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**THE ADMINISTRATION OF PUBLIC FOREST RANGELANDS
IN THE PHILIPPINES: A POLICY RESEARCH**

by

Gener Moulic Austria

A thesis submitted in conformity with the requirements
for the Degree of Master of Science in Forestry,
Graduate Department of Forestry, in the
University of Toronto

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To my son, David Charles C. Austria

**THE ADMINISTRATION OF PUBLIC FOREST RANGELANDS
IN THE PHILIPPINES : A POLICY RESEARCH**

ABSTRACT

This thesis is a policy research designed to identify problems in the administration of public forest rangelands in the Philippines and to provide policy makers with information needed to solve these problems. The study was based on information from the literature, on public records of the Department of Environment and Natural Resources, on the researcher's working experience and on the result of a survey of grazing leaseholders in the country.

The study showed that grazing leaseholders have unsecured land tenure, rental fees charged were low, carrying capacity of public rangelands was not regularly determined, and rangeland improvement was not considered a major management activity. It was concluded that the government's policy in the administration of public forest rangelands does not fully recognize the real value of the range resources. Range forage was not considered a natural resource, equally important and similar to other traditional benefits derived from forest lands.

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Master of Science in Forestry - March 1993
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CHAPTER I.

INTRODUCTION

1.1.0 THE REPUBLIC OF THE PHILIPPINES

The Republic of the Philippines, named after Philip II, 16th century king of Spain, is an archipelago composed of 7,100 islands. The total land area is approximately 30 million hectares with a total coastline of about 17,500 km. It is located south of Taiwan, north of Indonesia and bounded by the South China Sea on the west and the Pacific Ocean on the east. The Philippine islands fall into three main groups; Luzon, Visayas, and Mindanao (Figure 1). The climate is tropical with two pronounced seasons; the dry season, generally December to May, and the wet season, the rest of the year.

The 1988 population was estimated to be 63 million people, increasing at an annual rate of 2.4% (Myers 1988, World Bank 1989). The Filipino people, which were under Spanish rule for 333 years, and then as an American protectorate for 48 years, belong to several diverse ethnic groups. Almost 70 dialects are spoken in different parts of the country.

As a "third world country", McBeth (1990) claims that the Philippines is politically and economically unstable, with a foreign debt totalling US\$ 28 billion. Twenty-one percent of the annual export earnings are consumed for debt servicing.

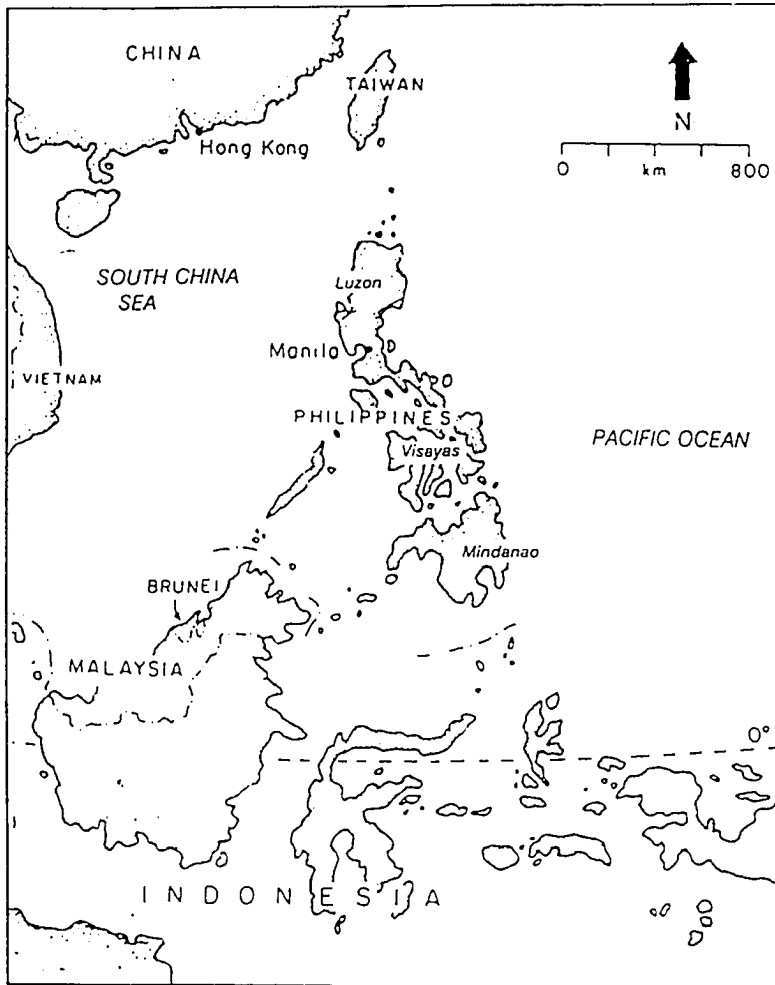


Figure 1. Map of the Republic of the Philippines.

The marxist military movement nationwide remains a constant threat aiming to overthrow the government.

The country is extremely rich in flora and fauna with about 8,500 identified plant species, over 3,000 species of trees, and an enormous variety of animal life estimated to be at least 170,000 species, many of these still unidentified (Myers 1988).

1.2.0 NATURE AND FOCUS OF THE STUDY

1.2.1 Forest rangelands defined

Rangeland is an internationally accepted word which refers to lands covered by natural grassland vegetation utilized for grazing domestic or wild animals (Bommer 1978). The term also applies to irrigated pastures, brushlands or even forested lands with herbaceous and/or shrubby understory for grazing or browsing (Vallentine 1989). Rangelands are present in many countries and are said to be the largest land use in the world, occupying about one-third of the earth's total land surface (Perry 1978).

In the Philippines, rangelands are commonly located within classified forest zones which evolved from the gradual depletion of the previous climax forest vegetation. They are one of the country's natural resources, and very important to

the survival of the livestock industry. Likewise, rangelands are a place for outdoor recreation, water supply and habitat for certain flora and fauna. These grazing lands, owned by the state, are administered and managed by the Department of Environment and Natural Resources through one of its line agencies, the Forest Management Bureau.

Commercial ranchers graze cattle and other livestock in forest rangelands under lease or permit issued by the Department of Environment and Natural Resources. This privilege allows the holders to occupy and graze cattle on designated grazing land for a period of 25 years, in return for a yearly compensation.

1.2.2 Problem definition

The Philippines is a relatively small country with a large population. The 30 million hectares of land together with its natural resources is shared by an estimated 63 million Filipinos. The growth in population puts tremendous demands on the land to provide the very basic needs of humans -- food and shelter.

With the growing population, statistics for the past decade show a significant decrease in the number of cattle from 2.7 million head in 1978 to 1.7 million in 1988. It was reported that an average Filipino now consumes barely two grams of beef per day because of the continuous decline in cattle supply (Satorre 1991). The imbalance between demand and production produced a national warning to

implement immediately a viable long-term measure to avoid becoming a beefless society by the end of the century.

Proper management of rangelands within forest zones had been one of the pressing management problems of the government. Ranchers in these areas account only for approximately 6% of the total cattle population, while a larger percentage were produced from small-time backyard farms and other commercial farms on privately-owned lands (Cabreros 1990). Although forest rangelands can generally support 1 animal unit¹ per hectare (Umali 1980), cattle production is extremely low and most of these areas are undeveloped, abandoned, or not optimally utilized.

1.2.3 Focus of the study

The focus of the study was to analyse the DENR's policy in the administration of public forest rangelands in the Philippines. The primary goal was to identify problem areas and generate specific policy recommendations or options to improve rangeland condition and optimize livestock productivity. *Specific policy issues* addressed were; the tenurial arrangements in the utilization of the range resources, rangeland improvement and rehabilitation, the compensation received by the government for allowing private grazing on public rangelands, and the social and

¹ Animal unit is the amount of forage consumed by one mature cow with calf, or equivalent (Wenger 1984).

economic constraints that hindered the development and improvement of forest rangelands.

1.3.0 REVIEW OF LITERATURE

The earliest article pertaining to forest grazing in the Philippines was written in 1952 by Florencio Tamesis, then Director of the Bureau of Forestry, Department of Agriculture and Natural Resources. He discussed the forest grazing situation at that time -- the extent of available forest areas for livestock production, the administration problems, and the need for further studies and research in the field of range and pasture management. Also included was a brief review of the Pasture Land Act, approved on June 8, 1939 under Commonwealth Act No.452, which vested the Bureau of Forestry with administrative control over all forest lands including those lands used for grazing purposes. During that time there were only about 128 500 hectares of permanent grazing lands under lease from the Bureau of Forestry, with approximately 827 000 hectares still vacant.

In 1971, T. W. Sears, of the Food and Agricultural Organization, conducted a study about the forest range and watershed management in the Philippines. In his report, he discussed range grazing as a form of forest land use and the technical aspect of vegetation and livestock management. Of particular interest in this study was his discussion regarding the administration of public forest rangelands, the review of grazing laws and regulations, the very low fees paid by grazing

leaseholders, and the terms and conditions of the lease agreement which he considered contrary to good rangeland management.

Neptali Zabala, in 1978, discussed the problems which hampered the improvement of forest rangelands in the Philippines, including the rising incidence of forest squatting or illegal occupancy by upland farmers, which he considered as a socio-economic problem affecting the ranchers' security of tenure. He also discussed the lack or the inadequate range research and the government's neglect in the management of the rangelands as against the traditional forest uses like timber production, reforestation and watershed management.

The articles of Umali (1979 and 1980) criticized the ineffectiveness of the then Bureau of Forestry in the management and administration of forest rangelands and recommended the creation of the Rangeland Development Authority. In his 1980 article about Philippine rangeland development, he also pointed out the tenurial insecurities of grazing leaseholders affected particularly by dissident activities in the rural areas where forest rangelands are commonly located.

A comprehensive study about range management in the Philippines was prepared by Cabreros (1990) in a country paper he presented in Australia. He gave an overview about the Philippine range management system and defined the problems and issues affecting the management of rangelands. He said that the

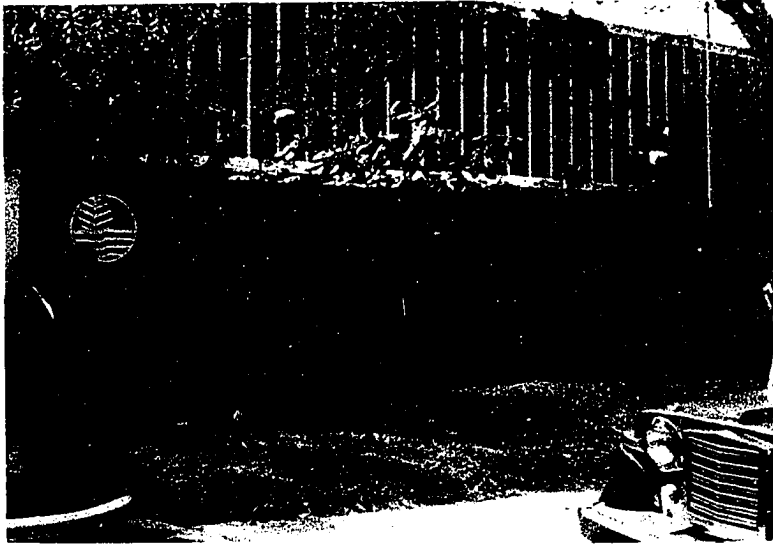
present policy in the administration of range areas should be revised, giving emphasis on the tenurial insecurities of ranchers regarding their 25-year lease agreements.

Apart from the report of Sears (1971), there were no studies dealing specifically with the user's fee for grazing livestock on public forest rangelands in the Philippines. In fact, no major policy changes were developed with respect to the computation of an appropriate rental fee, since the enactment of the 1938 Pasture Land Act.

The 1939 Pasture Land Act was repealed by the revised forestry code enacted under Presidential Decree No. 705² (1975). The DENR still has jurisdiction and control over public forest rangelands where grazing was considered as a special form of forest land use. Pursuant to the revised forestry code, Ministry Administrative Order No. 50 (1982) was issued by the then Ministry of Natural Resources. Up to now, it remains the basic regulation that governs the management and administration of public grazing lands in the Philippines. This regulation defines the guidelines for the administration and disposition of forest lands for grazing purposes, including the process of issuance, renewal, and cancellation of grazing leases and permits and sets out the terms and conditions of the grazing lease agreements.

²

At one point when the late Ferdinand Marcos was president of the country, the legislature was abolished and all laws and statutes were enacted by the executive branch of government, hence the term "Presidential Decree".



Photograph 1. The Forest Management Bureau, Department of Environment and Natural Resources, one of the staff bureaus in charge of the administration of public forest rangelands.

1.4.0 THESIS OBJECTIVES

The general purpose of the study was to identify problems in the administration of forest rangelands in the Philippines and to provide new knowledge and usable information that may be used by policy makers to improve rangeland condition and productivity and encourage the efficient utilization of range resources. The following were the specific objectives:

1. to examine the Department of Environment and Natural Resources' policy governing the utilization and management of public forest rangelands in the Philippines;
2. to assess the effectiveness of laws, rules and regulations in encouraging the efficient utilization and conservation of forest rangelands;
3. to determine if the current rental fee paid by grazing leaseholders to the government for the use and occupancy of public forest rangelands was appropriate and to generate information to serve as the basis for the *determination of an appropriate rental fee*;
4. to identify factors which affected land tenure and security of grazing leaseholders over their leaseholds; and

5. to generate specific policy recommendations or options for rangeland improvement, conservation and efficient utilization of the public range resources.

1.5.0 THESIS STATEMENT

The government's policy for the administration and management of public forest rangelands in the Philippines has a strong influence on the improvement, conservation and proper utilization of the range resources.

To improve rangeland condition and optimize livestock productivity, grazing laws and regulations adopted by the government and implemented by the Department of Environment and Natural Resources should consider that rangeland forage is a renewable natural resource equally important and similar to other traditional benefits derived from forest lands.

CHAPTER II.

METHODOLOGY

2.1.0 POLICY RESEARCH APPROACH

The study can generally be categorized as policy research in the field of forest rangeland administration in the Philippines. The research effort was based on available local and foreign literature, on public records of the Forest Management Bureau and of the Department of Environment and Natural Resources, on personal interviews with certain individuals connected with the administration of public forest rangelands, on the researcher's six years experience working with the rangeland management unit of the Forest Management Bureau, and on a survey of grazing leaseholders.

This method of policy research was termed by Marchszak (1984) as a "focused synthesis" involving not only the accumulation and synthesis of existing literature relevant to the policy issues addressed, but also discussions with experts, interest groups, unpublished public documents, and the researcher's past experience. The main problem with this method of policy research is its dependency not only on available articles and studies but also on the timeliness of both qualitative and quantitative data. This latter factor was remedied by the inclusion of current information gathered as a result of a research survey and of personal interviews.

2.2.0 SOURCES OF INFORMATION

The following are the sources of information that were used in the preparation of this work:

1. **Documentary research** - Under this category are the pertinent laws and regulations of the Philippine government relating to the administration and management of forest rangelands, the body of local and foreign publications, articles, journals, and books related to the policy issues addressed, and the relevant laws, statutes and regulations of other countries concerning the management and utilization of their respective public rangelands. Among the statutes consulted were *The Public Rangeland Improvement Act* and the *Federal Land Management Act* of the United States, the *Range Act* of British Columbia and the *Land Act* of New Zealand.

