

# AN EVALUATION OF CONCESSION LEASE FOR NATIONAL FOREST RECREATION AREA IN TAIWAN\*

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## [Abstract]

The major objectives of national forest recreation area are that leisure, education, natural conservation and safeguard of amenity.

The results of this study indicate that concession lease is necessary and urgently. This means that neither the public enterprise system has many drawbacks nor misleads itself when its benefits are increasing or costs are decreasing. Lack of consideration in enviromental constraints and institutional factors is one of the main reasons.

A case in Taiwan, high population density and shortage in amenity resources, it is most important that enviromental condition can be properly maintained through both public policies and incentive programs by private sectors. Thus, the monetary and nonmonetary benefits can be obtained. The above-mentioned measures should be adopted under coordination among public administrative sectors. With strictly constraints, the concession leasing of national forest recreation area in Taiwan is not feasible. Bul. Exp. Forest, Dep. Forestry of NCHU No: 10. 53-62 (March, 1989)

## [key words]

Concession lease, Forest Recreation Evaluation.

## 對國有林森遊樂區開放經營權之評估\*

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## [摘要]

國有林森林遊樂區之主要目標係在提供休閒、教育、自然保護與美化環境。依本研究分析結果，開放民間經營有其必要性，唯其前提需有社會效益性。由於受到各種環境

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保育及法制因素嚴格限制，如今成效並不顯著，因此，如何在公共政策法律及行政上之獎勵措施間取得配合才能達成目標，但嚴格地說，將國有林開放經營權仍有其技術上之困難。中興大學實驗林森林系所研究報告 第10號 53~62(民國78年3月)

## (關鍵詞)

經營權，森林遊樂評估。

## 1. INTRODUCTION.

Forest recreation has recently become a national concern because of rapid urbanization, high density population, increasing personal income, and the demand for recreation opportunities etc. Therefore, the government in Taiwan launched several years ago an enhanced program of outdoor recreation as one part of the national policy. Forestry can not get rid of these challenges.

The government in Taiwan introduced some new programs including the reformation of forest law, setting up the forest management regulations for establishing forest recreation areas (in reading) at the central governmental level. On the other hand, the provincial government has developed some practical laws in the same directions.

1.57 million ha of total forest area are national forests and are administrated by Taiwan Forestry Bureau (TFB). A part of them is also controlled under National Park System and the Education Ministry (e.g. the Experiment Forests of two national Universities Level). The forest recreation areas are distributed scatterly in the whole island, with an astonishing population density of 549 capita per square kilometer and with a high annual growth rate of 18 % on recreationist, the situation will become even worse. The time factor, the shortage of public investment, and a flat budget become the main problems to be solved. The shortage on public investment can theoretically be overcome by the capital investment from private sectors, if a forest recreation policy can offer some incentives. However, the objectives of national forest are in conflict with that of private enterprises. Furthermore, the ownership and the occupying right are not the same thing for a given piece of land. There exists difference in terms of its land use. This paper mainly examined land use with regard to forest recreation area. The study also built up in ex ante evaluation.

## 2. EVALUATIUN AND ALTERNATIVE ANALYSIS PROCEDURE.

There exists a number of approaches and criteria for evaluation. Evaluating alternatives by financial and non-financial analyses approaches can provide some aids for decision making in private investment activities.

These approaches require managerial, legal and the social-cultural considerations. A strictly economic approach is insufficient. The managerial evaluation can lead adequacy and proper allocation of resources. The legality evaluation may look in feasible performance relating administration, and the evaluation of social-cultural basis can find out why the conventional adaption of a society the conventional adoption of a society will happen. If all of these considerations are integrated with one another or ballanced in trade-off processes, the feasible alternatives will take place as shown in Figure 1.

