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THE CONTEXTUAL NATURE OF RANGE MANAGEMENT

by

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Rationality is a contextual construct, what is rational in one domain is idiotic in another.

Obtained from Pierrette Countryman,
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Introduction

Range management is generally considered to be context independent. The American based range profession has assumed that the paradigms and models underlying range management are applicable in any context, be it the United States, Peru, Somalia, or Afghanistan (CRDP 1983). This assumption has never been seriously challenged within the profession, even though numerous reports question the appropriateness of Western range management in developing nations (Hoben 1979, IDA 1980, Sandford 1983, USAID 1983). This paper uses evidence from three pastoral development projects in Africa to examine the universal applicability of range management.

The paper is in four sections. It starts with a brief discussion of the difference between the environments in which range management developed and those of pastoral systems. The next section examines the projects' range development strategies, while the third section presents an economic paradigm and a decision making model underlying these strategies. The final section proposes ways to make range management more relevant to pastoral systems.

The Normative Context for Range Management

The existing concepts in the range management profession were developed within a relatively small number of range-livestock production systems, primarily in the United States, Canada, Australia, and on commercial ranches in Southern Africa. These systems have many similar features. Their management goals are commercial meat and fibre production. They focus on cattle and sheep as production animals. Livestock are generally controlled by fencing rather than herding. In most cases producer households have exclusive grazing rights to their range resources, whether these are on private or public land. They operate in industrial countries with well developed infrastructures for transportation, communication, marketing, research, and education. Producers are generally integrated into the political process so that government is both accountable to

producers and aware of producer needs. And, finally, the producers in these systems tend to share a common Northern European cultural heritage. As a result of these similarities, these production systems offer a similar environment for the development and application of range management, and can be considered the normative context for range management.

Most range-livestock production systems in the world do not operate in this normative context. Pastoral systems generally have multiple goals, emphasising human survival, milk production, capital accumulation in livestock, and risk aversion. Commercial meat and fibre production are frequently low priorities. In many pastoral systems species other than cattle and sheep play important roles. In most pastoral systems livestock are herded and land use is communal or open access. In many non-industrial nations infrastructure is poorly developed, isolating rural populations and constraining government services. Furthermore, pastoral populations are frequently politically weak, having little influence on official policy. And finally, pastoral people come from a wide variety of cultural, religious, and historical backgrounds creating a diversity of cultural mindsets.

The application of range management to non-normative contexts has commonly been referred to as international range management. The poor performance record of international range management (IDA 1980, Goldschmidt 1981) indicates that standard range management practices can not readily be transferred outside this normative context.

The Projects

Evidence, collected during doctoral dissertation research, was obtained from three USAID supported range-livestock development projects in Africa¹. The range development strategies proposed in the design of each of these projects were fairly similar (LBII 1982; USAID 1969, 1979, 1980) and were in concurrence with the strategies of most pastoral development projects (Sandford 1983).

All three projects proposed to demarcate a controlled grazing area, create a grazing association to manage the area, establish a rotational grazing system to improve the range, upgrade animal health services, and train government staff in range management. The objectives of breed improvement, stockwater

¹ The projects studied were the Masai Livestock and Range Management Project (MLRM) in Arusha Region, Tanzania (1970-1980); Central Rangelands Project (CRDP) in central Somalia (1980-1989); and Land Conservation and Range Development Project (LCRD) throughout Lesotho (1981-1989). Besides USAID, the CRDP was supported by IBRD, IFAD, GTZ, and WFP.

development, and destocking through market improvements were found in two of the three projects. A major goal of each project was increased commercial meat or fibre production.

The similarity among the pastoral development objectives of these three projects illustrates the assumed universality of Western range management. It is as though a standard list of range-livestock development objectives existed that could be inserted into any development project design. There was very little modification of this standard list to fit local context. Most of the expatriates involved in the design of these projects lacked an understanding of local livestock and range resource management strategies and showed little awareness of previous work in the area.