2. **Records of the Range Management Section of the Forest Management Bureau, Department of Environment and Natural Resources** - This pertains to the individual records of all existing forest land grazing lease agreements containing information like rental assessments, performance evaluation reports and *grazing management plans* submitted by individual lessees, petitions for cancellations of lease agreements filed by interest groups, order of cancellations and other pertinent public documents in the custody of and

freely provided by the Forest Management Bureau and of the Department of Environment and Natural Resources.

3. **Result of the survey** - A total of 84 grazing leaseholders located in three different regions of the country were surveyed. Conduct of the survey was prompted by lack of up-to-date local articles dealing in forest rangeland administration in the Philippines and also to incorporate the opinion of leaseholders in the discussions of specific policy issues. Of particular interest was the respondents' assessment about the rental fee, their suggestion of what an appropriate fee should be, their attitudes about their tenurial security, and the problems encountered in their ranching business.

4. **Personal experience of the researcher and other personal interviews with forestry personnel** - Also included in this paper is the knowledge gained by the researcher during his six year working experience with the range management section of the Forest Management Bureau, and personal interviews with the Director of the forestry bureau and other personnel dealing with the administration and management of public forest rangelands.

2.3.0 THE SURVEY OF GRAZING LEASEHOLDERS

The survey was conducted to determine the grazing leaseholders' perceptions toward the policy of the DENR administration of public forest rangelands and to

know and understand their problems in the management of their respective grazing leaseholds. Due to the prohibitive cost of conducting a more comprehensive survey, and because the survey results were primarily intended to supplement discussions of policy issues in this study, purposive sampling was used. Purposive sampling, otherwise called judgmental sampling, is a form of non-probability sampling in which the researcher's judgment in the selection of sample members is used, based on his or her own knowledge of the population (Babbie 1989).

2.3.1 Sampling design

Three (3) out of the country's twelve administrative regions³ were initially selected. Figure 2 is a map of the Philippines showing the boundaries of the 12 administrative regions. Table 1 lists the number of forest land grazing lease agreements in each of the 12 regions. To get as much representation from grazing leaseholders across the country, the three regions initially selected were regions 2, 5, and 11. Regional selection was primarily based on their geographical locations: region 2 in Luzon is in the northern part, region 5 in Visayas is in the central part, and region 11 in Mindanao is located in the southernmost part of the country. Moreover, these three regions had the greatest number of lease agreements maintained and were not affected by the recent Mount Pinatubo eruption which is located in the western coast of region 3.

³

The total land area of the Philippines is divided into twelve administrative regions, each region composed of several provinces and cities.

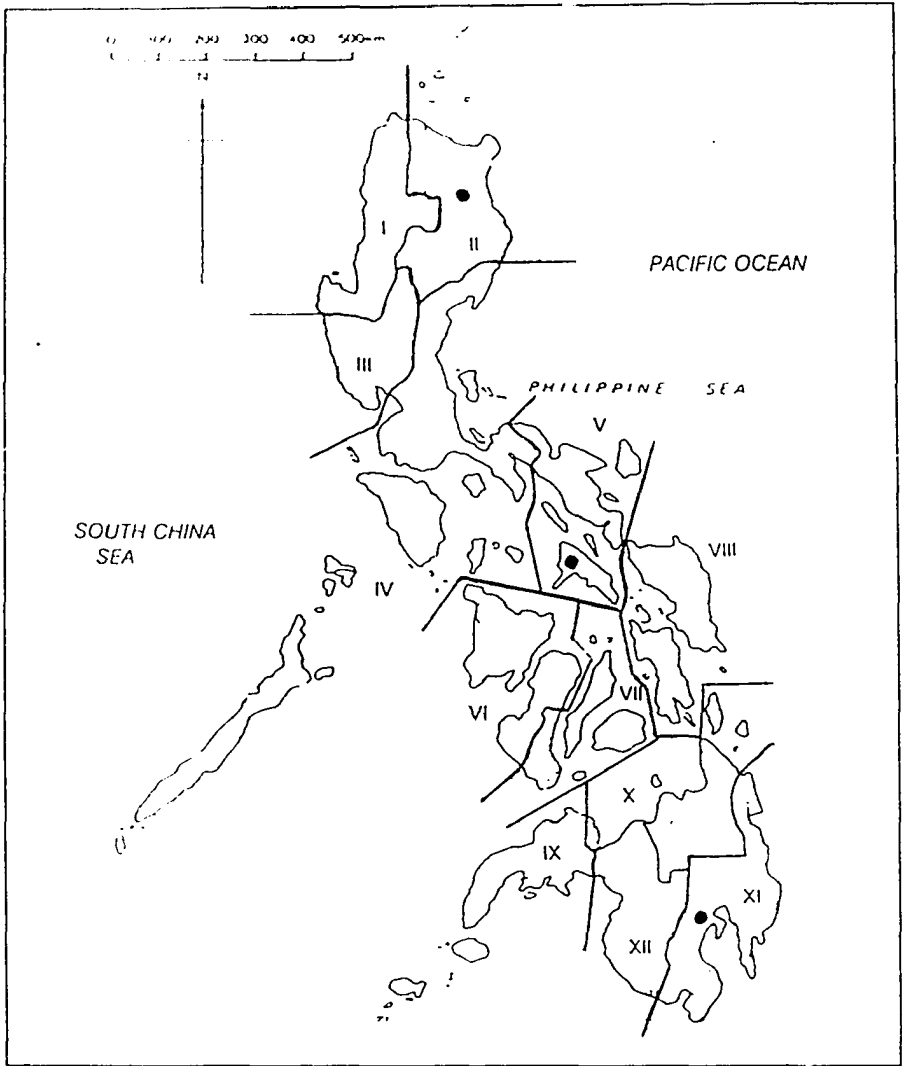


Figure 2. Map of the Philippines showing the boundaries of the 12 administrative regions and the three sites (marked with dots) where the survey was administered.

Table 1. Regional distribution of existing forest land grazing lease agreements (1991).

Region	Number of agreements	Area in hectares
1	114	24 642
2 **	215	82 636
3	78	34 691
4	208	77 892
5 **	102	36 759
6	28	8 303
7	13	7 057
8	4	3 201
9	2	2 796
10	88	30 388
11 **	104	61 766
12	24	25 369
	980	395 500

** The administrative regions where the respondents were selected.

A total of 84 grazing leaseholders were surveyed (Table 2). Because of financial constraints, a sample size quota of 20% of the grazing leaseholders in each of the selected regional offices was set. Personnel of the range management unit in the DENR regional offices selected prospective respondents to complete the sample size quota. They also assisted in making house-to-house visits. Aside from knowing the location of the residence of grazing leaseholders within their respective jurisdictions, DENR regional personnel had already established communication with them through years of local employment. Furthermore, there are almost 70 different dialects spoken throughout the country, and the DENR staff were helpful with translations, when required.

Table 2. Regional distribution of selected respondents.

Region	Number of agreements	Number of respondents	Percentage of population sampled
2	215	41	19
5	101	21	21
11	104	22	21

2.3.2 Questionnaire distribution

The questionnaires were personally administered to the respondents by the researcher and by a DENR representative. This procedure was preferred instead of administering a mailed survey. Conducting a mailed survey in the Philippines is not recommended because of the expected low response rate and the difficulty of communicating the questionnaires to respondents located in different regions of the country in their own dialects. Also, the efficiency of the Philippine postal system is in doubt when letters are sent to rural areas.

During the course of the survey, steps were taken to relate the purpose of the visit, explain the questionnaire and how to go about answering the questions. The respondents were given the option of answering the questionnaires by themselves or with researcher's assistance. Except for the open-ended question about the respondents' ranching problems, the questionnaire (Appendix A) was mostly composed of closed-ended questions ranging from basic details about leasehold size and cattle production to questions of opinions regarding the DENR's rangeland administration policy. Respondents' answers to the questionnaire are summarized in Appendix B.

2.3.3 Bias and limitations of the survey

The use of purposive sampling in the selection of respondents from the three regions initially identified is the primary limitation of the survey. Since purposive sampling is a non-probability sampling design, this factor should always be considered in the interpretation of data, particularly when drawing inferences based on the chi-squared statistics for the four contingency tables.

Also, selection of respondents from the region with the largest number of grazing lease agreements may be a potential source of bias. Leaseholders located in other regions could have distinct problems or different outlook towards the rangeland administration policy than in regions where grazing is a common practice. This attitude may result from differences in the physical environment (climate, forage yield, topography) or from differences in the manner of regional administration by DENR depending on whether grazing is a major or a minor activity.

Finally, bias in the results of the survey may also occur due to possible influence of the DENR regional representative who accompanied the researcher during the survey. Respondent's answers to the questionnaire could have been affected by the mere presence of a DENR authority or by the way the questionnaire was translated.

CHAPTER III.

ANALYSIS AND DISCUSSION

This paper is fundamentally qualitative in approach. The policy discussion is divided into four main topics: the national forest and the range resources, land tenure and administration, land use fee for the use of public forest rangelands, and policy needs and priorities. The descriptive method of data analysis was used to illustrate quantitative data, particularly in the form of frequency tables and graphs.

There are four two-variable contingency tables (tables 4, 5, 13 & 14) showing the respondents' opinions regarding their assessment of the range management policy of the DENR, the current rental fee and their suggested rental value. To compare responses in the row categories, the figure inside each cell represents the column percentage. Column percentage eliminates the effect of differences in numbers between each column category, as if there were 100 respondents in each category (Babbie 1989). The chi-squared (χ^2) statistic was used to analyze relationships between variables.

3.1.0 THE NATIONAL FOREST AND THE RANGE RESOURCES

The Philippine forest is one of the most diversified tropical rainforests in south-east Asia, composed mostly of broadleaved dipterocarp hardwood species. The forest vegetation has been categorized into the following major land uses: production

forests; watershed areas; protection areas such as national parks and wildlife sanctuaries; and range and grazing areas (Hallsworth 1982).

Today, large areas of the original forest vegetation, in productive forest and protected areas alike, have been reduced to small patches of residuals. National parks and wildlife sanctuaries, which by law should have been closed to any form of exploitation, have been constantly encroached despite many laws to protect them (Hallsworth 1982). The old growth dipterocarp forest, composed of the precious hardwood mahogany species, has been reduced to the last million hectares (Forest Management Bureau 1990). The continuing influx of migrants to the upland areas due to the lack of economic opportunities in the lowlands, overexploitation of resources, inadequate human resources to guard the forests, and logging, both legal and illegal, were the major causes of forest destruction.

3.1.1 Forest rangelands in the Philippines

As a public policy, the total land area of the Philippines was basically classified into two categories -- "alienable and disposable lands" and "forest lands" (Figure 3). Alienable and disposable lands are those lands which have a slope gradient of below 18% and declared not needed for forest purposes. Forest lands include areas which are 18% or over in slope, lands which are not yet classified, forest reservations and protected areas (Presidential Decree No. 705 1975). Most of the country's forested areas were classified as "forest lands" and most croplands

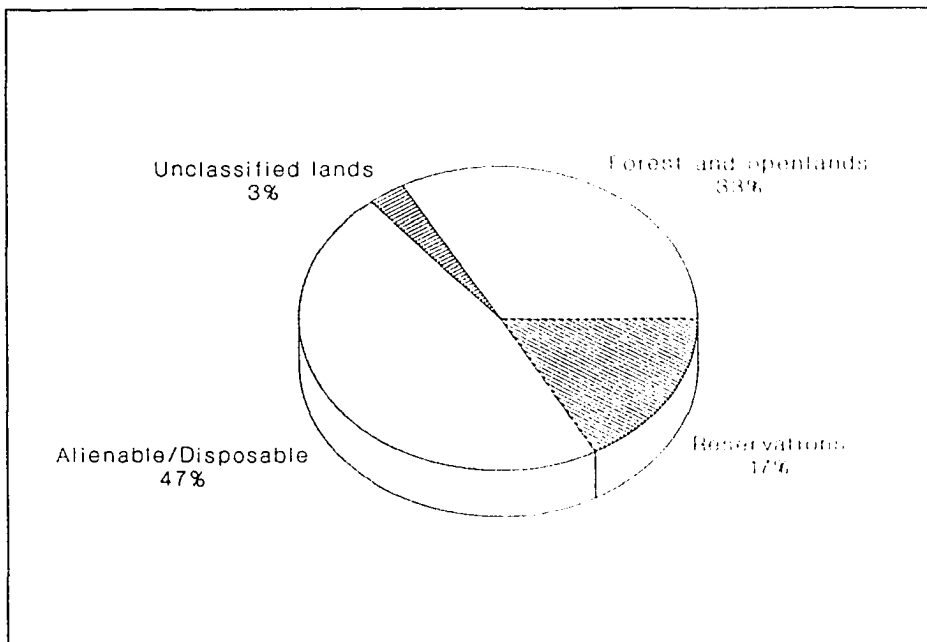


Figure 3. Land classification status of the Philippines.
Source : Forest Management Bureau (1990).

were classified as "alienable and disposable lands". Because of the sweeping 18% slope criterion policy, a sizable area of rangelands was included within classified forest lands.

Table 3 shows the land-use status of classified forest lands. Of the 17.7 million hectares, about 13.8 million hectares are covered with forest stands composed of old growth, young residual stands and established forest plantations. Approximately 2.7 million hectares, once a closed canopy of forest trees, were transformed into upland agricultural cultivations, grasslands and open lands. The total combined area for open grasslands and grazing lands covered by forest land grazing lease agreements and permits is approximately 878,180 hectares.

There are a variety of estimates as to the extent and distribution of the country's grassland ecosystem. According to the Philippine Council for Agriculture and Resource Research, rangelands (extensive grassland and open areas) occupy about 3.4 million hectares, which is about 1.9 percent of the total land area (Umali 1977). The study conducted in 1974 by the Food and Agricultural Organization indicates that the permanent grassland and pastures (grasslands and permanent grazing lands with scattered trees or shrubs) accounts only for approximately 900,000 hectares (UNESCO 1979).

In a recent study using satellite imagery, the total area covered by grassland vegetation was estimated at 1,813,000 hectares, which is approximately 6% of the

Table 3. Land-use status of classified "forest lands" in the Philippines.

Categories	Area in hectares
Forest	
a. productive	10 765 279
b. unproductive (reserve)	2 238 170
Non-forest	
a. grasslands	314 493
b. grazing leases and permits	563 687
c. cultivated croplands	1 810 996
d. plantations	1 721 581
e. others	308 580
(TOTAL)	17 722 786

Source: National Economic Development Authority (1988).

total land area. Interpretation of satellite imagery defined grassland as areas where grass vegetation approximately covers 70% of the total land area (World Bank 1989). However, this figure includes both the public forest rangelands and grasslands in privately-owned grazing lands.

3.1.2 The grazing land ecosystem

About 380 identified grass species exist in the Philippine grasslands (Umali 1977). The grazing land ecosystem is divided into four different types, depending on the most dominant native grass species: Imperata cylindrica, Themeda triandra, Cappilepedium parviflorum and Chrysopogon aciculatus (UNESCO 1979). The dominant species is Imperata cylindrica, covering approximately 30-80% of the country's natural grassland vegetation. Appearance of the Chrysopogon spp. are usually indications of overgrazing (Cabreros 1990).

