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PROJECT APPRAISAL REPORT (PAR)

pp/10/ PAR 9/16

1. PROJECT NO. <b>AID Loan 497-H-031</b>	2. PAR FOR PERIOD: <b>Sept. 1975 TO Feb. 1977</b>	3. COUNTRY <b>Indonesia</b>	4. PAR SERIAL NO. <b>77-53 COPY</b>
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5. PROJECT TITLE  
**Jagorewi Highway Construction**

6. PROJECT DURATION: Began FY <b>73</b> Ends FY <b>80</b>	7. DATE LATEST PROP <b>NA</b>	8. DATE LATEST PIP <b>NA</b>	9. DATE PRIOR PAR <b>None</b>
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10. U.S. FUNDING	a. Cumulative Obligation Thru Prior FY: <b>\$26,000,000</b>	b. Current FY Estimated Budget: \$	c. Estimated Budget to completion After Current FY: \$
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11. KEY ACTION AGENTS (Contractor, Participating Agency or Voluntary Agency)

a. NAME	b. CONTRACT, PASA OR VOL. AG. NO.
<b>Ammann &amp; Whitney - Trans Asia, Consulting Engineers</b>	<b>Contract</b>
<b>Hyun Dai Construction Co., Ltd. (South Korean firm)</b>	<b>Contract</b>

I. NEW ACTIONS PROPOSED AND REQUESTED AS A RESULT OF THIS EVALUATION

A. ACTION (X)			B. LIST OF ACTIONS	C. PROPOSED ACTION COMPLETION DATE
SAID	AID/W	HOST		
			<p>1) USAID has requested an extension of the TDD from April 30, 1979 to April 1980 and an extension of the TDDA from April 30, 1977 to April 30, 1978 from AID/W on 27 January 1977. (Request for TDD withdrawn on 24 February 1977 pending further review)</p> <p>(2) Awaiting AID/W approval.</p>	

D. REPLANNING REQUIRES	E. DATE OF MISSION REVIEW
REVISED OR NEW: <input type="checkbox"/> PROP <input type="checkbox"/> PIP <input type="checkbox"/> PRO AG <input type="checkbox"/> PIO/T <input type="checkbox"/> PIO/C <input type="checkbox"/> PIO/P	

PROJECT MANAGER: TYPED NAME, SIGNED INITIALS AND DATE <b>Leslie C. Koski</b> <i>LC</i> <b>2/24/77</b>	MISSION DIRECTOR: TYPED NAME, SIGNED INITIALS AND DATE <b>Thomas C. Niblock</b> <i>Thomas C. Niblock</i>
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Robert F. Zimmerman *RFZ*  
Evaluation of Les *LC*

Sarah Jane Littlefield *SJL*  
Deputy Director **3/24/77**

**II. PERFORMANCE OF KEY INPUTS AND ACTION AGENTS**

A. INPUT OR ACTION AGENT	B. PERFORMANCE AGAINST PLAN							C. IMPORTANCE FOR ACHIEVING PROJECT PURPOSE (X)				
	UNSATISFACTORY		SATISFACTORY			OUT-STANDING		LOW		MEDIUM		HIGH
	1	2	3	4	5	6	7	1	2	3	4	5
1. Ammann & Whitney-Trans Asia Consultant				X								X
2. Hyun Dai Construction Co., Ltd.			X									X
3.												

Comment on key factors determining rating

(1) AW/TA has done an outstanding job in supervising construction, maintaining quality control and redesigning Sections of the highway that had survey errors. They devised a method surcharge & drainage to stabilize embankment in the muck areas. AW/TA Home Offices have not always provided the need support for personnel in the field.

(2) The contractor Hyun Dai Construction Co., Ltd. has been behind schedule due to lack of sufficient equipment and personnel, plus poor weather conditions. The contractor is bringing in more equipment and personnel to improve his progress.

4. <del>XXXXXXXXXX</del> TRAINING	1	2	3	X	5	6	7	1	2	3	X	5
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Comment on key factors determining rating

The Consultant, AW/TA has provided training for GOI counterparts for the supervision of the Project. Also, see page 6 section 6.

5. COMMODITIES	1	X	3	4	5	6	7	1	2	3	4	X
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Comment on key factors determining rating

Bureaucratic paper work in the Indonesian customs has held up clearance of commodities. A single clearance requires 16 signatures.

6. COOPERATING COUNTRY	a. PERSONNEL Bina Marga	1	2	3	X	5	6	7	1	2	3	X	5
	b. OTHER GOI (Customs)		X									X	

Comment on key factors determining rating

The Bina Marga Project Manager does not devote his full time to the project. A few of the GOI counterparts have had to be replaced. (Lack of training and experience, personality problems, lack of job interest, etc.). Again, the biggest stumbling block has been GOI customs clearances of project commodities, some of which have taken months to clear.

