

**MEMORANDUM**

DEPARTMENT OF STATE

2780176 (4)  
PD-AAD-996-D1

UNCLASSIFIED  
CLASSIFICATION

For each address check one ACTION

INFO | DATE REC'D.

AGENCY FOR INT'L DEV.  
CRM-TEL BRANCH

1978 APR -6 A 8:25

DATE SENT  
4/1/78

TO - AID/W TOAID A - 15

FROM - AMMAN  
E.O. 11652 N/A  
SUBJECT - Project Evaluation - Yarmouk-Dead Sea Road  
REFERENCE - AID Loan 278-W-010  
AIDTO CIRC A-188 dated 5/11/77  
*278-0196*

Attached is regular evaluation as per USAID/J  
Project Evaluation Schedule.

*W*  
SUDDARTH

Attachment: a/s sent Mail Room 4/20/78

DISTRIBUTION  
ACTION  
*Mail*  
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*35-W*  
*w/attach*  
  
*attach*  
*to be run*  
*w/airgram*

PAGE 1 OF 1 PAGES 1

DRAFTED BY <i>W. Coles</i> PRM:WColes:enf	OFFICE PRM	PHONE NO. 240	DATE 3/28/78	APPROVED BY: A/DIR: ECharrell <i>EC</i>
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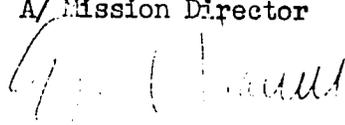
AID AND OTHER CLEARANCES  
(See Attachments)

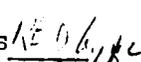
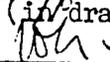
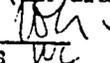
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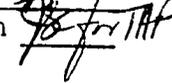
PROJECT EVALUATION SUMMARY  
(Submit to MD/PAV after each project evaluation)

1. Mission or AID/W Office Name			2. Project Number
USAID/Jordan			278-0196
3. Project Title			
Yarmouk-Dead Sea Road (278-W-010)			
4. Key Project Dates (fiscal years)			5. Total U.S. funding-life of project
a. Project Agreement FY 1975 Signed	b. Final Obligation FY 1977	c. Final Input FY 1978 Delivered	\$3,900,000
6. Evaluation number as listed in Eval. Schedule Final.	7. Period covered by this evaluation From: July/1974 To: December, 1977 Month/year		8. Date of this Evaluation Review March 22, 1978 Month/day/year
9. Action Decisions Reached at Evaluation Review, including items needing further study		10. Officer or Unit responsible for follow-up	11. Date action to completed
Prepare final narrative evaluation of Project.		USAID	Attached

12. Signatures:

Project Officer		A/ Mission Director	
Signature		Signature	
Typed Name	Joseph S. Chimento	Typed Name	Edgar C. Harrell
Date	March 26, 1978	Date:	March 29, 1978

Clearances: DEV.RDavis   
 PROG.CSteele (in draft)   
 CONT:WAwad:   
 Eval. W.Coles 

DEV.ASweis   
 DEV.TPearson 

### 13. SUMMARY

The project consists of the realignment, widening and re-surfacing of 97.17 km of an existing highway; construction of 7.66 km of new highway; and, replacement of a one-lane steel bridge with a two-lane bridge in accordance with the design and construction standards and specifications adopted by the Ministry of Public Works (MPW). The MPW standards had been established as a result of a Technical Assistance Mission from the United States Bureau of Public Roads and were therefore acceptable to AID.

The GOJ/MPW has been responsible for funding the widening of approximately 55 kms of the existing road and shoulders. AID funds have been used to partially fund a private contract for the balance of the widening of the existing road; resurfacing of the entire road; and, replacement of the Maadi Bridge over the Zarqa River. The GOJ contribution at this time was estimated at approximately 33% (\$950,000) of project cost, \$3,850,000.

