

PD-AAK-282-01

UNITED STATES GOVERNMENT

memorandum

615 0168

DATE: June 16, 1977

REPLY TO
ATTN OF:

AFR/DR, John L. Withers *JLW*

SUBJECT:

AFR Executive Committee for Project Review - Kenya Rural Roads Systems Project.

TO:

SEE DISTRIBUTION

The AFR Executive Committee for Project Review (ECPR) will meet at 2:30 p.m., Tuesday, June 28, 1977 in Room 6944 NS to review the above project.

The six year loan and grant project will support the objectives of the Government of Kenya in providing isolated rural areas with improved accessibility to public and private factors of production and social services. Both an Issues Paper and Africa Bureau Position paper are attached.

Attachment: a/s

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* Project Paper attached



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-108

memorandum

DATE: June 16, 1977

REPLY TO
ATTN OF: AFR/DR, John L. Withers

SUBJECT: Issues Paper - Kenya Rural Roads Systems Project (RRSP)
615-0168

TO: AA/AFR, Mrs. Goler T. Butcher - designate

The purpose of the proposed FY 1977 Kenya Rural Roads Systems Project is to support the Government of Kenya's national road construction/improvement programs by financing the development of an all-weather network of farm-to-market roads which will provide isolated rural areas with all-weather accessibility to public and private factors of production and social services.

The Project Committee recommends that the Executive Committee for Project Review (ECPR) approve the subject Project Paper (PP).

Several issues not fully resolved at the Project Committee Meeting are outlined below. Since some of the issues were essentially of a technical nature, it was decided that the concerned committee members should meet with USAID/Kenya representatives in smaller groups in order to staff out the problem areas and work out solutions.

Issues

1. Project Beneficiaries and the Internal Rate of Return

The PPC representative raised a series of interrelated questions concerning the distribution of benefits and the internal rate of return in the Graveling, Bridging, and Culverting (GBC) component of the RRSP. The representative stated that PPC had no substantial issues to raise concerning the Rural Access Roads (RAR) component of the RRSP.

The GBC component has an internal rate of return of 11.5 percent with 29 percent of the GBC component benefits accruing to small-holder farmers. In light of the marginal IRR and the distribution of benefits, the economic assumptions underlying the analysis need to be questioned. Of particular concern is the assumption that the absence of all-weather roads causes a significant economic loss to the project area.

Discussion

A very detailed response to all the questions raised by the PPC representative is presented in the Position Paper (attached). In particular, the Position Paper summarizes the case made in the Project Paper, pointing out the very important relationship between the frequency with which roads are impassable and the



level of transportation services provided by public and private transporters. Furthermore, significant benefits arising from the provision of all-weather access have been identified and quantified in the Project Paper. Several expert studies (referenced in the Position Paper) have demonstrated that the provision of all-weather access can result in a 20 percent increase in incremental agricultural output for the smallholder farmer.

2. Construction/Improvement Technology Mix

There has been a question as to the validity of capital intensive versus labor intensive road improvement technologies.

Discussion

AID/W hired Louis Berger International, Incorporated, specifically to look into the question of road improvement technologies in western Kenya. Louis Berger, REDSO/EA engineers, and representatives of SER/ENG agree that the proposed road improvement mix is technologically optimal and economically appropriate.

3. Environmental Concerns

The current IEE in the Project Paper is a broad generalization of the physical and social environmental impact of the RRSP on the project area.

Discussion

The environmental guidelines have changed considerably since this project paper was prepared in early CY 1977. As a result of the Project Committee Meeting, USAID/Kenya representatives met with various AID/Washington offices to work out procedures for environmental examinations satisfying the specific nature of the RRSP and U.S. legislative concerns for the environment.

Given that the specific rural roads to be constructed have not yet been identified (identification will be a quarterly exercise) only generalized environmental assessments are feasible at this time. Road specific impact will be examined during the road selection process.

The present project paper will be revised to 1) incorporate a more detailed assessment of the social impact, 2) provide a description of how the environmental factors will be formally monitored as part of the project's evaluation component and 3) describe how a road specific environmental examination will be undertaken as specific packages of roads are identified.