Undesirable weed species like Chromolaena odorata, Lantana camara, and Mimosa envisa are prevalent in almost all parts of the country. Invasion of these species, particularly Chromolaena spp., is a major problem among ranchers because they lower the grazing capacity of the area and can cause injury or eventual death of animals.

The recommended stocking rate by the Forestry authorities for grazing leases and permits is 1 animal unit for every hectare. However, introduction of improved



Photograph 2. Close view of a public rangeland with very desirable forage growth.

forage species (grasses and legumes) can increase the grazing capacity to a maximum of 5 head of cattle (4 - 4.5 animal units) per hectare, depending on the local conditions of the area (Umali 1980).

3.1.3 Grazing as a forest land use

The Philippine forestry policy recognized grazing as one of the multiple uses of forest lands. Under the revised forestry code, forestry authorities were first required to evaluate and weigh the numerous benefits that can be derived from the forest, such as timber, water, forage, recreation and aesthetic values before allowing land utilization or occupation (Presidential Decree No. 705 1975). In the Forest Management Bureau, a range management unit exists to administer the utilization of the rangeland resources and regulate the issuance of grazing leases and permits.

Since the enactment of the 1939 Pasture Land Act, vast tracts of forest rangelands were made available to private ranchers for livestock production, primarily cattle. Ranching provided means to utilize the range resources, created livelihood and employment opportunities and, more importantly, contributed to the food requirements of the people (Sears 1971).

At present, the utilization of forest rangelands for grazing purposes is not strictly integrated with other forest land uses. Forest rangelands are actually segregated from the mass of classified forest lands used for other forest purposes

such as timber lands, reforestation projects and watershed areas. An ideal tree-livestock combination is very uncommon in the Philippines, although extensively implemented in other countries like Australia and New Zealand (Knowles 1990). Due to the scarcity of land and forest resources in the country, harmonizing grazing with other forms of forest land use is one area where research efforts should be focused.

3.2.0 LAND TENURE AND ADMINISTRATION

3.2.1 Administration of public forest rangelands

The Department of Environment and Natural Resources is the government's arm responsible for the conservation, management, development and proper use of the country's environment and natural resources, specifically forest and grazing lands, mineral resources, including those in reservation and watershed areas, and lands of the public domain (Executive Order No. 192 1987). The DENR, which was formerly called the Ministry of Natural Resources, was just recently reorganized in 1987 when the new government under President Aquino came into power.

Prior to the 1987 reorganization of the DENR, the Forest Management Bureau, then called the Bureau of Forest Development, was the main agency dealing with the administration and management of classified forest lands including grazing lands. The former Bureau of Forest Development, together with the other technical bureaus

under the former Ministry of Natural Resources, maintained a central office and separate regional and district offices at the field level.

As shown in Figure 4, the former Bureau of Forest Development maintained a range management division, co-equal with the other technical divisions, composed of three sections -- the range leases section, the range plans section and the range improvement section. The range improvement section dealt specifically with matters relating to the improvement of the grazing capacity of forest rangelands, primarily through the introduction of high-yielding varieties of forage species. The range plans section was in charge of evaluating grazing management plans submitted by individual leaseholders and monitoring compliance. The range leases section was primarily responsible for regulating the issuance of grazing leases and permits, including the assessment of rental charges and fees and the processing of new grazing lease applications. Each section was staffed with about 4-5 licensed foresters, except for the range improvement section where there were 2 agriculturists.

At present, the new Forest Management Bureau was consolidated with the Department, together with the other six technical bureaus (Figure 5). The 1987 DENR restructuring merged all those offices into one, resulting in a larger central office and 12 natural resources regional offices. Because of budgetary constraints and reduction in powers, the smaller Forest Management Bureau now maintains only a range management section under the Forest Land Uses Division, composed of

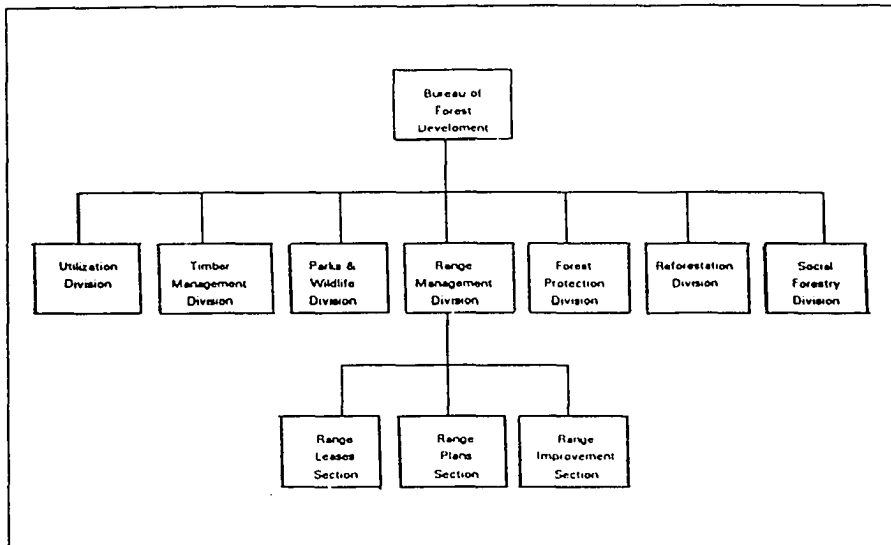


Figure 4. A simplified organizational structure of the Bureau of Forest Development showing the old range management division.

seven foresters primarily in charge of regulating grazing leases and permits including rental fee assessment, evaluation of grazing management plans and the processing of new pasture applications. Evidently, all the regulatory functions of the former range leases and range plans sections were carried on by the newly created range management section. However, unlike the previous set-up where there existed the range improvement section with 2 agriculturists, the mandate to improve the grazing capacity of the forest rangeland is not now considered.

The Department of Environment and Natural Resources has now evolved into a licensing structure with regards to the administration and management of forest

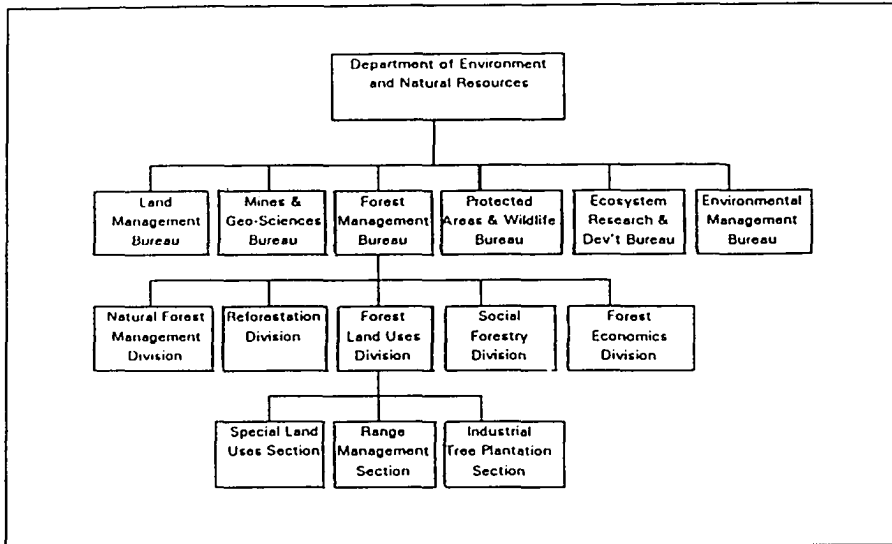


Figure 5. A simplified organizational structure of the Department of Environment and Natural Resources showing the existing range management section under the Forest Management Bureau. Please refer to Appendix C for the complete organizational structure.

rangelands. Some of its regulatory functions are: to determine which forest areas to dispose or grant for grazing purposes, issue and cancel grazing lease agreements, impose penalties and fines for erring lessees, resolve conflicts between lessees and other claimants, impose the terms and conditions of the lease agreement, promulgate pertinent grazing rules and regulations, approve grazing management plans submitted by individual lessees, conduct monitoring and evaluation of grazing leaseholds and collect the annual rental fees and fines.

3.2.2 Performance evaluation of grazing leaseholders

One of the major activities of the DENR in the administration of public forest rangelands is the monitoring and evaluation of all existing grazing lease agreements. Under the grazing rules and regulations, regular performance evaluations should be conducted to determine the leaseholders' compliance with the terms and conditions of the grazing lease agreement and of other pertinent grazing rules and regulations. Among the matters inspected are: soil erosion, forage production and improvement, weeds, livestock inventory, construction of perimeter or compartment fencing and other structural improvements, reforestation activities and entry of forest squatters or occupants in the grazing leaseholds. The performance evaluation (Appendix D) will then be used as a basis in maintaining or cancelling grazing lease agreements.

This research suggests that regular performance evaluations of existing grazing lease agreements has not been adequately implemented. Figure 6 shows the irregular visits made by employees of the DENR to the grazing areas of the survey respondents. Approximately 56% of the respondents confided that their grazing leaseholds were visited between one to four times every year, 16% were visited once every two or three years, while 28% were never visited at all during the last three years.

More importantly, the determination of the grazing capacity of the range area, which is one of the basic principles of range management, was not included in the

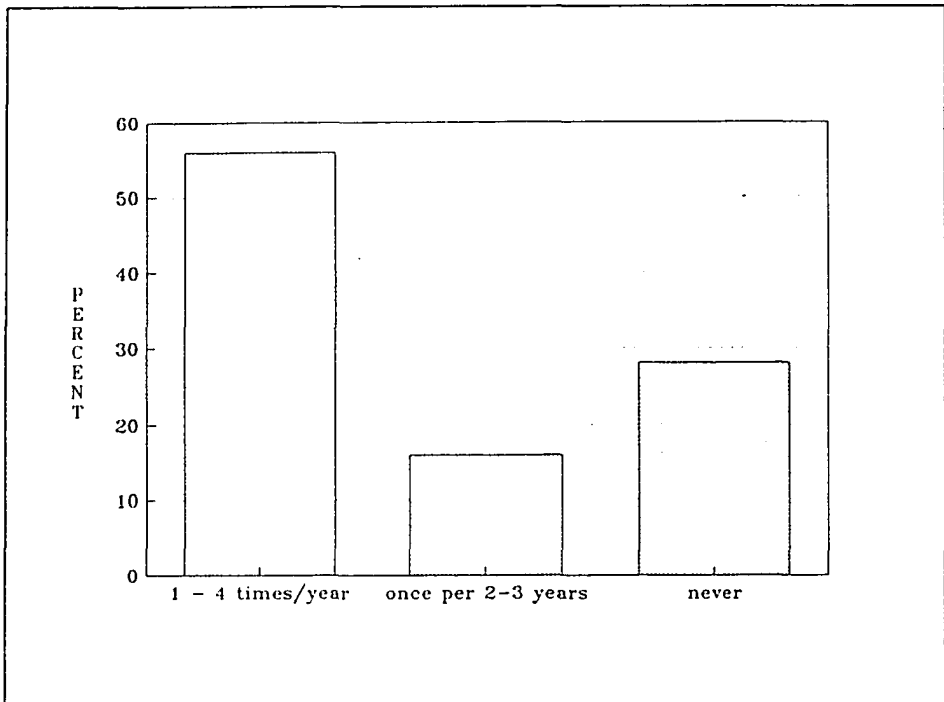


Figure 6. Frequency of visits made by employees of the Department of Environment and Natural Resources to the respondents' grazing leaseholds.

evaluation report. Grazing capacity has been defined as the full stocking of a range unit on a sustained yield basis (Wenger 1984). Ideally, the grazing capacity should be the basis for calculating the number of animals a rancher is authorized to maintain to avoid overgrazing and land degradation. However, instead of computing the grazing capacity, grazing regulations merely required all grazing leaseholders to maintain at least one animal unit per two hectares after five years of operation; otherwise, the lease shall be cancelled. Sears (1979) argued that this stipulation was inconsistent with good range management because a mandatory stocking at all times prevents any necessary stock reduction for the protection or restoration of low capacity ranges or otherwise forces the cattle to starve on barren ground that may result from drought or seasonal decline in forage production.

In British Columbia, the grazing capacity of Crown rangelands, which is adjusted yearly, is used in the computation of a second fee component of the grazing fee formula. Their approach was to determine the amount of available forage a lessee was authorized to use, expressed in animal unit months, and to multiply this number with a price factor to determine the yearly grazing fee. The computed grazing fee, therefore, is directly associated with the allowable stocking set for the year.

3.2.3 Respondents' view about the rangeland administration policy

As part of the research survey, respondents were asked to indicate their satisfaction or dissatisfaction towards the DENR's policy in the administration and management of forest rangelands. Figure 7 shows the frequency distribution of how the respondents assessed the Department's rangeland administration policy. Approximately 61% of the total respondents were satisfied with the department's rangeland administration policy while 39% were dissatisfied.

In Table 4, of the respondents whose areas were not squatted, 67% were satisfied as against only 33% who were dissatisfied. Inversely, 60% of the respondents with squatters said that they were generally dissatisfied as against 40% who were satisfied. The chi-squared statistic for this contingency table is 4.722. With a significance level of only .02978, it is more likely that leaseholders who had no problems with squatters were satisfied with the DENR's rangeland administration policy than those whose grazing lands are presently occupied by forest squatters.

In table 5, 82% of the grazing leaseholders whose areas were visited more than once a year were satisfied and only 18% were dissatisfied. Of the total respondents whose areas were visited once a year or once every two years, 72% were satisfied and only 28% were dissatisfied. On the other hand, 66% of the respondents whose areas were visited either once every three years or was never visited at all were dissatisfied, while only a smaller percentage (34%) were satisfied.

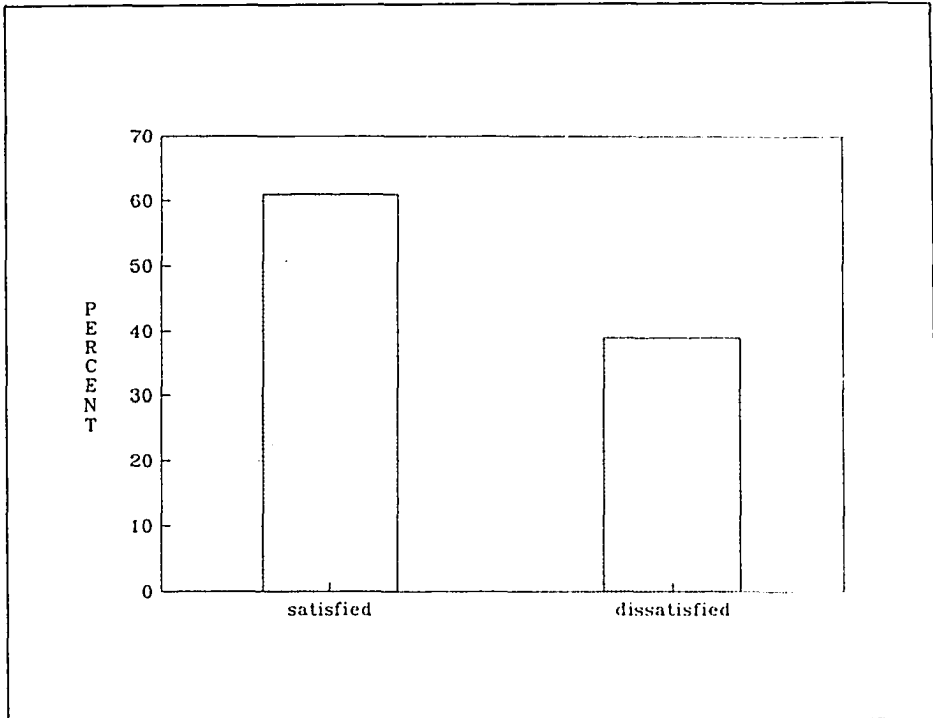


Figure 7. Attitudes of the respondents toward the policy of the Department of Environment and Natural Resources in the administration and management of public forest rangelands.

