

**COOPERATIVE AGREEMENT ON HUMAN SETTLEMENTS
AND NATURAL RESOURCE SYSTEMS ANALYSIS**

REPORT

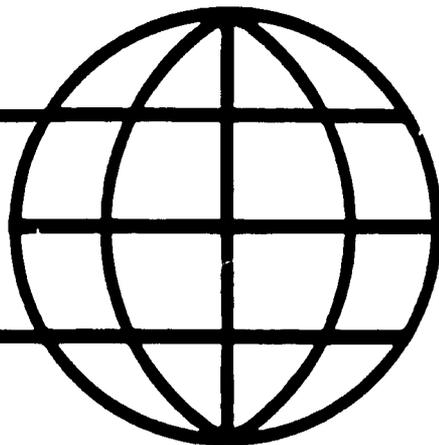
EVALUATION PROJECT,

Southern Perimeter Road, Lesotho:

Social Analysis and Environmental Assessment

by

Gene C. Wilken



Clark University
International Development Program
950 Main Street
Worcester, MA 01610

Institute for Development Anthropology
Suite 302, P.O. Box 818
99 Collier Street
Binghamton, NY 13902

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Department of Economics
Colorado State University

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PREFACE

In accordance with the provisions of the contract with the Settlement and Resource Systems Analysis Cooperation Agreement, the Social Scientist traveled to Maseru, Lesotho, to join three other members of the Southern Perimeter Road (SPR) Evaluation Team. The complete Team consisted of:

Aldemo Ruiz	Consultant (Team Leader)
Philip Moeler	Consultant (Transport Economics)
Jack Smith	USAID/REDSO-Nairobi (Engineer)
Gene Wilken	Consultant (Social Scientist)

The Engineer (Smith) had only two weeks allocated for his part of the Project, which in his opinion was insufficient time to perform an evaluation. Therefore, the Team recommended, and the USAID/Lesotho Mission agreed, that the evaluation be conducted in two phases. Initially, it was intended that Phases I and II be of approximately equal extent. However, by the end of the first phase the Transport Economist and the Social Scientist had concluded that their work was essentially as complete as existing data permitted. Therefore, any Phase II evaluation will likely concentrate on the unfinished engineering portion.

Based upon a preliminary outline, it was decided that the Team Leader and the Engineer would concentrate on engineering aspects of the evaluation, the Transport Economist would deal with economic and training elements, and the Social Scientist would conduct the social and environmental analyses. With the exception of the Engineer who left early, all Team members also worked on the general sections of the outline.

After preliminary interviews with Government of Lesotho (GOL), USAID/Lesotho, and contractor personnel in Maseru, the Evaluation Team traveled to

the SPR construction camp at Mount Moorosi to inspect construction operations. On returning to Maseru, the process of comparing project document requirements with performance continued and ultimately resulted in a 100+ page Evaluation Report with 20+ appendices (one of which is the Preliminary Engineering Assessment). The complete report was submitted to USAID/Lesotho with copies to USAID/Washington. At such time as the Report is officially released, copies may be requested from the appropriate USAID/Washington office. In the interim, copies of the Social and Environmental Analyses are attached. Please note that these have not been released by GOL or USAID and therefore are not yet part of the public record.

The Social Analysis consisted of five (5) parts: (1) socioeconomic goals of the SPR as revealed by project documents, (2) procedures for achieving project goals, (3) provisions for measuring socioeconomic impacts of the SPR, (4) identification of existing data that could be used for subsequent socioeconomic analyses, and (5) related projects that should or could be coordinated with the SPR.

Although social and economic goals were awarded pride-of-place in almost all project documents, thereafter they received little attention. Project goals were never clearly identified, nor were the conditions and procedures for realizing them. One of the greatest deficiencies was failure to establish baseline data against which to measure future positive and negative changes.¹ Finally, the SPR is being treated as an isolated construction project, rather than as one component in what is actually the regional development of south-

¹ The Analysis stresses that these data in part may be recovered from existing baseline studies, such as the BASP study, and from other sources such as the annual Agricultural Production Survey conducted by the Ministry of Agriculture and Bureau of Statistics.

eastern Lesotho. Existing or potential related projects have not been identified.

The Environmental Analysis followed a similar format. Provisions for environmental defense in project documents were compared with actual measures taken. It appears that under the press of circumstances and budgetary constraints, environmental protection measures have been reduced until at the present time only a few specific provisions are in force.

The Social and Environmental Analyses of the Evaluation Report were aimed specifically at provisions and performance of the SPR project. From a broader perspective, the SPR is not merely a road construction project but a major component of a regional development effort. The GOL earlier indicated that "special efforts will be made to accelerate development activities in southeastern and southern Lesotho." But in the atmosphere of urgency that accompanied the border situation between Lesotho and Transkei, this regional perspective was largely lost and the focus shifted almost entirely to construction. The SPR has been troubled by poor contractor performance, and additional construction problems may lie in the future. But equally unfortunate are the lack of provisions for realizing the benefits such an improved road could bring to this isolated region of Lesotho.

