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DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

CAPITAL ASSISTANCE PAPER

Proposal and Recommendations
For the Review of the
Development Loan Committee

KOREA - SMALL /MEDIUM SCALE IRRIGATION PROJECT - AMENDMENT

AID-DLC/P-2025/2

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DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

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AID-DLC/P-²⁰²⁵~~2052~~/2

December 17, 1974

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Korea - Small/Medium Scale Irrigation Project - Amendment

Attached for your review are recommendations for authorization of a loan amending A.I.D. Loan No. 489-T-090, dated May 31, 1974, to the Government of the Republic of Korea ("Borrower"), as follow:

- a. The amount of the Loan is increased by Six Million Five Hundred Thousand Dollars (\$6,500,000) to a total amount not to exceed Twenty-Three Million Seven Hundred Thousand Dollars (\$23,700,000).
- b. The loan increase shall be subject to such other terms and conditions as A.I.D. may deem advisable consistent with the terms and conditions of the original Loan Authorization, signed May 31, 1974.

This loan proposal is scheduled for consideration by the Development Loan Staff Committee on Monday, December 23, 1974. Also, please note your concurrence or objection is due by close of business Friday, December 27, 1974. If you are a voting member a poll sheet has been enclosed for your response.

Development Loan Committee
Office of Development
Program Review

Attachments:

Summary and Recommendations
Project Analysis
ANNEXES A - F

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LOAN AMENDMENT

KOREA - SMALL/MEDIUM SCALE IRRIGATION PROJECT

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LOAN AMENDMENT

KOREA - SMALL/MEDIUM SCALE IRRIGATION PROJECT

SUMMARY AND RECOMMENDATIONS

1. Borrower: The Government of the Republic of Korea (ROK). The project will be implemented by the Agricultural Development Corporation (ADC) of the Ministry of Agriculture and Fisheries.
2. Amount of Loan: A loan amendment in the amount of \$6.5 million, increasing Loan No. 489-T-090 from \$17.2 million to \$23.7 million.
3. Terms: Repayment within 40 years, including a ten-year grace period; interest at 2% annually during the grace period, and 3% thereafter.
4. Purpose: To accelerate further ROKG efforts to expand the production of rice and barley through the utilization of water resources from small/medium scale irrigation projects and thereby assist up to approximately 95,000 farmers to increase net incomes by an average of \$412 per year.
5. Project Description: The Project (initial loan plus amendment) consists of the completion of up to 66 sub-projects, currently in various stages of construction. These sub-projects consist primarily of pumping and reservoir type irrigation systems that are located throughout the country.
6. Project Costs and Financing Arrangements: Total costs of completing these 66 sub-projects is currently estimated to be \$66.0 million. Of this amount it is proposed that AID finance \$23.7 million through the initial loan and this amendment. These funds would be available on a reimbursement basis to finance 75% of certain designated local costs of each sub-project selected for A.I.D. financing. Such reimbursement would take place only after individual sub-projects are certified to AID as being satisfactorily completed.
7. Other Sources of Financing: Other sources of financing to assist this project are not presently available.
8. Mission Views: USAID/Korea views this project as being a key element of its current program which emphasizes support for the ROKG's efforts to speed the development of the rural/agricultural sector. An extensive on-site inspection in late November of nearly completed sub-projects by the USAID engineer has shown that they are of high quality construction and that they are much appreciated by the populace. USAID recommends early authorization of the proposed loan amendment.

9. Issues: None
10. Statutory Criteria: All statutory criteria have been satisfied (see Annex **B**).
11. Recommendation: Authorization of a loan amendment to Loan No. 489-T-090 in the amount of \$6.5 million to increase the loan from \$17.2 million to \$23.7 million in order to finance up to 75% of certain local costs of completing sub-projects from among the 66 identified, subject to the terms and conditions stated in the draft loan authorization attached as Annex A.