Project design was originally based on an October 1973 paper entitled, "Jordan Valley Road (Yarmouk-Dead Sea), Economic Study", prepared by Mr. Salameh Khoury, Director of Research, Ministry of Public Works. Subsequent modifications were incorporated into a Project Paper which was reviewed in June 1974, and resulted in a loan of \$2,900,000 which was signed on July 1, 1974. During implementation, changes which were made in the design of the road led to a need for increased financial assistance. AID approved an additional \$1,000,000 loan on June 9, 1977, and the GOJ contribution increased to approximately \$1,232,000. (Total Project Cost \$5,132,000).

A Construction Contract was awarded to a Jordanian Company, the Shahin Engineering And Contracting Company, on December 30, 1974. Notice to proceed was given by the MPW on January 7, 1975 and work started on January 24, 1975. Contract completion date was established as January 9, 1977.

A Supervisory Engineer (Consultant) Contract with De Leuw Cather, International, was signed on November 21, 1974. The Consultant completed his work on August 31, 1977.

Almost from the first day of construction, construction progress of both the MPW and the Contractor lagged behind the approved construction schedule. A certificate of Substantial Completion as of August 15, 1977, was approved for issuance to the Contractor on February 21, 1978, approximately 13 months later than the original planned completion date. USAID and the GOJ believe that the Contractor can be given a Certificate of Completion at the expiration of a one-year Corrective Maintenance Period which expires in August, 1978.

The major problems encountered throughout project implementation include:

- a. Contractor was frequently lacking proper equipment required for construction. A long delay in receipt of an operable rock-crusher was especially deleterious.
- b. The MPW was frequently remiss in supplying the required number of supervisory personnel to the contractor on a timely basis.
- c. There was a lack of cooperation between GOJ Agencies in resolving the problem of removal of mines from the vicinity of the Maadi Bridge. Almost two years were required from the time the problem was identified, to the time bridge construction could be started.
- d. The lag in construction of the East Ghor Canal Extension created delays because irrigation-pipe road crossings were to have been made before the construction of the road.
- e. Delays in GOJ decisions regarding municipality responsibilities and the alignment of the road through Adasiya and North and South Shuneh resulted in last minute variations in the project.

Notwithstanding the problems which delayed completion of construction for more than one year, the quality of the contractor's work has always been rated as Good to Excellent. The highway is being used extensively and we are optimistic in the belief that the majority of EOPs conditions related to project purpose will be achieved.

#### 14. EVALUATION METHODOLOGY

This is a regular, final project evaluation which was scheduled on the CPI Network submitted on November 22, 1976. Although the evaluation was planned to be accomplished in June 1978, it is submitted at construction completion. The data were collected from USAID Monthly Site Visit Reports; Consultant Reports; discussions with GOJ personnel and personnel engaged by Wilbur Smith under the Roads Master Plan Training Project.

15. EXTERNAL FACTORS

The major external factor which impacted on the project was the delay in construction of the East Ghor Canal Extension which contributed to a delay in road/culvert/shoulder construction. All other factors which contributed to the delay in construction completion and increased costs were either caused by the Contractor, the MPW or other GOJ Agencies.

All of the important assumptions considered in July 1974 continued valid throughout the entire construction phase except as follows:

- a. The construction of the East Ghor Canal did not precede construction of the road;
- b. All other Valley development projects (irrigation, housing, schools, etc) are behind schedule;
- c. The weight limitation on trucks was not and is not being enforced.

16. GOAL

The Goal to which this project will contribute is stated as:

"To assist the Government of Jordan to improve the livelihood of the residents of the East Ghor Valley and to resettle the Valley by means of an organized program which will provide the essential social services and economic infrastructure".

Since the substantial completion of construction in August, 1977, it is too soon to attribute any significant degree of progress to Goal Level Indicators which were stated as:

- a. East Ghor settlers increase from 63,000 to 147,000 by 1983.
- b. Exports of agricultural goods from the East Ghor increase by 100 percent by 1982.
- c. Per Capital Income ~~will~~ rises.
- d. New Industries, handicrafts and increased opportunities for gainful employment.