The recommendations in the Social Analysis essentially call for a refocusing on regional development which along with political considerations was the original purpose of an improved SPR. Specifically, the Analysis stresses acquisition of data for measuring and monitoring changes that may result from the construction, and of integrating other projects and programs in order to secure the benefits that should result from an improved road. The organizations that might initiate and coordinate these activities are not identified.

Ordinarily such recommendations easily could be ignored. Engineering aspects usually dominate road projects and management problems on this particular project have made USAID and GOL even more anxious to complete construction with minimum additional delays and difficulties. But sooner or later southeastern Lesotho will have an improved road, and even now construction funds pouring into a few millages and small towns are impacting on the region. It is felt that the recommendations in the Social Analysis are not only relevant, but also timely.

The recommendations in the Social and Environmental Analysis were discussed with various officers of GOL, USAID/Lesotho, and USAID/Washington. Reactions ranged from guarded to enthusiastic. The combined U.S. and Lesotho investment in the SPR now is more than US \$40 million, and there seemed general agreement that to spend a little more to ensure results from this substantial investment made sense. Thus, a final recommendation by the Social Scientist on the SPR Evaluation Project is that these possibilities be vigorously pursued.

11

CHAPTER XIII
SOCIAL ANALYSIS

A. Introduction

Unlike actual construction, expected social and economic benefits from roads are not subject to contractual arrangements. That is, the ultimate justification of roads, in the form of social and economic development and integration, cannot be assured by contract but instead depend upon responses of the general society and economy. Thus, social benefits, which are the primary raison d'etre of road construction, cannot be subjected to rigorous examination of performance in relation to contract. Instead, evaluations must focus upon original assumptions, provisions for goal realization, and procedures for measuring changes that occur in response to new or improved roads.

Although the SPRP was conceived and implemented in the atmosphere of urgency that surrounded Lesotho's refusal to recognize the newly created "independent" nation of Transkei, the desirability of an improved national road system, including the southern section, had long been recognized. The advantages of improved roads are largely social and economic and include:¹

- enhanced movement of citizens within their country;
- reduced dependence upon foreign transportation and market facilities;
- lowered transportation costs for people and goods both into and out of the affected region;
- improved delivery of administrative and social services;
- increased attractiveness for, and responsiveness to, investment in the region;
- stimulus to further infrastructural growth and general improvement of the development environment.

¹ The Berger Feasibility Study discusses possible social benefits in terms of education, health, and change in standards of living (pp. III-98-106).

Road projects benefit the region in which they are implemented in two distinct phases:

During the construction when the road itself represents a substantial direct source of new income in the form of wages paid to workers, and purchase of goods and services from the region. Under the most desirable of circumstances these responses continue after the construction phase in the form of permanent market-oriented farming, retail establishments, and so on (Appendix XXI).

After construction, when the long-range benefits of improved and less expensive transportation accrue to the region.

Finally, it is not only inadvisable but also impossible to consider the social benefits of the SPRP in isolation. Implicit in the goals is the concept of extensive and intensive interaction with other program and projects that would benefit from an improved road, and that in turn will enhance its value. Other activities in the region will be briefly reviewed to ascertain how and under what circumstances they might relate to the SPRP, and whether modifications should be considered to obtain maximum benefits from the improved road.

B. Objectives of Social Analysis

The Project Agreement (pp. 4-5) notes that evaluation of socioeconomic impacts may not take place until well into the life of the Project, and beyond the PACD. But Amendment No. 1 (pp. 6-7) calls for a final evaluation that will focus upon attainment of Project goals and purposes and specifically upon the contributions of the SPR to the economic and social integration of the northeastern region of Lesotho that traditionally has had its primary linkages outside the national boundaries. Evaluating progress toward such a broad and

multi-faceted goal requires careful, early preparation, including establishing a base against which immediate and long-term changes can be measured.

Unfortunately, the SPR was proposed and implemented in an atmosphere of extreme urgency. Thus, while construction goals were supported by procedures for their realization, social goals, which constitute the justification for the project, were less precisely defined and the means for their achievement were not specified. Therefore, it will be the objective of this evaluation, to:

- Identify and clarify the social goals of the SPRP as expressed in the Project documents;
- Examine procedures and mechanisms for achieving Project goals;
- Evaluate provisions for measuring and monitoring economic and social impacts of the Project;
- Identify existing data that might contribute to analyses of the social effects of the Project;
- Identify other past, and ongoing projects and programs that should be related to, coordinate with the SPRP.

C. Procedures

The social analysis will employ the following procedures for achieving its objectives:

- Review of Project Documents:
 - Berger Feasibility Study
 - P.I.D.
 - PP plus amendments
 - Project Agreement
 - Other Documents
- Identification of Project goals and expected effects as presented in various project documents (social and economic goals and effects will be considered for the Project as a whole, and for the separate design and construction phases (Titles I, II, and III) only when appropriate).
- Evaluation of mechanisms and procedures for achieving Project goals.
- Identification of procedures for monitoring progress toward achievement of Project goals.