The acquisition of information concerning local grazing management strategies was left to rural sociologists, who were not trained in livestock or grazing management. The MLRM project had considerable input from sociologists during both project design and implementation. However, they had no time to do detailed studies of traditional management strategies and the high rate of turnover in range management advisers (five during the ten-year life of the project) reduced the impact of sociological advice on range management activities. Often the role of the sociologist was ill defined and others saw their role as convincing pastoralists to adopt project innovations (Hamilton 1973). For both the CRDP and the LCRD projects, significant sociological information was not available until the final years of the project (Lawry 1986, Howze 1989), and again, detailed livestock and range management studies were lacking. In all three projects sociological analysis generally pointed out the poor fit between project objectives and local context, and the considerable diversity within the local production system (Hoben 1976, Moris and Hatfield 1982, Lawry 1987, Howze 1989).

During implementation of these projects, the range management staff struggled with the conflicts created by the poor fit between the local production systems and the existing paradigms and models of their profession. The modifications made were basically pragmatic responses to poor cooperation and lack of compliance by pastoralists to grazing management plans. By the end of the projects, few of the grazing management objectives had been achieved. It is argued here that the contextual nature of Western range management contributed to these results.

Examples of Context-Dependence

'Greater Control is Better' Paradigm

In the design of each project, a dominant paradigm was that a high level of definition and control over the grazing resource was necessary for improvement of livestock production systems. In all cases, high levels of definition and control over grazing areas were initially proposed, exemplified by strongly defined boundaries and group membership, enforced seasonal movements, and in two of the three projects, intraseasonal rotational grazing schemes.

For all grazing resources, control over the use of the grazing resource involves costs. For a rational producer to accept these costs, the benefits from control of a grazing resource must be greater than the costs. As the level of control increases, the marginal benefits from control decline and the marginal costs of control increase (law of diminishing returns). For example, at low levels of control households using a communal grazing resource might simply define boundaries, determine membership, and exclude non-members, a situation that generally provides significant benefits at relatively low cost. At high levels of control, the grazing area might be internally divided and member use of this area regulated, a situation that generally provides marginally lower benefits and higher cost. The optimal level of control is where marginal benefits equal marginal costs (Anderson and Hill 1977).

For private land the highest return normally occurs at high levels of control, and there is little conflict between economic theory and the range management paradigm. On communal grazing lands the costs of control are generally higher and the benefits from control are generally lower, so that the highest return to the household occurs at a level of control lower than for private land. In communal use situations, economic theory contradicts the popular range management paradigm that the highest returns to the household occur at high levels of control. For this reason, in communal systems efforts to establish and sustain high levels of control external to the household have generally met with producer opposition. Somewhat degraded ranges, sustainable at lower levels of control, can be rational for communal grazing lands.

The 'Centralised Management' Model

In the normative context livestock production takes place in operations with centralised decision making. An individual manager makes the critical management decisions. In such a system there is a unique set of management objectives and decision making is potentially quick, integrated, coordinated, and consistent with obtaining these objectives. Many range management innovations, such as rotational grazing systems or stocking rate adjustments, call for high levels of control and timely decisions, and thus are dependent on a centralised model of decision making.

Traditional pastoralists' models of grazing resource management, involving numerous independent households using a common resource, incorporate multiple strategies and objectives and have diffuse decision making taking place at several levels (Hoben 1976, Sandford 1983). In such systems, most management decisions are made at the household level, where decision making is quick, while decision making by groups, involving numerous households, is usually by way of consensus and is, thus, slow. In all three projects there was a poor fit between the range management innovations proposed and the existing, indigenous model of decision making.

The projects responded to this dilemma similarly. Range specialists had identified and demarcated areas on which pastoralists were to control access and stocking rates, as well as implement grazing schemes, all innovations requiring centralised control. The project then created an organisation of producers with an executive committee and a chairman in an attempt to create the centralised management model required by the innovations. Thus, the range areas were seen by project staff as analogous to a ranch and the executive committees were expected to function in the role of an individual manager.

The imposed centralised decision making structure did not function as hoped. The executive committees were new and artificial and lacked legitimate authority over the relatively independent households. Producer households utilising the range areas had different resources available to them and thus had slightly different production strategies and objectives. Many households, therefore, found it difficult to conform to a standardised range management plan (Lawry 1986). The executive committees continued to operate on consensus, frustrating project staff, who therefore tended to make decisions in the committee's name (Warren *et al.* 1985, Dobb 1988).

These two examples illustrate the contextual nature of Western range management, the paradigms and models of which give one result when applied in one context and a very different result when applied in another context. High levels of control over range resources seem appropriate in the Western normative context, but are often economically irrational in communal land use systems. Range management practices requiring centralised decision making are appropriate in the normative context, but can not be sustained in pastoral systems with highly decentralised decision making.

