

## **CHAPTER 3 PRESENT SOCIO-ECONOMIC CONDITIONS IN THE SA**

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### 3.1 Socio-economic Conditions

The information on socio-economic conditions in the SA are based on the results from the Socio-economic Baseline Survey (SEBS), information gathered from relevant organizations by the Study Team and the hearings from traditional authorities and villagers in the SA during the first field study period. The results of the SEBS are attached in the Annex G together with study objectives, methodology and selection of sample villages.

#### (a) Social Conditions

##### Administrative and demographic profile

According to the administrative structure in Malawi, the rural area is entrusted to the Chief of Traditional Authority (TA Chief) of the area based on the traditional administrative structure and divisions. Under the TA Chief stand Group Village Headmen/women, who are each responsible for a number of villages within his/her area. Each village belongs to one of the Group Villages.

The SA comprises of 7 TAs in Blantyre District and 2 TAs in Chiradzulu District. In the area of about 67,000 ha, the SA consists of 339 villages where around 64,000 households with a total population of 196,000 reside<sup>23</sup>. The population density of the whole SA is about 293/km<sup>2</sup>. Except for the densely populated areas of Blantyre-Limbe peri-urban and Lunzu and Lirangwe townships, the population density tends to be higher in the southeast and lower in the northwest. Although the average annual population growth in the past 10 years is negative in the rural Machinjiri (-0.4%), other TAs show positive growth of 0.8% (TA Mpama) to 2.3% (TA Kapeni) while Blantyre City and its peri-urban areas, including southern part of TA Machinjiri, records 3.3%. The population decrease in rural Machinjiri is attributed to an out-migration of population to Blantyre City and its surrounding areas, the repatriation of Mozambican refugees and the increase in death rates from diseases like AIDS.

##### Ethnic composition and social structure

Major ethnic groups in the SA are the Yao, Ngoni and Lomwe. According to the Socio-economic Baseline Survey (hereafter referred to as SEBS), out of 27 sample villages the Yaos were the majority in 16 villages, the Ngonis in 5 villages, the Lomwes in 4 villages and the Chewas in 2 villages. Most villages are populated with a mixture of different ethnic groups and there seems to be no ethnic conflicts within the SA. Intermarriage appears common and accepted among different ethnic groups.

Christianity constitutes the main religion in the SA though there are some Muslim populations. According to the SEBS the majority of the villagers were Christians in all the sample villages except 2 villages where Muslims are the majority.

Each village has a traditional chief succeeded from the previous chief according to the lineage system, who is also administratively recognized as village headman/woman. Generally, the village head is well respected by the villagers and in good position with an understanding within the overall situation of the village. The village head is entrusted to allocate land, control and manage resources, mediate problems incurred among villagers, though the problems not solvable by the village headman/woman are normally brought to the Group Village Headman/woman or TA Chief.

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<sup>23</sup> The population and the household number are calculated using the preliminary result of the 1998 Census, which gives the figures based on the enumerating areas, not villages.

The majority of the people in the SA follow a matriarchal lineage system. In the matrilineal society upon marriage a husband moves to the wife's village and lives in the same compound of the wife's family or on the nearby land allocated to the wife, though normally a married couple forms a separate household. Though nominally the household head is usually the husband, brothers of the wife have a final decision making power concerning children's upbringing and education. Land is inherited from the mother or mother's family to the children. According to the SEBS a household often consists of a father, mother and unmarried children and the average household size is 5.2. A quarter of the sample households is women-headed, normally due to separation or bereavement.

### Landholding

Malawi's Land Act classifies land as (1) private land (such as estates), (2) public land (such as reserves) and (3) customary land, which is entrusted to the Traditional Authority in the area. The major part of the SA is classified as customary land. Land is allocated to the villagers by the TA Chief or the village headman/woman and is passed on to the children. Villagers are not allowed to sell their land as they have no right of ownership. Unallocated land is managed by the TA Chief and village heads, who have authority to allocate such land to newcomers and to community projects such as starting a school or a clinic.

Due to the population pressure, even steep hills and customary forests, which used to provide villagers with fuelwood and other forest products, have been cleared and allocated to the villagers as farmland. Forest depletion observed in recent years is not only attributable to wanton felling of woods for energy supply but also to the land reclamation to increase farmland. SEBS found that most of the sample villages had customary forest areas in the past, while presently only 4 villages had a community forest.

According to Blantyre/Shire RDP, covering the entire SA as to agricultural administration, the average landholding size therein is 0.54 ha/household<sup>24</sup>. The average size in the coverage of Lirangwe EPA, which covers the major part of the SA in Blantyre District, is decreasing year by year, declining from the average of 0.97 ha/household in 1990 to 0.74 ha/household in 1999.

### Farm economy

Except for a part of TA Machinjiri, which forms a part of Blantyre urban area, the SA is a rural society based on small-scale, subsistent, rain-fed farming in rainy season. The major crop is maize, usually inter-cropped with leguminous crops. According to the SEBS 78% of the household heads were primarily engaged in farming (Table 3.1), while the households whose principle income was derived from farming accounted for only 28% of the sampled clusters. More than 80% of the households had at least one member earning an off-farm income.

**Table 3.1 Occupation of the Household Heads**

Occupation	Main Job		Side Job	
	Household No.	%	Household No.	%
Farming	126	77.8	20	12.3
Private Business	14	8.6	24	14.8
Permanent Employment	11	6.8	1	0.6
Civil Officer	1	0.6	2	1.2
Casual Labor (farming)	1	0.6	6	3.7
Casual Labor (non-farming)	7	4.3	9	5.6
No Job	2	1.2	100	61.7
Total	162	100.0	162	100.0

Income sources other than farming include small-scale income generating activities such as food production

<sup>24</sup> 0.65 ha in Blantyre District and 0.45 ha in Chiradzulu District.

(sweets and buns), beer brewing, poultry/livestock rearing, fuelwood and charcoal production, weaving mats and baskets, vendor activities and so on (Table 3.2).

**Table 3.2 Income Generating Activities**

Activities	Household No.
Food Production (sweets, buns, etc.)	22
Poultry and Livestock Rearing	13
Beer Brewing	12
Selling Fuelwood	6
Charcoal Production	6
Handicraft (mats, baskets, etc.)	6
Vendor Business	4
Selling Fish	1
Brick Production	1

As people do not usually record incomes and expenditures of the household, it is difficult to estimate the accurate income and expenditure. For the 139 respondents who gave the approximate amount of cash income, the annual cash income of the household ranged from MK 550 to MK 792,000 with the average of MK 9,200. For the expenditure, food (MK 4,400) and agricultural inputs (MK 2,800), such as fertilizer and hybrid seeds, were the highest in terms of amount, though most households mentioned food, clothes, agricultural inputs, children's education and medical expenses as expenditure items. For the 140 respondents the annual expenditure of the household varies from MK 550 to MK 71,800 with the average of MK 8,760.