Data for the social evaluation were obtained primarily from the various Project documents and were augmented by interviews with Project participants. Documentary data from other sources and interviews with other individuals supplemented those directly related to the SPRP and will be included when appropriate.

D. Analysis

1. Social Goals and Objectives for the Project

a. Berger Feasibility Study

Specific social goals of the SPRP initially were reviewed in the Techno-Economic Feasibility Study conducted by Louis Berger International Inc. (1978).² These consisted of:

- Inclusion of the southeast region (districts of Mophale's Hoek, Quthing and Qacha's Nek) as an internal part of the national economy.
- Reduction of dependence upon roads and markets in the Transkei region of the Republic of South Africa.
- Unhindered movement of people within the country.
- Facilitated movement of goods and delivery of administrative and social services in and out of the region.
- Lowered costs of transportation.
- Accelerated development.
- Increased tourism because of easier accessibility to the region.

² A more extensive review of general socioeconomic benefits (and costs) of roads is contained in Poughton & Partners, Lesotho Transportation Study, Final Report, March 1974, and to a lesser extent in Dorsch Consult GmbH, Lesotho Transportation Study, Final Report (3 vols.), 1980. See also Devtas Inc., Socioeconomic and Environmental Impacts of Low-Value Rural Roads (USAID, February 1980); and G. William Anderson, Rural Roads Evaluation Summary Report (USAID, March 1982).

Although the Berger Feasibility Study discusses the possibility for labor-intensive construction, it discards it as an option because schedule requirements, lack of skilled manpower, and sophistication of proposed road design. It does recommend maximum local participation in general project work, and specifically that masonry work associated with drainage structures be done on a labor-intensive basis. Inherent in the concept of labor-intensive construction are the benefits of direct, broadly distributed wage payments, and experience in modern construction methods.

b. Project Identification Document

The Project Identification Document (PID) repeats most of the socioeconomic objectives of Berger Feasibility Study but in addition, identifies as a primary goal the development of institutional capacity for road construction and maintenance within the Ministry of Works (MOW). The PID also reiterates the decision to use equipment-intensive rather than labor-intensive construction methods because of technical requirements, schedules, and labor shortages. The PID does, however, allow for maximum use of labor wherever feasible, specifically in culvert fabrication and bridge construction.

c. Project Paper

Social goals previously identified in the Berger Feasibility Study and the PID are reviewed in the Project Paper (PP). They are then reduced in the Logical Framework to (a) facilitation of economic development, and (b) national economic integration. The Project Authorization Amendment (PAA) specifically states (pp. 4, 80) that Project goals remain as defined in the PP.

d. Project Agreement

The Project Agreement (PROAG) does not discuss overall social goals. However, these are implied by provisions in the PROAG and Amendment No. 1 for evaluations that focus upon achievement of social goals.

2. Mechanisms for Achieving Project Goals

In most cases there is a considerable gap in project documents between statements of goals and methods for achieving them. That is, although the SPR is expected to produce an array of social, political and economic benefits, the means by which these will be achieved are not identified. Of course, a major difficulty is that goal achievement depend largely upon responses on the part of the general population, farmers, merchants, investors, and the government itself, and these are outside the sphere of this project. Still, there are many that could be identified and encouraged, or perhaps even initiated, that would provide a measure of assurance that the road will produce desired results.

a. Berger Feasibility Study

The Berger Feasibility Study does not specifically discuss goal achievement, except to note that an all-weather road will facilitate movement of people within the country (p. V-8) and thus will contribute to national integration. The assumptions (p. V-9) that the road will result in lower transportation costs and will accelerate development are not supported. (Although an improved road should result in lower vehicle operating costs, there are no assurances that these will be reflected in substantially lower costs to purchasers of transportation services.)

b. Project Identification Document

The PID restricts discussion of procedures for realizing Project goals to two areas: reduction of vulnerability, especially with respect to recognition of an "independent" Transkei; and development of construction and maintenance capabilities within the MOW.

There can be little question that a serviceable road between the eastern district headquarters of Qacha's Nek and Quthing, and Maseru will substantially reinforce Lesotho's ability to deny recognition to an "independent" Transkei even in the face of extreme pressure.

Development of a construction and maintenance capability within MOW will depend in large part upon institutional change and a comprehensive training program, which is discussed elsewhere in this report.

c. Project Paper

The PP is equally vague about the processes by which Project goals will be realized. The assumptions, again, seem to be that an improved road will automatically produce desired results. The Logical Framework does not adequately describe solution to the socio-economic problems addressed by the Project, nor does it identify verifiable indicators of progress or beneficiaries.

Yet the PP itself raises certain questions precisely about this assumption. For example, the important point is made (p. 106) that Lesotho's dependence upon the RSA is a basic economic dependence that will not be altered by the SPR. Real dependence can only be reduced by production import substitution.

