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MANAGING STATE LANDS: SOME LEGAL-ECONOMIC CONSIDERATIONS*

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Federal grant lands (state lands) represent a unique and important resource to many states. These lands were conveyed to state control for the purpose of supporting public school systems and other public institutions. Revenues from their use are diverted to the financial support of specific institutions, and thus can be of consequence in alleviating some of the difficult tax burdens now confronting state government. Proper management of these lands, therefore, is important to state government.

Historically, the physical characteristics of the land—their stock carrying capacities, fee levels, mineral contents, and the like—have received much attention. While these physical problems are important, preoccupation with their solution tends to dilute the general scope and content of management concerns. Obviously, the scope of state land management can not profitably be restricted to the physical characteristics of the land nor its content confined to the manipulation of physical potentials. Both the content and scope of management encompass broader concerns to which the physical properties of the land are basic.

This Article is directed toward some of the broader issues pertinent to the management of state lands. The legal and economic aspects of state land management are examined and a framework is proposed which unites these aspects into a generalized philosophy and management program. The scope of the framework and philosophy encompasses all lands under jurisdiction of state land agencies. For the most part, these include all categories of federal grant lands received by the states.

I

FEDERAL GRANT LAND USE

With the exception of the original thirteen states and West Vir-

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ginia, Maine, and Texas, federal land grants have been made to all states of the Union. From Iowa and Louisiana east, states were granted section 16 of each surveyed township for support of the common school system. Beginning with the admittance of California to the Union in 1850, all Western States except Utah, Arizona, and New Mexico received sections 16 and 36. Utah, Arizona, and New Mexico received sections 2, 16, 32, and 36.[1] In addition to the common school grants, states also received land grants for the support of such public institutions as higher education facilities, institutes for the blind and mentally ill, reform school and penitentiary facilities, and other public buildings. Approximately three-fourths of each state grant, however, was designated for common school support.

The magnitude of the grants varied with the land area of the state and the number of common school sections received. Consequently, larger acreages were received by the Western States. New Mexico received the most, approximately 13 million acres. Arizona received about 10.5 million acres and Utah received approximately 7.5 million. The approximately 3 million acre grants made to Idaho and Washington were the smallest western allotments.

Management of the grant lands is left to individual states subject only to the broad constraints of the enabling legislation under which the conveyances were authorized. Sale of the lands is given statutory approval when judged to be in the best interest of the state. The degree to which sales have occurred varies among states. For example, New Mexico still retains approximately ninety per cent of her original grant acreage, whereas Nevada currently holds only about one per cent and California approximately five per cent of their original grant lands.

Revenues generated by the lands go to support those institutions specified under the granting legislation. Among western grant land states, New Mexico realizes some of the highest annual returns, approximating 30 million dollars annually. Much of this revenue arises from oil, gas, and mineral exploration and production. However, all states realize some income from these as well as additional sources such as grazing fees, interest on invested funds, and other miscellaneous productivities. Expenditure of incomes generated from state lands is restricted by law to those revenues which represent annual returns on use of the land resources. Interest, use fees,

1. A more detailed explanation of state grants can be found in Cubberley, Public Education in the United States (1934).

lease revenues, and the like can be expended. But monies realized from sale of the lands, for example, must become part of a permanent state fund. In many states, mineral, oil, and gas royalties are similarly treated. In New Mexico, these latter categories constitute approximately 20 million dollars of her gross annual returns.

A. Objectives of State Land Management

The legal restrictions placed on the expenditure of certain types of funds intensify the management responsibilities facing state land agencies. Not only must the agencies try to generate revenues from use of the lands, they must also manage the permanent monetary resource. In addition, a need is frequently expressed for recognizing non-monetary or social benefits associated with use of the lands. It is within this complex of monetary and social considerations that state land policy must be formulated. And underlying this complex is the statutory regulation reflected in the language of the original enabling legislation.

These broad statutory directives provide an orientation point from which a general philosophy of state land management can be evolved. These directives provide clues about what goals or objectives should be pursued by state land management. Definition of realistic goals obviously is fundamental to the direction and guidance of state land management policy.

B. Nature of State Land Goals

For the most part, the language of the enabling legislation is unusually consistent among receiving states on points dealing with the general intent and purposes associated with the grants.[2] Each land award designated the state programs or institutions which were to receive support. The legislation detailed the broad intent with regard to the use and disposition of the land but left the operational and policy details to state determination.