USAID PROJECT COMMITTEE

Agricultural Advisor and Chairman	Francis C. Jones, RDD
Loan Officer	Zachary Hahn, DLD
Legal Officer	John W. Roxborough, LEG
Engineer	George D. Reasonover, ENG
Controller	Morley H. Gren, CONT

AID/W PROJECT COMMITTEE

Loan Officer and Chairman	M. Milburn Pehl, East Asia/CD
Agricultural Advisor	John A. Foti, East Asia/Tech
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Legal Advisor	Herbert E. Morris, GC/EA
Loan Officer	Robert S. Queener, East Asia/CD
Drafting Officers	Jones, Hahn, Roxborough, Reasonover, Lehmann, Queener, Pehl

I. Background and Justification

A. Agriculture in the Korean Economy

The dramatic growth and development of the Korean economy since the early 1960's is a matter of historical record which has been amply documented in reports of the major international lending institutions and the Government of Korea (ROK). It is also well recognized by the ROK and the international lenders that the pattern of development under the first two Five Year Plans (1962-1966 and 1967-1971) heavily emphasized basic infrastructure and export-oriented industry at the expense of agriculture. During the ten-year period 1959-1969, the average annual growth rate of the total economy was 8.2 percent, while agriculture, forestry and fisheries grew at a rate of 4.2 percent. For agriculture alone the rate of growth was 3.8 percent. While this is a respectable rate for the agricultural sector in a developing country, agriculture has not been able to meet the demands of the rapidly expanding urban sector.

During this period of primary emphasis on industrial development (1960-1972), the contribution of the agricultural sector to GNP declined from 44% to 25% and the portion of the labor force employed in the agricultural sector declined from 67% to 48%. These are understandable and desirable trends according to the long-range Korean development strategy. However, accompanying these trends are three problems which are of serious concern to ROK:

- (1) The ratio between the per capita income of the rural worker and the urban worker fell from 101 in 1963 to 77 in 1972. The deterioration in the relative economic position of the rural worker was even more drastic up to 1967 (a drop from 101 to 53), but was partially corrected by massive increases in domestic support prices for rice and barley beginning in 1967.
- (2) Despite the sharp increases in support prices for rice and barley, domestic production of rice did not increase between 1967 and 1973, and production of barley actually declined.
- (3) During the period 1960-1973, Korean imports of the three major food grains increased from approximately 478,000 metric tons to 2,785,000 metric tons. Imports of rice and barley alone rose from nearly zero to 957,000 metric tons in 1973. Approximately 10% of the Korean import bill in 1972 was attributable to the three major food grains, 6% to rice and barley alone. Moreover, the quantity and cost of food grain imports has increased sharply in 1974.

In recognition of these problems, the ROKG set two major development goals for Korean agriculture in the 1970's:

- (1) Increase production of major food grains -- rice, wheat, barley, and soybeans -- to reduce costly imports.
- (2) Improve the quality of rural life by increasing rural incomes.

B. Recommendations of Korean Agricultural Sector Studies

Two Agricultural Sector Studies have been conducted in Korea during the last three years: an AID-financed study (KASS) carried out jointly by the Ministry of Agriculture and Fisheries and Michigan State University in 1971-1972, and an IBRD Agricultural Sector Survey released in November 1973. The earlier study recommended ROKG investment in eight specific agricultural areas, with highest priority attached to agricultural research, rural transportation networks, and irrigation. The IBRD study emphasized the need for investments in land and water resource development to build up the agricultural production base, for advanced farming technology to raise output per unit of land area, and for mechanization of farm operations to raise output per worker. While this study tended to favor large-scale river basin development projects and integrated area development schemes, it made clear that the principal constraints to expansion of agricultural output were limited land resources and inadequate irrigation and drainage facilities.