Credit systems available in the SA are mainly micro-finance, normally targeted to groups. MRFC (Malawi Rural Finance Company) offers agricultural loans to Farmers' Clubs. SEDOM (Small Enterprise Development Organization of Malawi), NABW (National Association of Business Women) and some NGOs such as FINCA and World Vision offer micro-finance mainly to small-scale entrepreneurs. An EU-financed APIP (Agricultural Productivity Improvement Project) provides poor farmers with such inputs as hybrid maize seeds and fertilizers at a low interest rate. However, according to the SEBS only 14% of the sample households utilized any of the credit systems (Table 3.3). The two major reasons for not borrowing were fear of borrowing itself and that no lending institution was available in the vicinity.

**Table 3.3 Use of Micro-finance Schemes**

Sources	Household No.	%
MRFC (Malawi Rural Finance Company)	6	3.7
APIP (Agricultural Productivity Improvement Project)	5	3.1
FINCA (Foundation for International Community Assistance)	5	3.1
SEDOM (Small Enterprise Development Organization of Malawi)	3	1.9
NABW (National Association of Business Women)	2	1.2
WWB (Women's World Banking)	1	0.6
SMEF (Small and Medium Enterprise Fund)	1	0.6
(Sub total)	(23)	(14.2)
Loans from family and relatives	13	8.0
No Use	130	80.2
Total	162	100.0

(b) Living Condition

Drinking and domestic water

In rural Malawi, the main sources of drinking water are wells, rivers and ponds. Although in recent years the government (including MASAF), NGOs and other development organizations have been installing numerous boreholes with hand pumps in the SA, the number of boreholes is still few and the government target of one borehole per 250 villagers is met only in TA Chigaru and TA Lundu. SEBS found that about 40% of the

households utilize unsafe water from shallow wells, rivers, ponds, etc. (Table 3.4).

**Table 3.4 Sources of Potable and Domestic Water**

Sources	Rainy Season		Dry Season	
	Household No.	%	Household No.	%
Borehole	89	54.9	86	53.1
Shallow Well	20	12.3	23	14.2
River	45	27.8	45	27.8
Pond	1	0.6	1	0.6
Spring	1	0.6	1	0.6
Tapped Water	6	3.7	6	3.7
Total	162	100.0	162	100.0

In Malawi, water fetching is predominantly a job for women and girls. Women normally carry a container of 20 liter of water on the head. According to the SEBS, the mean time used to go to the water source is 10 minutes. On average water had to be fetched 4 times a day, meaning that an average of 80 minutes a day was used for fetching water excluding the time needed for water collection at the source. For the sufficiency of water, nearly half the respondents replied that “water was sufficient throughout the year” while the rest indicated either “water was mostly sufficient but sometimes not sufficient”(42%) or “water was not sufficient most of the time” (9%).

### Home energy

In Malawi, except for a small section of well-off urban population, most households use fuelwood or charcoal (in the rural area mainly fuelwood and in the urban area mainly charcoal) for cooking and heating, and kerosene or paraffin for lighting. Propane gas is rarely used except in the urban area. According to the SEBS, 86% of the households used fuelwood for cooking, 12% did plant residues such as pigeon pea stems and maize stover, and 2% did charcoal (Table 3.5). Local people often supplement fuelwood with plant residues due to short supply.

**Table 3.5 Composition of Home-consumed Energy**

	Cooking		Heating		Lighting	
	Household No.	%	Household No.	%	Household No.	%
Fuelwood	140	86.4	139	85.8	0	0.0
Plant Residue	19*	11.7	20	12.3	0	0.0
Charcoal	3	1.9	3	1.9	1	0.6
Kerosene/Paraffin	0	0.0	0	0.0	161	99.4
Total	162	100.0	162	100.0	162	100.0

Wood is mainly obtained from their own harvest or collection from individual woodlots adjacent to or close to the homestead. As with water, wood fetching is predominantly a job for women and girls. Based on the SEBS, 86% of the households who used fuelwood (75% of sample households) obtained fuelwood through own harvest and the rest mainly purchased it at MK 23 a bundle. It took an average of 3 hours a week to collect wood, though the time needed varied from 1 hour to 8 hours depending on the household. For the availability of fuelwood, 25% indicated that fuelwood was “easily available” while the rest indicated either “not so easy, but available” or “not sufficient”. On average 2.7 bundles/headloads (34 kg) of wood were used a week per household for cooking and heating.

### Food

Though the SA predominantly forms a subsistence farming society, the food subsistence level remains low except for maize, which is the basic staple food of the country. According to the SEBS, 83% of the households indicated that maize came from their own production, but so far as cassava, vegetables and fruit

were concerned, 57%, 46% and 26% of the households, respectively, managed to self-produce for family consumption. For eggs, meat and fish, the figures were as low as 16%, 6% and 1%, respectively. This corresponds with the high ratio of food expenditures in the household economy. The most common source of animal protein was fish (mostly small fish) followed by eggs, chicken and goat meat. On average animal protein foods were eaten twice a week.

### Health and hygiene

According to the SEBS 91% of the households indicated that they had a toilet (pit latrine) within the house compound. In the SA, NGOs such as Concern Universal have been providing health education to the villagers and promoting improved pit latrines with “san plats<sup>25</sup>” as well as boreholes.

The main diseases of the outpatients who visited government hospitals and clinics in 1997 were malaria, respiratory infections, diarrhea, abdominal complaints, skin disease and eye disease<sup>26</sup>. According to the SEBS, for the question about the diseases which household members suffered from for the past year, malaria (78%), diarrhea (53%) and “coughing (45%)” were the main diseases.

Even in the rural areas, child deliveries usually take place at the clinic. SEBS indicated that 78% of the women had their latest delivery at the hospital or clinic. Including the cases of home delivery, the majority (96%) was assisted by a TBA (traditional birth attendant) or a trained midwife.

The use of contraceptive methods is reported to be 22% at the national level<sup>27</sup>, which shows the low prevalence. SEBS indicated that 26% of the sample household had at least one member who was currently practicing contraceptive measures. The most common method was Depo-Provera injections (31%), followed by traditional methods, surgical methods for women, condoms and pills.

### Education

Adult literacy rate is low compared with neighboring countries. Illiteracy rate for male is 28% while that for female is 58%<sup>28</sup>. SEBS indicated that 25% of the household heads had no formal education at all, 53% had some years of primary education though not completed and only 16% completed primary education.