Table 4. Cross-tabulation of the respondent's attitudes towards the forest rangeland administration policy of the Department of Environment and Natural Resources and squatter presence in the area.

ATTITUDES	PRESENCE OF SQUATTERS		TOTAL NUMBER OF RESPONDENTS
	with squatters	without squatters	
satisfied with policy	8 (40%)	43 (67%)	51
dissatisfied with policy	12 (60%)	21 (33%)	33
TOTAL	20 (100%)	64 (100%)	84

X ²	degrees of freedom	missing observation	significance
4.722	1	0	.02978

Table 5. Cross-tabulation of the respondent's attitudes towards the forest rangeland administration policy of the Department of Environment and Natural Resources and the level of visitation by Department employees.

ATTITUDES	FREQUENCY OF VISITS			TOTAL NUMBER OF RESPONDENTS
	HIGH (more than once a year)	MEDIUM (once every year or two)	LOW (once every 3 years or never)	
satisfied with policy	18 (82%)	21 (72%)	11 (34%)	50
dissatisfied with policy	4 (18%)	8 (28%)	21 (66%)	33
TOTAL	22 (100%)	29 (100%)	32 (100%)	83

χ^2	degrees of freedom	missing observation	significance
15.009	2	1	.00055

The computed chi-squared statistic is 15.009. With 2 degrees of freedom, the observed significance level is only .00055. Independence between these two variables is very improbable. Leaseholders who were frequently visited by employees of the DENR are more likely to be satisfied with the rangeland administration policy of the DENR than those whose areas were seldom or were never visited at all.

3.2.4 Land tenure patterns in forest rangeland utilization

Tenure comes from the latin word "tenere" which means to hold, to have in possession or to retain. Specifically, land tenure refers to all relations of control between people and land, such as ownership, ownership under restrictive covenants, tenancy, etc. (Van Vuuren 1986). Land tenure studies in agriculture are very important because the form of tenure under which the land was held largely determines the efficiency, productivity and the amount of investment involved (FAO 1979).

In the Philippines, forest rangelands are utilized in three different forms of land tenure. The most common is the issuance of grazing leases termed "Forest Land Grazing Lease Agreements" (FLGLA). FLGLAs are for a term of 25 years, renewable for another 25 years, depending on the leaseholder's performance or accomplishments, such as cattle production, land improvement and protection, maintenance of allowable stocking and payment of rent. The maximum area that can be leased is 2,000 hectares and the minimum is 50 hectares. Leaseholders can be

individuals, corporations, groups or associations, and are selected based on their technical and financial qualifications.

The second type of grazing land utilization is through the "Forest Land Grazing Permits" (FLGPs). Unlike the 25-year grazing lease agreements, grazing permits are short-term privileges awarded and/or renewed every year. They are specifically designed for smaller rangelands of not more than 50 hectares.

The third type of grazing land utilization is through the establishment of communal grazing lands for grazing domestic livestock by residents of a particular municipality. While grazing leases and permits are awarded to individuals, communal grazing lands are merely established by the DENR under the name of a particular municipality or township based on the need of local residents.

As shown in Table 6, both the forest land grazing permits and communal grazing lands cover only a small portion of the total forest rangelands presently utilized. A much larger area of the public forest rangelands are utilized under grazing lease agreements.

3.2.5 The forest land grazing lease agreement

A lease contract is generally defined as an agreement between a lessor, the person who lets the property, and the lessee, the person with whom the right to the

Table 6. Land tenure patterns in the utilization of public forest rangelands in the Philippines.

KINDS	TOTAL AREA IN HECTARES
Forest land grazing lease agreements	404 500
Forest land grazing permits	800
Communal grazing lands	1 200

Source: Cabreros, 1990

possession and enjoyment of a property was transferred (McMichael 1974). The essential features of a lease are: the two parties to the contract, the demise, or letting of the property, the duration of the lease, the rent and the terms and conditions of the lease agreement.

Specifically, a forest land grazing lease agreement is a long-term privilege granted by the government to qualified persons in consideration of a specified rental and regulation to use and occupy public forest lands found suited for grazing purposes, in order to undertake any authorized activity therein (DENR 1982).

The Department of Environment and Natural Resources, which was vested the authority and jurisdiction over all classified forest lands, acts as the lessor of public forest rangelands in behalf of the state. As of August 1991 there were about 980

forest land grazing lease agreements nationwide covering 395,500 hectares of forest rangelands which is approximately 3% of the total land area classified as "forest lands". Figure 8 shows the total number of grazing lease agreements issued by the Department from 1980 to 1990. From a maximum of 2,000 lease agreements in 1980, the DENR now maintains about half of this number.

The grazing lease agreements are awarded only to citizens of the Philippines who are at least 21 years of age at the time of the filing of the application and corporations at least 60% of which is owned or controlled by citizens of the Philippines. The following are some of the basic features of the forest land grazing lease agreements:

1. **duration and renewal option** - The forest land grazing lease agreement is a long-term lease⁴ granted for a period of 25 years, with a one time renewal of another 25 years. Ideally, a leaseholder therefore has a maximum of 50 years to graze livestock on public forest rangelands. By comparison, the 25-year grazing lease agreements are longer in duration than the ones granted in the United States' federal grazing lands, and in British Columbia's Crown lands, which are both for a term of 10 years. In Australia, the most common terms of pastoral leases varies between 30 years to perpetuity (Young and Vickery 1978). Perpetual pastoral leases which do not expire and guarantee the

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Classification of term leases as either short-term or long-term leases is a principal fallacy (McMichael 1974). There is no clear understanding as to what the limits are. Vast tracts of lands can be leased for a very long period of time -- 25, 30, 50 or even 99 years.

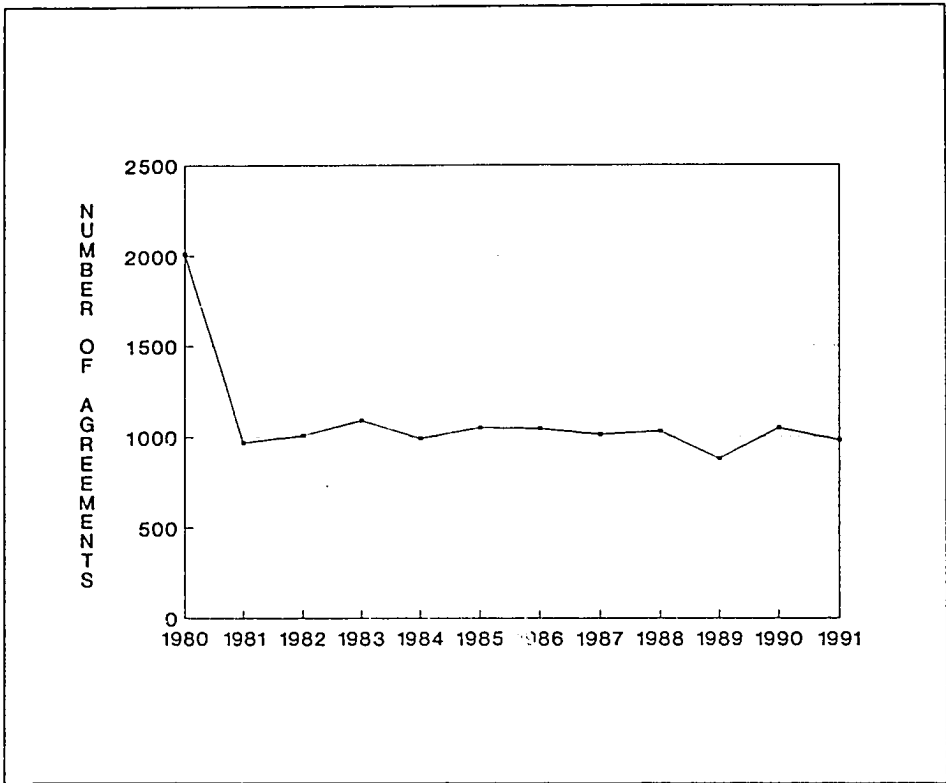
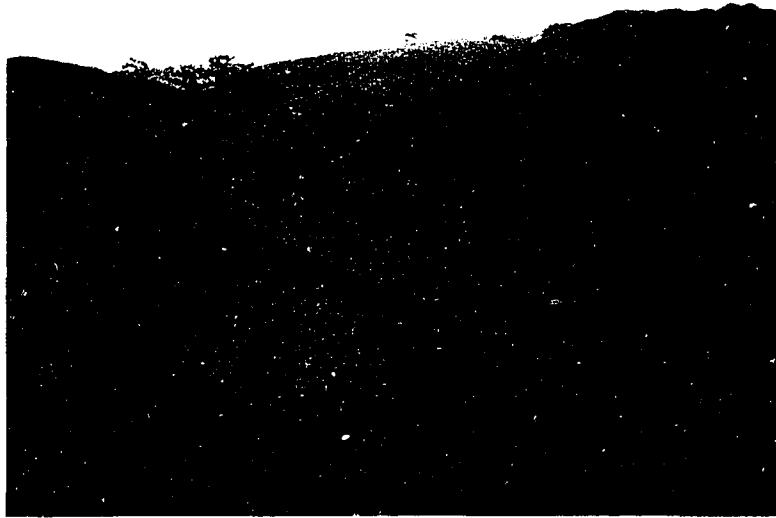


Figure 8. Total number of forest land grazing lease agreements issued by the Department of Environment and Natural Resources from 1980 - 1991.



Photograph 3. A portion of the public forest rangelands under lease from the Department of Environment and Natural Resources. Background shows the perimeter fence constructed by the lessee.

holders of continued stay in the grazing land is granted in the state of New South Wales, Australia, and in New Zealand, two of the worlds largest producers of beef and beef products. Perpetual pastoral leases are very reassuring on the part of the holder because the rights created are very similar to the rights of an owner (Kerr 1986).

2. **rental fee** - The annual rental fee for the use and occupancy of the public forest rangelands is one Philippine peso⁵ for every hectare or fraction thereof. This rate has been in effect since 1982 under Ministry Administrative Order No. 50, one of the regulations promulgated pursuant to Presidential Decree No. 705, otherwise known as the Revised Forestry Code, which repealed the 1939 Pasture Land Act.

3. **required improvements** - The lessee is required to establish structural improvements, such as full perimeter fencing, cowboy's quarters, cattle sheds, corrals, chutes, salting beds, etc. for the protection of the animals and herdspeople in accordance with the approved grazing management plan. The grazing management plan is submitted at the beginning of operation and an annual grazing report is submitted every year thereafter. After five years of operation, the lessee is required to maintain at least one animal unit of cattle for every five hectares. Also, the lessee is required to pay all expenses to

⁵ At the present rate, one Philippine peso is equivalent to 5 Canadian cents.

plant trees along the perimeter or boundary of the range area and along banks of rivers and creeks.

4. **termination of the lease agreement** - Should the holder violate any of the terms and conditions of the lease agreement or any of the grazing rules and regulations, anytime during the duration of the contract, the DENR has the right to cancel and/or terminate the privilege. The DENR also has the right to reduce the size of the leasehold if the lease holder was deemed incapable of developing the rangeland. The DENR also has the right to cancel the agreement by reason of national interest to devote the land to another public purpose. This power of the government to rescind the contract and reacquire the rangeland was termed by Kerr (1986) as the "right of resumption" which is also observed in similar pastoral leases in British Columbia, United States, and New Zealand.

Table 7 shows the most common grounds used by the DENR in the cancellation of grazing lease agreements. Normally, cancellation is caused by a combination of reasons like, failure to pay the rental fees, failure to submit management plans and annual reports, poor performance, abandonment of the area and because of forest squatters. From 1986 to 1991, there were a total of 306 grazing lease agreements cancelled by the DENR, the majority of which were due to the leaseholders' failure to pay rental fees and submit annual reports and abandonment of the area. Out of the 306 grazing lease cancellations, the majority of

Table 7. Summary of the most common grounds used by the Department of Environment and Natural Resources in the cancellation of grazing lease agreements.

GROUNDS FOR CANCELLATION	NUMBER OF TIMES CITED (1986 -1991)	PERCENTAGE OVER THE TOTAL NUMBER OF AGREEMENTS CANCELLED
Failure to pay rental fees and other charges	194	63%
Abandonment	192	63%
Failure to submit the annual grazing report	188	61%
Failure to submit the grazing management plan	138	45%
Failure to reforest portion of the area	82	27%
Poor performance of grazing leaseholder in the development of the area	78	25%
Grazing area is occupied by forest squatters	63	21%
Leaseholder requested the cancellation	12	4%
National interest	5	2%
TOTAL NUMBER OF LEASE AGREEMENTS CANCELLED*	306	

* This is not a column total because each grazing lease agreement is normally cancelled due to several reasons.

Source: Created from the files of the Forest Management Bureau.

them were due to the lessees' failure to pay the rent while only 2% were cancelled by reason of national interest.

3.2.6 Security of tenure: a leaseholder's dilemma

Security of tenure generally refers to the protection, certainty or continuity of a right. For ranchers of public rangelands, a secured tenure means freedom from any danger or interference that threatens the leaseholders' use and occupation of the grazing land. Providing a secured land tenure is one of the major roles of the government, equally as important as other roles like rehabilitation and improvement of rangelands and rendering infrastructure and animal health services (Sanford 1983).

From an outsider's point of view, the 25-year forest land grazing lease agreement may be regarded as a stable and secured land tenure pattern for public rangeland users. There are, however, several factors which may affect the grazing leaseholders' security of tenure over the public rangeland. These factors can be broadly categorized into the socio-economic and institutional factors.

The socio-economic factor is a result of a macro problem of the country such as a significant increase in upland population, lack of employment in the lowlands, and the government's continuing struggle against the communist militant insurgency. As a consequence of these socio-economic problems, people in the lowlands constantly migrate to the uplands for survival, encroaching on every available land in

logged over areas, patches of open lands, grazing lands and even forest reservations. These forest farmers commonly termed as "forest squatters" practice the slash and burn method to prepare the land for short-term agricultural cultivations. Although the upland population was estimated at about 15 million people, the precise figure is difficult to determine due to the inherent practice of shifting cultivation (Mackenzie 1988). Forest farmers constantly move from place to place whenever their land holdings lose soil fertility or when the topsoil erodes due to land tillings. Of the total number of respondents during the survey, approximately 24% said that their grazing leaseholds are presently squatted (Figure 9).