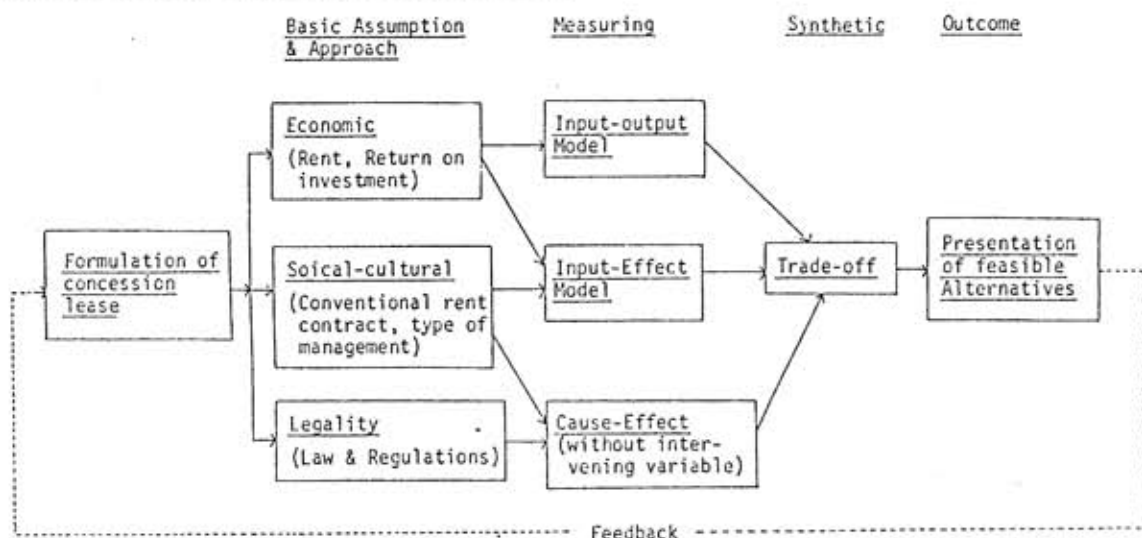


Figure 1. Evaluating alternative procedure for a concession lease

### 3. STUDY AREA AND THE INVESTIGATION

The survey was conducted from 1. 1. 1988 till 30. 1. 1988 based on interview with questionnaire. Fourteen developed recreation areas, thirteen undeveloped areas with potentiality, three leased and managed by private enterprises, two experimental forests, and several aboriginous-cultural parks were investigated and 32 responses received. Four categories of questions were involved in the questionnaire. They consist of the followings items:

- A. Basic description of recreation area, such as area in ha., capital amount of investment, kinds of facilities, of visitors per year, etc.
- B. The current management type and its proposed form.
- C. The description of contract lease, length of a contract, calculation of rent, and rent adjustment.
- D. Profit and loss accounting of three leased forest recreation areas.

### 4. RESULTS AND EVALUATION

- A. The capital consumed

According to the primary estimation of TFB, the capital consumed in national forest recreation area is devoted to the following

activities: 46% of total amount of capital have been allocated for road construction, 25% for the construction of public facilities, and 31% for the establishment of restaurants and lodging facilities (TFB 1987). A similar percentage of capital spending is also identified from the field investigation. Some of the highlights from this survey can be summarized as follows:

1. What are the desirable types of investment?

Four basic types are identified:

Type I (33%): All infrastructures are constructed by the government, restaurants and lodging facilities are invested by private enterprises.

Type II (25%): All facilities are constructed by private enterprises.

Type III (12.5%): All facilities should be constructed by the government, only the management is undertaken by private enterprises.

Type IV (12.5%): Joint venture of the government & private enterprises.

B. What kind of investment items is the most favorable by private investors?

The weighted scores of different recreational facilities depend heavily on the willingness of private enterprises or the administrative staff. The total scores of a given facility is shown in Table 1.

Table 1 The investment rank order and its weighted scores for different recreational facilities.

Rank order	Total		Deveveloped f.r.a.		Undeveloped f.r.a.	
	Facility	Weighted scores	Facility	Weighted scores	Facility	Weighted scores
1	restaurant & cafeteria	116	restaurant & cafeteria	93	restaurant & cafeteria	23
2	hotel & lodging	92	hotel & lodging	73	picnic ground	25
3	parking	40	parking	23	campground	21
4	picnic ground	35	villa	18	W.C. & Sanitary	20
5	campground	27	entrance & toll stat.	15	hotel & lodging	19

6	villa	27	picnic ground	12	parking	17
7	W.C. & Sanitary	22	cabin	11	road & trail	15

Note: The total weighted scores were measured by the frequencies of responses multiply by its priority number which is determined by proposed investors or administrative staff.

There is a strong tendency on investment of restaurant and lodging, especially found in developed forest recreation areas. In case of undeveloped forest recreation areas, most investors are interested in facilities in its natural forms.

Much more interesting things can be found in the other table showing urgency scores of different recreation facilities (Table 2). This indicates both needs and the shortage of transportation package in Taiwan, including the highway, forest road, and parking area. Because of traveling inconvenience, it is necessary to have a further compensation, such as comfortable restaurants to meet the travelers needs. From another point of view Chinese evaluate quite high importance of meal in their culture.

