	2	1
78	Keyboard PC	7	4	2	1
79	Printer	9	7	-	2
80	Disket Drive	12	10	-	2
81	Mouse	3	3	-	-
82	Komputer Note/ Lap Top	3	-	3	-

Table I.3.9 Human Resources: *BRLKT* Tondano

No.	Position/Responsibility	Education Level	Ed. Venue
1	BRLKT Head	Masters	Iowa State USA.
2	Head - Administration Sub Division	Degree - Agriculture	UNSRAT
3	Head - Program Section	Post Graduate	UGM
4	Head - Planning Sub Section	Degree	UNIMA
5	Head - Technical Guidance Sub Section	Degree - Economics	-
6	Head - Evaluation and Reporting Sub Section	GSS	-
7	Technician - Cultivated Non Wood Forest Products	ASS	-
8	Treasurer	GSS	-
9	Library Assistant	GSS	-
10	Technician - Rehabilitation	ASS	-
11	Technician - Rehabilitation	GSS	-
12	Data Processing - Personnel Transfers	ASS	-
13	Technician - Soil Conservation	GSS	-
14	Technician - Rehabilitation	GSS	-
15	Data Gathering and Dissemmination - Personnel Development	GSS	-
16	Treasurer	GSS	-
17	Report and Statistics Formulation	Degree - Social Sciences	-
18	General Personnel Affairs	Degree - Social Sciences	-
19	Technician - Cultivated Non Wood Forest Products	ASS	-
20	Treasurers Assistant	ESS	-
21	Data Gathering and Management - Technical Development	GSS	-
22	Technician - Cultivated Non Wood Forest Products	FSS	-
23	Rehabilitation - Technical Planning	ASS	-
24	Data Gathering and Management - Technical Development Soil Conservation	ASS	-
25	General Affairs - Equipment and Household	GSS	-
26	Data Gathering and Management - Technical Development Rehabilitation	GSS	-
27	Data Gathering and Dissemmination - Personnel Development	GSS	-
28	Treasurer	ASS	-
29	Data Gathering and Management - Technical Development Re-greening	GSS	-
30	Technical Planning RLKT	GSS	-
31	Data Processing - Personnel Transfers	GSS	-
32	Monitoring and Evaluation - Apiculture Sericulture	ASS	-
33	Wages List Management	GSS	-
34	Monitoring and Evaluation - Soil Conservation Activities	ASS	-
35	Treasurers Assistant	GSS	-
36	Monitoring and Evaluation - Apiculture Sericulture	GSS	-
37	Data Gathering and Management - Technical Development Re-greening	ASS	-
38	Measurement and Mapping	GSS	-
39	Materials Formulation - RLKT Planning and Programs	ASS	-
40	Data Gathering and Management - Technical Development Rehabilitation	TSS	-
41	Treasurer	ESS	-
42	Data Processing - Personnel Development and Welfare	Degree - Economics	-
43	Treasurer	GSS	-
44	*Unclear*	GSS	-
45	Monitoring and Evaluation: Regreening Activities	FSS	-
46	Measurement and Mapping	GSS	-
47	Reporting and Statistics Materials Prepararion	ASS	-
48	General Affairs - Equipment and Household	GSS	-
49	Data Gathering and Management - RLKT	FSS	-
50	Reporting and Statistics Materials Prepararion	FSS	-
51	Technician - Soil Conservation	FSS	-
52	Technician - Rehabilitation	FSS	-
53	Agenda and Files Management	GSS	-

Note: GSS = Senior Secondary (General), ASS = Senior Secondary (Agriculture), ESS = Senior Secondary (Economics), FSS = Senior Secondary (Forestry), TSS = Senior Secondary (Technical)

Table I.3.10 Field Staff of Dinas Kehutanan Minahasa

No.	Age	Position	Education
1	43	Advanced forestry extension worker	SPMA
2	41	Forestry extension worker	SMA
3	42	Forestry extension worker	SMA
4	43	Forestry extension worker	SPMA
5	47	Forestry extension worker	SMA
6	42	Forestry extension worker	SMA
7	45	Forestry extension worker	SPMA
8	45	Forestry extension worker	SPMA
9	43	Forestry extension worker	SPMA
10	45	Forestry extension worker	SMA
11	42	Forestry extension worker	SMA
12	42	Forestry extension worker	SMA
13	40	Forestry extension worker	SPMA
14	42	Forestry extension worker	SPMA
15	42	Forestry extension worker	SMA
16	47	Forestry extension worker	SMA
17	44	Forestry extension worker	SPMA
18	43	Forestry extension worker	SMA
19	43	Forestry extension worker	SPMA
20	43	Forestry extension worker	SMA
21	42	Forestry extension worker	SPMA
22	41	Forestry extension worker	SPMA
23	40	Forestry extension worker	SPMA
24	45	Forestry extension worker	SMA
25	42	Forestry extension worker	SPMA
26	42	Forestry extension worker	SMA
27	42	Forestry extension worker	SMA
28	41	Forestry extension worker	SPMA
29	39	Forestry extension worker	SMA
30	39	Forestry extension worker	STM
31	42	Forestry extension worker	SMA
32	40	Forestry extension worker	SPMA
33	45	Forestry extension worker	SPMA
34	40	Forestry extension worker	SPMA
35	43	Forestry extension worker	SMA
36	41	Forestry extension worker	SMA
37	45	Forestry extension worker	SMA
38	40	Forestry extension worker	SMA
39	40	Forestry extension worker	SMA
40	42	Forestry extension worker	SPMA
41	52	Forestry extension worker	SPMA
42	49	Forestry extension worker	SPMA
43	42	Forestry extension worker	SMA
44	44	Forestry extension worker	SMA
45	45	Forestry extension worker	SMA
46	40	Forestry extension worker	SPMA
47	42	Forestry extension worker	SMA
48	38	Forestry extension worker	SMA
49	38	Forestry extension worker	SMA
50	38	Forestry extension worker	SMA
51	38	Forestry extension worker	SMA
52	39	Forestry extension worker	SMA
53	40	Forestry extension worker	SMA
54	40	Forestry extension worker	SMA
55	40	Forestry extension worker	SMA
56	40	Forestry extension worker	SMEA
57	40	Forestry extension worker	SMA
58	40	Forestry extension worker	SMA
59	40	Forestry extension worker	SPMA
60	38	Forestry extension worker	STM
61	38	Forestry extension worker	STM
62	42	Forestry extension worker	SMA
63	37	Forestry extension worker	STM
64	40	Forestry extension worker	SMA
65	43	Staff	SPMA
66	49	Staff	SMA
67	39	Staff	SMA

Note:
SMA Senior Secondary Education
SMEA Senior Secondary Education (Economics)
SPMA Senior Secondary Education (Agriculture)
STM Technical Secondary School