This situation is further aggravated by the existence of rebel movements in the countryside. Communist insurgency, believed to have started from the reign of the former president, the late Ferdinand Marcos, has now been widely observed in every part of the country, especially in the forest and hilly areas of the countryside. Myers (1984) indicated that the rebels find sympathizers among the forest farmers who were mostly displaced peasants from the lowlands. In a land dispute between ranchers and forest squatters, the latter are commonly identified with the rebel movement. It is common knowledge that ranches had been abandoned by their owners because of threats to their lives and properties.

Table 8 shows the problems encountered by the respondents in the management of their respective leaseholds. The critical peace and order condition in the area and the threats posed by forest squatters were the most common problems

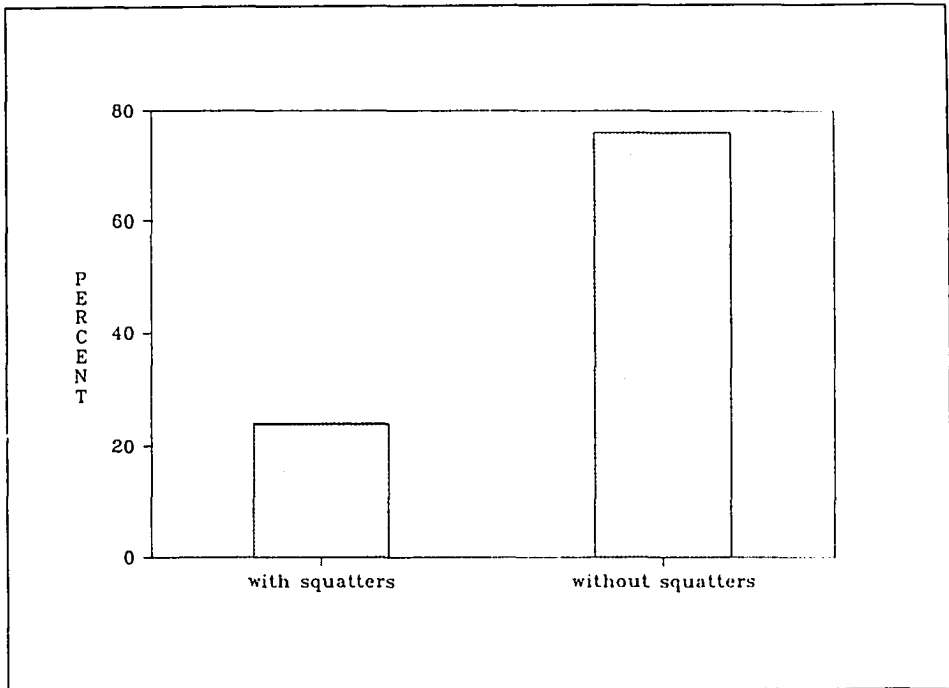


Figure 9. Percentage of respondents whose grazing lands have been trespassed by forest squatters.

Table 8. Problems cited by the respondents in the management of their respective grazing leaseholds.

PROBLEMS	NUMBER OF TIMES CITED	PERCENTAGE OVER THE TOTAL NUMBER OF RESPONDENTS
Critical peace and order condition in the area	37	44%
Squatters or threats of squatting	20	24%
Cattle rustling	20	24%
Drought	20	24%
Illegal cutting of trees and charcoal making	8	10%
Presence of weeds in the pasture area	7	8%
Financial constraints	7	8%
Unsecured tenure and risk of non-renewal of lease agreement	3	4%
Land conflicts and legal claims	3	4%
Lack or high price of good quality breeders	3	4%

raised. Other problems include cattle rustling, drought, presence of weeds and illegal cutting of forest trees.

Table 9 enumerates the areas where assistance was needed by respondents. Security of tenure was listed as one of the major problems. Assistance in reforestation activities and settlement of squatter and other claims were also identified. Only a few of the respondents requested support in weed eradication, conduct of seminars about range management, and in increasing the size of their grazing leaseholds.

The institutional factors that threaten the tenurial security of pasture leaseholders are caused by land-use policies and decisions of the DENR acting as the administrator of public forest rangelands. Since the grazing lease agreements are considered as a privilege and not as a right, the DENR has the power to cancel, *reduce the size of the leasehold or disapprove further renewal*. At present, about 61 forest land grazing lease agreements in the province of Nueva Vizcaya in the northern part of Luzon will not be renewed by the DENR because the area was declared as a watershed reservation. An interviewed lessee in Mindanao complained that his area was presently being claimed by the municipal government as a settlement site.

Table 9. Areas where assistance were needed by respondents in the management of their respective grazing leaseholds.

NATURE OF ASSISTANCE	NUMBER OF TIMES CITED	PERCENTAGE OVER THE TOTAL NUMBER OF RESPONDENTS
Provide a secured tenure	17	27%
Reforestation activities	15	23%
Settlement of squatter and other claims	9	14%
Forage improvement	8	13%
Provision of breeder stock	5	8%
Maintaining peace and order in the area	3	5%
Protection against illegal loggers and charcoal makers	3	5%
Weed eradication	2	3%
Conduct seminars on range management	1	2%
Increase the size of grazing leasehold	1	2%

Many areas which were once under grazing agreements were converted into Integrated Social Forestry Projects⁶.

As part of the research survey, respondents were asked to indicate their opinion regarding these threats to tenurial security. Each respondent was asked to indicate agreement or disagreement with the following statements: (a) the possibility of a reduction in the size of their grazing area, (b) the possibility of non-renewal of the lease agreement upon its expiration, (c) that forest squatters may affect their grazing rights, and (d) that the DENR can cancel the lease by reason of national interest. Table 10 shows the frequency distribution of responses.

A large majority of the respondents were very confident that their grazing area will not be reduced (69%) or that the agreement itself will be renewed when the lease expires (70%). Only a small percentage agreed with the possible size reduction (18%) and non-renewal of lease (19%). However, when asked if the DENR can cancel their lease by reason of national interest, an equal proportion of the respondents shared opposing opinions; 44% agreed, 44% disagreed, while the rest were undecided. Respondents' answers to the statement that squatters may affect their right to the grazing land also showed an almost equal split of opinion; 39% agreed, 44% disagreed, while the remaining were undecided.

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This program allows forest occupants or upland shifting cultivators a legal and continued use of forest lands provided that they follow guidelines for the protection and conservation of the forest resource (DENR 1982 - MAO No. 48).

Table 10. Attitudes of the respondents toward some of the possible threats to security of tenure over their respective grazing leaseholds.

STATEMENTS	AGREE (% Response)	DISAGREE (% Response)	UNDECIDED (% Response)	TOTAL
During the term of the contract, my pasture area might be reduced by the DENR.	18	65	13	100
My lease contract may not be renewed when it expires.	15	73	11	100
Threats posed by squatters may affect my grazing rights.	39	44	17	100
The DENR can cancel my contract by reason of national interest.	44	47	12	100



Photographs 4 & 5. Cattle stock produced by interviewed grazing lease agreements holders.

3.3.0 LAND USE FEE FOR GRAZING LIVESTOCK ON PUBLIC FOREST RANGELANDS

3.3.1 Rental fee versus grazing fee

The Philippine grazing rules and regulations use the words "rental fee" to refer to the yearly charges grazing leaseholders pay to the government for the use and occupancy of public forest rangelands (DENR 1982). This payment is received by the DENR acting as the lessor of publicly owned land in behalf of the state. Rent, however, is a very general term which could broadly refer to a consideration paid by a lessee or tenant for the possession and use of any kind of property, movable or immovable (McMichael 1974). Rental payment presupposes the existence of a contract transferring the right to possession and use of a certain property.

The use of the word "rent" was challenged by Sears (1971) in his FAO funded study about range and watershed management in the Philippines. Findings were that rental fees within the meaning of the Philippine grazing laws were charges for the use of the land and not for the forage consumed -- a land use fee, not a grazing fee. Grazing leaseholders paying the government an annual rental fee per hectare fixed during the entire duration of the lease agreement were not actually paying for the worth of the forage that their livestock consumed. Unlike the renting of barren land, Sears contended that the range resources should be recognized as a forest product similar to wood, resin, bamboo, etc. He recommended that forage

should be treated separate and distinct from the land and that the range resource users should be charged not only for use of the land but more importantly for the value of forage consumed.

The concept of imposing a grazing fee as payment for the amount or value of the available forage on the range has long been used by developed countries like the United States and Canada. For the vast federal rangelands in the western part of the United States, the grazing fee formula includes the "forage value index", which is determined yearly by an economic research team (Wenger 1984). In British Columbia, a part of the grazing fee for Crown range is computed based on the annual estimated amount of forage that the licensee was authorized to use for that year. In these examples, rangeland users were actually paying not for the use of the public land but more specifically for the value of the range resources their livestock consumed.

3.3.2 Policy changes in rental fee computation

Under the Pasture Land Act promulgated in 1939, all public forest rangelands were categorized into three classes -- first-, second- and third-class grazing lands. The land classification was based on the following physical factors: climate, topography, soil, carrying capacity, accessibility and water supply. The annual rental charges for first-class rangelands were computed at 1.00 peso per hectare, 0.50 centavos for the second-class and 0.30 centavos for the third-class. Rental charges

paid for unclassified lands were assessed at 0.60 centavos per hectare. There was a higher rental fee charged for productive than less productive rangelands. Following this formula, the total revenue generated in 1971 was P664,797.79 with a total of 1 140 305 hectares under grazing leases and permits (Sears 1971).

The Pasture Land Act provided further that the system of computing the rental fee based on the classification method would only be temporary and was to be replaced by the appraisal method where the rental charges would be dependent on the value of the land and its improvement. The Act mandated that all forest range areas under lease shall be appraised as to its land value and of the value of improvements therein. The annual rental shall be 3% of the land value plus 1% of the value of the improvements. The main feature of the appraisal method in rental computation was that the value changes according to fluctuations in the value of the land and improvements, unlike the classification method where the rental fee was fixed during the entire duration of the lease agreement.

However, from the time the Pasture Land Act was enacted in 1939 up to the time of its repeal in 1982⁷, the appraisal method in the computation of the rental charges was never implemented. Sears (1971) argued that the appraisal method was unfair to the grazing leaseholders because it was a penalty for land development and improvement. Introduction of ranch structures and good management on the

⁷ Provision on rental fee computation only.

part of the ranchers would eventually increase the value of the land which then would result in paying higher fees.

Under the present rule, all forest rangelands under lease or permit were charged a fixed annual rental fee of 1.00 peso per hectare (DENR 1982). Ranchers leasing 2,000 hectares of public forest rangelands would then pay 2,000.00 pesos in a year regardless of the land's suitability and productivity and regardless of any fluctuations in land value throughout the 25-year lease agreement.

The 1.00 peso per hectare per annum fee is similar to the rate charged for first-class pasture land under the original classification method. Since almost 93% of the grazing leases were previously assessed in the second-class category (50 centavos per hectare), the 1982 rental increase doubled the total revenue gained in leasing forest rangelands (Sears 1971). From 1939 up to the present, no major policy modifications have been made with regard to the rental fee computation. Table 11 summarizes the changes made in assessing the user's fee for leasing forest rangelands in the Philippines.

3.3.3 The rental fee assessment

The charge for grazing cattle and other livestock on public forest grazing lands is understandably low. Grazing leaseholders were paying only a meager amount considering their livestock's complete dependency on the rangeland for a yearlong

Table 11. Summary of changes made in the computation of rental fees for leasing public forest rangelands in the Philippines.

YEAR	METHOD OF COMPUTATION	FEATURE	BASIS
1939	Classification method Annual rate per hectare: *1.00 peso - first-class land .50 centavos - second-class .30 centavos - third class	Site classification at the beginning of the lease agreement. Computed annual rental fee remained fixed during the entire 25-year lease term.	Rating of physical factors; climate, topography, soil, carrying capacity, water supply and accessibility.
1982	Uniform to all forest rangelands at yearly rate of 1.00 peso per hectare	Fixed during the entire 25-year lease term.	none

* At the current exchange rate, 1.00 Philippine peso is equivalent to 5 Canadian cents.

supply of forage. In a World Bank study (1989) about the Philippine environment and natural resources management, the conclusion was that access by resource users, logging concessionaires, grazing leaseholders, small farmers, fishermen, etc. to publicly owned natural resources was relatively worthless. While timber concessionaires were paying forest charges based on the annual allowable cut set by the DENR, rangeland resources users were paying only a land rent. Specifically, range forage was not considered as a natural resource.

Despite a regular increase in the value of the land and of the stock, the rental fee has remained constant from 1982, when the new rental fee formula was implemented, up to the present. Figure 10 shows the average wholesale cattle price per liveweight kilogram in the Philippines from year 1980 to 1991. The average cattle price per kilogram liveweight increased by almost 500% from 1980 to 1990.

Table 12 shows a hypothetical situation where a cattle rancher maintained a yearly average stock of one head of cattle for every two hectares in a 250-hectare public forest rangeland. At 1.00 peso per hectare, the lessee paid the government a fixed annual rent of 250.00 pesos from 1980 - 1991. Assuming that the approximate liveweight of one cattle is 200 kilograms, the total value of cattle stock for each year was computed using the yearly wholesale liveweight price as shown in Figure 10. Because of the yearly increases in the price of cattle, the ratio of rental fee to the total estimated value of the cattle stock decreased tremendously (Figure 11).

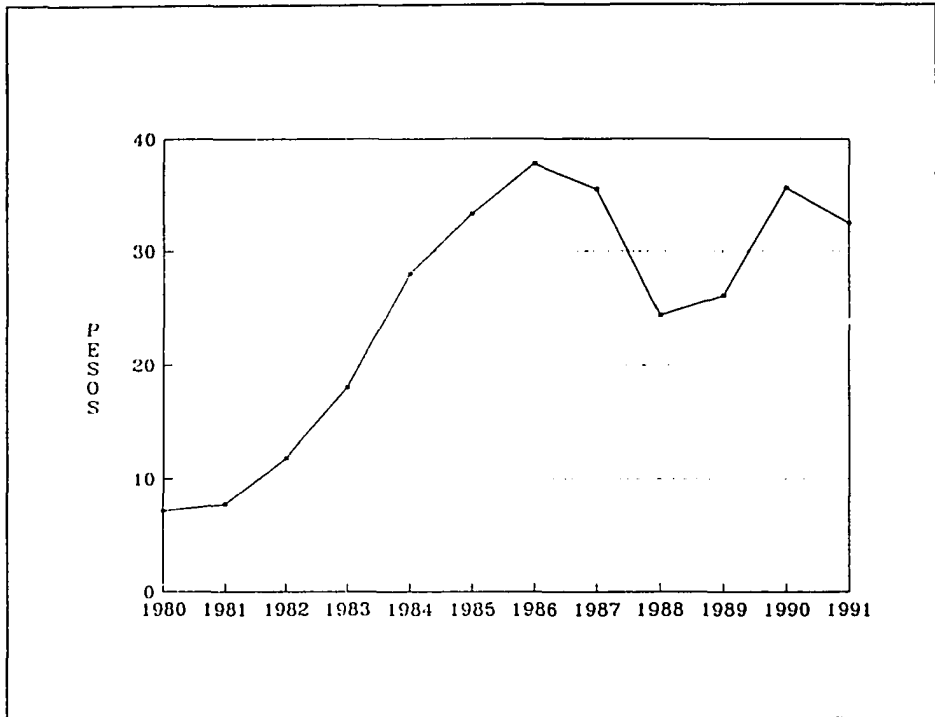


Figure 10. Average wholesale market price of cattle per kilogram liveweight from 1980 - 1991.