Primary school enrollment rates, both for boys and girls, have increased rapidly in the past few years due to free education system introduced in 1994. However, it appears that education is not a major concern for the parents in the rural area and children are often expected to help with household chores and on the farm, especially during busy farming periods. Drop outs and absentees are therefore quite common even among primary school children. According to the SEBS, among the 227 children between 6 and 15 years old, 199 (88%) are presently attending school.

### (c) Conditions of Social Infrastructures

#### Roads

Except for the national roads, M1, M2 and M6, roads are unpaved and many are impassable during rainy season due to inundation. In the SA, very few roads run east to west, and many of the bridges are broken down or in a dangerous condition. Utilizing local resources and manpower, the government has been entrusting MASAF for repairing some of the bridges and constructing permanent ones at some of the most frequently used places.

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<sup>25</sup> Concrete slabs for standing

<sup>26</sup> Information of the Blantyre District Health Office.

<sup>27</sup> World Development Report 1998/1999 (women between 15 yrs and 49 yrs)

<sup>28</sup> World Development Report 1998/1999 (15 years or above)

### Water supply

In Malawi, a water supply system is provided only in major urban areas. In rural areas, boreholes have been progressively installed, though the number is still not sufficient and many still rely on unsafe water from unprotected shallow wells, rivers, ponds, etc. SEBS found that out of 27 sample villages only 16 villages had at least one functioning borehole in the village.

### Electricity supply

At national level it is reported that electricity is supplied to only 4% of the population. Rural electrification has not taken place. In the SA, except for limited urban areas around Blantyre City and some trading areas along the metal roads, electricity is not supplied. None of the sample households for SEBS had electricity supply at home.

### Educational facilities

The number of primary school attendants has been increasing since the introduction of free education system. There is a serious shortage of school blocks, including within the SA, though in recent years concerted efforts have been made by DfID, UNDP and NGOs to build school blocks. According to the SEBS out of 27 sample villages only 10 villages had a primary school.

### Health facilities

There are 7 health centres in and around the SA in addition to a hospital at Lunzu and a health centre at Chileka, which are run by church<sup>29</sup>. 8 mobile clinics, known as “Under Five Clinic”, are also in operation. The government sends medical staff to mobile clinics once or twice a month to provide primary health care for young children.

#### (d) Villagers’ Needs

During the discussions with the TA Chiefs and Village Headmen/women, deterioration of security was often mentioned. To prevent thefts and further insecurity, Chiefs are requesting to build more police stations and to organize patrols in their areas. Additionally, SEBS identified the following problems which villagers were facing:

- Shortage of clean drinking water;
- Long distance to a health centre;
- Long distance to a maize mill;
- Poor road and bridge conditions;
- Food insecurity;
- Shortage of fuelwood;
- Lack of employment and business opportunities; and
- Shortage of farmland.

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<sup>29</sup> Government hospitals and clinics render medical services free of charge, but private hospitals such as those run by churches impose medical fees.

### **3.2 Social Structure and Administrative System**

#### **(a) Traditional Authority**

In Malawi, rural societies maintain a traditional social structure based on the jurisdiction of traditional authority headed by the TA Chief, whose chieftom is descended down from the previous Chiefs through the lineage system. Traditional leaders are the TA Chief, Group Village Headman/woman and Village Headmen/women. They are entrusted to manage customary land, allocate land to villagers, set social norms and rules, mediate problems within the jurisdiction, coordinate affairs with other authorities, etc. Traditionally, their authority was absolute and their norms and rules over the use of natural resources such as water, forests, animals were well respected. This helped the management and conservation of resources in the area.

However, the rural society is now undergoing changes. During the discussions with TA Chiefs, village headmen/women and other villagers, it was often mentioned that since democratization and the onset of the multi-party system, people started behaving differently and that traditional governance and social norms, which once were absolute, started being violated. It was also noted that the random felling of trees for fuelwood and charcoal production increased steeply at around the same time. Although it is difficult to validate direct links between the socio-political changes and the phenomena of deforestation, it seems true that old customs pursued by traditional leaders are no longer in force so powerfully as in the past for the management of natural resources.

Other factors contributing to the change of rural society are: a transitory socio-economic evolution from the subsistent farming society to the monetary society; substantial flows of resources to villages through NGOs and other aid organizations; penetration of political activities into the rural society; etc. Although importance of traditional norms and rules sustained by traditional leaders cannot be denied, the rural society is now subject to external factors influencing the living of local people.

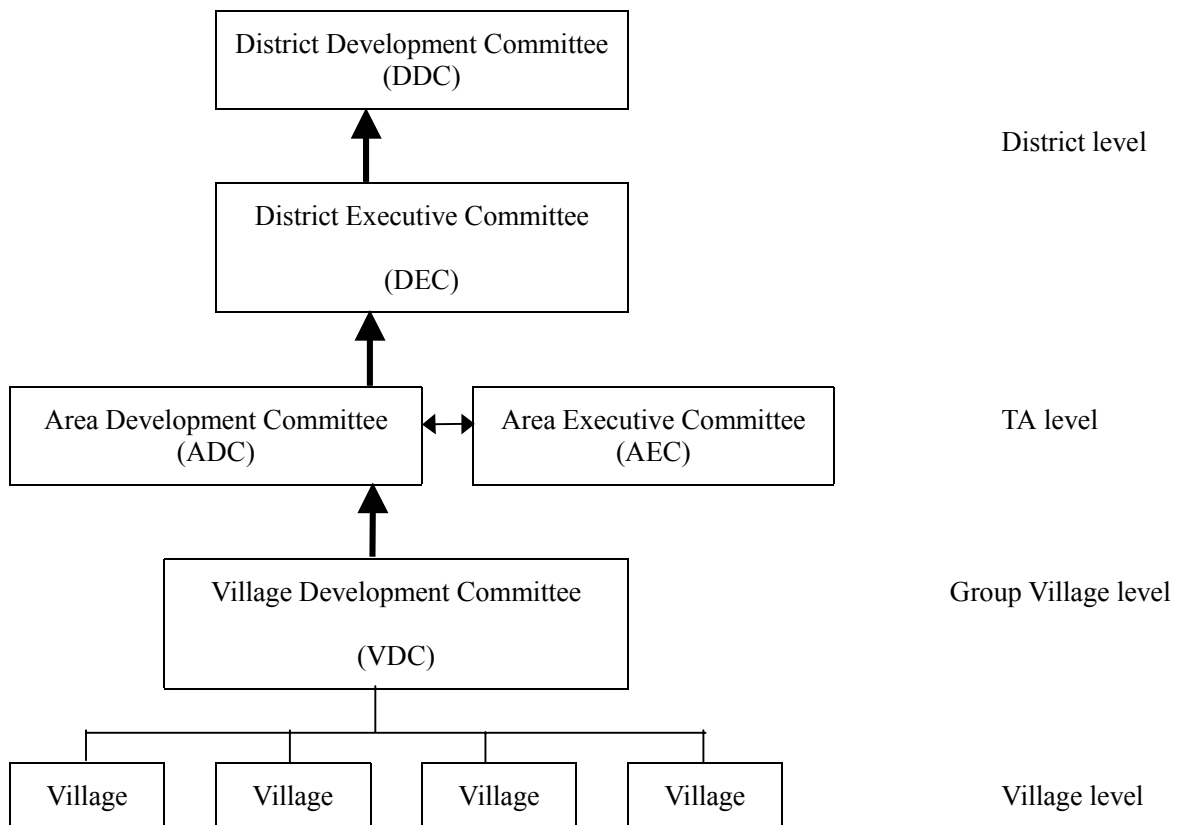
Although as noted above rural societies are undergoing some changes, traditional leaders headed by TA Chiefs still play an important role and their positions are still intact in the official administrative system. No project will be successfully planned and implemented in the rural area without the traditional leaders' positive involvement and support.