> The . . . State of . . . shall not be entitled to any further or other grants of lands for any purpose than as expressly provided in this act; and the lands granted by this section shall be held, appropriated, and disposed of exclusively for the purposes herein mentioned, and in such a manner as the legislation of the State may provide.[3]

2. Because of the consistency of the enabling language, the Utah act will be used to document relevant passages from the enabling legislation.

3. Utah Code Ann., Enabling Act § 12 (1953).

The enabling act further provided:

> That the proceeds of lands herein granted for educational purposes, except as hereinafter provided, shall constitute a permanent fund, the interest of which only shall be expended for the support of said schools . . . .[4]

While "educational purposes" were singled out in the wording of the enacting bill, the policy of expending only interest returns has been extended to all types of grant lands.

State legislatures generally have acted to give legislative direction to procedures associated with selling the lands, retention of sub-surface rights, regulation of investment alternatives, and specifying land agency membership. For example, state law provides both for the disposition of lands to private interests when the State Land Agency "deems it to be the best interest of the state . . ."[5] and for the retention of the sub-surface mineral rights.

> Such (coal and mineral) deposits are reserved from sale, except on a rental and royalty basis as provided by law, and the purchaser of any lands belonging to the state shall acquire no right, title or interest in or to such deposits . . . .[6]

However,

> Lands in which minerals are reserved, the surface of which has value for other purposes, may be sold under the provisions of law relating to the sale of state lands, subject to such reservation.[7]

While the enabling legislation and the actions of state legislatures have clarified somewhat the broad operational bounds of state land management, no provision is made for federal or other governmental recourse against state land agencies for noncompliance with the provisions of the enabling act. If state agencies are without obligation, the mere specification of goals for state land management, whatever their nature, would not insure implementation. Therefore, before agency goals can be considered, state obligations to the intent of the enabling act should be clarified.

A 1963 opinion by the Attorney General of California is pertinent to this question.[8] In this critique the Attorney General points

4. Utah Code Ann., Enabling Act § 10 (1953).
5. Utah Code Ann. § 65-1-29 (1953).
6. Utah Code Ann. § 65-1-15 (1953).
7. Utah Code Ann. § 65-1-17 (1953).
8. 63/48 Ops. Cal. Att'y Gen. (1963).

out that the case of *Wyman v. Banvard*,[9] concludes that the 1853 statute was "an absolute and unconditional grant" and in addition:

> for a distinct and specified object and purpose. 'and that is for the purpose of establishing and maintaining public schools in each township' in the State. Neither the lands nor the proceeds thereof can be used for any other purpose. But Congress did not attempt to impose any conditions or specify or define the mode or manner in which this purpose should be carried into affect. It left that whole subject to the discretion of the Legislature of the State. The grant is made and the purpose specified; that is all.[10]

Based on the case of *Cooper v. Roberts*,[11] in considering the school grant to the state of Michigan, he observes "the grant is to the state directly, without limitations of its power, although there is a sacred obligation imposed on its public faith."[12] And to quote from his conclusion,

> The grant from the United States to the state of California of numbered sections for school purposes was an absolute grant without any power in the United States to require the state to devote the lands or their proceeds to a specific purpose. (Except for minerals under the 1927 extension of the School Land Grant.) However, there is an honorary obligation on the state to carry out such purposes . . . .[13]

From these citations, one can reasonably conclude that even though there are no provisions for federal recourse against receiving states, these states are nonetheless subject to a real and binding moral obligation, one in which the intent of the enabling act is paramount. Perhaps the most direct statement dealing with the intent of the original granting act is the previously quoted passage which states that these lands "shall be held, appropriated, and disposed of exclusively for the purposes herein mentioned . . . ."[14]

Even here, however, the specific nature of the objectives to be pursued is not expressly detailed. In its simplest form, the question of objectives is essentially one of whether realization of monetary returns constitutes an acceptable objective whereby states can satisfy the obligations imposed by the enabling act or whether social bene-

9. 22 Cal. 524, 530 (1883).
10. 63/48 Ops. Cal. Att'y Gen. 5 (1963).
11. 59 U.S. 173, 181-82 (1855).
12. 63/48 Ops. Cal. Att'y Gen. 6 (1963).
13. *Id.* at 2.
14. Utah Code Ann., Enabling Act § 12 (1953).

fits which encompass other than monetary considerations are essential to fulfilling this obligation.