Source : Bureau of Agricultural Statistics, Department of Agriculture and Food.

Table 12. Annual rental fee, total value of cattle stock, and ratio of rental fee to stock value of a leaseholder using 250 hectares of public forest rangeland with an average yearly stocking of one cattle for every two hectares.

YEAR	ANNUAL RENTAL FEE (PESOS) (a)	TOTAL VALUE OF CATTLE STOCK (PESOS) (b) *	RATIO OF RENTAL FEE TO STOCK VALUE (a/b)
1980	250 **	268 500	0.0093
1981	250 **	291 375	0.0086
1982	250	444 000	0.0056
1983	250	651 375	0.0038
1984	250	1 049 250	0.0024
1985	250	1 249 125	0.0020
1986	250	1 417 500	0.0018
1987	250	1 333 125	0.0019
1988	250	915 000	0.0027
1989	250	979 875	0.0026
1990	250	1 338 750	0.0019
1991	250	1 218 375	0.0020

- * Approximate liveweight of one cattle = 300 kilograms
- ** Annual rent for 1980 and 1981 = 1.00 per hectare

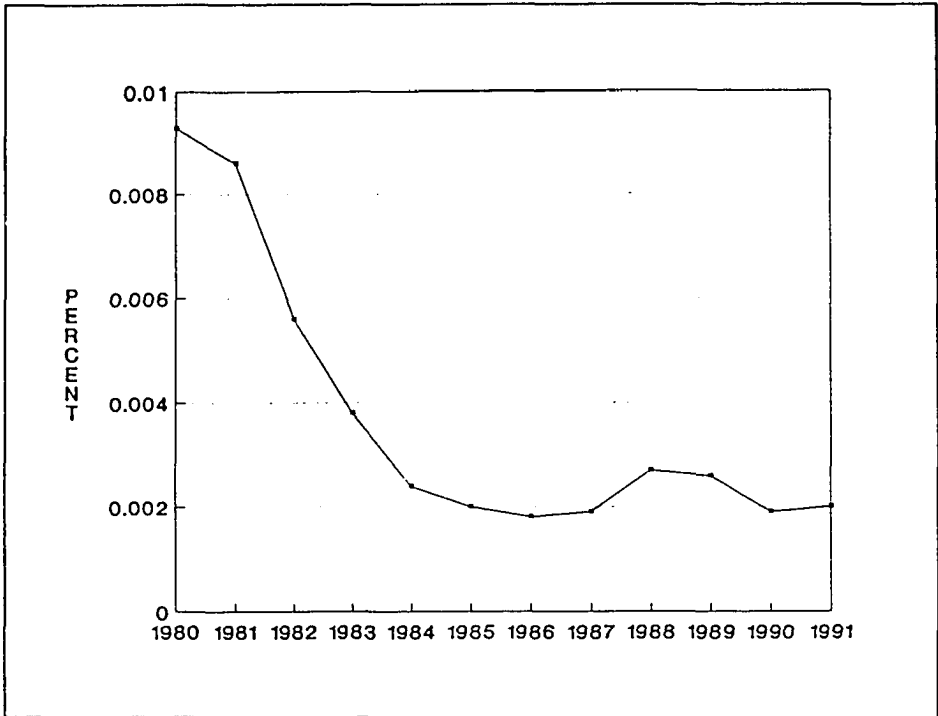


Figure 11. Ratio of the annual rental fee to the total value of cattle stock from 1980 - 1991 of a leaseholder occupying 250 hectares of public forest rangelands.

The result of the survey conducted as part of this study presented a similar conclusion. Grazing leaseholders paying the annual rental charges were unanimous about the low yearly fee they were paying. Figure 12 shows the percentage distribution of responses made by leaseholders surveyed regarding their view about the current annual rental fee of one peso per hectare. The majority of the respondents (63%) admitted that the annual rental fee of one peso per hectare was low, as against 37% who said that it was just right. Of the 84 respondents, not one of them said that the rental fee was high or was very high.

Table 13 shows a crosstabulation of the respondents' rental fee assessment and their maintained cattle stock at the time of the survey. Only 36% of respondents with low cattle stock said that the rent was low, while 64% said that it was just right. On the opposite, a larger majority, 69% and 77% of the respondents with medium to high cattle stock, said that the rent was low, while only 31% and 23% said that the rent was just right.

The computed chi-squared statistic was 9.229. With 2 degrees of freedom, the observed significance level was .00991, or approximately one every one thousand, indicating the likeliness of relation between these two variables. The more productive respondents, with a higher cattle-to-area ratio, are likely to find the annual rental fee to be low as against those respondents with low cattle stock.

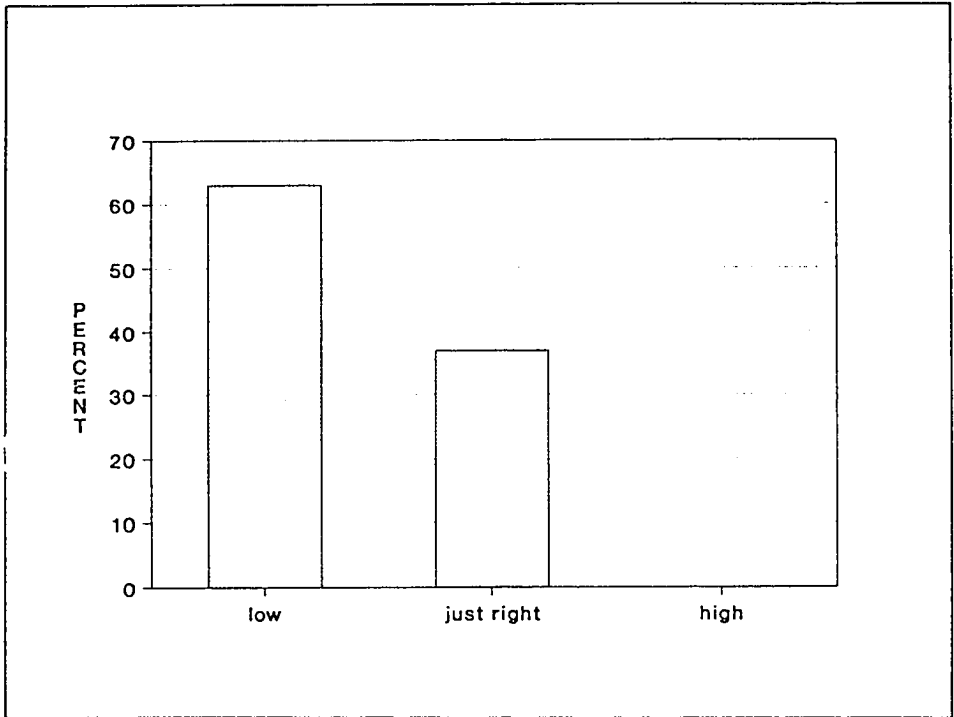


Figure 12. Respondent's assessment about the current annual rental fee of 1.00 peso per hectare.

Table 13. Cross-tabulation of the respondents' assessment about the current annual rental fee and their maintained cattle stock.

RENTAL FEE ASSESSMENT	NUMBER OF CATTLE PER HECTARE			TOTAL NUMBER OF RESPONDENTS
	LOW (< .26)	MEDIUM (.26 - .50)	HIGH (> .51)	
low	8 (36%)	27 (69%)	17 (77%)	52
just right	14 (64%)	12 (31%)	5 (23%)	31
TOTAL	22 (100%)	39 (100%)	22 (100%)	83

X ²	degrees of freedom	missing observation	significance
9.229	2	1	.00991

3.3.4 Rationale for increasing user's fee

There are a variety of reasons that would justify an increase in rental fee for the use of public rangelands. Foremost among them is the concept of social equity (World Bank 1989). Individual files of the grazing leaseholders indicate that most of them are wealthy and influential people, were at one time occupying elective government positions, and a few are incumbent political figures at the local and national level. All of the 84 respondents surveyed declared that they have other sources of income beside their ranching business. Obtaining a true value for whatever resource they reap from public rangeland is fair and equitable, not only for the lessees but also for all the people of the Philippines. Additional revenue that may be realized can be channeled by government to help improve the cattle business or to support other social programs and benefits for the people.

Moreover, while grazing leaseholders were paying very low fees, taxpayers' money was allocated by the state to pay for the cost of administration and for maintaining a range management office at the national, regional and community level of government. This policy issue has been and still remains a matter of concern in the United States' history of grazing on federal lands. Because of the expanding administration cost of the bureaucratic structure, the Budget office and the House Appropriations Committee were continuously pressuring the Interior Department to increase grazing fees to at least augment capital expenditures (Libecaf 1981).

Ranchers of federal lands were branded as being subsidized and living on welfare when compared to ranchers utilizing private grazing lands (Wuerthner 1990).

Another reason to increase the user's fee is that additional revenues can be reinvested in rangeland improvement activities, such as, forage seed production projects, rehabilitation of degraded rangelands, and production of the much needed forest tree seedlings. Under existing regulations, all leaseholders are required to plant trees along the banks of rivers and creeks, on steep slopes and along the perimeter fence. Some of the respondents during the survey indicated that the DENR people should provide the seedlings to support this directive since they are the ones with the technical know-how in seedling production. In the United States, the law mandates that half of the grazing fees must be used to finance rangeland improvements, such as water development and irrigation systems (Wuerthner, 1990).

Finally, a higher price for the use of public rangelands will motivate users to intensify their mode of production and attain economic efficiency (World Bank 1989). Because of the higher cost of access rights to public rangelands, ranchers will find means to intensify production, increase the grazing capacity of a smaller area rather than extensively graze a larger resource base. The best example is when a public rangeland is auctioned to the highest bidder. In theory, the winning bidder is a rancher who can efficiently and optimally use the land and maximize livestock production as compared to other lower bidders. However, to counteract possible

grazing land abuse and mismanagement, intensive monitoring and evaluation of rangelands should be conducted to avoid overgrazing and possible land degradation. The number of livestock a lease holder could maintain should be limited only to the allowable carrying capacity of the rangeland.

3.3.5 What is a fair price?

To determine an equitable rental fee formula adequate to compensate the government and reasonable for the rangeland resource users is difficult. There are many factors to be considered -- the value of the forage on the rangeland, the land value including the improvements, the government's cost of licensing and regulation, the cost of improving the rangeland, both on the part of the government and the ranchers, the fluctuating prices of beef and beef products, and the extreme climatic changes which can significantly affect cattle production.

In the United States, since the enactment of the Taylor Grazing Act which abolished "open range ranching" in favor of "fenced ranching" or the lease system of grazing on federal rangelands, ascertaining the reasonable price for the privilege has always been an issue. Despite long experience of federal agencies involved, and numerous studies conducted by congressional consultants and universities, an acceptable fee formula remains to be developed (Wenger 1984, Wuerthner 1990).

Figure 13 shows a grouped frequency distribution of the respondents' view of what an appropriate rent should be. Of the 84 respondents surveyed, 39% preferred that the annual rental fee should stay at P1.00 per hectare, 47% suggested an increase of up to P5.00, 12% suggested an increase between P5.10 up to P10.00, while only 2% suggested an increase of more than P10.00 per hectare.

In Table 14, the possible influence of the size of the grazing leaseholds to the respondents' suggested rental fee was examined. To eliminate empty cells, suggested yearly rental rates were grouped into two categories -- those who favored retention and those who favored fee increases. Although respondents with large grazing areas would be more conservative in suggesting rental fee increases because the fee is computed on a per hectare basis, the majority of them was willing to pay more. Of the total respondents with large grazing areas, the majority (86%) favored a rental fee increase as compared to only 14% who did not. On the other hand, respondents with smaller grazing leaseholds almost divided their opinion, with 48% in favor of fee increases, while 52% opted for retention.

The computed chi-squared statistic was 9.338. Since the observed significance level is only .00938 or approximately once for every 1000, it is unlikely that these two variables are independent of each other. By inference, leaseholders with a larger grazing area are significantly more likely to favor rental fee increases.

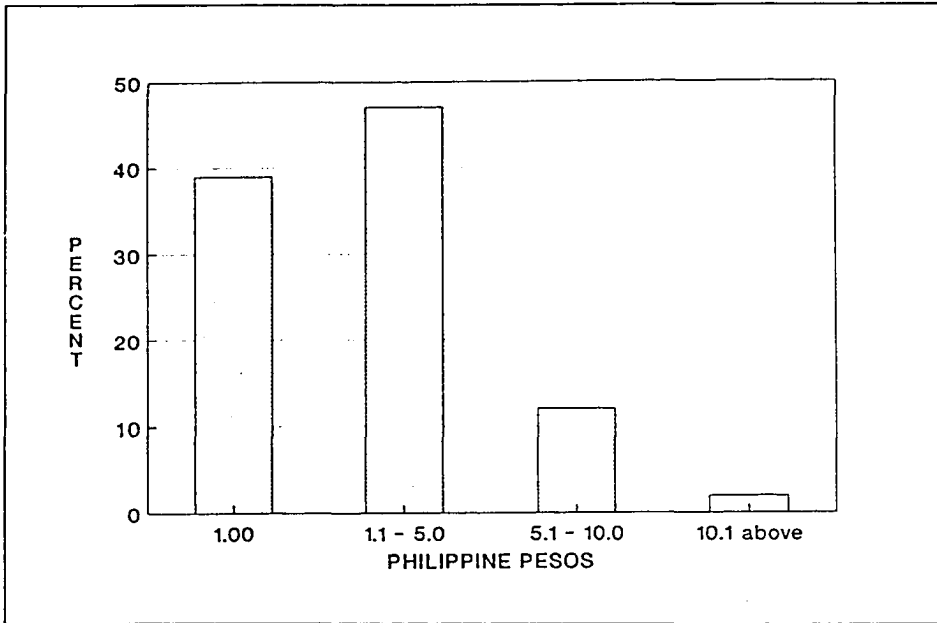


Figure 13. Grouped frequency distribution of the respondents' suggested annual rental fee per hectare for the use of public forest rangelands.

Table 14. Cross-tabulation of the respondents' suggested annual rental fee and size of their grazing leaseholds.

SUGGESTED YEARLY RENTAL FEE	SIZE OF GRAZING LEASEHOLDS IN HECTARES			TOTAL NUMBER OF RESPONDENTS
	SMALL (50-250)	MEDIUM (251-500)	LARGE (> 500)	
retention	23 (52%)	6 (35%)	3 (14%)	32
increase	21 (48%)	11 (65%)	19 (86%)	51
TOTAL	44(100%)	17(100%)	22(100%)	83

X ²	degrees of freedom	missing observation	significance
9.338	2	1	.00938

When examining the rangeland administration policy of other countries with regard to the users' fee for grazing livestock on public grazing lands, several factors have been considered in computing the charges paid by public rangeland users to the government:

- 1. Market value of the forage** - The United States' policy in computing grazing fees for the use of federal rangelands includes the current market value of the forage. Under the Public Rangeland Improvement Act of 1978, grazing fees would be adjusted following the fluctuations in forage value termed as the "Forage Value Index"⁸. Box number 1 summarizes the grazing fee formula adopted by the United States federal government.
- 2. Amount of forage consumed** - In British Columbia, Canada, the grazing fee on Crown range is divided into two parts; a fixed "ground rent" and a fluctuating fee based on the amount of forage consumed in a year. The fixed "ground rent" is computed by determining the amount of forage that may be consumed at a reasonable level of yearly use, expressed in animal unit months⁹. The Range Act sets this figure at 20 cents per animal unit month, which remained unchanged throughout the 10 year duration of the grazing license (Ministry of Forests 1980). Unlike the U. S. grazing fee formula where

⁸ Figures of the forage value index (average rental charges for a private pasture) is supplied yearly by an economic research service team (Wenger 1984).