Table 2. The urgency scores of different recreation facilities

Rank No.	Total		Developed f.r.a.		Undeveloped f.r.a.	
	Facility	Weighted scores	Facility	Weighted scores	Facility	Weighted scores
1	restaurant	95	restaurant	60	parking	58
2	parking	82	forest roads	47	campground	54
3	forest roads	62	parking	44	picnic area	55
4	villa	62	villa	42	restaurant	55
5	W.C. & sanitary	55	sewage treatment	32	trail	24
6	sewage treatment	51	W.C. & sanitary	29	W.C. & sanitary	24
7	trail	50	electricity	28	villa	20

Note: The weighted scores were measured by the frequencies of sampling responses multiplying by their urgency priority numbers. These were determined by proposed investors or administrative staff.

### C. Contract period

Three management categories of forest recreation areas are suitable in Taiwan. They are 1) self-supporting management by the national forest agency. 2) by contract with public agency outside the forestry administration. 3) managed by public agencies outside forestry administration or by private enterprises with facilities specified in the plan. In consideration of capital budget, limitations of administration, and laws & regulations, the third category might be the most acceptable and feasible to both the government and private investors.

### C. Provisions of Lease

Before a contract can be signed by the government and the proposed concessioner, there are a lot of factors should be settled, such as provisions of limitation, land law, national property law, and regulation of afforestation leasing etc. Some major issues are discussed below.

Land Law #25: The judgement of any public land for the private use is based on the releasing of its public ownership.

National Property Law #43: The limitation of concession lease for non-public use from the fixed asset (estate).

Regulation of Afforestation Leasing: In case of Afforestation from any individual or community on a national forest land the limitation in maximum period is nine years, yet it can be allowed to extend several periods.

The recreation licence contract period extends in some USA cases less than 30 years and the concession lease of a timber production in Canada is less than 25 years (Jubenville 1978, USDI NPS 1987). In addition, some provisions about property insurance and liability insurance are also involved in the context of a contract.

### E. Return on Capital Investment

An estimate of capital return in terms of different investment criteria among existing forest recreation areas is shown in Table 3.

Table 3. A comparison of investment return by different criteria

Name of Recreation area	Payback period		Average rate of capital investment <sup>1</sup>	net present worth		
	year	naive rate of return		r=4.5% year	r= 8% year	r=12% year
Wu-Lai (North)	16	16.25%	1.82%	21 <sup>2</sup>	28	46
Loog-Ku(Central)	20.77	4.81%	-0.66%	19	25	39
Sun-Link-Sea (South)	17.81	5.61%	6.87%	19	24	38

Note 1. = Average Annual net profit /  $\frac{1}{2}$  (initial capital investment + salvage value of capital good).

Note 2. = This means that under a discounted rate of 4.5%, the NPW is equal to the initial capital invested after 21 years.

The payback period among three existing recreation areas is varied from 16 years to 20.77 years. Also the range of period based on different discount rates is quite different. In fact, if a private investor has achieved his current income growth rate at a level of 12.95%, then a reasonable contract period extending over 25 years is acceptable.

#### F. The rent influenced by Law

According to the rent theory, a rent is the return of any parcel of land when it is utilized for a certain use. In practice, we classify the rent into the following two categories: (Chang 1979)

- I ) contract rent or commercial rent, principally it arranges the relations between one person to the other person.
- II ) economic rent, this depends on net profit after total revenue less total costs.

The total forest recreation areas of 34,399 ha located in 53 places are strictly limited and the land supply for this purpose could not be easily expanded in the future. The contract rent, accordingly, seems to be more significant than that of economic rent in this explanation. This is special true that the land investor must pay more attentions on other factors which may cause the price increases of the land. On the other hand, if the demand on land resources is strongly identified, then the willingness to pay the rent will be significantly increased. However, the scarcity of recreation areas in Taiwan is a matter of fact to be faced. The scarcity rent will then be more acceptable (Oyan 1983), (see Figure 2)

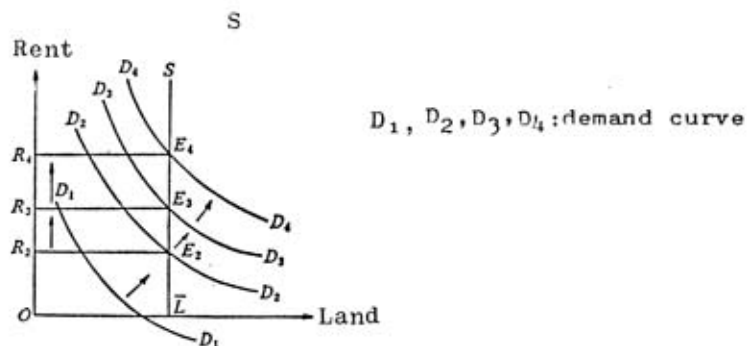


Figure 2: The basic model of scarcity rent.