#### **(b) District Development Planning System based on Decentralization Policy**

Under the new decentralization policy, a nation-wide District Development Planning System was introduced in 1997. This system aims to involve the rural people in the planning, implementation and management of their own development. People-centred, bottom-up and participatory are the underlying approaches employed in this system. As shown in Figure 3.1 Committees are organized at district, area (TA) and group village level. AEC and DEC are technical support bodies mainly composed of technocrats at each level.



**Figure 3.1 District Development Planning System**



In this system, VDC is the basic, bottom-end representative body, usually formed at Group Village Level. VDC, chaired by the Group Village Headman/woman, is composed of the Village Headman/woman plus one male and one female representative from each village. The committee is to review the problems and the needs of the community and find solutions. If the problem happens beyond control by the Group Village Level, the committee would prepare a project proposal, which will then be submitted to ADC. Upon implementation of a development project, VDC takes the responsibility in mobilizing local resources, allocating labor to the villagers and supervising the activities.

In Blantyre and Chiradzulu Districts, the system is now put into practice at district and area (TA) level, though the development of VDC varies area to area and some are well established and functioned while others are still to be formed. See Table 3.6

**Table 3.6 Compositions and Functions of Development Committees and Executive Committees**

	Composition	Functions
Village Development Committee (VDC)	<ul style="list-style-type: none"> <li>- Group Village Headman/ woman (chairperson)</li> <li>- Village Headman/woman from each village</li> <li>- Representatives (one male and one female) from each village</li> </ul>	<ul style="list-style-type: none"> <li>- Coordination of activities between VDC, ADC and DEC</li> <li>- Mobilization of community resources</li> <li>- Identification and prioritization of needs</li> <li>- Submission of proposals to ADC</li> <li>- Supervision of community development activities</li> </ul>
Area Development Committee (ADC)	<ul style="list-style-type: none"> <li>- TA Chief (chairperson)</li> <li>- Representatives from each VDC</li> <li>- Representative from political parties</li> <li>- Members of Parliament</li> <li>- Representative from religious denominations</li> <li>- Representatives from Youth and Women Groups</li> <li>- Representatives from business community</li> </ul>	<ul style="list-style-type: none"> <li>- Identification, prioritization and preparation of community needs which encompass more than one VDC</li> <li>- Submission of proposals to DEC</li> <li>- Supervision of projects at TA level</li> <li>- Mobilization of community resources</li> <li>- Preparation, prioritization and submission of VDC projects to DEC</li> <li>- Training of VDCs</li> </ul>
Area Executive Committee (AEC)	<ul style="list-style-type: none"> <li>- TA Chief</li> <li>- Technical personnel such as field and forest assistants, health workers, etc.</li> </ul>	<ul style="list-style-type: none"> <li>- Assistance to VDCs and ADC in various fields</li> <li>- Monitoring and evaluation of development projects</li> <li>- Preparation of progress reports to ADC and DDC</li> <li>- Sensitization of ADC and DEC on development activities</li> </ul>
District Development Committee (DDC)	<ul style="list-style-type: none"> <li>- District Commissioner (chairperson)</li> <li>- All TAs</li> <li>- Members of Parliament</li> <li>- Chairpersons of all registered political parties</li> <li>- Representatives from NGOs</li> <li>- Chairpersons of Local Authorities</li> <li>- Representatives from business community</li> </ul>	<ul style="list-style-type: none"> <li>- Preparation of district development policies and development plans</li> <li>- Fostering dialogue between government and people</li> <li>- Coordination of development projects in the district</li> </ul>
District Executive Committee (DEC)	<ul style="list-style-type: none"> <li>- District Development Officer (chairperson)</li> <li>- Heads of Departments in the district</li> </ul>	<ul style="list-style-type: none"> <li>- Identification, prioritization and preliminary F/S of development projects submitted by ADC</li> <li>- Preparation and presentation of district development plan to DDC</li> <li>- Activities as a technical advisory body to DDC</li> <li>- Coordination and support of development projects</li> <li>- Assistance to VDC, ADC and DDC in technical, leadership and management skills</li> <li>- Coordination, supervision, monitoring and evaluation of District Development Planing System</li> <li>- Other duties assigned by DDC</li> </ul>