A ruling by the Nebraska court in the case of *State v. Board of Educational Lands & Funds*,[15] deals with this question. According to the Attorney General's opinion, this case:

> went even further in declaring invalid a state statute providing a schedule of rentals for state lands less than the current fair market rental value of such lands on the grounds that the receipt of such lesser amounts was contrary to the trusts under which the state held the lands. The state was said to have the duty to obtain the maximum return from the use of granted school lands consistent with the preservation of the trust estate.[16]

The fact of the trust is expressed in both the enabling legislature and state constitutions. It evolves in large part from the regulation placed on funds realized from the sale of the lands which permits only the interest and other increments to be expanded in common school support. According to the Attorney General:

> The Constitution implies that there will be money realized from school lands, either through their sale or use. There is no compulsion on the state to sell or lease any of the lands. If it does sell any tract of school lands, the fair market value of the tract should be received. If instead of selling the land, the state determines to retain title to the land, it is free to do so. But if any use is made of any of the school land tracts while the state continues to hold the same, and such use is consistent with the ready sale of the land, the school fund mentioned in the Constitution should benefit from such use.[17]

The proposition that full monetary returns should be extracted from grant lands eventually encounters the problem of transferring grant lands to other state or welfare oriented agencies for uses which have general public interest. Often state recreation agencies look to state lands with special use potentials to satisfy the growing needs for outdoor facilities. The use of the lands by the general public is thought to provide sufficient basis for the release of these lands at little or no expense to the receiving agencies. Similar arguments are raised by other philanthropic or nonprofit, welfare-oriented agencies which provide services to specific segments of society. The question of such land transfers was also treated in *Board of Educational Lands & Funds*. The court said:

15. 154 Neb. 244, 47 N.W.2d 520 (1951).
16. 63/48 Ops. Cal. Att'y Gen. 9 (1963).
17. *Id.* at 10.

> The effect of the acts here questioned is to confer special benefits upon the holders of leases of school lands to the detriment of the beneficiaries of the trust. A trustee in so handling trust property violates his duty as a trustee. His handling of trust property, including the rental thereof, must be in such a manner as to produce a reasonable rental based upon the fair market value of the property.[18]

The question of the state's role and obligations in managing these lands is summarily contained in *Corpus Juris Secundum*:

> The state holds title to school lands in trust . . . . The state cannot abdicate its duty as trustee anymore than it can surrender its police power in the administration of government and in the preservation of peace and order and it cannot divert the land from its trust purpose, either by a direct donation or through the medium of estoppel. So, it is without power, as trustee, through legislative means or otherwise, public or private, at the expense of the cestui que trust, the public school system of the state, or to alienate the school lands without receiving their full value.[19]

In a concluding comment, the Attorney General opined that even the state legislature is without authority to alter the trustee obligations of the state:

> where a transfer of title from the state to a particular state agency or any other public agency takes place and the parcel is no longer subject to the school land trust, the transfer must be by patent . . . . Full consideration, that is, the fair market value must be received and such consideration must be credited to the state school land fund. The legislature does not have authority to relieve any particular parcel of school lands or all school lands of the implied school trust by authorizing the transfer of possession of control of the lands for purposes of a state agency which purposes have nothing to do with public schools generally unless the full market value is received for the account of the school land trust.[20]

Several justified conclusions can be drawn from the above discussion. First, the lands were conveyed to state ownership as a form of wealth for the intended purpose of supporting specified public institutions. Acceptance of the lands placed the state in the position of trustee. Any subsequent failure on the part of the state to fulfill the intent of the original act violates the trusteeship. Second, the original act did not provide for legal recourse of any type

18. *Ibid.*
19. *Ibid.*
20. *Id.* at 13.

against offending states, except that found in the moral obligation associated with a public trusteeship. Third, states are not compelled to put grant lands to a productive use; however, once such use is designated (either through lease or disposal), the state must work to extract a full monetary return. Fourth, leasing arrangements or disposal policies which yield less than a fair market value violate the spirit and intent of the enabling act. Fifth, and perhaps most important, the intent of the enabling legislation and the obligations of state land management agencies can be satisfied only by pursuing a monetary or revenue producing goal.