4. Administrative Lines of Authority Within the Ministry of Works

SER/EMS queried the relationship between the Provincial Engineer (PE) and the GBC/RAR program (which is administered from MOW Headquarters) and raised the possibility of a potential conflict between the headquarters and provincial staff.

Discussion

Detailed responses to SER/ENGs questions have been provided in Nairobi 7353 and Nairobi 7443. In summary, while the Special Projects Branch, headquartered in Nairobi, has full implementational responsibility for the GBC and RAR program, both the Special Projects Branch and the PEs report directly to the Chief Engineer of Roads (CER). The CER is responsible for insuring that the PE fully supports the GBC and RAR efforts; the responsibility for road maintenance will rest with the PE. The Ministry of Works and USAID/Kenya and REDSO/EA engineers have fully examined the administrative issues, have provided detailed responses to specific questions raised during the Project Committee Meeting (see referenced cables), and are satisfied that all significant administrative problems have been resolved. Note that CIDA is already operating one GBC unit in Kenya and no serious administrative problems have been encountered.

Attachment: Africa Bureau Position Paper for
Kenya Rural Roads System Plan

AFRICA BUREAU

POSITION PAPER

KENYA RURAL ROADS SYSTEMS
PROGRAM

June 16, 1977

Position Paper

Issues Relating to the Rural Roads Systems Project in Kenya

OVERVIEW

During the course of project review a series of issues concerning technical and economic feasibility have been raised and verbally discussed. The purpose of this paper is to document AFR/DR's and AFR/ESA's position on the most frequently voiced concerns.

It is apparent that many of the specific issues raised during the June 9 Project Committee meeting originated in correspondence dating back to September 1976 and relates to the Roads Graveling Project (615-0170). It is the position of AFR/DR that the only valid and relevant issues which are currently subject to discussion are those issues pertaining to the Rural Roads Systems Project (RRSP) Paper (615-0168). As detailed below, the Rural Roads Systems Project Paper squarely faces the issues raised and provides a detailed discussion of each.

ISSUE

1. Complementarity and Cohesion of the GBC and RAR Components of the RRSP

Considerable attention has been focused on the feasibility of the GBC road improvement program while at the same time accepting the technical and economic feasibility of the RAR construction program. This divergent position fails to consider the very crucial technical and economic complementarity of the two programs in their combined effort to establish an all-weather farm-to-market road network.

"The Graveling Programme is supposed to be one of the Government's major contributions for the development of rural areas, running parallel with the RURAL ACCESS ROADS PROGRAMME. Considering the existing road pattern in Kenya, it is abundantly clear that without the Graveling Programme, the impact of the Rural Access Roads will hardly be felt and the programme will end up a fiasco. Moreover, other planned RURAL DEVELOPMENT EFFORTS equally depend on the same programme which forms the backbone of the Highway network in the rural areas".^{1/}

1/ MOW. Relationship Between Other Development Efforts and the Graveling Programme in Bingama District. February 1976. pg. 1.1.

GBC roads are presently the lowest road class within the GOK's classified road network. Of some 50,000 kilometers of classified roads, 30,000 are D and E (GBC) roads. In the project area alone, there are 6,000 kilometers of D and E roads bridging the gap between larger primary and trunk roads, which service market centers, and short rural feeder roads. Kenya is not a country of village settlements. Farmers tend to live in a highly dispersed pattern selecting homesites adjacent to their cultivated fields. Therefore, the D and E road network that presently exists in western Kenya passes primarily through small farm areas.

The purpose of the RRSP is to both upgrade the existing D and E roads as well as expanding the rural road network through the construction of all-weather rural access roads. The rural access roads will generally be five to ten kilometers in length and will pass through areas that do not now have reasonable access to existing roads. These rural roads will, in turn, connect directly to D and E roads.

In order to utilize an all-weather network of farm-to-market roads, it is necessary for the newly constructed all-weather rural access roads to link to all-weather D and E roads. It is the purpose of the GBC program to improve D and E roads up to an all-weather standard so that gaps in the all-weather road network are eliminated. The concept of companion and complementary roads lies at the heart of the GOK's rural roads programs and the RRSP.