In addition, the response of population is questioned (pp. 153-154):

Normally an improved road pulls population towards its immediate vicinity. However experience in Lesotho does not suggest this phenomenon will occur [For example] it would not appear that construction of the Mountain Road caused any significant movement of population towards the road itself. The Southern Perimeter Road is located in similar terrain. The major constraint to settlement appears to be the availability of cultivatable land which is not more available near the road than elsewhere.

This passage reveals a foundation upon which several questions can be raised. There seems no doubt that the SPR will result in altered social and economic activities on the part of the local population. But the nature and magnitude of these responses in a society still only partially monetized and in which land is not a market commodity are difficult to predict.

d. Project Agreement

The PROAG does not contribute significantly to an understanding of how an improved SPR will affect the economy of the southeastern region.

3. Monitoring Change

Unless adequate provisions are made for measuring and monitoring change, it will never be possible to accurately assess the impact of the SPR, or to calculate the overall value of this project. Project documents address the problem in several ways.

a. Berger Feasibility Study

In addition to estimating the economic feasibility of the road in terms of construction, maintenance and operating costs, and projected use, the Berger Feasibility Study proposes to analyze the

effect of the road on the economic and social context of the road's course (p. III-107ff).

This involves the assembly of data by which the total effect of the road's presence in the country, over a period of time, can be estimated. Effects may be either beneficial or detrimental - both must be recognized. It is usually difficult to quantify these socio-economic benefits and, because the resources external to road construction costs that must be expended to achieve them may also be difficult to quantify, reduction of these benefit/cost relationships to a simple ratio has not yet become an accepted practice.

Other quantifiable benefits that should be mentioned, although not included in the stream utilized to calculate economic viability, are added employment and expenditures on wage and salaries for Basotho employees hired specifically to work on the road improvement. These will vary, depending upon the approach for construction.

In order to take into account all possible benefits from an improved road, it was tempting to assign a percentage of the benefits anticipated from increases in agricultural production directly to an improved road. It would have been equally useful to assign potential increases in tourism. However, quantification of these benefits would have required a joint investment approach not possible in the absence of discrete agricultural or tourism programs within the zone of influence of the road.

b. Project Identification Document

The PID proposes to use GOL document from Central Planning Office and Ministry of Works to verify progress toward long-run rural development on the affected region, and on development of construction and maintenance capability within MOW. Since the exact nature of these documents is not indicated, it is not possible to comment upon their adequacy for such a task, or even to determine whether suitable documents are being kept.

c. Project Paper

The PP is more specific in its proposal for monitoring Project goal achievement. Specifically, the PP (p. 050) calls upon OSARAC to:

. . . request REDSO/EA or AFR research funding for a detailed baseline socio-economic study of the zone of influence. In 1988, five years after completion of road construction, a follow up study will attempt to measure socio-economic change in the zone and assess to what degree that change (positive or negative) can be attributed to the upgraded Southern Perimeter Road.

d. Project Agreement

The PROAG (pp. 4-5) notes that the evaluation of socio-economic impacts of the project may not take place until well after completion of construction. Nevertheless, Amendment No. 1 stipulates that a final external evaluation in 1985 will focus on an attainment of Project goals and purposes, and assessment of Force Account construction methodology (p. 7). Specifically it will examine:

Whether an all-weather road will make a significant contribution towards the economic and social integration of a region which has traditionally traded in markets outside the national boundaries.

Whether a low-speed, two-lane, gravelled road will serve the communications needs of a rural area, as well as a more expensive, higher speed road would in terms of carrying traffic and minimizing maintenance.

4. Sources of Data

At the time of the evaluation, the baseline study called for in the Project Paper (p. 050) had not been conducted. This is a serious deficiency since without adequate base data it will be difficult if not impossible to accurately determine what short- and long-term effects the road will have on the economy and society of the region. However, there are other sources of data that could be used to partially reconstruct the economic situation prior to the road project, or to supplement a SPR study should one be made.

a. Senqu River Agricultural Extension Project (FAO-UN)

The Senqu River Project produced a substantial number of reports in the late 1970's that contain data on parts of Mohale's Hoek and Quthing Districts. Two general reports would be especially useful for baseline data:

Tesfa Guma and William Mafoso, Farm Management Economics Terminal Report on Socio-Economic Survey, June 1976.

John Gay, Rural Sociology Technical Report (Part 1, Text; Part 2, Appendice and Tables), April 1977.

In addition, a number of special reports (e.g., Some Production Costs and Returns from Dryland Cropping in the Senqu Project Area, 1975) would contribute to a data base upon which to measure short- and long-term effects of the SPR Project.

b. Basic Agricultural Services Project (BASP)

BASP data are somewhat more recent than Senqu figures and would provide a valuable addition to a data foundation for the region. But like the Senqu Project, the southernmost BASP "block" (VI) covers only part of the SPR project area in the Mohale's Hoek and Quthing

Districts. Thus there remains a serious lack of data for Qacha's Nek District. Two BASP reports would be especially useful:

W. Reichart and F.E. Winch, Phase I, Basic Agricultural Data for Blocks V/VI, Baseline Survey Research Report No. 3, April 1981.