The standard response of the range profession has been to propose modifications of the local context to make it more appropriate for the proposed innovations. There were attempts to create bounded, controlled areas to which households were to restrict grazing and attempts to create centralised decision making bodies. However, these changes were opposed by pastoralists because the

flexibility provided by informal communal land use systems and highly decentralised decision making reduced risk and increased survival in harsh environments. In general, the local contexts proved to be too complex and resilient for a context modification strategy to work.

New Approach

An alternate approach would be to modify range management proposals to fit the local context. However, this requires a sound understanding of the local context, something few project designs have, and a theoretical understanding of the management of range resources in non-normative contexts, something the range profession now lacks.

Developing an understanding of the local production systems has been a major problem in pastoral development. Donor project cycles encourage quick ‘off-the-shelf’ designs based on a very limited understanding of local context (Hoben 1979). Because pastoral development projects require but lack information on the local production systems, they become learning experiences. All three projects modified their basic grazing management approach as they gained more information. The MLRM switched to intensive work with small groups, the CRDP stopped trying to control stocking rate and adopted repeat-seasonal rather than rotational grazing systems, and the LCRD modified its regulations on seasonal grazing. However, this increased understanding is only beneficial if the development effort is extended beyond the life of the initial project, which occurred in only one of the three cases, or if the information is made easily accessible and is made use of by planners of future development efforts, a rare occurrence for development projects.

A further impediment to understanding local production systems has been the reluctance of range professionals to develop the social science skills required to work with pastoralists, and to observe and accurately describe existing range and livestock management strategies. While researchers can not be expected to be specialists in several disciplines, a systems approach requires range scientists to at least be aware of the major issues and methods of other disciplines and be willing to work with pastoralists, the actual managers of the range resource.

Attempts to acquire an understanding of local systems prior to initiating a development effort, such as the Niger Range and Livestock Project (NRL), have generally been unsuccessful. The NRL, lacking strong central leadership, broke down into disciplinary camps to the detriment of interdisciplinary communication; furthermore, research issues were pursued that reflected the bias of individual investigators, frequently failing to obtain data required for

development planning. This experience pointed out the difficulties in sustaining a systems approach and in accurately identifying and acquiring information required for further development.

African governments and donors must learn from the NRL's shortcomings and develop appropriate two to three year pre-project studies in which researchers interact with pastoral households to identify felt needs, describe the local context and production systems, and determine existing livestock and range resource management strategies. The information collected would also provide baseline data by which to measure project performance. To maintain a systems approach, structures must be developed that create groupings that cut across disciplines and establish formal means for interdisciplinary discussion and interaction. To make such studies feasible and useful, information required for further planning must be identified and efforts limited to collecting this data by efficient methods. One result of such a study should be a statement providing a development goal, objectives to achieve that goal, and the general framework of a strategy to achieve those objectives.

Range science currently lacks a theoretical understanding of resource management in a non-normative context. For example, we know that when livestock are herded rather than fenced, important grazing factors (such as intensity, frequency, and distribution) can be controlled much more intensely. However, we poorly understand how this enhanced opportunity affects a household's production strategy. The range development strategy proposed by the three projects reduced this flexibility rather than enhanced it. We know that in communal use systems each household has more land available to it than it could possibly use, whereas land is frequently the major constraint on production in the normative context. Furthermore, we know that in many pastoral systems livestock is the best form of economic investment, causing capital to flow into livestock, whereas in the normative context livestock are used to create capital from marginal lands, but capital flows out of livestock into other investments offering greater returns. Communal land tenure and the investment role of livestock in pastoral systems have profound effects on range-production economics, but we do not yet know how they affect a household's production strategy. Again, the projects' grazing plans ignored these factors entirely, in part because the discipline of range science offers few answers to such questions.

The range profession will be able to play a more positive role in the development of pastoral production systems once it conceptually moves beyond the constraints of the Western normative context. Range *management*, like any management, must operate in a specific environment, and therefore is context dependent. Range *science* must develop principles of range resource

management that, like any science, have universal applicability. Range science needs to look seriously at non-normative contexts and develop a theoretical understanding of range ecosystem manipulation, allowing range specialists to make realistic recommendations that assist pastoralists in the management of their resources. It is a challenge that the profession can ill afford to ignore.

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