In addition to three GBC units financed by CIDA and two by AID, the Federal Republic of Germany (FRG) has recently agreed to finance two additional GBC units in Rift Valley Province. The AID financed units form an essential contribution to the multi-donor financed GBC Program.

The crucial importance of the RAR-GBC road link has been demonstrated by the experiences of the ODM financed RAR units now operating in South Nyanza District, an area included in the AID financed GBC program. The British have been constructing rural access roads for over a year now and are voicing their serious concerns about the delays which have been encountered in start-up of the AID financed GBC unit. The all-weather rural access roads which the British have constructed link up to non all-weather GBC roads planned to be improved under the GBC program. The present situation is that the newly constructed rural access roads can not be effectively utilized and during the long rainy season (this year running from November until the end of May), the rural access roads have been standing idle because vehicles cannot traverse the GBC roads which link the RAR roads to primary and trunk roads.

2. Requirement for a Second GBC Unit

In the project area approximately 4,000 kilometers of GBC roads are both technically and economically eligible for the GBC road improvement program. One GBC unit (consisting of a set of trucks, dozers, graders, rollers, tankers, hand tools, staff and labor force) is capable of upgrading approximately 2,000 kilometers of D and E roads over a five-year period. In order to complete the 4,000 kilometers road improvement task in western Kenya and to insure the successful use of the rural access roads, it is necessary to provide two GBC units to the project area. One unit is being financed under the Roads Graveling Project and the second is proposed under the RRSP.

3. Internal Rate of Return

The RRSP's internal rate of return has been calculated at 14.8 percent. (See Annex VI of the PP for a full discussion of methodology). Given the high degree of interest surrounding the IRR in the Roads Graveling Paper, the RRSP Paper takes the unusual and additional step of disaggregating the overall IRR through the analysis of the two principal components: the GBC and the RAR. In light of the complementarity and cohesion of the companion roads within the framework of an all-weather farm to market road network, it is questionable whether a truly accurate disaggregation can be undertaken. However, in order to address concerns of blending different IRRs, a disaggregation has been made. The RAR component is estimated to have an IRR of 17.9 percent with the GBC component registering an IRR of 11.5.

Within the context of overall rural development activities in Kenya, the GOK's Ministry of Finance and Planning and the World Bank have set the social rate of discount at 10 percent. The RRSP has an IRR well above this level and even the GBC component has a rate of return which exceeds the social discount rate.

The estimation of project and component benefits is based on best estimates of identified and quantifiable benefits, including vehicle operating cost savings, incremental employment, and incremental agricultural output anticipated within the zone of influence lying adjacent to each road. Numerous social benefits have been identified but due to the arbitrary nature of any quantification procedure, these benefits have not been assigned a

monetary value. These non-quantifiable benefits include increased access to social services, increased individual mobility, decreased risk and waiting time associated with transportation.

The IRR's for both components, while conservative estimates are still within the social rate of discount.

As an indication of the range of IRRs which have been calculated for GBC road improvement, the MOW calculated rates of return at over 40 percent on two sample roads. (Loan Application, Secondary and Minor Roads. MOW. November 1972, pages 13 and 19). Similarly high IRRs, over 30 percent, were calculated by ScandiaConsult for the Swedish International Development Authority (SIDA) in Kenya: Improvement of Roads., April 1974, pages 65-78. Further detailed studies by the MOW in Bungoma District indicated significant non-quantifiable economic and social benefits associated with improvement of the D and E road network. (MOW. Relationship Between Other Development Efforts and the Graveling Programme in Bungoma District. (February 1976.)