**Table 3.7(1) Existing Community Organizations**

	Formation	Composition	Roles and Objectives	Funding Mechanism	Remarks
Borehole Committee	Upon borehole installation normally facilitated by executing organizations such as NGOs. Training (3-5 days) for committee members on management and maintenance of borehole.	Selection of 10 committee members from the borehole users. The committee includes chairperson, vice-secretary, treasurer and vice-treasurer.	Hygienic maintenance of borehole and the surrounding. Provision of spare parts. Maintenance and repair of borehole. Collection of maintenance fee from the users.	Committee members work as volunteers. Fee is collected from the users to meet the cost of spare parts and repair (normally 5-10 MK per month per HH). The community usually provides local resources and labour for borehole installation.	Active involvement of NGOs experienced in borehole installation (Concern Universal) in the SA. Their emphasis is on self engagement and maintenance. Prior to borehole installation, sensitization of the community on health and borehole use.
Health Committee	Facilitated by District Health Office. No training of members except for funded projects.	Selection of 10 committee members from villages around the clinic. The committee includes chairperson, vice-chairperson, secretary, vice-secretary, treasurer and vice-treasurer.	Cleaning and maintenance of the clinic. Assistance to health staff with routine work at the mobile clinic.	Committee members work as volunteers. Free health care to the community.	Active in case of NGO funded projects. Some are not functional. The village where the clinic is situated takes more responsibility.
School Committee	Directed by District Education Office. No training. Important items are reported to the District Education Office.	Selection of 10 committee members from the parents. The committee includes chairperson, secretary and treasurer. Head master normally attends the committee meeting as an observer.	Solve problems of the school. Plan development activities such as building school blocks and teachers' houses.	Committee members work as volunteers. The community usually provides local resources and labour for building school blocks and teachers' houses.	Generally not so active (1% indicated this as important organization in SEBS).
Block Committee	Organized by FA (agricultural assistant) at block level. Though rarely done, FA is to give 8 sessions of leadership training to committee members.	Selection of 10 committee members from the block. The committee includes chairperson, vice-chairperson, secretary, vice-secretary, treasurer and vice-treasurer.	Coordination between FA and farmers in the block. Assisting FA with block meetings.	Committee members work as volunteers. In some cases a plot for demonstration farm is provided by villagers. No fee from farmers.	Infrequent visit of FA to villages. Extension work is not active.
Village Natural Resource Management Committee (VNRMC)	Organized by Forest Assistant at village level. If fund is available from NGOs and other aid organizations, committee	Selection of 10 committee members from villagers. The committee includes chairperson, vice-chairperson, secretary,	Setting rules on the use of natural resources. Starting up or maintenance and management of village forestry. Fire protection.	Committee members work as volunteers. No contribution from villagers. No fund, no resources except for	Only 14% of villages have set up VNRMC in Blantyre District. Not sustainable as no resources/fund, and low

**Table 3.7(2) Existing Community Organizations**

	Formation	Composition	Roles and Objectives	Funding Mechanism	Remarks
Farmers' Club	members are given leadership training and forest management training (3-5 days). Facilitated by FA, but voluntarily organized by farmers..	vice-secretary, treasurer and vice-treasurer.  Formed by 20-25 farmers who trust each other as they are bound to communal responsibility in case of loan utilization.. They select chairperson, vice-chairperson, secretary, vice-secretary, treasurer and vice treasure.	Developing tree nursery. Sensitization of villagers.  For many, the sole purpose is to have an access to credit system (group loan). There are active clubs for communal production or marketing (tobacco, vegetables, etc.).	donor-funded projects. Some projects pay villagers for their contribution.  Membership fee (10-50 MK per year) is normally collected. Some have a provision of emergency fund in case of default farmers.	incentive to villagers.  Many clubs have no communal activity other than applying to and repaying a group loan. Some are very active, especially those who are profitable. (such as tobacco clubs)

### 3.3 Community Organizations and Participatory Development

#### (a) Existing Community Organizations

There are a number of organizations at community level as shown in Table 3.7.

In case of NGO-funded multi-sectoral community development projects<sup>30</sup>, a Project Committee is organized to oversee the overall project and coordinate project activities. Other committees (Health, Income Generation, School, Forestry, etc.) are positioned as sub-committees under the Project Committee. The Project Committee is normally composed of representatives from each of the villages and those from each sub-committee.

Generally, little coordination is sought between different organizations except for the above projects, which are coordinated by Project Committee. Full development of the District Development Planning System may enable VDC to take a leading role, similar to the Project Committee, in overseeing all the development activities in the community and to coordinate their activities to maximize the effect.

The majority of the existing organizations were established with an initiative and supervision of government bodies. No community-level organizations, which are based on traditional systems or formed spontaneously by farmers to facilitate communal help, has so far been found in the SA. Except for Farmers' Clubs, all the organizations have little active involvement from the beneficiary group as a whole but are concentrated on committee activities only. As an example of a Health Committee, although there exist a group of people who benefit from the clinic, this beneficiary group has not gone through a process of organizing themselves in order to act as a group based on common interests. Formation of the committee is not backed by this process but initiated by an outside organization. In addition, most of the existing organizations suffer from lack of resources even to cover the running cost of the organizations, where lack of budget partly hinders more active involvement of wider community.

#### (b) Village Natural Resource Management Committee (VNRMC)

The new Forest Act (1997) emphasizes the importance of the participatory approach and community forestry, aiming at the management of village forests by the community on customary land. The Forest Office is making an effort in establishing Village Natural Resource Management Committees, which are to assume the responsibility of organizing the villagers for participatory management of the village forest.

In Blantyre District, except for the villages where BCFP and MASAF forestry projects are implemented, very few villages have established VNRMC, partly due to an inadequate number of forest assistants and their lack of mobility. Altogether around 14% of the villages in Blantyre have already established VNRMC.

**Table 3.8 Number of Villages with VNRMC (Oct. 1999)**

	Number of Villages in TA*	Number of Villages with VNRMC (Oct. 1999)**	%
TA Chigaru	59	6	10%
TA Kuntaja	140	10	7%
TA Kunthembwe	77	16	21%
TA Kapeni	195	25	13%
TA Lundu	54	6	11%

<sup>30</sup> World Vision is implementing multi-sectoral Area Development Programme in TA Chigaru and TA Chitera. Though outside the SA, OXFAM is funding a similar project in Mulanje.

TA Makata	38	20	53%
TA Machinjiri	109	14	13%
<b>Total</b>	<b>672</b>	<b>97</b>	<b>14%</b>

\*Blantyre District Office \*\*Blantyre District Forest Office

As summarized in Table 3.7, the formation, composition, roles and objectives, and funding mechanism of VNRMCs are similar to those of other existing organizations.

In the SA, few villages have village forests, which can currently provide villagers with forest products such as firewood and poles. Therefore, one of the first activities that VNRMC has to undertake is the starting of a tree nursery and reforestation. It needs 5-10 years before forests can benefit the villagers by producing forest products, and this sluggish development does not give a great incentive to villagers to participate in such activities. Further, most of the VNRMCs in the SA have no autonomous means to generate funds and are totally dependent on outside organizations such as MASAF and NGOs, which poses a question of sustainability.

### (c) Strengthening Community Organizations and Participatory Development

Reviewing the constraints of on-going community organizations, the following points need to be considered for planning participatory projects as components of the Watershed Rehabilitation Plan.