Fred E. Winch, The Agro-Economic Farm Situation in the Lowlands and Foothills of Lesotho, MOA, October, 1981.

As with the Senqu Project, a considerable number of special reports also should be examined for data appropriate to a baseline assessment of the SPR region.

c. Other Sources

A thorough search for possible baseline data sources was outside the scope of this evaluation. However, it is likely that considerable basic information could be retrieved from such sources as the Ministry of Agriculture and the Ministry of Cooperatives and Rural Development. For example, the latter ministry currently is compiling and mapping a wide range of data on a district basis.

5. Related Projects

The SPR should not be regarded as an isolated project but instead, as one component of an infrastructure that hopefully will integrate a remote region and link it more effectively to the national society and economy. Thus, the road should be considered not only in relation to existing social and economic institutions and activities, but also to other projects and programs that address the same issues. Almost any development program would qualify under this definition and should be considered in relation to the SPR project. More specifically, secondary and tertiary road programs should be carefully examined:

The road will benefit all social and public services but the maximum impact will not be felt until a network of feeder roads has been built to connect the scattered population to the new arterial. It will serve the feeder roads which will

allow the bulk of the population to become integrated into the modern society of which social and public services form a part. The road will improve existing social and public services by increasing their efficiency without additional expenditure, [and] by decreasing travel times and costs. However, the road will generate demands for additional services and it is not at all clear whether the road will induce increased economic activity to raise sufficient revenue to sustain these services. (Berger Feasibility Study V-81)

An analysis of other programs and projects does not constitute a part of this evaluation. Nevertheless, it is apparent that close coordination with other projects (e.g., the Food Management Unit - Ministry of Cooperatives and Rural Development "Food for Work" program, and the Labor Management Unit (labor-intensive construction) is essential. As with other projects, there are considerable quantities of data available on these activities, e.g.:

Food Management Unit Circular No. 1 of 1983 (see especially sections on roads and soil conservation).

Socioeconomic Indicators of Progress on Programs and Projects - 1982, Planning and Monitoring Section, Ministry of Cooperatives and Rural Development, March 1983. (See especially sections on Rural Road Construction Program.)

In addition to existing projects and programs, an improved Southern Perimeter Road will create a favorable environment for additional efforts aimed at capitalizing on this major infrastructural investment. The GOL has indicated an appreciation of this opportunity and announced that special efforts will be made to accelerate development in the region:

The construction of an all-weather road in this area will not only enhance the unhindered movement of people within the country but also facilitate the movement of goods and delivery of social services. The Government of Lesotho has announced that special efforts will be made to accelerate development activities in southeastern and southern Lesotho. The transport of materials for development projects will be made easier and cheaper by an improved, all weather road, and the farmers will be able to transport their produce more easily to Maseru and other centers for marketing. An up-graded Southern Perimeter Road is a prime qua non for efforts

to protect residents from the economic repercussions of Transkei "independence" and to accelerate development activities in the region. (PP, p. 010)

At the time of this evaluation, it was not clear just what form or direction such special efforts would take. It would seem that the time is ripe for careful planning of a coordinated development effort in the region, using the improved SPR as a focus.

E. Summary

From the preceding review and analysis the following points have emerged:

1. Except for the construction itself, Project goals are vaguely phrased.
2. Little or no attention was directed toward mechanisms for achieving the social and economic goals of the Project.
3. The specific provision for a baseline study has not been carried out.
4. There are no specific provisions for measuring or monitoring short- or long-term social and economic impacts of the Project.
5. Although future evaluations of Program achievements are scheduled, procedures for generating data to support such evaluations are not in place.
6. A coordinated development program for the southeastern region is suggested in Project documents. However, procedures for coordinating existing projects and programs and for developing new activities have not been specified.

F. Recommendations

The time for evaluating original project design and objectives is past: construction is well underway and at some point in the near future an improved road from Quthing to Mphaki and beyond to Qacha's Nek will be a reality. But roads are not ends in themselves, they are means to ends, and ultimately, the

SPR Project will be judged on whether it brings about desirable social and economic changes in southeastern Lesotho. In this regard, it is still timely to clarify just what is expected from this considerable investment, and how these result will be achieved and measured. It is from this positive perspective that the following recommendations are made.

1 Restatement of Project Goals and Objectives

Without a set of realistic, achievable goals, it is impossible to measure project success or failure or to evaluate its role in the development of the region and nation. Therefore, although perhaps seemingly a questionable ex post facto procedure, it is recommended that a clear, detailed statement of specific social and economic goals and objectives be made. These should not exceed those contained in original project documents, but should clarify and specify just what is expected so that corresponding monitoring systems, and verifiable indicators can be developed.

2. Identify Conditions and Mechanisms for Achieving Project Goals

By itself, the improved SPR may or may not produce the types of activity that will result in goal achievement. The particular nature of the Lesotho society and economy does not assure that conventional market and societal responses will occur. Therefore, in conjunction with re-statement of social and economic goals, it is recommended that the conditions and mechanisms needed to link an improved road with specific aspects of social and economic development be identified. This will also serve as a guide for evaluating existing and future projects and programs with respect to their potential for furthering Project goal achievement.