4. Economic and Social Costs Associated with Non-All-Weather Roads

a. Existing Condition of D and E Roads

The ScandiaConsult Study (pages 4-8) sampled eleven roads in three Kenyan provinces and found that 50 percent of the roads (and 75 percent of the total road length sampled) were not of and all-weather standard. Louis Berger International, Inc. undertook for AID a detailed analysis of the D and E road network in western Kenya. Their conclusions, reproduced on pages 32 and 33 of Annex VI, RRSP, PP, were that 20 percent of the network was already gravelled and that 65 percent of the entire D and E road network was both presently of an non all-weather standard and economically eligible for the GBC program. In Bungoma District, the MOW determined that 80 percent of the GBC roads were not all weather (MOW, OpCit, page 64).

b. Rainfall Cropping Patterns

Western Kenya is an area of heavy rainfall where the climatological influence of Lake Victoria, the second largest body of fresh water in the world, insures some rainfall in the project area every month of the year, with peak periods running from November through June. Due to this rainfall pattern, crops can be cultivated twelve months a year with the concomitant requirement for year-round access for the delivery of production inputs and services and the export of crops. (See GOK. Statistical Abstract. Table 6)

c. Economics of Access

ScandiaConsult (pages 65-78), Louis Berger International (RRS Project Paper, Annex VI, pages 7-12), the GOK's MOW (Relationship Between Other Development Efforts and the Graveling Programme in Bungoma District, pages 6.4-6.16, and Loan Application in Respect of Rural Access Roads Programme, pages VIII.31-47), the World Bank (Appraisal of a Rural Access Roads Project - Republic of Kenya), and G. Fromm (Transport Investment and Economic Development, Brookings Institute.) describe the significant economic benefits which are generated by the presence of an all-weather farm-to-market road network. Note that the "cost" of not having an all-weather road network is equivalent to the potential benefits derived from putting an all-weather network into an area which does not presently have one. As the referenced studies indicate, the establishment of scheduled or regularized public transportation is severely retarded where non-all-weather roads prevail and roads are, therefore, frequently impassable. It is the frequency with which roads are impassable, rather than the particular length of time impassability exists which determines the volume and schedule of publically and commercially provided transportation. Further examples of the economic value of year-round access may be found in Rural Transportation: Time-Sensitive Agricultural Production, Tea and Milk in Western Kenya. (Distributed at Project Committee Review)

5. Kenya's Road Network Relative to Other Developing Countries

The Rural Roads System Project is a response to Kenya's, and, particularly, western Kenya's road network needs. The RRSP is country and area specific and does not, and should not, take into account the state of roads in Ethiopia, Uganda, or Northern Virginia, for that matter. Pages 19-22 of the Project Paper summarize the rationale for designing this particular development activity in Western Kenya and the vital support which the RRSP lends to a wide array of development programs in Western and Nyanza Provinces.

6. Project Beneficiaries

The project area is a poor but productive agricultural region with 95 percent of the approximately four million residents being small-holder farmers with incomes ranging between \$94 and \$150 per annum, an average cultivated land holding of 2.4 hectares, and with 28 percent of the farmers cultivating less than 1 hectare. The target

group is the bulk of the four million people, the "working poor", living in the two project area provinces. The project area contains approximately one-third of Kenya's total population. It is estimated that 500,000 people, 10 percent of the area's total population, will be direct beneficiaries of the RRSP.

Within the context of the Congressional Mandate, the Senate's Subcommittee on Foreign Operations specifically includes the "expansion of local or small scale rural infrastructure and utilities such as farm-to-market roads . . .". The RRSP Paper clearly demonstrates the appropriateness of the rural roads network encompassed within the RAR and the GBC programs to the legislation cited above.

An estimated 51 percent of the total project benefits are expected to accrue specifically to the smallholder farmer, with 29 percent^{2/} of the GBC component and 95 percent of the RAR component accruing to the smallholder farmer population. For the GBC component, it is estimated that component benefits will be distributed as follows: smallholders - 29 percent; larger farmers - 8 percent; cooperatives - 14 percent; government- 11 percent; traders-16 percent, and transporters-22 percent. (Page 85, Roads Graveling PP and Annex VI, page 56, RRSP Paper). In addition to the benefits which have been identified and quantified and, significant social access benefits have been identified but cannot be reasonably assigned a monetary value.