- Assess the leadership quality of TA Chief and Village Headman/woman in the area during the project planning (leadership quality of traditional leaders plays an important role to mobilize villagers);
- Formulate project plans in accordance with traditional leaders' views (their positive support and involvement would help people's participation);
- Clearly define the beneficiary group and organize the beneficiary group as a whole;
- In the case of using existing community organizations, assist in capacity building of the organizations both on organizational management and technical aspects (cooperation with relevant NGOs);
- Formulate projects in such a way that they give villagers a high incentive, or that villagers are disposed to participate. Or, place such high incentive projects as a component of important but low incentive ones;
- Include capacity building and support of existing government agencies such as field, forest, community development assistants;
- Include a cost-sharing or a fund raising mechanism within a project; and
- Include activities, which give tangible benefits in a short time.

## **CHAPTER 4 INITIAL ENVIRONMENT EXAMINATION (IEE)**

## CHAPTER 4 INITIAL ENVIRONMENT EXAMINATION (IEE)

The guideline for EIA has been put into force in Malawi since December 1997, but that for initial environmental evaluation is not yet provided so far. Hence, guideline of IEE provided by JICA is employed here apart from the EIA by MNREA mentioned below. In this guideline, sustainability of any plans in the proposed project is given special importance on one hand, while mitigation of negative impacts and enhancement of positive ones are pursued in considering environmental outcome on with-project basis. IEE is performed in the overall study to determine whether or not EIA (environmental impact assessment) is required for the implementation of the proposed project. The proposed study, already ranked as top priority environmental measures in Malawi by MNREA, aims at the project identification to rehabilitate the degraded watershed in the catchment area of tributaries of Shire river in a sustainable way. The result of IEE by JICA, provided in consultation with a member of working committee, Mr. Bauleni, representative of ESCOM, is shown in the Annex J-1.

Although IEE has not yet been introduced in Malawi, MNREA recently decided to employ “Project Brief” (as of August 10, 1999) in place of IEE. This is a short report informing the DEA (Director of Environmental Affairs) that a project is implemented so that it can allow DEA to determine the need for an EIA based on screening criteria. Thus, it must contain the information needed by DEA to evaluate the report against the screening criteria. Developers are required to provide correct information in it since this is the basis for determination of whether a full EIA report is required or not. Unless a proposed project is likely to have evidently significant environmental impacts, project developer should be able to prepare it with little or no assistance from environmental specialists. Since projects and their stages vary widely, detailed guidelines for the content of a “Project Brief” are not possible. However, Section 24 of the EMA (Environment Management Act) requires that a Project Brief should at least state the following;

- 1.1 the estimated total cost of the project
- 1.2 the name of the developer
- 1.3 the nature of the project
- 1.4 the activities that shall be undertaken
- 1.5 the possible products and by-products anticipated
- 1.6 the number of people the project shall employ
- 1.7 the air, water and land block that may be affected
- 1.8 any other matters as may be described
  - 1.8.1 A basic description of the project purpose, size, location and preliminary design, including any alternatives, which are being considered (e.g. site, technology, construction and operation procedures, handling of waste).
  - 1.8.2 The stage of the project in the project cycle.
  - 1.8.3 A location map of the project site or sites alternatives, and site plan as it is currently known. Reference should be clearly indicated so that site can easily be located on a 1:50,000 or larger scale map.
  - 1.8.4 A discussion of which aspects of the project are likely to cause environmental concerns and of proposed environmental management measures.

In line with the above described form of Project Brief, the Study Team discussed with Blantyre District Environment Officer, Mr. Makombere, on the necessity of submitting the Project Brief of what the Team is going to propose as an MP to MNREA. The Officer is of the opinion that it is not necessary to submit the Project Brief to implement environmental conservation projects without including any commercial afforestation component of the scale beyond 50 ha. According to his view, the Project Brief is necessary to receive sanction of the proposed project from the ministries concerned only during the drawing design stage.



Therefore, it is still premature to submit any Project Brief before any consultation with villagers concerned on the details of project design that is scheduled in the Phase II Study is being made.

# **CHAPTER 5 ALTERNATIVE ENERGY RESOURCES**

## CHAPTER 5 ALTERNATIVE ENERGY RESOURCES

To alleviate growing shortage of energy sources for household consumption in Malawi, the Government has made efforts of developing sustainable substitution of fuelwood with other sources, directed by the Ministry of Energy and Mining. These efforts include rural electrification, small scale hydro-power generation, briquette manufacturing with industrial waste materials, pine charcoal making and biomass utilization. National Sustainable and Renewable Energy Programme (NSREP) plays the core role in trying to substitute conventional fuelwood with new energy sources like electricity, coal or briquette, biomass, solar and wind energy. Needless to say that the preconditions or the requirements to make these efforts a success lies in the following points;

- availability of substitutable energy sources in or around the consuming area
- economic affordability of energy consumers to change their mode of energy consumption
- location factors that enable to introduce reasonable innovation of new energy distribution

Since any energy substitution inevitably accompanies with betterment of living standard, some economic burden should be borne by its beneficiaries. The cost, sustainability and feasibility of energy substitution depends on the above listed factors, but urban population can never avoid addressing and struggling with this issue as the amount of conventional fuelwood and charcoal supply is dwindling. So should the rural population living in peri-urban areas also who are destined to pay the same efforts as urban people should.

A decade ago, the SA had been one of the fuelwood and charcoal supply bases to meet the urban demand in Blantyre and Limbe. Nowadays, all the fuelwood tree resources in the TAs belonging to the SA have been depleted, since the villagers continued to exploit standing trees both for home consumption and for sale without replanting them. In short, the necessity of substituting energy sources arises from chronic rural poverty. So the campaign for energy substitution should be promoted in parallel with poverty alleviation programs, otherwise rural poor cannot afford to follow required paradigm conversion from conventional way of cooking or cottage heating to renovated use of new type fuel or energy sources.

Available energy sources within the SA are quite limited, for any type of energy requires facility to generate or transform / distribute it before serving to users. Besides the facility, stable supply of material or products from use of energy (for example industrial by-products) constitutes an indispensable condition to make it sustainable. Rural electrification can provide practical substitution because power supply slightly exceeds current demand in Malawi in these days. Actually less than 1% of rural population living in the SA (but confined to those who live along the metal roads or grid cable networks utilizing electricity mainly for daily lighting purpose by paying MK 150~400 {0.43MK/KWh} per month) currently have access to electricity. Yet majority of population can barely pay even MK 10 for borehole maintenance. Major constraints to use electricity arise from comparatively higher cost of cable installment among scattered residential quarters, unreliable power supply with frequent power failure and higher energy price compared to that of firewood. Nevertheless, potential of rural electrification is fully recognized here making use of electricity surplus within the country (annual supply of 220 MW versus consumption of 205 MW as of 1999), besides Kapichira Phase I will be operated in the coming decade.