The contract rent aimed not only at positive law, but also was



determined by the actual effect of multiple decision-makings, therefore, the application of percentage rent is very popular in Taiwan.

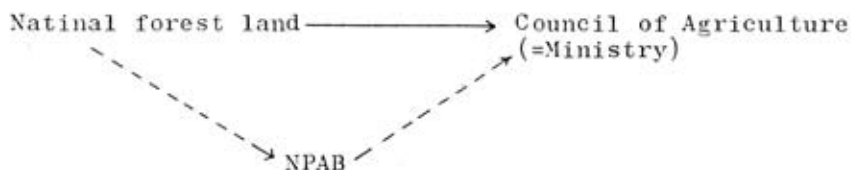
According to the regulations the forest recreation area consist of managing forest subarea, facility subarea, scenery protection subarea, and forest ecological subarea in its formality. Because of the difficulty on determination of market prices for these lands (ad valorem), the forest administrator was unable to solve this problem.

In connection with the concession lease some other related regulations should be cited:

#### I ) National Property Law

#11: For those who directly use the public property they must serve the property as an administrative agency.

#55: Conversion of Non-public good to the public good must be supervised by National Property Administrative Bureau (NPAB), meanwhile, the administrative Agency will be changed. An example is drawn as follows.



# 8: If any forest recreation area was assigned from national forest system and also rented by private investor. The private investor must pay land tax, and additinal facility tax etc.

#45: Rent period of all estate is restricted for  
constructed land area < 20 years  
Non-constructed land area 6 - 10 years  
improved facilities < 5 years.

#### II) Land Law

#110: The total amount of annual rent schould not exceed 8% of the total value of rented land area.

### 5. CONCLUSIONS AND SUGGESTIONS

After a cross analysis, there are three feasible directions of the concession lease for national forest recreation areas in Taiwan. These consist of followings:

A) public service as the aim of concession lease.

The concession lease will only come to public agency, like public societies and local communities. In this case, there is no charge.

B) return on investment as the aim of concession lease

i ) This is a before-calculation approach and an approach applicable in



urban and rural areas. Although it has not yet been determined its land price outside urban and rural areas. In practice, a combined rent can be calculated as the following equation.  
(total land price) · 8% = annual rent and valorem.

ii) net profit as the basis

This formular is applicable for hotel and lodging facilities. The formula are described as follows:

net profit (NP) = total revenue - total expenditure

rate of net profit (RNP) =  $\frac{\text{total revenue} - \text{total expenditure}}{\text{total revenue}}$

This is a after-calculation approach.

According to income distribution effect and context of income tax law, it is suggested to use an increasing acceleration tariff and it should be divided into three classes:

if	RNP < 8%	then	NP · 10% = rent,
	8% < RNP < 15%		NP · 15% = rent,
	RNP > 15%		NP · 25% = rent.

iii) a combination of land price and income as the basis

This is also a after-calculation approach. Two methods are listed as followings:

a) The Minimum Fee (MF) is valid within the first three years after the concession lease or when the accounting result is in deficit.  
MF = (market value of land and facilities) · 4%

b) The Normal Fee (NF) can be used up to the 4th year after the business beginning.  
NF = (gross revenue): 1%

The identification of gross revenue from tax payer (enterprise) and the tax acceptor (tax bureau) is usually quite different. It always comes as the obstacle in the practice.

The division of profits is one another approach. It basically demands a higher technique. The advantage of this technique is its contribution management stability. But sometimes they may cause some disadvantages, such as shortage of grant, an overpaying exceeding the normal profit.

We would like to make our conclusion.

A rational evaluation of a concession lease for national forest land in Taiwan should lead a compromise of all aspects concerned. However, the legality and social benefits and, aboveall, the political instrument might be the core issues of national forests. In addition, the concessioner should make his own economic profit in the mean time to fulfill his social responsibility.

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