Attention should focus on those benefits accruing to the target population and not be diverted to the spurious issue of benefit "spillover". A development activity such as road improvement and construction creates a public good, neither this project nor the GOK can or should physically limit road users to only the smallholder farmer. It should be noted that 95 percent of the project area's residents are smallholder farmers and that virtually any road construction/improvement will be in a smallholder agricultural area and directly and indirectly service smallholder farmers. The road network is designed to serve smallholder farmers by alleviating one of the principal constraints to incremental agricultural production. The road network should not be faulted because people other than smallholder farmers utilize the road network.

^{2/} The June 9, 1977 "statement" paper by P. Matheson makes the erroneous statement that the benefit incidence has worsened from 29 percent to 24.6 percent. This statement is based on a misreading of Annex VI, page 56, which is identical to page 85, the Roads Graveling PP.

* Thormann/Matheson memo dated 5/9/77 - Attachment A

The estimation of benefit incidence and distribution presented in pages 70-72 and Annex VI, pages 46-58 of the PP, is based on detailed studies of the transportation economics in western Kenya, undertaken by Louis Berger International and ScandiaConsult.

7. Anticipated Traffic Growth

The ScandiaConsult Study (page 31) reports that national vehicle traffic growth rates were forecasted to be 9.3% in 1975 and that between 1970 and 1973 the traffic growth rate on D roads was 11 percent. Based on this data, ScandiaConsult selected a 10 percent traffic growth rate for their analysis of the GBC program.

The MOW (Gravelling Programme in Bungoma District, pages 6.8-6.10) indicates that not only has the vehicle growth rate reached 10 percent per annum, but that the average size of freight vehicles has significantly increased.

The Rural Roads Systems Project Paper assumes a traffic growth rate of 8 percent (Annex VI, page 41). Given the historical and projected rates, an 8 percent growth rate is reasonable, conservative, and supported by the available data.

8. Sensitivity Analysis

The principal exogenous variables are both few in number and linearly related to project benefits. A sensitivity analysis of the RRSP is a trivial exercise in relative proportions and has, therefore, been omitted from the project paper.

This conclusion is supported by the rather exhaustive sensitivity analysis of the GBC program undertaken by REDSO/EA, demonstrating the basic equi-proportional nature of the analysis. (Hogan/Nelson Memo, December 8, 1975.)

9. Improvement/Construction Technology Mix

Considerable attention has been focused on the technology mix appropriate for road construction and improvement. ScandiaConsult CIDA, Louis Berger International, and students of the Vihiga SRDP road construction experience (Hopcraft and David. Labor Intensive Road Construction under SRDP) have examined the engineering, economic and social aspects of various road improvement/construction technologies. (See Annex VI, pages 44-46).

These detailed studies have concluded that given engineering requirements and economic considerations, it is technically and economically sound and appropriate to undertake road improvement work using technologies which are not primarily labor intensive.

As detailed in Annex VI, pages 45 and 46, only about 28 percent of the total GBC road improvement costs are even eligible for labor/capital trade-off considerations. The detailed referenced studies conclude that the capital intensive approach is more appropriate. Furthermore, labor intensive improvement could reduce the internal rate of return considerably below 10 percent.

There are numerous operations, such as bush cleaning, stump removal, and bridge construction which will be performed by labor intensive means.

The RAR roads are project to handle traffic loads of 3-5 vehicles per day while the GBC roads are being improved to standards which will support traffic levels in excess of 50 vehicles per day. Therefore an improvement/construction technology appropriate for one type of road is not necessarily appropriate for the other.

10. Identification of GBC Roads

Louis Berger International has undertaken a detailed study of the D and E road network in western Kenya (summarized Annex VI, page 33) and a map of candidate roads is available in the Roads Graveling Project Paper, Figure 1. Further details are provided in the ScandiaConsult Study (Appendix 2, pages 2-10), the MOW's Graveling Programme in Bungoma (pages 6.5-6.9), and Ministry of Lands and Settlement, Nyanza Provincial Regional Physical Development Plan and Western Province Regional Physical Development Plan.