3. Conduct a Socio-Economic Baseline Study

The basic purposes of an improved SPR is to integrate and develop southeastern Lesotho. Unless pre-existing conditions are identified in some detail, there will be no way of measuring progress toward these general goals, nor of assessing the utility of the road. Lack of such a baseline study constitutes a serious deficiency that must be corrected as soon as possible, using all available means including data from other projects and programs, and field surveys to fill in essential missing data.

By their nature, roads trigger responses that differ from other types of development projects, if for no other reason than many responses are spontaneous and not subject to control or planning. Therefore, the baseline study must be constructed with considerable care if it is to include those factors that can be used to measure the distinct effects of improved access. In addition, changed spatial relationships, both as interregional integration and linkages with the national economy and with the RSA, can affect almost every facet of the local and national economy. Thus, in addition to covering distinct elements that directly flow from improved road access, the baseline study must be complete enough so that secondary, tertiary, and parallel effects are not overlooked. A suggested baseline outline is attached as Appendix XX.

4. Establish a System for Monitoring Short- and Long-Term Effects of the Project.

Once clear and specific goals have been established and proper indicators identified, it is possible to set up a monitoring system that will provide data for periodic evaluation of progress. It is necessary here

only to caution against indicators that are difficult to obtain, and to suggest use of data already being generated by GOL or by other projects.

5. Prepare for Future Evaluations

Achievement of social and economic goals are not as easily documented as physical construction goals. It is recommended that periodic evaluations be conducted, at least to 1988, as stipulated by project documents (e.g., PP, p. 050) and perhaps beyond. The impacts of a project of this magnitude are likely to continue for many years. It would be worthwhile to document these benefits (negative as well as positive) over a considerable length of time.

6. Develop Procedures for Coordinating Other Projects and Programs, and Development Activities.

By improving access between major population centers within the region, and linking the region with the western lowlands and the capital, the SPR will have a powerful impact upon southeastern Lesotho. The effect will be reinforced by considering the SPR as a development project and coordinating it with other projects and activities. Most obvious are the programs for building secondary and tertiary roads that will link outlying villages with the SPR. But in addition, all other economic and social activities will be affected. Coordination with other programs and projects will assure realization of maximum benefits from the road investment.

Two final recommendations stem less from a strict evaluation of project documents and activities and more from a general assessment of the SPR in relation to overall development efforts in Lesotho.

7. Make Maximum Use of Labor-Intensive Methods

Although labor-intensive methods are briefly considered in the Project documents, they are discarded because of construction schedules, available labor, and sophistication of design. However, it appears that there may be fresh opportunities for incorporating systematic, extensive use of labor-intensive methods in some of the Title III (Force account) portions of the road and certainly in the post-construction phase of SPR maintenance and feeder road construction. It is recommended that labor-intensive methods, utilizing the now-substantial expertise and experience of the Labor Management Unit, Ministry of Cooperative and Rural Development, Food-for-Work Programs, and MOW, be utilized as much as possible.

8. Use District-Level Planning for Development

The primary purpose of an improved SPR is to integrate and develop southeastern Lesotho, especially the districts of Qacha's Nek, Quthing and Mphahle's Hoek. The improved road, offering year-round, all-weather access for the first time, can act as a powerful force for change. It also offers an unusual opportunity to simultaneously develop the capacity of the three districts to engage in the sorts of district planning and implementation of development activities inherent in the concept of decentralization (Wilken, 1981). Therefore, it is strongly recommended that the coordination of programs, projects and activities noted in recommendation No. 6 be delegated in large part to the districts.

CHAPTER XIV
ENVIRONMENTAL ASSESSMENT

A. Introduction and Present Status

Cost considerations have forced reduction or elimination of many aspects of the SPR Project. Not surprisingly, environmental considerations were one of the early casualties. From an original, extensive review and analysis in the Berger Feasibility Study, environmental responsibilities have eroded to a few specific area and even these are imprecisely specified.

Contractual agreements with respect to environmental protection cannot be changed by this evaluation. Nevertheless, in addition to reviewing specific environmental defense measures, a few environmental concerns will be expressed, and a few suggestions will be made for measure that still could be implemented.

B. Review of Documents and Concepts

The Berger Feasibility Study (see especially Volume II, Environmental Assessment) reviews the general geography and ecology of the Project area and identifies both avoidable and unavoidable effects. The Project Identification Document similarly devotes an entire section (Annex E) to a review of potential environmental impacts. But by the time the Project Paper (PP) was drafted, environmental measures had been reduced to a narrower focus upon construction standards (PP, p. 029):

The Environmental Assessment (EA) addresses in detail the environmental effects of the proposed road construction. The study recommends measures to insure that the environmental factors and values are safe-guarded. The study states that the proposed measures will not only reduce negative environmental impact but will provide a net positive benefit. The recommended construction standards to mitigate negative environmental impact which are integrated in the design are:

- aprons of concrete or rock to be placed on the downstream of culverts;
- the ditches with steep slopes will be lined with rubble masonry or concrete;
- where soil is exposed along cuts, hydro-seeding will be used after adding top soil as necessary;
- borrow areas will be selected carefully to minimize erosion;
- existing erosion gullies along the road will be treated to protect the ecology and the roads;
- various forms of stabilizing structures such as slope walls retaining walls will be constructed predominately from locally available rubble stones; and
- paving of the road in urban areas.