7. OTHER DONORS	NA	1	2	3	4	5	6	7	1	2	3	4	5
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(See Next Page for Comments on Other Donors)

II. 7. Continued: Comment on key factors determining rating of Other Donors

III. KEY OUTPUT INDICATORS AND TARGETS

A. QUANTITATIVE INDICATORS FOR MAJOR OUTPUTS		TARGETS (Percentage/Rate/Amount)					
		CUMULATIVE PRIOR FY	CURRENT FY		FY 77	FY 78	END OF PROJECT
			TO DATE	TO END			
Section B completed	PLANNED	55.89%	68.39%	100%			
	ACTUAL PERFORMANCE	52.59%	67.96%				
	REPLANNED			82%	100%		
Section A completed	PLANNED	26.97%	*41.40%	60%	96%	100%	
	ACTUAL PERFORMANCE	24.92%	*41.43%				
	REPLANNED			49%	83%	100%	
Maintenance Equipment	PLANNED				100%		

## IV. PROJECT PURPOSE

A. 1. Statement of purpose as currently envisaged.

2. Same as in PROP?  YES  NO

The purpose of the project is to build a highway that will provide a means of rapid transportation between Jakarta and Bogor/Ciawi on the most heavily traveled corridor in Indonesia.

B. 1. Conditions which will exist when above purpose is achieved.

2. Evidence to date of progress toward these conditions.

The Jagorawi Highway will relieve the congestion now existing on the 2 existing roads between Jakarta and Bogor.

None, except portions of the Jagorawi Highway are being used by the public right now (illegally).

## V. PROGRAMMING GOAL

A. Statement of Programming Goal

The GOI is planning an Intra Urban Tollway network in West Java for Pelita II 1975-1980. The Jagorawi Highway forms the southern corridor from Jakarta to Bogor/Ciawi.

D. Will the achievement of the project purpose make a significant contribution to the programming goal, given the magnitude of the national problem? Cite evidence.

Completion of the Jagorawi Highway project will complete one of the priority links in the overall Intra Urban Tollway network for West Java.

<b>Pass 5 PAR</b>	<b>Project #</b> 497-N-031	<b>PAR for period</b> Sept. 77 to Feb. 77	<b>Country</b> Indonesia	<b>PAR #</b> 77-13
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**Continued Relevance of Current Project Purposes**

1. Are there alternative approaches to achieving this Project's Purpose or the Sector Goal? Would any other approach be more effective or appropriate for USAID?

No, the Jagorawi Highway is located on the most direct route between Jakarta and Bogor - Ciawi (Bandung).

2. What is current priority of Project with the GOI? Evidence for or against?

The Jagorawi Highway is the GOI No. 1 priority road project in Indonesia with policy makers. The GOI has made the required rupiah funding available each FY for the project. They have provided the necessary personnel to support the project, even though the Bina Marga Project Manager had not devoted his full time to the project.

3. How does GOI view USAID role? Do USAID and GOI share common perception of Project Purpose?

The GOI appreciates the support USAID has given to road projects and would like to see additional ones in the future. Both USAID and GOI agree on the necessity of providing rapid transportation for the most heavily traveled corridor in Indonesia. The GOI has incorporated the Jagorawi Highway into a master plan for Highways in West Java which will involve a toll system. It will be a revenue producing system. The proceeds will be used to maintain the existing highway and to build additional controlled access highways in the future. An independent GOI Agency has been appointed to manage the toll system. USAID agrees to the principal of the toll system, but does not wish to see any delays in completion of this vital highway.

USAID has requested the design changes for the toll system be kept to a minimum and if need be, a temporary toll system could be used in order to open the highway on schedule.

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**4. Are there Adverse Side Effects to this Project?**

None are apparent at this time. The design consultant was concerned about any adverse effects. Pedestrian crossings are provided at one kilometer intervals either by highway bridges or pedestrian box culverts. They also have provided for crossings of major irrigation canals by means of inverted siphons.

**5. Do the Benefits justify the costs?**

Yes, SPI (design consultant) estimated a benefit cost ratio ranges from 1.17 to 1.65. With traffic projections of over 30,000 vehicles per day upon completion of the road, it is obvious there is good justification for the road.

**6. Are there any Benefits not directly related to original purpose?**

The project has trained thousands of Indonesians in skilled and semi-skilled positions. These include technicians, inspectors, equipment operators, survey crews, etc.