Use of briquette is another but cheaper choice of energy substitution, but in this case constant supply of industrial wastes like saw dust, used paper or forest litter is required, and special type of stove exclusively prepared therefor is necessary to efficiently burn briquette. Pressing apparatus is also needed to make it from locally available materials, and it has been introduced in GTZ rural development project in Mwanza District, adjacent to the SA. Except Machinjiri TA where urban waste and by-products of sawmills are likely available, material of briquette other than litter of woodlot is hardly found within the SA.

Biogas generating plant has been tested in Magomero, located adjacent to Mpama TA of the SA. It requires considerable cattle manure and other biomass materials as substrates of methane fermentation, fermenting tanks and gasholders to deliver evolved gas to cooking ranges. Alternative costs of various substitutable energy sources are given in Table 5.1. Renewable energy cost is in general cheaper than that

of non-renewable one. Currently LPG gas is available only in large hotels in Blantyre City and Limbe City.

**Table 5.1 Comparison of Energy Costs by Energy Source**

energy source	unit	unit price MK/ unit	facility price per annum	consumption quantity/year/hh	annual cost MK per hh	availability in the SA
fire wood	kg	0.6	-	1,300 kg	780	readily available
Charcoal	kg	2.1	75MK/hh*	430 kg	1,000	readily available
electricity	KWh	0.43	1,400MK/hh	864KWh	1,800	grid necessary
briquette	kg	0.5	75MK/hh*	720 kg	430	scarce material
bio-gas	liter	0.2	1,200MK/hh	2,200 litre	1,640	scarce material
LPG gas/paraffin	liter	12.5	180MK/hh**	68 litre	850	difficult to obtain

Note: \* for improved stove for burning charcoal or briquette, \*\* for cooking gas range and gas container

Source: Urban household energy demand side strategy, MEMM, March 1996

**CHAPTER 6 PREPARATION OF TOPO MAP  
AND REVISION AND  
VERIFICATION OF EROSION  
HAZARD MAP**

## CHAPTER 6 PREPARATION OF TOPO MAP AND REVISION AND VERIFICATION OF EROSION HAZARD MAP

### 6.1 Provision of Topographic Map

The topographic map of the SA was provided from the data including horizontal and vertical control points for the mapping at the scale of 1/20,000 covering the SA encompassing 670 km<sup>2</sup>. In this context, the items and process of the survey were as follows;

- 1) New control points survey
- 2) Leveling for the vertical control
- 3) Pricking of new and existing control points on the photographs, and
- 4) Field verification of mapping items

These field surveys were implemented by AOC, a survey company in South Africa on a contract basis, under the supervision of the Study Team. The outline of the surveys is shown in Annex F-1.

#### (a) Purchasing of Aerial Photographs

Prior to the field survey work, the Study Team ordered sets of the aerial photo duplications as listed below, and also purchased existing survey data required for the field works and the mapping at Department of Surveys in Blantyre. Purchased sets consist of 100 models, 9 courses and 109 sheets of photos.

- 1) Diapositive film rolls for mapping 1 set 111 sheets
- 2) Contact paper-prints 4 sets 444 sheets
- 3) two-time partially enlarged photos for pricking (25cm × 25cm) 23 pairs 46 sheets

Unfortunately, in so far as two-time enlarged photos of full size of 50cm × 50cm were concerned, usable photos for the Study could not yet be prepared because of lack of stock of the photo materials like large size diapositive roll of film in Malawi.

#### (b) Aerial Triangulation

Aerial triangulation for the accurate mapping was performed covering entire SA, 700 km<sup>2</sup> including fringe, applying the results of control points pricking on the aerial photographs. Block adjustment computations based on the independent models were made. The volume and the computed results are as follows;

- 1) Photo scale : approx. 1/25,000
- 2) Volume of Models 100 models (9 courses, 109 sheets of photos)
- 3) Control Points Used Horizontal - 24 points, Vertical - 125 points
- 4) Standard Deviation Horizontal - 0.577m, Vertical - 0.499m at control points

#### (c) Control Point Survey

In order to ensure accurate aerial triangulation for mapping, control points have been newly set up where

existing horizontal control point was not sufficient. New control points are located at 11 clear points on the photographs for pricking. These geodetic coordinates were determined by differential GPS observations using multiple units of GPS receivers connecting neighboring existing trigonometric point.

(d) Leveling

To supplement the elevation control, minor order leveling was conducted along the routes shown on the spanning some 200km in total. In this leveling work, existing benchmarks (BM) along M1, M2 and M6 roads were connected and checked for their closure. Heights obtained from the minor order leveling were identified approximately 1 km and plotted on the aerial photographs for vertical control of mapping.

(e) Pricking

New control points by GPS as well as existing trigonometric points were pricked at their precise locations on two-time enlarged photos. The number of pricked points was 24. These pricking data were compiled as “Description of Pricked Point” for successive aerial triangulation work.

(f) Field Verification

Such features as geographic names, administrative boundaries, public buildings and other prominent features which need to be represented but not clearly identifiable on the photos were verified on site with the photos, and the findings were described on the photos with other information as they were made in the field.

(g) Topographic Mapping

Based on the results of aerial triangulation, topographic maps covering the SA were newly produced using aerial positive-film photos by digital computer mapping at a scale of 1 / 20,000. Micro Station software in “DIAP” computer for photogrammetry were applied for this purpose. The following shows the specifications of topographic map.

- 1) Map Projection; UTM (Zone 36)
- 2) Reference ellipsoid; Clarke 1880 (New Arc 1950)
- 3) Map symbols; based on the existing map (by SD Malawi)
- 4) Map scale; 1 / 20,000
- 5) Contour intervals; 10m, with intermediate contour every 5 m
- 6) Size of mapping sheet; Neat-lines 100 cm × 80 cm
- 7) Number of sheets; 6 sheets / set

**6.2 Results of Mapping**

Based on the results of above mentioned topographic maps covering the SA at a scale of 1/20,000, the following maps were prepared.

<u>Name of Title</u>	<u>Scale</u>
Phase I Stage	
- Current Land Use and Vegetation Map	1 / 20,000
- Erosion Hazard Map(Draft)	1 / 20,000

## Phase II Stage

- Map of Watershed Rehabilitation Plan 1 / 20,000
- Erosion Hazard Map 1 / 20,000

### 6.3 Land Use · Vegetation Map

A land use · vegetation map of a scale 1 / 20,000 was made as per attached based on topographic maps drawn with aerial photographs taken in 1995 as well as on the result of site survey. On the sheets, both cultivated land and fallow land were mapped as the same land-use, i.e., farmland by the reason that it was difficult to distinguish one from another on the photos as they were taken during dry season. As regards to current distribution of vegetation, estimated canopy coverage by 1km<sup>2</sup> mesh and predominant tree species other than annual crops have been identified and plotted on the map. However, in most sites, status of vegetation remains as scattered stands because there seldom remains tract of forests / woods except estates as mentioned earlier. To show a distribution pattern in the entire SA, land use, vegetation and topographic gradient are illustrated in Figure. 6.1 and Figure. 6.2. From these figures a close correlation between rainfall and vegetation cover could be observed.