Designation of a singular, revenue-oriented goal for state land agencies elicits a more restricted scope of management concern than is normally assigned to federal land agencies. The management responsibility of federal agencies generally encompasses varied public benefits which are additional to any monetary considerations but which must, nevertheless, be incorporated into their decision calculus. Consequently, benefits derived from watershed protection, flood control, and so forth, which may be non-monetary in nature, but nonetheless real, are basic to federal land management decisions. The more restricted scope of state concern minimizes the relevance of non-monetary considerations. The resulting emphasis on revenue producing benefits constitutes a basic difference between state and federal land management goals—one undoubtedly intended by the enabling legislation. State lands, thus, should not be viewed as public lands in the sense usually ascribed to the public domain.[21] By law, uses which generate cash flows must be favored by state land agencies relative to those which do not yield money income to the institution for which the grant was made.

II

STATE LAND DECISION CRITERIA

The function of state land management is essentially one of evaluating alternative courses of action within the framework of its prescribed goals. The ease and accuracy with which alternatives can be assessed are reduced considerably by the uncertainties characteristic of the dynamic nature of the decision situation. Those charged with the custodial responsibility perpetually deal with varying degrees of uncertainty. Likewise, these decision makers must cope with a variety of management alternatives which may influence

21. Harris & Hoffman, *Determining Equitable Grazing Fees for Washington Department of Natural Resources Land*, J. of Range Management, Sept. 1963, p. 265.

the revenues obtainable from the resource. Such alternatives as blocking, seeking grazing and special use fees, making lieu land selections, choosing between investment alternatives, forecasting land values, and the like, become important at one time or another. The decision calculus, therefore, must permit decisions relative to "what" alternative is best and "when" if ever, should it be implemented. The appropriate criterion for making these judgments is the *expected net revenue* over time related to the various types of alternatives and time patterns of implemention associated with each. The dynamics related to time make the net revenue expected over time the important criterion consistent with the goal definition for state land management already developed. The expectations of the decision maker are therefore critical to any analysis of alternatives. The application of a logical system of analysis to the best informed judgments (expectations) available to the decision maker constitutes a rational and defensible basis for decision making related to state lands.[22]

A. A Generalized System of Analysis:

Potential revenues may accrue to state land agencies from a wide variety of sources. Revenues might be generated from use fees; gas, oil, and other mineral leases and royalties; interest and capital gain on investments; taxes; and appreciating land values. In fact, these general classifications encompass the revenue potentials available from state lands. The revenue classes can be generalized into an analytical system which defines the total *annual* returns to the state from a given parcel of land (S) such that:

$$(A)\quad S = (F_1 + \ldots + F_j) + (G_1 + \ldots + G_h) + (C_1 + \ldots + C_m) + (R_1 + \ldots + R_p) + (T_1 + \ldots + T_q) + (L)$$

Where:

F_{1j} = expected annual net use fees (F) from all sources (1 to j)
G_{1h} = expected annual net royalties (G) from all sources (1 to h)
C_{1m} = expected annual net capital gains (C) from all sources (1 to m)
R_{1p} = expected annual net interest (R) on all sources of investment (1 to p)
T_{1q} = expected annual net taxes (T) from all sources (1 to q)
L = expected change in land value (L)

22. Wennergren & Roberts, *The Place of Goals in Land Policy*, in Proceedings, Western Agricultural Economics Research Council Range Committee No. 4, p. 23 (1962).

During any one year, some revenue sources may yield zero returns because the particular parcel of land is not committed to a particular revenue generating use. For example, lands still held under state ownership are not subject to a property tax. Also some uses may never develop in certain areas, so only the applicable or expected uses and revenues need be considered.[23]

Decision formula (A) is static since only one year's revenue is being considered. However, since land agency decisions encompass more than one year, the dynamics of time must be incorporated into the system of analysis. Decisions are made at some point in time designated as "the present" ($i = 1$) with reference to some future time span representing a planned period which runs some number of years (1 to N). When the static limitations of formula (A) are relaxed and the effects of time included, the generalized decision formula becomes:

$$(B)\quad S = \sum_{i=1}^{N} \left[\frac{F_{i1} + \ldots + F_{ij}}{(1+r)^i} + \frac{G_{i1} + \ldots + G_{ih}}{(1+r)^i} + \frac{C_{i1} + \ldots + C_{im}}{(1+r)^i} + \frac{R_{i1} + \ldots R_{ip}}{(1+r)^i} + \frac{T_{i1} + \ldots + T_{iq}}{(1+r)^i} + \frac{L_i}{(1+r)^i} \right]$$

Where:

i = each individual year
$(1+r)^i$ = the discount factor and "r" the rate of interest
N = total number of years in the planning period
F to L = sources of net revenue as defined previously

With this generalized formula, the land agency can analyze the monetary value of any alternative and compare it with that of any other alternative.