Nevertheless, it is possible that this project may already be contributing to the country goal as noted in the trend of the following indicators:

- i. The Valley population has increased from 66,000 in 1974 to an estimated 90,000 in early 1978;
- ii. Exports of agricultural ~~xxx~~ commodities totalled JD 39.4 million in 1974, and had risen to JD 59.99 million for the year ended July, 1977. Exports from the Valley constitute approximately 40% of the national total.
- iii. Per Capita income of farmer-operator families in the Valley has risen from JD 85 in 1974 to an estimated JD 120 in 1976; and
- iiii. There are indications that ~~the~~ new industries, new farms, added services etc., are being undertaken by both old and new residents of the Valley. The Department of Statistics and the JVA are planning to conduct a Valley-wide census. It is currently scheduled for spring 1978, but will probably not be carried out until fall, 1978. More definite evidence of progress toward the country goal will be available on completion of the census.

Among other projects which are benefitting, which will be benefitted by, or, which will contribute to the same goal as the Yarmouk-Dead Sea Road are:

AID-Assisted

Jordan Valley Irrigation Systems-Stage II, Maqarin Dam Design and Construction. Estimated completion 1982;

Zarqa Triangle Irrigation: Estimated completion during summer 1978.

East Ghor Canal. Estimated completion during summer 1978.

Village Development (Housing, Streets, Clinics, Schools, Municipal Bldgs., Farm Roads, Land Distribution, Mortgage Lending, Potable Water, Electricity, Communication). Beginning to come on stream late summer 1978 and continuing for the next five years.

Sprinkler Irrigation Equipment. Demonstration sites active. Equipment in country and warehouse<sup>d</sup>. Credit policies established. Estimate sales to farmers will commence in early fall, 1978.

Water Management Technology. Complements Sprinkler Project above. Estimate on stream late Summer 1978.

Technical ~~Se~~ Assistance to the Jordan Valley Farmers Association. Complements Sprinkler and Technology projects, above. Estimate on stream Sept. 1978.

Other Donor Assisted

Netherlands: Marketing Center for Farm Products At Arda. Under Construction.

West Germany: Electricity. Under Construction. Telecommunications. Feasibility Study complete. Hisban Kafraim Irrigation. Complete in 1979. Domestic Water. Under construction. Completion February, 1979.

Abu Dhabi: King Talal Dam. 95% complete. Reservoir filling.

World Bank: Irrigation. Complete in 1979.

Kuwait: King Talal Dam. 95% complete. Reservoir filling.

Japan: Wadi Arab Dam. Feasibility Study completed.

17. PURPOSE

The purpose to which this project will contribute is stated as:

"To provide the only north south route in the Valley for the transportation of the inputs of goods and services for its development and for the export of the agricultural produce from the valley".

Data from the Wilbur Smith, Roads Master Training Plan Study and data provided by the GOJ Dept of Statistics have been used to test the degree of progress, if any, towards End-of-Project-Status Conditions (EOPs) listed below.

a. Commercial traffic on 104 Kms. of new road increases at 5% a year

In 1973 the road handled an average of 923 vehicles per day (ADT) throughout its existing length. Approximately 323 vehicles were trucks and 600 were passenger type vehicles. By the end of 1976, average daily traffic had risen to 1320. Approximately 306 trucks and 1014 passenger vehicles were using the completed road each day. This represents an increase in annual traffic of from 218,981 vehicles (117,913 trucks) in 1973, to 481,800 vehicles 11,690 trucks at the end of 1976. An increase of 45% in three years.

b. Commodity transport costs per kilometer lowered

While no estimate of the cost of transporting agricultural commodities was available at project inception, we will attempt to gather surrogate data from the final Wilbur Smith report. We are assuming that lowered maintenance and driver time costs will lead to a lowering of commodity transportation costs.

c. Savings result on maintenance and operation of the Valley irrigation system due to more economical access