A covenant of the Project Agreement will require the GOK to submit to the USAID its annual work plan for review and approval prior to the commencement of work on the applicable roads. This review will ensure that the GBC roads selected for financing meet the MOW selection criteria (pages 38-40) and will provide all weather links to access roads pursuant to the objective of the program.

11. Manpower Requirements

A detailed discussion of the manpower requirements is presented in pages 52-59 of the RRSP Paper. The MOW has calculated incremental training requirements arising from the GOK's total GBC and RAR

program at 4,000 persons over the period 1977-1981. To meet this expansion the GOK, IBRD, and SIDA are presently undertaking a \$4.6 million program which is expanding the faculty, facilities, and equipment of the MCW's Staff Training Division. Trained manpower is therefore not considered a project constraint. The Project Agreement will contain two covenants with respect to Manpower Training. These are:

1. The Cooperating Country will covenant to provide for both components of the project trained personnel adequate to upgrade, construct and maintain the roadwork financed by AID without detracting from non-AID finance roadwork and maintenance being undertaken, or projected to be undertaken, elsewhere in Kenya.
2. The Cooperating Country will covenant, in order to achieve the purposes in item b. (1) above, to expand its existing training facilities for skilled construction and maintenance personnel in accordance with the guidelines set out in an annex to the Project Agreement to meet the requirements of this project and other non-AID financed, roads projects. Any adjustments necessary in the training program will be the subject of the required annual evaluations.

12. Road Maintenance

Using current maintenance practices, an additional \$1.3 million per annum will be required to maintain project roads at all-weather standards representing an addition 9 percent to the MOW FY 76 maintenance budget. The RRSP will include a roads engineer who will introduce improvements and efficiencies to the MOW maintenance program, including a pilot labor intensive maintenance scheme which could cut maintenance costs by over 60 percent. It is estimated that incremental maintenance requirements could be reduced to \$.9 million (6.4 percent of MOW budget) through the partial adoption of the pilot scheme.

The Project Agreement will contain two important covenants with respect to maintenance. There are:

- "1. The Cooperating Country will covenant that it will provide all personnel and funds required, and take all actions necessary to maintain the roads upgraded or constructed by this project. To this end, appropriate officials of the Ministry of Works will discuss with AID representatives, at intervals which will be set forth in Project Implementation Letters (PILs), proposed maintenance plans and procedures,

including the frequency of road maintenance efforts. The results of these discussions on the formal maintenance plans will be the subject of subsequent Implementation Letters.

2. The Cooperating Country will covenant to submit reports, as required by PILs, which will assess the work unertaken pursuant to the Pilot Maintenance Program and which will describe the extent to which the recommendations of this program have been, or will be, implemented and integrated into the Ministry of Works' over existing maintenance program."

13. Long Run Imports and the Balance of Payments

The basic purpose of the GBC program is to undertake a once-and-for-all upgrading of D and E roads. Recurrent maintenance is to be primarily a labor-intensive operation. Therefore there will not be any need for recurrent importation of heavy equipment, spares, or fuel. Furthermore, it is incorrect to state that Kenya "currently has a severe balance of payments problem". Kenya's overall balance of payments surplus for 1976 was \$70 million and is projected to lie between \$12 million and \$48 million for 1977. While this situation is expected to deteriorate as the world price of coffee falls, it is important to point out that the situation prevailing at the height of the world recession is not necessarily the long-run norm.

14. Spatial Analysis and Population Distribution

Questions have been raised concerning the spatial distribution of the project area's population and roads. It is clearly incorrect to assume that the existing road network and population are evenly distributed across the project area. Table 28, Annex VI demonstrates the regional variation existing at the aggregated district level. Calculations of road to population densities can be extremely misleading without area specific data and it is therefore, entirely incorrect to assert that less than 15 percent of the population lives more than 1-2/3 kilometers from a road, based on highly aggregated national data. More to the point, the purpose of this project is to provide all-weather road access, not simply to increase the number of "roads", regardless of their condition, use, and utility.

See the following table for an indication of the population distribution relative to social services and transportation services.