The Project Authorization Amendment (PAA) denies that reduced engineering design standards will adversely effect environmental impact mitigation, and even suggests that the lower cost alternatives would further reduce negative impacts (PAA, p. 22):

The proposed revisions to the project do not alter or materially affect the benefits of the environmental protection measures described in the Project Paper. The substantial reduction in engineering design specifications described in this amendment in no way reduced the environmental impact mitigation measures called for in the original PP. In fact, this new, lower cost alternative will further reduce negative impacts by following the existing road alignment more closely and avoiding disturbance of the ground.

But environmental considerations continued to evolve from suggestions to omissions. For example, by the time the Project Agreement was written, the overall environmental provisions had essentially been reduced to a statement of GOL responsibilities for protecting archaeological and paleontological sites:

Section 5.3. Environmental Responsibilities. The Grantee covenants to provide the services of an archeologist and/or other appropriate personnel, to work with the design contractor to identify and preserve, to the maximum extent possible, paleontological and archeological sites along the route of the project road. The Grantee also covenants that to protect approximately nine noteworthy sites it will provide guardians and maintenance of fencing, and assume all other responsibilities for preservation of these and other sites not borne by AID.

Identification of archaeological and paleontological sites has proceeded in a thorough manner. Contractors from Roma (Lesotho) and Paris (France) have conducted surveys within a 100 meter strip of the SPR alignment and examined special sites at even greater distance. Several reports provide detailed reviews of these reconnaissances and also contain recommendations for their protection and preservation:

L.G.A. Smits, Rock Art Survey Along the Southern Perimeter Road, Preliminary Report. NUL, Roma: ARAL Project, March 1983.

B. Battail, Report on Palaeontological Reconnaissance Along the Southern Perimeter Road, Mount Moorosi to Qacha's Nek. Institute de Paleontologie, Museum National d'Histoire Naturelle, Paris, December 1982.

Lesotho: Rescue Archaeology 1982/83, Preliminary Report. UCT-SPR (n.d.).

C. Current Status of Environmental Protection

General provisions for defense of the physical environment have been less than rigorous. The status of the specific construction standards proposed in the Project Paper (p. 029) is as follows:

<u>Proposed Measures</u>	<u>Current Actions</u>
aprons of concrete or rock to be placed downstream of culverts	placement of gablons where needed
ditches with steep slopes to be lined with rubble, masonry or concrete	lined with loose rock
replacement of topsoil and hydro-seeding where soil is exposed along cuts	no soil replacement or hydro-seeding

borrow areas carefully selected to minimize erosion	not verified ³
treatment of existing gullies (dongas) along road to control erosion	no treatment
paving road in urban areas	uncertain ⁴

D. Summary

It was not possible to investigate all of the sensitive environmental areas during this evaluation. From the documents and brief field inspection only a few specific problem areas were identified:

1. The original Project documents contain general and special provisions for investigating and protecting the physical environment. However, no systematic survey of environmental conditions along the SPR alignment has been conducted during the actual construction phases.

2. Since cuts and embankments usually are steep and devoid of vegetation, they are especially susceptible to erosion. In addition, exposed subsoil lacks organic matter and is slow to revegetate by natural processes.

3. The engineering report attached to this evaluation (Appendix I, p. 13) reports embankments constructed with inadequate compaction. This represents an extreme hazard in the form of slope failure and erosion.

4. Borrow pits are highly visible, susceptible to erosion, and difficult to revegetate. They require careful treatment if long-lasting, unsightly scars on the landscape are to be avoided. A systematic examination of borrow pits

³ A borrow pit has been opened on the slopes of Thaba Moorosi, one of the more important historical sites in Lesotho. Although it is possible that a carefully managed and treated borrow pit will not adversely affect the site, it is a decision that should have received careful review before the action was taken.

⁴ Since none of the Project documents define "urban areas" it is not clear just how this provision will be enforced.

along the SPR alignment was not conducted during this evaluation. Nevertheless, it appears that sites for borrow pits could be more carefully selected, with due attention to their general visibility and proximity to historical and scenic areas. After excavation, they must be treated to avoid ponding and continued erosion that would prevent recovery.

5. Archaeological surveys have identified a number of areas and specific sites, mostly of rock art, that will be endangered by road construction or subsequent increase in traffic through this area. The Bolahla Site is particularly important and has been singled out as the most endangered locality on the SPR (Rescue Archaeology 1982/1983, pp. 1-3).