Some elaboration on the discount factor and the planning period concept may help clarify the application of these concepts to state land management analyses.

The discount factor is a mathematical entity which can be found in most books containing mathematical tables.[24] Based on an as-

23. The costs associated with various benefit sources are not considered directly. The analysis is developed on the basis of "net benefits." This approach has the advantage of simplifying the presentation without detracting from the basic logic of the analysis.

24. *E.G.*, Simpson, Pirenian & Crenshaw, Tables Reprinted from Mathematics of Finance (1957).

sumed rate of interest, which in effect reflects the time preference consumption rate associated with the revenue estimate being discounted, the factor provides a means for calculating the present value of the expected stream of each type of revenue. In other words, it indicates the cumulative value today of the streams of income which are expected to be realized in varying annual amounts over many years in the future. It recognizes that society places a differing value on consumption today in relation to future years. Thus, a dollar held today is not equal in present value to a dollar to be realized at some time in the future.

The discounting process also permits comparison of two alternatives as they exist at the equivalent points in time. (For example, it would be invalid to compare the benefits of land sale today with the hold benefits of 1980.) By calculating their present values, both alternatives can be compared in equivalent terms with recognition of dissimilar revenue patterns which may occur over the planning period used for analysis.

The number of years over which projections are made in analyzing an alternative depends largely upon the individual decision maker's ability to project his expectations of the future. In deciding upon a time period, however, it is essential to realize that the present value of revenues received in future years becomes increasingly less important the further into the future one travels. For example, one dollar expected in fifty years which is worth nine cents today has a value of only eight-tenths of one cent if it is not realized until one hundred years from now. This suggests that a planning period with a maximum of from seventy-five to one hundred years would likely provide the conceptual and analytical accuracy desired.[25]

The propriety of subjecting state land decisions to the effects of time is based on the contention that a state's capital has earning capacity over time and on acceptance of the proposition that state investment should be economically justified. Because state agency actions are subject to economic constraints, decisions must grow out of appraising alternative courses of action and considering economic consequences and potentials over time. Such a program can

25. This discussion leaves untouched the question of an appropriate time preference or interest rate. Due to the space requirements for such a discussion and the extensive previous discussions in economic literature, it will be bypassed. For some excellent discussions of this subject see, Eckstein, Water Resource Development (1961); McKean, Efficiency in Government Through Systems Analysis (1958); Krutilla & Eckstein, Multiple Purpose River Development (1958); and Marglin, *The Social Rate of Discount and the Optimal Rate of Investment*, Q.J. Econ., Feb. 1963, p. 95.

be accomplished within the analytical framework proposed and is consistent with the trustee responsibility of the state.

B. Application of the Decision Framework

One of the more perplexing questions which periodically confront state land agencies is whether or not to sell parcels of state land. Selling or holding are the two major alternatives available to state agencies for maximizing their revenue potential, and the ones which have historically promoted considerable criticism of state land policy. A decision relative to the alternatives can be made, however, within the analytical framework developed herein. The data needs for decision making purposes are the expected sources of revenue and the size of the net revenue expected from each alternative over time.[26]

If the land is held, its current value remains invested in the land and is managed by the state. Benefits to the state from this alternative can accrue from various types of surface fees plus the expected increase or decrease in land values. If land is sold, its current value is invested in acceptable securities as provided by state law. Benefits will accrue in the form of interest returns on invested capital, capital gains, and tax returns resulting from the removal of the tax exempt status of the lands. In a strict sense, only that portion of the total taxes which accrues to general school support can be considered a legitimate benefit to state land agency operation. This includes local school tax property levies and other school assessments such as those for school equalization funds.

Potential sub-surface revenues can be excluded from the analysis since these rights cannot be transferred with the surface rights and therefore remain with the state regardless of the alternative selected. The management of sub-surface potentials constitute a separate and distinct set of alternatives. Estimates of the probable revenue benefits depend upon the particular land tract and situation under consideration. As an example of the analytical operation of the model, consider the following situation.