The RRSP will direct its road construction efforts towards reaching the most isolated portion of the area's population through the

construction and improvement of an all-weather farm-to-market road network. Spatial analysis (W. McKim, "Spatial Organization and Development Planning in Kenya", ASA Conference, 1974) clearly demonstrates the significance to the development process of reliable access as opposed to the mere existence of non all-weather tracks and poorly maintained roads.

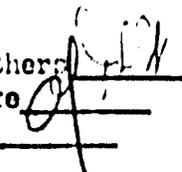
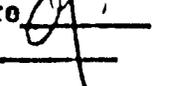
Population Distribution and Access

(percent)

Percentage of Households :	<u>Western Province</u>	<u>Nyanza Province</u>
1. Over 3.2 kilometers from a health center	87	83
2. Over 13 kilometers from a health center	25	12
3. Over 3.2 kilometers from a bus route	47	30
4. Over 13 kilometers from a bus route	4	2
5. Over 3.2 kilometers from a Matatu route ^{1/}	30	20
6. Over 13 kilometers from a Matatu route	1.5	3.5
Total Population	1,630,000	2,670,000

1/ Matatu is a pick-up truck type vehicle owned and operated by small scale entrepreneurs

Source: Central Bureau of Statistics. Social Perspectives, Volume 2, Number 1. March 1977.

Clearance:
AFR/DR, J.L. Withers
AFR/ESA, O.Cy:U: 
AFR/DR, S.Colo 

MEMORANDUM

TO: PPC/DPRE, Ms. Patricia Matheson
FROM: PPC/PDA/SPA, Peter Thormann
SUBJECT: Kenya Graveling Units

June 9, 1977

I thought it might be useful to tie down the points we were talking about re the economic analysis of the graveling units.

First is that the basis critical for assumptions e.g. 8% per annum growth in VOC savings, maintenance capacity at G2 level, are not presented. The summation and Appendix are not intensive enough to give one a clear picture of the foundations for the different assumptions. One could request that all critical assumptions (in this case they all become critical) be set forth and reasons for choices, e.g. 8% rather than 6. or 10%, be stated.

Second, there is the question of sensitivity analysis which is obvious to all involved. The IRR is not very robust; a small shift in some of the calculations could well make the project, within the limits of the analysis, economically unprofitable. One could ask that the IRR be re-estimated varying important assumptions.

Third, the concessional terms offered by AID for purchase of equipment may have created a bias in the choice of technology to the extent that alternative relatively more labor intensive technologies were not seriously considered for funding at the same concessional terms. The summary on p. 43 was not very convincing (i.e. the Canadians and the Swedes have decided against labor intensive methods and we should be guided by their decisions) that serious consideration had been given to the labor intensive approach. Annex VI is somewhat more convincing. However, the detail is still not very satisfying. The analysis is essentially a very brief summary of conclusions of a Scandia-Consult report. Thus an argument could be made on the face of what is available in the PP that if the backup resources that were being put into the machine intensive methods were put into a more labor intensive approach the critical constraints cited in the analysis -- need for 20% higher productivity, cost of delay and lack of foremen -- could possibly be overcome. This argument ignores the issue of shadow pricing which according to Scandia-Consult, does not carry much weight with the Kenyans. If shadow pricing is applied, the case against the labor intensive method probably is further weakened. One could ask that the Scandia-Consult report be made available for more intensive review of the choice of technology issue.

Kenya Rural Roads Systems II

BEST AVAILABLE DOCUMENT

We see nothing in the current paper to alter our previous views regarding the provision of a second travelling unit to Kenya. In fact, some of the projections of benefit incidence have changed for the worse since the last review. Total benefits to small holders are now estimated at 24.6% instead of 23%.