Maintenance in the East Ghor Canal and the gravity irrigation system has continued throughout construction of the road. However, until all of the Valley pressure irrigation systems are completed and in operation, it would be meaningless to attempt an evaluation of any possible reduced cost in systems maintenance which could be attributed to this project. In any event, compared to the potential benefits accruing under the other EOPs conditions, we recommend that this EOPs condition, be deleted from any future evaluation.

d. Decrease Vehicle operating costs

Based on average speeds of 30-50k/ph in 1973, and 70k/ph in 1980, vehicle operating costs were expected to decrease as follows:

	FROM 1973 (107.1 km)	TO 1980 (104.1 km)	DECREASE
<u>Passenger Vehicles</u>			
Fils per kilometer	25.23	23.76	5.8 %
Fils per trip	2,702	2,473	-228 fils
<u>Trucks</u>			
Fils per kilometer	62.80	60.00	4.5%
Fils per trip	6,725	6,246	-479

\* Note increased average speed, below.

e. Increased Transportation Time Saving (User Savings)

Based on average speeds of 30-50 k/ph in 1973, and 70 k/ph in 1980, driving time was expected to decrease as follows:

All vehicles, driving time per trip 1.942 hrs.      1.46 hrs.      -.481 hrs.

f. Road Maintenance Cost Reduced

Annual cost per kilometer                      225 JD              200 JD              -25 JD

We do not anticipate that the hard data needed for verification of EOPs conditions b,d,e and f, above will be available until after the road has been in use for at least two years. It is interesting to note, however, that the Wilbur Smith Study is using post-project average vehicles speed of 113 kilometers per hour, as opposed to the originally planned 70 kilometers per hour. The higher speed should reflect a greater time saving than originally planned.

Regarding the original assumption pertaining to enforcement of weight limitations on axle loadings, we have been working with the Ministry of Public Works and note that although they have procured several portable scales, we are not confident that the existing regulations will be rigidly enforced in the near future. First, the MPW, like many other GOJ Ministries, suffers from a serious lack of qualified personnel. Secondly, personnel who might be assigned the task of manning road scales would generally live on the plateau and would normally be scheduled to work six days each week for six hours each day. There is much time lost in travelling back and forth from the Valley, with the result that the Valley civil servant work day seems to average about four hours. In any event, we will continue to exert every effort to persuade the GOJ to use the road scales and enforce the existing axle-loading regulations. There is one bright spot, however, in that we do not envision any serious problems with trucks exceeding weight limitations on the Yarmouk-Dead Sea Road at this time. This is because the major portion of all existing truck traffic is comprised of pick-up type trucks which cannot be physically loaded to exceed the road weight-bearing limitations. As agricultural production in the Valley increases, we may be faced with the problem of the use of greater capacity trucks which could be overloaded.

18. OUTPUTS AND INPUTS

The three major outputs planned for this project were:

- a. Reconstructing, widening and resurfacing 97.17 kilometers of the existing Yarmouk-Dead Sea Road;

- b. Construction of a new, 7.66 kilometer road between Kufrain Junction and the Amman-Maur-Jerusalem Highway;
- c. Demolition of a one-lane and construction of a two-lane steel bridge over the Zarqa River at Muadi.

As of February 21, 1978, USAID and the MPW had approved issuance of a Certificate of Substantial Completion to the construction Contractor. It was agreed that the Contractor's one-year period of Corrective Maintenance would be computed from August 14, 1977 and would expire on August 15, 1978. During that time, the Contractor would complete several minor outstanding tasks identified by the MPW, and he would accomplish all of the Corrective Maintenance normally associated with this type of construction contract. Given the quality of the work to date, we expect that the Contractor will be issued a Certificate of Completion at the expiration of the corrective maintenance period.

The 7.66 kilometer segment of new highway at the southern end of the project area was opened to traffic during the summer of 1976. There have been no problems and the construction is standing up as expected.

Demolition of the one-lane bridge over the Zarqa River at Muadi was continually delayed because of the possibility of the presence of explosive mines in the vicinity. The MPW and the JVA used every form of suasion on the Ministry of Defense, but it required almost two years from the initial request, Jun, 1975, to the time when the area was finally cleared, March, 1977.