A state holds title to a section of land in a rural area. The section is located near a proposed recreational development and is currently unleased. The recreational area is expected to be developed within three years, however, and then the land can be leased for commercial use. The returns from leasing are expected to be six dollars

26. For a more comprehensive discussion of these management alternatives see, Wennergren & Roberts, Federal Grant Lands in Utah (Utah Agricultural Experiment Station Bull. No. 437, 1963).

per acre during the first five years after the area is developed and eight dollars per acre during subsequent years as business improves. Development is expected to take two years. Purchase offers of 125 dollars per acre have been received for this land, and the land is presumed to have a potential for appreciating an additional 1,500 dollars per acre during the next seventy-five years. In other words, by 2042 it should be worth 1,625 dollars per acre. If sold for 125 dollars per acre as currently offered, investment at four per cent would yield the equivalent of six dollars per acre annually. Taxes are estimated at one dollar and twenty cents per acre per year for the seventy-five year planning period of which ninety cents will be collected for public school support. Capital gains on the investment portfolio are not expected to exceed two cents per acre per year equivalent.

Under such circumstances, should the land be sold now or held and leased in anticipation of the expected increase in fee rental and land value?

The alternatives of this hypothetical situation can be substituted into formula B as follows:

$$\text{Aggregate present value of benefits from sale of land.} = \left\{ \begin{array}{l} \text{(Capital Gains)}^{27} \\ \dfrac{\$.02_1}{1.050} + \cdots + \dfrac{\$.02_{75}}{38.83} = \$ \quad .39 \\ \text{(Interest Returns)} \\ \dfrac{\$6.00_1}{1.050} + \cdots + \dfrac{\$6.00_{75}}{38.83} = 116.91 \\ \text{(Tax Returns)} \\ \dfrac{\$.90_1}{1.050} + \cdots + \dfrac{\$.90_{75}}{38.83} = 17.53 \end{array} \right\} = \$134.83$$

$$\text{Aggregate present value of benefits from holding the land} = \left\{ \begin{array}{l} \text{(Change in Land Value)} \\ \dfrac{\$1625_{75} - \$125_1}{38.83} = 38.63 \\ \text{(Rental Fees)} \\ \dfrac{\$0.00_1}{1.050} + \cdots + \dfrac{\$6.00_3}{38.83} + \cdots + \dfrac{\$6.00_7}{1.407} \\ \dfrac{\$8.00_8}{1.477} + \cdots + \dfrac{\$8.00_{75}}{38.83} = \$126.60 \end{array} \right\} = \$165.23$$

If the land is sold now, the state would realize a present value of 134.83 dollars per acre from the stream of income from various sources expected over the next seventy-five years. Alternatively, if the land is held, the expected streams of income over the same period would yield the state a present value of 165.23 dollars per acre. If these two projections were realized, the state would benefit by a present value of approximately thirty-one dollars per acre if the land were retained.

A decision now to retain the land need not be considered irrevocable. The alternatives should be regularly reappraised as conditions and expectations change. Appraisal of the alternatives at a later day may suggest the advisability of selling the land before the end of the planning period or it may indicate that the property should be held even longer.

CONCLUSION

The analytical framework developed herein provides a logical procedure for analyzing state land management alternatives. The judgment criteria are based on the net revenue produced over time by each alternative being analyzed. Applications of the framework generate alternative values which permit judgments to be made consistent with the goals for state land management. While the question of goals per se has not been specifically treated by legislative mandate, prior actions by legal institutions point to a revenue-oriented objective. Such an inference is strongly implied in selected court cases dealing with this subject and is evident in the opinion of at least one high official in the Western United States.

Acceptance of a singular revenue-oriented goal for state land management defines a narrower scope of responsibility than is normally assigned to federal agencies. Uses which generate case flows must then be favored over those which do not yield income to recipient state institutions. Management responsibility for state lands, thus, encompasses more than just the physical properties of the land. Management should be directed to the selection of alternatives which will maximize the monetary potentials of this resource over time and, thus, fulfill the trustee responsibility placed on state land agencies by the legal mandate of the enabling legislation.

27. Subscript numbers refer to individual years in the planning period. A five per cent interest rate is assumed for discounting purposes. The reader should also be aware that the analysis is presented in terms of "net" revenues. Obviously, derivation of "net" figures would require the decision maker to consider the various costs associated with each alternative source of income both with respect to time and with respect to the major alternative.