In addition, to the issues raised earlier and contained in attachment A, we would ask the following questions:

1. What is the evidence that road closings due to weather do in fact pose a serious economic burden? There is a general statement that much of the road system is affected for six-eight months of the year, but this is not consistent with our own observations of the area. Since Kenya is relatively well endowed with roads compared to other African countries (see para. 6 in attachment A), and since the rate of return on the travelling component is low, we believe some effort should be made to quantify the extent to which road closings occur and their economic impact on the AID target group. While somewhere in the system there may be a road closed over a month period, no one area is inaccessible for such long periods, as far as we are aware.
2. No convincing case has been made as to why PAR construction of new roads can be undertaken through a labor intensive methodology, but upgrading of existing roads cannot. Rather, it appears that a capital intensive methodology has been selected and analysis formulated to justify it. We believe alternative designs could have been selected

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which perhaps would cover less kilowatt hours in a given time period, but would be much more easily justified in terms of employment, foreign exchange and recurrent cost burdens and equipment maintenance. The argument, that mobility is required because spot improvement is planned, assumes that coverage of the full 2,000 km. during the project life is essential, but this has not been demonstrated. Might not a slower, but more labor intensive approach have a higher rate of return, especially to the poorer people?

Attachment A I

Gravelling Project Technical, Economic and Policy Problem

1. The project justification cannot be derived from our "new direction" emphasis on the poor. Current policy includes taking into account both direct and indirect benefit incidence. The PP does not demonstrate that most of the benefits, direct or indirect, will accrue to small farmers or other members of the poor. Such benefits as do flow to small farmers are based on uncertain and rather hopeful assumptions about the amount of cost savings which will be passed on by transporters and "the additional benefit to the project area on an area wide basis, in relation to the GOK Rural Access Road Program and the Integrated Agricultural Development Program". That is, a certain portion of the benefits from these two projects are attributed to the Gravelling Project. It should be noted that implementation of these two projects has not been initiated. The PP states (p.71) that only 11 percent of the population in the area will benefit from improved access and small farmers in this group would receive only 29% of the net benefits while an additional 14% of net benefits would go to coops which are generally dominated by medium and relatively larger farmers. Even the evidence which shows the percent of benefits which would flow to small farmers is quite weak and hypothetical. In conclusion, while our legislation would certainly not bar a project such as this, its justification must be on other than "new directions" grounds.

It should be noted that in PPC's interpretation rural roads often can be a useful and important step in increasing small farmer income. It is this particular project, which focuses on upgrading existing secondary roads, and which has other problems noted below, to which we are raising objections.

2. The project has an unsatisfactorily low internal rate of return, 10.4%. While there are conceivably cases where this low rate of return would be satisfactory, i.e., where there are substantial social benefits or there are very limited alternative investment opportunities, neither of these two mitigating factors exist in this instance. Further, as noted above, only 29% of these minimal returns flow to small farmers as such.

3. The project is highly capital-intensive. This is particularly unfortunate, not only because Kenya has a high rate of unemployment, but because one of the two provinces which make up the project, Western Province, has exceptionally limited employment opportunities which are reflected in the high out migration rate of working age males.

4. Because of the capital intensive nature of the project it will require high initial and continuing amounts of imports (for fuel and spare parts) in a country which currently has severe balance of payments problems, a condition which will probably continue for some time. The capital intensive nature of the project also increases the demand for scarce equipment maintenance resources in the country.

5. The project will increase road maintenance costs in a country which is having such severe problems with its recurrent budget that it was able to allocate only 54% of funds requested for road maintenance in the 1975/76 budget. It is also important to note that CIDA is financing three similar road improvement units which lead to additional requirements for maintenance funds.

6. In comparison to Africa LDCs, Kenya has a relatively highly developed road system. According to the PP, less than 15% of the population in the project area lives more than 5 kilometers from a major road. As the ratio of secondary and minor roads to major roads in Kenya is approximately 2/1 it would appear that, on the average, less than 15% of the population lives more than 1-2/3 kilometers from a road. It seems reasonable to conclude from the above that road construction or upgrading is of minor importance to improving "small producer access", the third priority constraint identified in the DAP Supplement.

7. It is possible to put together a technical package emphasizing road maintenance which would reduce the capital intensive nature of the project, minimize foreign exchange and recurrent budget costs, increase the IRR and lessen the demand for equipment maintenance. However, it would not cause a significant improvement in benefit incidence or priority, though it would in all probability result in an increase in employment on road maintenance.