**7. Overall Assessment of Project Performance.**

Unsatisfactory		Satisfactory			Outstanding	
1	2	3	4	5	6	7
			X			

The project has had numerous problems, but is still moving ahead.

**PROJECT EVALUATION SUMMARY**

*Files*

*Rpts/PES*

1. Mission or AID/W Office Name Indonesia			2. Project Number AID Loan 497-H-031		
3. Project Title Jagorawi Highway Construction					
4. Key project dates (fiscal years) a. Project 1/24/74 Agreement Signed			5. Total U.S. funding - life of project \$ 26,000,000		
b. Final 4/30/78 Obligation			c. Final 4/30/79 input delivered		
6. Evaluation number as listed in Eval. Schedule 78-8		7. Period covered by this Eval. From: Feb. 1977 Month/year		8. Date of this Evaluation Review 2/21/78 Month/Day/Year	
To: Feb. 1978 Month/year		9. Action Decisions Reached at Eval. Review, including items needing further study (Note--This list does <u>not</u> constitute an action request to AID/W. Use telegrams, aigrams, SPARS, etc., for action)		10. Officer or Unit responsible for follow-up  PTE	
USAID has requested a 6 months extension of the TDDA from April 30, 1978 to Oct. 31, 1978 from AID/W to enable completion of the procurement of maintenance equipment for the Jagorawi Highway Project.				10. Date action to be completed  April 1978	

12. Signatures:

Project Officer		Mission or AID/W Office Director	
Signature	<i>Leslie C. Koski</i>	Signature	<i>Thomas C. Niblock</i>
Type Name	Leslie C. Koski	Typed Name	Thomas C. Niblock
Date	March 28, 1978	Date	March 28, 1978
Evaluation Officer: RFZimmerman <i>RFZ</i>			

**16. Evaluation findings about EXTERNAL FACTORS - Identify and discuss major changes in project setting which have an impact on the project. Examine continuing validity of assumptions.**

The major external factor was the conversion of the Jagorawi Highway from a freeway to a toll system. Many design changes have had to be made and more are anticipated. Grades had to be changed, alignments adjusted, drainage structures lengthened or relocated and pavements widened to accommodate the toll plazas. Also, additional lighting and signing will have to be added.

The revenue derived from the toll system will be used for 2 purposes:

1. Finance the maintenance costs of the Jagorawi Highway.
2. Finance the cost of additional highways in Indonesia.

**17. Evaluation findings about GOAL/SUBGOAL - For the reader's convenience, quote the approved sector or other goal, (and subgoal, where relevant) to which the project contributes. Then describe status by citing evidence available to date from specified indicators and by mentioning progress of the other projects (whether or not U.S.) which contribute to same goal. Discuss causes--can progress toward goal be attributed to project, why shortfalls?**

The Sector Goal the GOI is to develop and construct an Interurban Toll System for West Java. Upon the completion of Jagorawi Highway, it will become the first link in the Interurban Toll System. Two other links, Jakarta-Tangerang and Jakarta-Cikampek, are under design at the present time.

Because the general overall poor condition of the existing 33,000 Km road network in Indonesia, Bina Marga (GOI Highway Dept.) has had to allocate approximately 75% of their budget for rehabilitation, upgrading and betterment of existing roads with only 25% remaining for the construction of new roads and highways. This would mean that only one or two major highway projects could be realized during the Pelita II period, with needs for new roads and highways in virtually all regions of country and the existence of regional imbalance in economic opportunities open to respective regional population and sectoral population groups.

In order to increase the financial and economic support of the poorer regions, the GOI has felt that the people in those regions which are better-off could increasingly be asked to pay for new public facilities and services or at least an appropriate portion of such costs. To further this goal the GOI is implementing an Interurban Toll System for West Java.

13. **SUMMARY** - Summarize in about 200 words the current project situation, mentioning progress in relation to design, prospects of achieving purpose, major problems encountered, etc.

As of January 25, 1978, overall construction progress was 76% versus 85% scheduled progress. The GOI opened Section B on March 9, 1978. The paving has been completed on Section B. Lighting, permanent signing and drainage and structure work were not completed by March 9, 1978 and will have to be finished after the opening date. The contractor is concentrating on work in Section B at the present time. Work on Section A consists mainly of bridge construction. The rains have hindered work progress. The contractor has sufficient personnel and equipment to prosecute the work at the present time. Because of the many changes required for the conversion to a toll system, there may be some slippage in final completion of the total road versus scheduled completion. Therefore, there is a possibility that the USAID Mission may have to request an extension of the TDD at a later date. The GOI has yet to submit the final IFB's and Spec's for the maintenance

(Continued)

14. **EVALUATION METHODOLOGY** - Describe the methods used for this evaluation, i.e. was it a regular or special evaluation? was it in accordance with the Evaluation Plan in the PF with respect to timing, study design, scope, methodology and issues? What kinds of data were used and how were they collected and analyzed? Identify agencies and key individuals participating and contributing.