⁹ Animal unit month (AUM) is the amount of forage consumed by one mature cow with calf, or equivalent, for one month (Wenger 1984).

Box 1. Grazing fee formula used in the United States for federal rangelands under the 1978 Public Rangeland Improvement Act.

$$EC = \frac{1.23 [FVI + (BCPI - PPI)]}{100}$$

where :

- EC** = economic value of forage per animal unit month
- 1.23** = common base fee of US\$1.23 per animal unit for both cattle and sheep
- FVI** = forage value index (average animal unit month price of private pasture)
- BCPI** = beef cattle price index (last year's average beef price)
- PPI** = price paid index (last year's public land grazing fee)

the forage value fluctuates yearly, the value of the amount of the forage in the rangeland was laid down by law.

The second fee component is also based on the amount of forage that the licensee is authorized to use. It is computed yearly and also expressed per animal unit month. The yearly fee is determined by multiplying the animal unit price¹⁰ by the total authorized animal units. This value was not established by law but dictated by the average price of cattle. Box number 2 summarizes the grazing fee formula adopted by the government of British Columbia on Crown rangelands.

3. **Livestock Price** - Another element included in the computation of grazing fees under the USA Public Rangeland Improvement Act of 1978 is the average beef price termed as the "Beef Cattle Price Index". Before the Act, ranchers in several states complained of financial difficulties in their livestock business. Computing the fee on the basis of the value of the forage alone was not fair because it was not sensitive to the economic stresses of public rangeland users (Wenger 1984). The beef price factor made the rental fee formula more responsive to the ranchers ability to pay.

¹⁰

Animal unit price is 77% of the weighted average price per kilogram for live cattle sold through the B. C. Livestock Producers' Co-operative Association during the immediately preceding year (B. C. Regulations, 1979).

Box 2. Grazing fee formula used in British Columbia on Crown rangelands under the 1978 Range Act.

$$\text{Grazing fee} = (\text{AUM1} \times .20) + (\text{AUM2} \times \text{AUM2 price})$$

where:

- AUM1** = amount of forage on the rangeland based on the reasonable level of yearly use determined at the start of the license or permit but fixed throughout the entire duration
- AUM2** = amount of forage a licensee or permittee is authorized to use in a specific year
- .20** = fixed value (20 cents) per AUM1
- AUM2 price** = 77% of the weighted average price per kilogram for live cattle sold through the B. C. Livestock Producers' Co-operative Association during the immediately preceding year.

4. **Market value of the land and its improvements** - The policy of utilizing Crown grazing lands under the New Zealand's pastoral lease system is considerably different. Leaseholders pay a rental value equivalent to 2.25% of the value of the land (Kerr 1986). The fee computation based on land value is not constant throughout the entire lease term because, as the value of the land increases due to improvements introduced by leaseholders, a corresponding increase in the rent was assessed.

In a World Bank study (1989) in the Philippines, it was recommended that access rights to publicly owned natural resources be auctioned for bidding. The proposal was made to apply to all licenses, permits, concessions granted by the government to private individuals or corporate groups for the utilization, exploitation and development of the natural wealth. If the Department of Environment and Natural Resources opted to implement this method with respect to public rangelands, the true market or economic value of the range resource would be obtained. However, although the successful bidder will pay for the full value of the grazing right, the main drawback to this proposal is that the highest bidder outbids other bidders. This would be very favorable to big ranchers, but threatens small ranchers who would be stifled by the giants in the business.

Determining the value of the forage is very difficult under the Philippine setting. The low fee structure for access rights to the forest rangelands has been a government policy for more than 50 years. In the history of administration and



Photographs 6 & 7. Some of the structures constructed inside the grazing leaseholds are corral (6) and cattleshed (7).

management of public rangeland, this method of computing the rental fee based on the value of the forage was new. Unlike the United States, during the time when they chose "fenced ranching" in favor of "open ranching", the value of forage on the federal rangeland was more or less based on the value of privately owned pasture land.

3.4.0 POLICY NEEDS AND PRIORITIES

Public forest rangelands are vital to the survival of the livestock industry in the Philippines. The forest range resources composed mostly of native grasses and legumes were primary sources of forage for almost 1/3 of the total cattle population of the country. The dependency of livestock herders on public rangelands is underscored by the fact that most of the lands under private ownership are planted with traditional agricultural crops and that none or very little space is available for intensive grazing.

With the goal of attaining the maximum level of animal production consistent with the protection and conservation of rangeland resources, the following are the recommended policy measures for the Department of Environment and Natural Resources to consider:

3.4.1 Zoning of forest rangelands best suited for grazing purposes

A policy of secured land tenure is a precondition to sustainable and efficient management of public rangelands. In a capital-intensive business like ranching, the investment attitudes of grazing leaseholders wane if their continued use and occupation of a contracted piece of grazing land is imperiled.

Because of the diverse needs of society, competing land use pressures have resulted in the gradual conversion of forest rangelands to other forest and non-forest uses. As the administrator of classified forest lands, the Department should determine which areas should be permanently devoted to livestock grazing and which areas could serve other uses.

Those areas best suited for grazing purposes should be zoned and permanently declared as grazing lands. The main purpose is to make sure that reserved areas are retained and managed for livestock production, and that adequate land tenure protection is accorded to public rangeland users. Forest rangelands which are determined best suited for ranching should be maintained, followed by efforts to improve the rangeland condition and optimize livestock production.

3.4.2 Charge the true, fair and reasonable value for the use and occupation of public forest rangelands

The current rate of 1.00 peso per hectare per annum to graze livestock on public lands appears to be extremely low. Holders of grazing lease agreements are not paying for the full benefit they obtain from the public forest rangelands. Because of the low fee, the improvement and rehabilitation of degraded rangelands has been of little or no concern, rangeland management has been extensive rather than intensive, and the revenue raised was very insignificant, considering the government's administration cost. Charging the true value for the use of public forest rangelands will encourage the efficient utilization of the range resources. Additional revenue can be rechanneled for rangeland improvement to increase grazing capacity.

It is important that the increases in revenue be sought through increases in the per hectare fee rather than imposing a per animal fee. The reason for this is that the per hectare fee is neutral with respect to optimal management of land, unless it is so high as to render ranching uneconomic.

Determining an equitable rental fee formula both for the government and the pasture leaseholders is difficult and requires further study, which should involve the rangeland resource users. The fixed per hectare fee could be increased to a higher level or the fee could be based on a variety of determinants: forage value, land value,

the cost of administration and licensing, the cost of improving the rangeland, and the financial stresses of the ranchers.

One option to determine the true economic rent in the utilization of public rangelands is to auction grazing rights. Let the users themselves determine the market price. Although this strategy may discourage smaller ranchers, the economic value that may be obtained would be an additional source of revenue and a favorable influence on management efficiency.

3.4.3 Rangeland improvement

The Department of Environment and Natural Resources has evolved into a government licensing structure with regards to the administration and management of forest rangelands. Its functions are now confined to the issuance and cancellation of grazing lease agreements, rental collection, performance evaluation of leaseholders and settling of legal conflicts between the different users of rangelands. The previous function of rangeland improvement, which was conducted under the former Range Management Division, was not incorporated into the new organizational structure of the DENR.

The management and administration of public forest rangelands should include both the administration of licenses and the management and improvement of vegetative cover. At present, most of the forest rangelands are not optimally

utilized: grassland condition is poor, noxious weeds are present in multitude in almost all grazing sites, and forage production is low.

Forage is a valuable forest product and, as such, the DENR should take the lead role in the improvement and development of forest rangelands. This could be done by strengthening the range management unit in the central and field level to incorporate the goal of rangeland rehabilitation and improvement, including the provision of technical assistance and incentives in the form of rental cuts to leaseholders that invest in improvements.

The primary goal of rangeland improvement is to increase forage yield to offset heavy and indiscriminate grazing which may modify the natural vegetation. The close relationship between forage yield and livestock production can be regulated through a variety of range management techniques to improve yield: direct seeding, fertilizing, weed control, mechanical treatments on the land designed to conserve precipitation, measures to control soil erosion, proper grazing systems, and conservative stocking when severe range deterioration occurs (Stoddart 1975, Launchbaugh 1978).

3.4.4 Determination of an acceptable carrying capacity

All rangelands can adequately support a limited number of animals depending on range quality, topography, climate, water availability, soil characteristics, etc.

Exceeding this limit could result in overgrazing and land degradation. In all of the DENR's rangeland administration activities, there is presently no means to determine the carrying capacity of individual grazing leaseholds. Although existing regulations require range management field personnel to conduct regular performance evaluations of grazing leases, not only was this method not implemented, but its purpose was basically to monitor compliance of the lessees to determine whether the lease should be recommended for cancellation or retention, and not to rationalize carrying capacity.

Grazing capacity is usually expressed in terms of animal units carried per unit area. In addition to the standard performance evaluation, qualified range management officers should also conduct rangeland condition analyses to determine the allowable animal units a lessee or permittee should be authorized to carry on the public rangelands. The allowable grazing limit should be communicated regularly to public rangeland users and readjusted from time to time, whenever forage and land improvements are made. Strict implementation of this method will encourage ranchers to utilize rangelands on a sustainable basis.

3.4.5 Harmonize rangeland grazing with other major forest land uses

Grazing on public forest rangelands is considered a special form of forest land use. In the present land use pattern, a complete separation or segregation exists between lands devoted to grazing and those utilized for other forest land uses such

as reforestation and social forestry projects. Although it is ecologically important to rehabilitate open and denuded forest lands, policy makers should also consider the option of jointly managing and using both range and forest resources. By combining forest trees with shade tolerant species of grasses and legumes, range management can be integrated with other traditional uses of the forest. Moreover, allowing restricted grazing in plantation and reforestation sites will contribute significantly to the beef shortage in the country.

This type of multiple use has been termed the "silvopastoral system". This system, which has been widely employed in Australia, New Zealand and Chile, is an agroforestry approach to forest management where grazing livestock is considered not only as a silvicultural tool in forest plantations but also as an additional source of revenue (Knowles 1991). Cattle grazing is commonly integrated in coconut plantations on privately owned lands in the Philippines, and could be extended to other forest areas. Trees and wildlife are also important for shade, erosion control, products for human use, aesthetics, and cultural development.

3.4.6 Initiate measures to sustain the biological diversity of the rangeland ecosystem

Rangelands are natural habitats for certain groups of microorganisms, plant and animal species. Open space, grasses, patches of brushlands, certain trees, forest edges, and their animal and microbial associates characterize the

distinctiveness of the rangeland ecosystem. The use of rangeland resources must be managed to help ensure that the biological diversity of the Philippines's natural heritage is likewise sustained.

While range management is the art and science of planning and directing range use to obtain maximum livestock production (Stoddart 1975), these activities should be consistent with the conservation of the biological diversity of both wild and domesticated range resources and associated organisms.

Appropriate strategies must be developed for the conservation and sustainable use of forest rangelands. As far as possible, these measures must be integrated with national programmes and policies directed to promote the protection of natural ecosystems and habitats throughout the country. Zoning of forest rangelands; charging the true, fair and reasonable value for the use of the range resources; rangeland improvement and rehabilitation; harmonizing grazing with other forest land uses; and the determination of an acceptable carrying capacity are some of the specific measures suggested in this research to promote the efficient management, utilization, protection and conservation of the rangeland ecosystem.

The Philippine government's forest policy has long recognized grazing as one of the multiple uses of forest lands. Commercial cattle ranching on forest rangelands has not only provided livelihood and employment opportunities to people in rural areas but, more importantly, it has contributed to the food requirements of the growing population of the country. Since the enactment of the 1939 Pasture Land Act, public forest rangelands in the Philippines were primarily utilized through the issuance of 25-year grazing lease agreements to private individuals, renewable for another 25-year period.

1. Tenurial security of grazing leaseholders has been threatened by institutional, social and economic factors which have led to the cancellation of a number of grazing lease agreements and the subsequent conversion of the rangelands to other forest and non-forest uses.

2. The Department of Environment and Natural Resources, which is responsible for administering public forest rangelands, has evolved into a government licensing structure. While the Department's range management unit continued to perform regulatory functions, rangeland development and improvement have not been given enough attention.

3. The determination of the carrying capacity of the grazing land, which is one of the fundamental principles of the science of range management, has not been fully implemented. Although the DENR is required to monitor and evaluate the performance of individual grazing leaseholders every three years, calculating the maximum livestock the land can carry was often overlooked. In its place, grazing regulations ineffectually required leaseholders to maintain a mandatory stocking throughout the 25-year lease period.

4. The current annual rental fee of one Philippine peso per hectare is considered low in view of the benefits derived by the users of public forest rangelands. The very low annual fee paid by grazing leaseholders represents only the compensation for the use of the land and not for the forage consumed -- a rental fee and not a grazing fee.

5. Sustaining the biological diversity of the rangeland ecosystem should be an integral part of the government's rangeland administration policy in the utilization of public forest rangelands. Ranching activities should always be consistent with the conservation and protection of both wild and domesticated range resources and associated organisms.

Throughout this study, a wide range of policy issues was discussed: land tenure patterns, rental fee, carrying capacity, rangeland rehabilitation, rangeland evaluation, license regulation, and land-use conflicts. The focused synthesis of

existing local and foreign literatures, in addition to current information gathered primarily as a result of the research survey of grazing leaseholders, provided a better understanding of the prevailing situation about rangeland management in the country.

Analysis of grazing statutes and regulations reflects an apparent lack of concern for the value of range forage. Unlike timber, the range resources on public forest rangelands have not been considered as a renewable product. The neglect on rangeland rehabilitation and improvement, the low rental fees charged, the approach taken in rangeland evaluation and monitoring, the form of land tenure, and the attitudes of leaseholders in the management and utilization of their respective leaseholds was a direct consequence of this grazing policy mandate. A University of Alberta professor (Bryson 1989) has aptly described this attitude: "Forages are neglected by farmers and politicians. Forages have no immediate value. They only become valuable when they're run through an animal."

The thesis statement upon which this paper was based is premised on the fact that "rangeland forage is a renewable natural resource equally important and similar to other traditional benefits derived from forest lands". To improve rangeland condition and optimize productivity, human attitudes toward forage resources must change. The administrators and users of public forest rangelands must realize the value of forage resources and manifest this attitude in grazing laws, regulations, and their implementation to ensure the efficient utilization and conservation of public

forest rangelands and the sustained diversity of the natural grassland ecosystems for the welfare and fulfillment of the people of the Philippines and beyond.

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Appendix A.