C. Justification for AID Loan 489-T-090 and this Proposed Amendment

Of the three priority areas for agricultural investment recommended by KASS, AID Loan 489-T-088 was designed to strengthen agricultural research programs in Korea, and rural roads investment is being assisted by other donors, including the IBRD. The third area, irrigation, is being addressed by large-scale river basin development projects assisted by other donors and a small/medium scale irrigation program of 88 separate irrigation systems initiated by the Ministry of Agriculture and Fisheries (MAF) in 1968, with responsibility for implementation assigned to the MAF's Agricultural Development Corporation (ADC). This irrigation program has been basically well planned and well-managed, but by initiating all 88 sub-projects simultaneously, the ADC attempted to accomplish more than was possible with the limited funds that could be made available through the ROKG budget. The result was a serious protraction of sub-project completion schedules and the economic waste associated with costly works that are only partially finished and therefore unused for long periods of time.

In order to accelerate sub-project completion schedules, the ROKG applied for an AID Loan in December 1973. With the assurance of financing available through an AID loan, the ROKG would be able to budget additional funds for the small/medium scale irrigation program and accordingly intensify implementation activities. The justification of the AID loan lay in the potential for accelerating completion of high pay-off irrigation systems and earlier delivery of economic benefits. AID Loan 489-T-090 in the amount of \$17.2 million was authorized on May 31, 1974, and the Loan Agreement was signed on September 11, 1974. On November 20,

1974, the ROKG requested a second AID Loan to supplement the earlier loan in financing the small/medium scale irrigation program (see Annex D).

II. Project Description and Purpose

A. Project Description

The 88 irrigation systems to be built under the ROKG small/medium scale irrigation program already have major investments in place, but sufficient funds are not available for prompt completion. Enough work has been completed on many of the sub-projects so that relatively modest inputs can get at least part of the irrigation started. In fact some are already irrigating a part of the potentially irrigable area.

In some of the larger pump irrigation schemes, there is basically a stage development possibility where blocks of land can come under irrigation when certain key facilities are constructed. Some of these (such as the Sin-gog sub-project) have very clear-cut stages. Others are not so sharply defined since some works serve several "stages" and the extent of new irrigation may depend less on the completion of key structures. A staged development concept might apply to some reservoir sub-projects and some drainage sub-projects, but the effect is not so obvious.

In general, the smaller sub-projects tend to be an "all or nothing" situation. The key structures, whether a dam, pumping station or weir, are usually the last finished under any funding situation. The drainage schemes also tend toward an "all or nothing" situation. When the main pumping station is operable, some benefit may result, but generally all secondary pumps and all drainage canals will be needed before there will be significant benefit from the installation.

The ROKG originally proposed that AID loan it a minimum of \$30,000,000 over a two-year period to assist it in the early completion of these 88 irrigation systems. The Project Committee irrigation engineer reviewed the technical plans and specifications for these systems and made visits to the sites of a representative sample (14). The Committee also made an economic analysis of each of the 88 systems. On the basis of these reviews and analyses, the Committee decided that AID should select as eligible for AID financing only those sub-projects which have an incremental Internal Rate of Return (IRR) of 22% or higher. The Project was defined as those 66 sub-projects thus eligible for AID financing. The Project is described in greater detail in the Capital Assistance Paper for AID Loan 489-T-090, a copy of which is attached as a separate annex.

AID Loan 489-T-090 and subsequent amendments will reimburse the ROKG for 75% of the actual costs of completing eligible sub-projects. Sub-project costs are reimbursed on a first-come, first-served basis as they are completed, and no attempt was made to identify more precisely

which of the 66 eligible sub-projects would be financed by the Loan. Reimbursement is made on the basis of satisfactory certification that a sub-project has been completed and itemization of reimbursable costs presented in form and substance acceptable to AID. All expenditures will be for local costs since the necessary services and materials are available locally. Payment is made through Special Letters of Credit which may be drawn down by ROKG by procurement of commodities and services from U.S. suppliers.

B. Project Purpose

The sectoral goal, project purpose, and planned project inputs and outputs are described in the following paragraphs. A logical framework matrix providing a more complete project design for the overall project of 66 irrigation systems is attached as Annex A.