1. Review of records such as actual progress versus scheduled and actual quantities completed on unit work items.
2. Weekly site inspection trips.
3. Periodic discussions have been held with the Supervising Consultant and Officials of Bina Marga (GOI implementing agency) to evaluate progress on the project and discuss problems affecting progress.

15. Documents to be revised to reflect decisions noted page 1 (other side:)

Project Paper (PP)     Logical Framework     CPI Network  
 Financial Plan     PIO/T     PIO/C     PIO/P     Project Agreement  
 Other

This evaluation brought out ideas for a new project -- a Project Identification Document (PID) will follow.

**18. Evaluation findings about PURPOSE:**

**(a) Quote the approved project purpose. Cite progress toward each End-of-Project Status (EOPS) condition. When can achievement be expected? Discuss causes of progress or shortfalls.**

The project purpose is to provide a means of rapid transportation for the Jakarta-Bogor corridor which is one of the most heavily traveled routes in Indonesia. Upon completion, the highway is expected to handle over 30,000 vehicles per day.

**(b) What is current priority of Project with the GOI? Do USAID and GOI share common perception of Project Purpose? How is this priority and common perception manifest in project implementation?**

The Jagorawi is the GOI No. 1 priority road project in Indonesia with policy makers. The GOI has made the required rupiah funding available each fiscal year for the project. They are covering the cost overruns of the project with their funding. Costs attributable to conversion to a toll system are also being covered by the GOI.

USAID and the GOI share a common perception of Project Purpose, namely providing a means of rapid transportation for the Jakarta-Bogor corridor. The GOI has incorporated the Jagorawi Highway into a master plan for Highways in West Java which will involve a revenue producing toll system. The proceeds will be used to maintain the existing highway and to build additional highways in the future. An independent GOI Agency has been appointed to manage the toll system. USAID agrees in the principal of the toll system, but does not wish to see any delays in completion of this vital highway.

19. Evaluation findings about OUTPUTS and INPUTS - Note any particular success or difficulties. Comment on significant management experiences of host contractor and donor organizations. Describe any necessary changes in schedule or in type and quantity of resources or outputs needed to achieve project purpose.

USAID has provided a loan of \$26 M for construction of the highway. Current estimated total cost of the highway is \$41,9 M. The GOI will make up the difference.

In the beginning the original construction contractor manager refused to add additional required equipment to the job site. Pressure from USAID and the GOI forced the contractor to change managers and add the necessary additional equipment to the project.

The pavement design had to be changed from a lime stabilized base to a 15 cm crushed aggregate base because (1) the required quality of lime was not available locally and (2) the contractor was unsuccessful in mixing a lime stabilized base.

The original consultant in charge of design made many serious errors in the design of the highway because of errors in survey. This has required the new Consultant to spend many man-months on redesign of the project to correct these errors, which in turn has added to the cost of the project.

(Continued)

20. Evaluation findings about UNPLANNED EFFECTS - Has project had any unexpected results or impact, such as changes in social structure, environment, health technical or economic situation? Are these effects advantageous or not? Do they require any change in plans?

The design of the highway provides for a pedestrian crossing at 1 Km intervals either by underpass or vehicular bridge. The highway is designed to be a limited access highway. Unfortunately, in the beginning nearby residents desiring access to the opposite side of the highway cut the fencing on both sides of the highway. They apparently did not have any idea of the danger in crossing a high speed super highway. Bina Marga tried to placate the residents by offering to construct a parallel service road outside the highway. This proposal has not been successful thus far. Bina Marga has held a series of discussions with local leaders of the people residing near the highway pointing out the need for keeping pedestrians, animals, becaks, etc. off the highway. These discussions have been partially successful inasmuch as there has been a decline in the incidence of fence cutting on the highway. Eventually, Bina Marga will have to construct several pedestrian over-pass bridges in the highly populated areas near the highway to accommodate pedestrian cross-traffic.

It should be noted, however, that the design of the highway did take into account the irrigation canals and waterways crossing the highway. These crossings were accommodated by bridges, box culverts, pipe culverts and in some cases inverted siphons. There has been

(continued)

21. Does this project have any impact on the five development criteria outlined in Section 102(d) of the FAA (i.e.: a. increasing agricultural productivity through small farm labor intensive agriculture; b. reduce infant mortality; c. control population growth; d. promote greater equality in income distribution; and e. reduce rates of unemployment and underemployment). Explain.

