

# SOME ECONOMICS PROBLEMS OF RANGE RESOURCE ANALYSIS IN FREE AND OPEN ACCESS ENVIRONMENT

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## ABSTRACT

Economic analysis has been the traditional means by which the costs and benefits of rangeland conservation and sustained development have been identified. Conventional analysis has proved inadequate for dealing with the following realities : (1) open access in circumstances of poorly defined common-resource ownership tends to encourage over exploitation; (2) many costs of rangeland degradation involve externalities that will occur in the future; (3) the values of preservation and sustained management are substantial and can be translated into financial assistance; and (4) benefits from rangeland are not often appreciated because of lack of knowledge from rangeland. Recent approaches to economic evaluation recognize that important economic benefits can be associated with good rangeland. In some cases, economic benefits from good rangeland, through incomes from other activities than cattle grazing and through the values of environmental functions, will exceed the benefits that may derive from cattle grazing.

## KEYWORDS

Cameroon, economics, open access rangeland, environmental, development economics analysis.

## INTRODUCTION

Increasing attention is being paid today to the conservation and sustained management of grazing land as the world is becoming aware that they are a source of significant economic potential. Rangeland are rich and have a diversified genetic resource. They provide a source of subsistence livelihood for millions of people. Many rangelands are, however, overgrazed as the needs of the poorer people who depend on it overshadow the often uncertain future benefits from these lands.

Conservationists are looking to economists to strengthen the justification for rangeland conservation and sustained management in developing countries. This poses analytical challenges that include elements of environmental economics and developmental economics. Yet economic analysis can provide a powerful support to conservation and sustained management of rangeland. Traditional analysis of rangeland focus on the value of output from animal grazing. The fundamental approach is using economic analysis to promote sustained range management and involves casting the analytical net wider than the traditional analysis. Consideration is also given to economic values associated with rangeland as an asset that performs important environmental functions.

This paper discusses the potential of economic methods in promoting conservation and sustained range management. It further sees how input from conservation can be translated into sound economic justifications of range projects.

## ECONOMIC THEORY AND RANGE RESOURCE CONSERVATION

Economic analysis has been the traditional means by which the cost and benefits of range resource conservation and development have been identified. Conventional valuation has tended to be highly restricted and have underestimated the benefits of conservation while overemphasizing those of development. Thus the case of exploitation has been overstated resulting in a trend towards degradation.

Conventional analysis has proven inadequate for dealing with the following realities in open access range resource management.

The lack of clear individual or communal ownership and management leads to conditions of free and open access. This situation places a disincentive on those using the rangeland to use it in a sensible manner. From the economic point of view unregulated free and open access cause excessive exploitation. Free and open access in which each individual behaves rationally will readily lead to complete depletion of range resources.

Externality generally leads to an intervention in market that might otherwise appear to be functioning properly. Externality occurs when one person's action affects the environment or well being of others other than by affecting prices. Harvesting of range forage resources affects the availability of environmental services of these resources, and this creates an externality as those responsible for its utilization do not consider the effects of change in the availability of the environmental services to others. Externality arises in rangeland such as the Yaéré (rest areas for palearctic migrating birds, wildlife reserve...) in northern Cameroon because damages (desertification) inflicted on these rangelands was not considered in determining the price of rice by the rice development project of the region. Untreated externalities (in form of taxes, property rights) lead to inefficient production and distribution.

An individual would be willing to pay to preserve their option to have access to an environmental good or service. Individuals would pay to keep this option open, even if they did not specifically have any intention of visiting the area that might provide the good or service. Society as a whole may be willing to pay to increase their chance of accessing a specific genetic resources at some time in the future, even if it has no immediate consumption value. In fact, some species might have a currently unimaginable and undiscovered human use and many are just happy to know that some species or natural environments exist even if they never intend to see them.

Developing countries do not have the research facilities available to investigate the genetic potential of products that occur in their rangeland. Furthermore, the patent system within these countries is even less effective than that in developed countries for protecting the commercial interests of individual researchers.

## ECONOMIC ANALYSIS AND RANGE RESOURCES CONSERVATION

One of the major roles that applied economic analysis can play in promoting range resource conservation is identifying and quantifying the benefits of the environmental services and possible functions provided by standing rangeland. A properly formulated cost-benefit analysis can go a long way to contribute to the argument that range resource conservation is, under certain circumstances, desirable from an economic perspective.

Integrated economic development programs and local people's interests with conservation programs require information on the people that will be affected by the conservation. Household surveys play an important role in providing this information. They also provide a basis for local consultations with local people on projects

that will affect them.

Identifying potential conflicts between economic development and conservation activities relies mostly on judgement and experience. Household survey data, coupled with judgement analysis, may be adequate to provide indications of what will occur when range resource conservation is started. When short term conflicts are unavoidable, there are a number of options for mitigating their impact. They include : (1) adjusting the conservation program (slow-down enforcement efforts, creating traditional use zone...); (2) adjusting development program; (3) introducing direct transfer (compensating those affected with cash injections); and (4) introducing other economic incentives.

Cost-benefit analysis can be used to verify if some form of rangeland conservation is desirable. This involves : (1) identifying what would happen in the absence of range resource conservation; (2) quantifying the timing and amount of economic benefits of these physical changes by assigning shadow prices; and (3) adding the benefits and subtracting the costs to decide whether a project is worthwhile. This obviously differs from traditional economic analysis of rangeland utilization which tends to concentrate only on the direct costs and benefits of forage utilization by the grazing animals. All the environmental functions served by the rangeland are not taken into consideration. Practical constraints involving the lack of adequate information usually preclude the inclusion of all of these functions in an analysis. The uncertainty and complexity of these interactions between some of these functions do not always lend themselves to simple analysis and a great deal of judgement is required.

Although the above economic analysis technique can be effective, the current state of the art still falls short of assigning monetary benefits to the global significance of the conservation and sustained management of range resources. Although it might be possible to quantify the monetary benefits of a particular rangeland in preventing soil erosion, it is impossible to quantify the contributions that a single rangeland will make in maintaining the global environment.

## CONCLUSION

Economic analysis can be a powerful tool for range conservation justification. However, it should not be regarded as the final word in any decision relating to range conservation. It will provide simply one additional criterion in determining whether a given range conservation project is desirable. Even within this context, there remains a considerable scope for improving the manner in which economic analysis can be incorporated. Economic policies such as taxation, credit rationing or subvention have played a significant role in range degradation. Ecosystem modelling is now emerging as a powerful tool. The limited experience in integrating economic and environmental factors into a single model indicates that work on such integration will continue. Economists will familiarize themselves with some of the methods and conclusion arising from ecological approaches. Then they will test the way of integrating some ecological and economic approaches to arrive at methods that will provide a basis for further improvement to the ecological modelling and economic modelling.

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