1. Sectoral goal - to minimize food grain imports and increase the incomes of the rural population.
2. Project purpose - to increase production of agricultural commodities, primarily rice and barley, through the application of irrigation water.
3. Project outputs -
 - completion of 66 small/medium scale irrigation systems
 - conversion of land into irrigable paddy by clearing, levelling, terracing, etc.
 - delivery of irrigation water to farm land in project area
 - improved capabilities of Farm Land Improvement Associations (FLIA's) to operate and maintain irrigation facilities
4. Project inputs -
 - contractor services
 - equipment and construction materials
 - land acquisition and conversion
 - construction supervision by ADC and FLIA's
 - training of ADC and FLIA staff
 - other direct costs

C: Purpose of this Proposed Amendment

The total cost of the Project is currently estimated at \$66.0^{1/} Million. AID Loan 489-T-090 and the associated ROKG contribution will provide approximately \$23 million of financing, slightly more than one-third of the total cost. The purpose of the proposed amendment of \$6.5 million is to provide additional impetus for the ROKG efforts towards early completion of the Project.

In addition, it is expected that a second amendment will be proposed later in FY 1975, depending upon the availability of funds and upon the readiness of other proposed Korean Loans for authorization during FY 1975 (Higher Education - \$5.0 million, Health Sector - \$5.0 million, Industrial Standards - \$5.0 million, and a Third Feasibility Studies Loan \$2.0 million). To the extent that one or more of these other projects does not materialize, a second amendment will be proposed in an amount necessary to cover any shortfall in meeting the planned FY 1975 lending level of \$23.5 million to Korea. Provided there are no significant changes in project conditions and factors determining justification, this Project Paper will serve as the basis for the subsequent request for amendment.

D. Project Costs and Financial Plan

Table I provides a current schedule of sub-project completions by year and estimated remaining construction costs. As noted above, the incremental costs (based on 1974 prices) for completion of the 66 eligible subprojects total 26.4 billion won or \$66.0 million. The table shows that 21 subprojects should be completed in 1974, with costs incurred since January 1, 1974, approximating \$5.9 million, and 26 additional sub-projects should be completed in 1975, at a cost of \$16.6 million from January 1, 1974, to completion. Claims for reimbursements against AID Loan 489-T-090 during 1974 and 1975 should total \$16.9 million, leaving a small balance of \$300,000 to finance costs of subproject completions in early 1976. The proposed amendment would assist in financing the completion of some of the remaining subprojects, with few exceptions the largest and costliest sub-projects in the eligible group. If the amount of this amendment and subsequent amendment mentioned above total \$23.5 million, for example, all but the single largest subproject (Sin-gog - \$11.25 million) could be financed by the AID Loan as amended and the corresponding ROKG contribution. MAP 1 in the Annex shows the location of these 19 subprojects.

Since AID loan funds are made available on a reimbursement basis, the pace of the Project depends primarily upon ROKG budget allocations. The reimbursement strategy was, in fact, chosen in order to motivate the ROKG to provide adequate advance funding for the construction of the irrigation systems. The success of this strategy is shown by the following table:

1. Conversion from won figures to dollar equivalent throughout this PP were based on exchange rate of \$1 U.S.dollar = 400 won, the rate prevailing at the time the PP prepared. On Dec.7, 1974, the ROKG devalued the won approx. 20%, establishing a new FX rate of \$1 U.S.dollar = 485 won. The new rate will change some of the figures used in this PP but not alter the validity of the discussion presented. One change is that the total cost of the project, in dollar terms, is reduced to \$54.4 million,

<u>Year</u>	<u>ROKG Budgetary Allocation</u> <u>(\$ Million)</u>
Up to 1970	4.0
1971	3.0
1972	4.5
1973	2.3
1974*	12.2*
1975	16.7

*The regular budgetary allocation for 1974 was \$8.0 million, already a substantial increase over the average allocation of the previous three years. In addition, a supplemental allocation of \$4.2 million was made in October 1974 in response to an offer by AID to advance funds from Loan 489-T-090 in the ratio of one loan dollar for every \$1.4 equivalent of supplemental budgetary funds committed.