1. The highway project has provided employment for several thousand Indonesians. It has upgraded the skills of many workers. The contractor has complained on numerous occasions of the problem of training workers in the operation of equipment only to have them quit and get a higher paying job elsewhere. Although this is a negative for the project, it is a plus for the Indonesian construction industry in that it creates a large pool of skill labor.

2. Part of the revenue from the toll system will be used to build additional roads in other areas of the country. This will provide additional employment in the areas where the highways are built.

3. As stated in No. 20, the highway will encourage the development of housing and industry in the Bogor-Ciawi area which in turn will provide more employment in the area.

4. The toll system as planned will generate funds for road projects in other parts of Indonesia. The net effect will be some redistribution of resources from the richest area of Indonesia to poorer areas.

22. Who are the direct and indirect beneficiaries of this project? (Identify, describe nature of benefits and number of those benefiting). Finally, do the benefits justify the costs?

The people in West Java will benefit directly and indirectly from this project. It will provide a better means of transportation from the Bogor area and beyond to the Jakarta area. It will promote increased commerce between the two areas. Based on the benefit-cost analysis conducted by the UNDP, the internal rate of return of this project in 1975 was 33.

23. **CHANGES IN DESIGN OR EXECUTION** - Explain the rationale for any proposed modification in project design or execution which now appear advisable as a result of the preceding findings (items 16 to 20 above) and which were reflected in one or more of the action decisions listed on page 1 or noted in Item 15 on page 2

No further changes are recommended in the design or execution of the project at this time.

24. **LESSONS LEARNED** - What advice can you give a colleague about development strategy -- e.g., how to tackle a similar development problem or to manage a similar project in another country? What can be suggested for follow-on in this country? Similarly, do you have any suggestions about evaluation methodology?
- (1) The first prerequisite of a project of this type is to have good contractors on the job.
  - (2) Effective management of a project of this type requires a good and close working relationship with host government counterparts and Key Consultant and contractor personnel. Evaluation of the benefits of a highway cannot take place until it is opened. After the opening of the highway, periodic traffic counts should be made.

**25. (a) SPECIAL COMMENTS or REMARKS (For AID/W projects, assess likelihood that results of project will be utilized in LDC's)**

Because of the high traffic volume (30,000 plus vehicle perday), the standards of the Jagorawi Highway are comparable to those used on the United States Interstate system. In less developed areas such as Aceh Province in North Sumatra a lower set of road standards would be used because of the lower traffic volume.

**(b) Overall assessment of project performance.**

Unsatisfactory		Satisfactory			Outstanding	
1	2	3	4	5	6	7
				X		

**Narrative statement explaining ranking:**

Numerous problems had to be overcome on this project in order to maintain progress. The contractor's organization (personnel & equipment) is now adequate to prosecute the work. The work is being completed in relatively good time. (Section B will be opened 2 months behind schedule). The quality of work on this project is good. This is the first highway built in Indonesia with such high standards (similar to the U.S. Interstate System). The GOI regard this highway as a showcase highway. They consider it to be the best highway in South East Asia. The GOI has given excellent support to the project covering all cost overruns. USAID has had a good working relationship with the GOI in implementing the project.

CONTINUATION

13. equipment on the Jagorawi Highway for USAID approval. USAID is processing a request to AID/W for an extension of the TDDA to cover the purchase of the maintenance equipment.
19. The supplier of the paving equipment has given little if any support to the contractor on the operation and maintenance of the paving equipment even though the contractor was willing to pay for these services. Many paving problems could have been avoided had the necessary expertise from the paving equipment manufacturer been on site to advise the contractor on maintenance and operation of the equipment.

As mentioned in No. 16, the conversion from a freeway to a toll system has had adverse effects on the project. This has required numerous design changes, caused delays in progress and increased overall costs substantially. Fortunately, the GOI is committed to covering all the costs attributable to conversion to a toll system.

20. no interruption of agricultural activities dependent on existing sources of water.

With the opening of the Jagorawi Highway, land prices in the Bogor-Ciawi area should rise considerably. Jakarta will be within commuting distance of these areas. The highway should encourage the development of housing and industry in the Bogor-Ciawi area.

This project introduced a new cost-saving technique in bridge construction with the introduction of mass-produced precast prestressed concrete bridge beams. In the span range from 15 to 30 meters it was found that the cost of the bridge superstructure utilizing precast, prestressed concrete beams was far less than cost-in-place reinforced construction or steel-concrete composite construction or steel truss construction. The GOI plans to utilize this cost-saving technique on bridge construction on future highways.