Q U E S T I O N N A I R E

Location : _____

Total area under lease : _____ hectares

Years left in the contract : _____

1. Is ranching your only source of income?

yes ()
no ()

2. How many cattle do you own? _____ heads

3. Other livestock on graze in your area, if any:

water buffaloes/ carabaos _____
goats _____
horses _____
others, please specify the kind and number

4. What are the existing ranch structures in your pasture area?

ranch house ()
cowboy's quarters ()
perimeter fencing ()
 full ()
 partial ()
cattleshed ()
corral ()
others, please specify

5. Are there any squatters in your pasture area?

yes ()
no ()

6. If you answered "yes" to the previous question, did the Department of Environment and Natural Resources assist you in this (squatter) problem?

yes ()
no ()

7. Regular monitoring of pasture leased areas is one of the administrative functions of the Department of Environment and Natural Resources(DENR). During the last three years, how often was your area visited by DENR employees? If no visits were made, check "never".

quarterly (four times a year) ()
 twice a year ()
 once a year ()
 once every two years ()
 once every three years ()
 never ()

8. Please indicate your agreement or disagreement with the following statements. In the space provided in the left side of each statements, write "1" if you strongly agree, "2" if you agree, "3" if undecided, "4" if you disagree and "5" if you strongly disagree with the statements.

() During the term of the lease contract, my pasture area might be reduced in size by the Department of Environment and Natural Resources.

() My lease contract may not be renewed when it expires.

() Threats posed by squatters may affect my right to the pasture area.

() The DENR can cancel my lease agreement by reason of national interest (i.e. reforestation project, social forestry projects, other public purpose)

9. Your pasture lease agreement is regulated by the Department of Environment and Natural Resources. They conduct area inspection from time to time, require you to submit a grazing management plan, annual and quarterly reports and to pay the rent. On the whole, how satisfied are you about the DENR's administration policy?

() very satisfied
 () moderately satisfied
 () a little dissatisfied
 () very dissatisfied

10. You are presently paying the government P1.00 per hectare per year as rent for the use of the pasture area. Please indicate in the scale below your assessment about the rental value.

just right

very low -2 -1 0 +1 +2 very high

11. How much do you think is the most appropriate rental value you should be paying to the government?

_____ per hectare per annum

12. What would you consider as a critical problem affecting your ranching operation?

13. In what aspect should the Department of Environment and Natural Resources help you in your undertaking?

14. Do you have further comments about the DENR's policy in the administration of our forest range areas? Please feel free to write your comments below, at the back or attach a separate sheet of paper if necessary.

Appendix B.

SUMMARY OF SURVEY RESULTS

These results arise from the questions presented in Appendix A.

1. Site

regions	number of respondents
2	41 (48.8%)
5	21 (25.0%)
11	22 (26.2%)

2. Total area under lease

Number of observations	84
Minimum	54
Maximum	2000
Mean	377
Range	1946
Standard Deviation	351.63

3. Years remaining in the grazing lease agreement

Number of observations	84
Minimum	1
Maximum	24
Mean	11
Range	23
Standard Deviation	7.23

4. Other income sources

Ranching only	4 (4.8 %)
With other sources	80 (95.2%)

5. Livestock inventory (N = 84)

livestock	min.	max.	mean	range	std.dev.
cattle	9	1400	155.63	1391.00	207.98
carabao	0	50	2.81	50	6.71
goats	0	600	22.83	600	86.11
horses	0	50	5.04	50	7.22

6. Ranch Structures

ranch structures	with	without
ranch house	8 (9.5%)	76 (90.5%)
cowboy's quarters	1 (1.2 %)	83 (98.8%)
fencing		3 (3.6%)
partial	24 (28.5%)	
complete	57 (67.9%)	
cattleshed	12 (14.3%)	72 (85.7)
corral	3 (3.6%)	81 (96.4%)

7. Presence of squatters in the grazing area

with	20 (23.8%)
without	64 (76.2%)

8. DENR assistance in squatter problem

received assistance	16 (80%)
no assistance	4 (20%)

9. Frequency of monitoring and evaluation of grazing leaseholds by employees of the Department of Environment and Natural Resources

quarterly	9 (10.7%)
twice a year	13 (15.5%)
once a year	25 (29.8%)
once every two years	4 (4.8%)
once every three years	9 (10.7%)
never	23 (27.4%)

10. Respondents' assessment about the rangeland administration policy of the Department of Environment and Natural Resources

very satisfied	18 (21.4%)
moderately satisfied	33 (39.3%)
a little dissatisfied	16 (19.0%)
very dissatisfied	17 (20.2%)

11. Rental fee assessment

very low	29 (34.5%)
low	23 (27.4%)
just right	31 (36.9%)
high	0
very high	0

12. Suggested annual rental fee

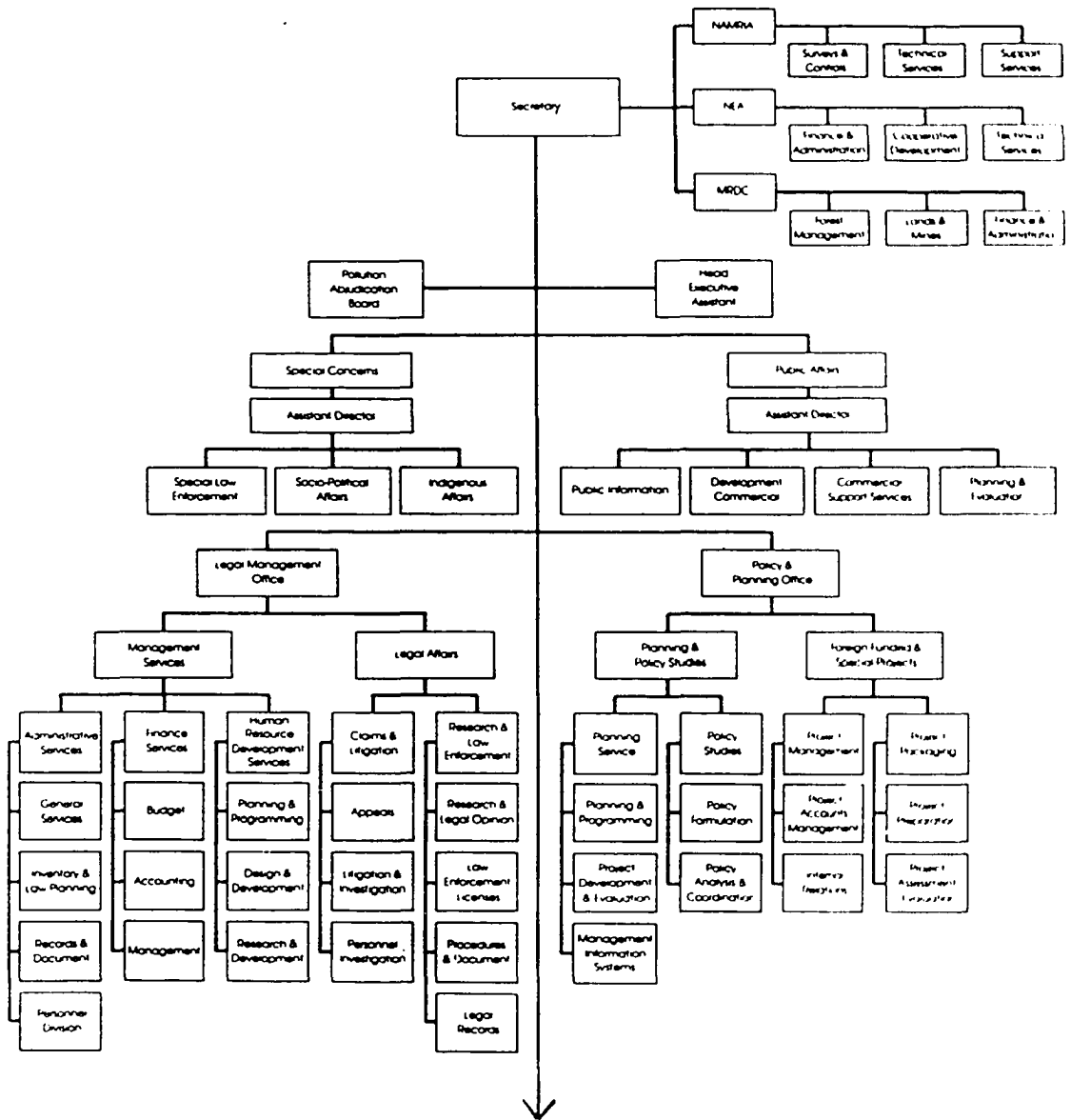
Number of observations	84
Minimum	0
Maximum	20.00
Mean	3.50
Range	20.00
Standard Deviation	3.88

13. Areas where assistance are needed by respondents
 number of observations = 64

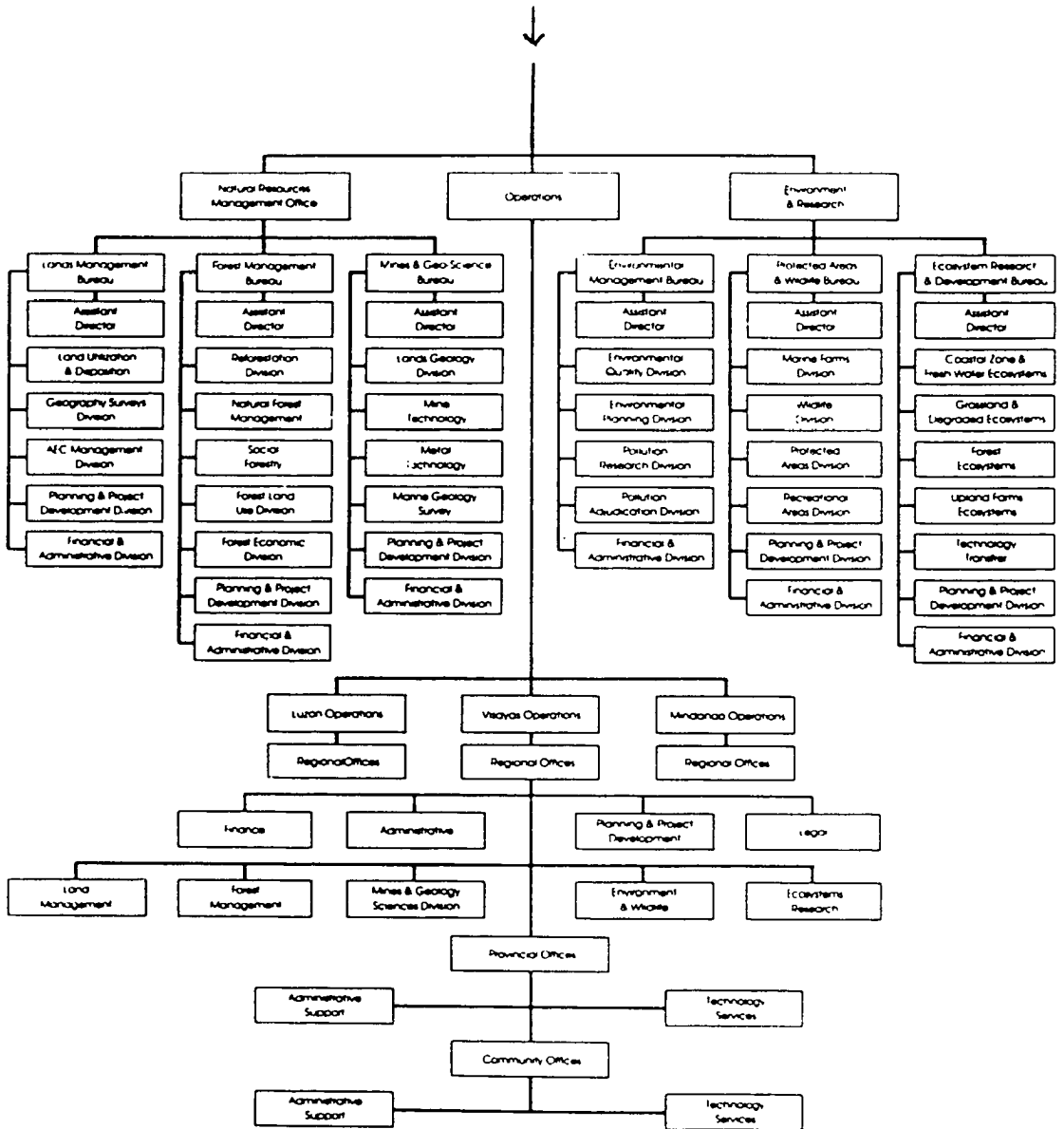
nature of assistance	number of times cited
provide a secured tenure	17 (26.6%)
reforestation activities	15 (23.4%)
settlement of squatter and other claims	9 (14.0%)
forage improvement	8 (12.5%)
provision of breeder stock	5 (7.8%)
maintaining peace and order in the area	3 (4.7%)
protection against illegal loggers and charcoal makers	3 (4.7%)
weed eradication	2 (3.1%)
conduct of seminars on range management	1 (1.6%)
increase the size of grazing leasehold	1 (1.6%)

Appendix C.

Department of Environment and Natural Resources
Organizational Structure



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Source : World Bank 1989

Appendix D.

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
EVALUATION REPORT OF EXISTING
FOREST LAND GRAZING LEASE AGREEMENTS
AND PERMITS

Name of lessee: _____
Address: _____
FLGLA/Permit No.: _____ Total area : _____ hectares
Date issued: _____ Date of expiration: _____
Location: _____

1. RANGE SUITABILITY

a) climate -

b) soil and parent material

c) vegetation types:

type 1	_____	has.	type 5	_____	has.
type 2	_____	has.	type 6	_____	has.
type 3	_____	has.	type 7	_____	has.
type 4	_____	has.	type 8	_____	has.

d) current erosion

e) soil condition

2. TOPOGRAPHY AND SLOPE

a) topography

b) slope

area below 18%	_____	hectares
area 18% - 50%	_____	hectares
area above 50%	_____	hectares

3. FORAGE PRODUCTION

1. grasses/ legumes

name of species	green weight (kg/ha)
_____	_____
_____	_____
_____	_____

2. weeds

name of species	extent of area (ha.)
_____	_____
_____	_____
_____	_____

4. WATER SOURCE

5. ACCESS ROADS AND TRAILS

6. EXISTING RANGE IMPROVEMENTS

a) livestock inventory

Kind	Number	Breed
cows	:	:
bulls	:	:
heifers	:	:
steers	:	:
yearlings	:	:
calves	:	:
<u>other livestock</u>		
carabaos	:	:
goats	:	:
horses	:	:
others (specify)	:	:
	:	:

b) fencing

materials _____ height _____
() fully fenced
() partially fenced _____ kms.
() no fencing

c) structural improvements

	number	capacity
1. administrative house	_____	_____
2. cowboy's quarters	_____	_____
3. cattleshed	_____	_____
4. corral	_____	_____
5. silo/feed storage	_____	_____
6. watering/feed troughs	_____	_____
7. chute	_____	_____
8. others	_____	_____

d) forage improvements

forage species	area in hectares
_____	_____
_____	_____
_____	_____

e) reforestation (along perimeter & stream banks)

species	area in hectares
_____	_____
_____	_____
_____	_____

f) food production program (pursuant to FD No. 472)

crops	area in hectares
_____	_____
_____	_____
_____	_____

7. PESTS AND DISEASES

8. FOREST OCCUPANTS/SQUATTERS

9. GENERAL COMMENTS AND RECOMMENDATIONS