Throughout the construction period the Contractor, the Consultant and the MPW were faced with the need for seeking Variation Orders to insure that the road would be built to agreed-upon standards. Among the most time consuming and costly were: improving vertical alignment of the road; use of greater quantities of asphalt than originally planned; and, variations of alignment in and around the municipalities of Adassiya and North and South Shuna.

Other delays which were caused by the Contractor, the MPW and other Contractors working on various construction projects in the valley included:

- i. The Contractor frequently lacked adequate equipment for the task at hand; his crushing machine suffered far too many breakdowns; and he was frequently unable to provide the Ministry with the services called for in the contract, i.e. laboratory facilities.

- ii. The MPW was often unable to provide the proper number of skilled Inspectors needed to approve the Contractor's work so that he could go on the next sequential task.
- iii. The Contractor and the Consultant often reported that construction on other Valley projects was hindering progress on the road project.

Nevertheless, insofar as outputs are concerned, they have been achieved: all funds have been disbursed and the project has begun to indicate progress toward several of the EOPs conditions.

#### 19. UNPLANNED EFFECTS

The most revealing "unplanned effect" has been the rapid increase in the volume of traffic and the shortened travel time over various segments of the road during the construction period. We believe the Roads Master Plan Training Project will indicate achievement of these two EOPs conditions more than three years sooner than planned.

#### 20. LESSONS LEARNED

- a. Until the various GOJ Ministries/Agencies develop the technical staff capacity to perform construction supervision in accordance with ~~standards~~ AID standards, we recommend that one of the Conditions Precedent in future construction projects require that a Construction Supervision Contractor be employed. Experience on this and other AID-funded construction projects has convinced us that many GOJ Ministries, Departments and agencies are simply not adequately staffed to provide the supervision required to insure that construction will meet AID-funded standards.
- b. USAID must exert more pressure on the GOJ to insure that the required rights of way are secured in a more timely manner. In turn, the GOJ must recognize the importance of proper planning and timely execution to insure project success.
- c. Although the Project Paper for this project did not include a Logical Framework, an attempt was made to put one together on July 9, 1974, Portions of that Log Frame have been used in preparing this evaluation. We recognize that AID procedures have since been upgraded and that future Project Design efforts require in-depth analysis of the GOJ's capacity prior to Loan/Grant of AID funds.

However, it should be noted that within the GOJ, as with many other developing countries, there is a scarcity of middle-level professionals who have adequate time or expertise to design, or in some cases, even to assist in the design of a project in accordance with AID requirements in terms of analysis, design and budget timing. We would recommend that in those instances where USAID is unable to involve the appropriate GOJ personnel in every step of the design stage, that the draft Project Paper and the Logical Framework be discussed and explained to the appropriate GOJ personnel prior to submission of the Project Paper to AID/W. It would also be helpful if GOJ personnel participated in USAID Project Committee discussions.

Just one example should be sufficient to illustrate the rationale behind the above recommendation. This and several other AID-funded road construction or improvement projects have included an assumption that, "Weight limits on roads would be enforced". In conversations with personnel of the Ministry of Public Works, the Amman Municipality and the Public Security Forces, we have learned that while there are existing laws limiting the weight of vehicles using the roads, there is no commitment on the part of any of the agencies to even casually enforce the law. The problem is compounded by uncertainty as to the who-what-where-when-regarding the responsibility for enforcing the weight limitation laws in Jordan.

The above example again points out the importance of discussing the underpinning assumptions in the design of a project with the host government before a Project Paper is submitted to AID/W for approval.

Finally, the lesson we have learned from all of the projects we have evaluated to date: USAID must be adequately staffed or have ready access to adequate staff to work with the GOJ personnel during the design, documentation, implementation, monitoring and evaluating stages in the life of a project. Without competent and frequent project monitoring, relatively minor problem areas often go un-noticed and thus uncorrected until they actually begin to delay achievement of planned targets.