6. The internationally famous reptilian imprints at Moyeni (Quthing) are in grave danger from road activities. In addition, the site is completely unprotected from unsupervised visitors and is vulnerable to vandalism.

7. Paleontological deposits are found all along the SPR alignment, mostly in the mudstones and sandstones of the Elliot Formation.

E. Recommendations

Cost considerations have resulted in general abandonment of environmental defense as a major component of the SPR (except in the form of acceptable engineering practices during construction). Thus, there now exist possibilities for major landscape degradation, either as a result of construction operations or subsequently, from erosion of disturbed slopes and unprotected surfaces. In addition, expected increased traffic along the road will create additional opportunities for despoilation of archaeological, historical, and paleontological sites. Although costs constitute a severe constraint, some protective measures still are possible:

1. Conduct a survey (much was done for archaeological and paleontological sites) of actual road alignment and construction activities to determine those areas that are especially vulnerable to erosion and degradation.
2. Stabilize exposed cuts and embankments with vegetation. Although no provision for such work presently exist in the construction contracts, there are opportunities for accomplishing this with "Food-for-Work" programs using Ministry of Works supervision under Title III.⁵
3. Test and reconstruct if necessary the inadequately compacted embankments identified in the engineering report (Appendix I, p. 16).
4. Select borrow pits carefully with due attention to general visibility and proximity to historical and scenic areas, and follow excavation with appropriate treatment to ensure recovery and revegetation.
5. Protect the archaeological site at Bolahla during construction operations. Subsequently it should be fenced and guarded for protection against vandalism.
6. Protect and preserve the internationally famous reptile print site at Moyeni (Quthing). Extreme care during construction is essential to protect the exposed site from heavy equipment, blasting, and other such hazards of heavy road work. It has been recommended that the site be covered with a protective layer of soil during construction. Subsequently, the site should be protected against vandalism by adequate fencing, guards, and possibly shielding structure to ensure that this paleontologically and touristically valuable site is not degraded.

⁵ Since the SPR passes through areas where animals are uncontrolled, it would be a mistake to construct fragile terraces, or seed exposed cuts or slopes with edible grasses which would only attract grazing animals. Instead, hardy, inedible (but not deleterious) plants are recommended for slope stabilization.

7. Protect other paleontological finds along the construction route as outlined in Battail, Palaeontological Reconnaissance.

Roads are showcases: the road itself and its immediate environs are under close scrutiny by all who pass by. In a country where erosion has often been declared the number one problem it seems questionable policy to neglect the many hazards of environmental degradation inherent in road construction and subsequent increase in traffic. The measures proposed here fall short of a comprehensive protection program. But they would help avoid some of the more common, and more obvious problems that could occur along the SPR.

APPENDIX XXI

INITIAL SOCIAL/ECONOMIC IMPACT, SPRP

The primary social impact of the SPR to date has been in the immediate areas of construction activities. More than 500 workers are currently employed on the project (both Titles II and III). Although most are Basotho, perhaps 100 are non-nationals, primarily from Malawi and the Philippines, with experience in equipment operation and maintenance. At the time of this evaluation the combined salaries ranging from Lesente 25/hour for guards to more than Maloti 1.00/hour for equipment operators (M1.00 equals ca US \$1.00) were on the order of M100,000 per month.

A large part of the wages of non-nationals is remitted to families in Malawi and the Philippines. But the balance, and most of the wages paid Basotho laborers remains in country and much of this is spent in the towns and villages near the construction operation.

The main construction camps for both Title II (Mount Moorosi-Mphaki cut-off) and Title III (Force Account upgrading, Quthing-Mount Moorosi) are located near the town of Mount Moorosi. The two general stores there report a brisk business in consumables such as food, clothing, and housewares. Food sales are especially high this season since harvests from local farms have been reduced by severe drought. Project officials also report some local purchase of supplies and food for the project from merchants in nearby towns. In addition, one of the stores (Mitchell Brothers) is moving a considerable volume of building materials (e.g., corrugated steel roofing, cement, wheelbarrows) which apparently is being used to build, expand or renovate private houses. Beer and liquor sales also are high, especially after paydays. Although there is a branch bank in Mount Moorosi that offers the opportunity for savings in

interest-bearing accounts, the level of savings in this form was not determined. Presumably, the level of expenditures, savings, and investment could be determined from local sales and bank records, and from tax reports, should an analysis of local project impact be undertaken.

As is true all over Lesotho, hard- and soft-goods and even most consumables, including fresh fruits and vegetable, are imported from the RSA. Thus, although there is considerable impact from project wages and purchases in the form of local sales, and salaries to store employees, most of the funds flow quickly across the border into the RSA economy.

From casual conversations in the region the impression was gained that local attitudes toward the SPR project generally are positive. There were some early complaints that too many jobs were going to people from outside the region. But after negotiations with the contractor, local leaders expressed satisfaction that due consideration was being given to local hire whenever possible. There was also some concern that people from outside the region were coming into the region looking for work on the project and if unsuccessful, tended to remain as unemployed. Since no figures were available, it could not be ascertained whether this was a minor or major problem.