### 6.4 Erosion Hazard Map

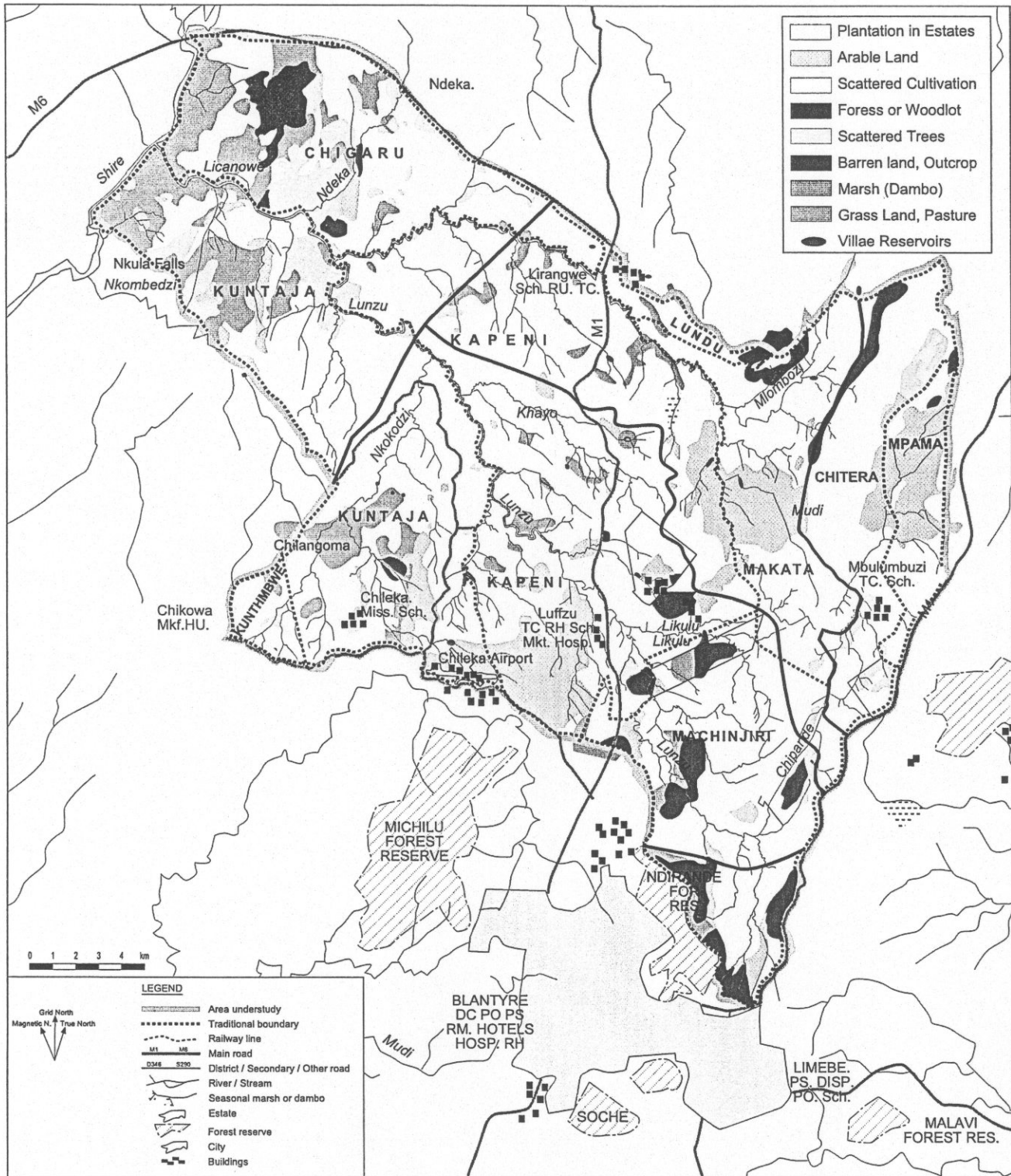
It is almost impossible to directly measure the state of soil erosion in a vast area within a short period. This is why SLEMSA system (as to the procedure, see Annex erosion) is commonly used for forecasting risk of erosion in the occasion of land reclamation to develop farmland based upon current land use and climatic factors. In this Study, an erosion hazard map was superimposed on a topographic map of a scale 1 / 20,000 through the estimation based on an improved SLEMSA method applicable to South Africa. On this map, risk of erosion accompanied with farmland reclamation was plotted on cross section at the interval of 0.5 square kilometer. The distribution of higher erosion hazard can be readily delineated from the distribution pattern of topographic gradient, annual rainfall, topsoil texture, kinds and cropping duration of major crops specified as the factors of SLEMSA calibration formulae.

That is to say, erosion is liable to take place in such a site with steep slope, with higher annual precipitation, with sandy and shallow topsoil or with smaller rain storage capacity. It also occurs in fields planted with crops with poor raindrop intercepting capacity, reaching in some case soil loss equivalent to several ten ton per annum. On the contrary, extent of erosion remains low under such condition as semi-arid zone, with larger water holding capacity owing to thick topsoil or higher clay content. The calibrated values give low level on fields planted with crops that can effectively intercept raindrop by thrived leaves. As such plant cover can prevent structural destruction of soil surface, extent of soil erosion can be controlled to 1~2 ton per year. Though method of cultivation also constitutes an important factor as to occurrence of erosion, contour ridge system has already been widely diffused throughout the SA, and in some places even combination of vertical ridges with contour ones (box ridges) is practiced, so difference of cultivation method seemed overlooked.

Distribution of soil erosion in the entire SA is given in Figure. 6.3. As readily seen in this figure, risk of erosion is lower than expected, and the estimated annual amount of soil loss from a hectare calculated by SLEMSA system is averaged at less than 7 ton, or 460 thousand ton from the entire SA (refer to Figure. 6.2 and 6.3).



Figure 6.1 Land Use – Vegetation Map



THE MASTER PLAN STUDY ON WATERSHED REHABILITATION IN MIDDLE SHIRE

Figure 6.2 Topographic Gradient Map



Figure 6.3 Erosion Hazard Map