ROKG funds available for the project in 1974 and 1975 total \$29.0 million equivalent, leaving a residual requirement for further financing of \$37.0 million. If ROKG allocates funds to the Project in both 1976 and 1977 at the same level as 1975, there would be \$33.4 million available for completion of sub-projects during these two years versus the required \$37.0 million. Thus, all remaining 19 sub-projects, excepting the large Sin-gog system, could be completed by the end of 1977. Given the even greater emphasis accorded this Project at present compared with six months ago, the USAID Project Committee believes that ROKG annual budgets for the project in 1976 and 1977 will equal or exceed the 1975 level.

The reimbursement formula, 75%/25%, assures that the ROKG will pay a minimum of 25% of the total costs of the completed sub-projects and thus meet the requirements of Section 110 of the Foreign Assistance Act. Moreover, under any circumstances, the ROKG share of the total cost of the Project will be well in excess of 25%, as shown below:

Amount of Amendment to AID Loan 489-T-090 (\$000,000)	ROKG Share*		AID Share		Total	
	Amount (\$000,000)	%	Amount (\$000,000)	%	Amount (\$000,000)	%
I. \$ 6.5	\$42.3	64.1	\$23.7	35.9	66.0*	100
II. \$23.5	\$25.3	38.4	\$40.7	61.6	66.0*	100

*These calculations were based on the currently estimated total Project cost of \$66.0 million. The final Project cost and the ROKG share of this total will almost certainly be higher since current estimates will need to be increased to cover cost escalation.

III. Experience With The Project To Date - During November 1974, an evaluation committee visited a random sample of the 21 sub-projects scheduled for completion in 1974. The sub-projects visited are listed below:

* Project Number	Name of Project	Facility	Benefit Area (Ha)	Total Con- struction Cost ----Millions	Remaining Construction Cost of won----
2	Yoon-nae	Pumping Station	650	181	136
12	Myung-Kwang	Reservoir	268	231	104
16	Jang-ha	Pumping Station	231	128	95
17	Se-do	" "	317	219	92
31	An-deok	Reservoir	201	181	108
40	Gae-wun	"	167	244	105
56	Hwang-dun	"	122	255	146

*These numbers correspond to project numbers shown in Table 1.

The evaluation committee consisted of the USAID Engineer and representatives of the Ministry of Agriculture and Fisheries (MAF) and the Agricultural Development Corporation (ADC). Their purpose was to appraise sub-project design, construction quality and progress toward completion. In the course of this inspection, the committee had the benefit of discussions with management and farmer representatives from the Farm Land Improvement Associations (FLIAs).

Progress toward completion of the sample of sub-projects is satisfactory and in some instances truly remarkable, considering the magnitude of the work to be done and the late release (October 28, 1974) of supplemental budget funds. All required major facilities (reservoirs, pumping stations) have either been completed or are in the final stages of construction. The local contractors appear to be professionally qualified and, although the work is highly labor intensive, the quality of construction, particularly concrete structures, is uniformly good with overall supervision and construction rated high.

The farmers in the sub-project areas inspected have already made extensive preparations to utilize the irrigation water from the reservoirs and pumping stations by the construction of intercept canals, land leveling and terracing. Thus the entire irrigation system for each sub-project will be operable before the 1975 rice growing season.

Provincial officials were high in their praise of the sub-projects, citing the benefits of the use of highly labor intensive construction methods, which have brought the farmers into active participation during the construction phase, and have had a substantial positive impact on the incomes of large numbers of the rural poor. Farmers themselves expressed appreciation for the benefits that they will receive from the new irrigation facilities.

In light of the favorable findings on the capabilities of the entities involved in this proposed project, namely the Economic Planning Board; Ministry of Agriculture and Fisheries; the Agricultural Development Corporation; the Farmland Improvement Association; the other agencies of MAF; contractors; other private firms concerned with farm inputs, storage and marketing; and last but not least the shrewdness and adaptability of the farmers, the Project Committee finds excellent continuing prospects for a successful Project.

IV. Continuing Validity of the Original Feasibility and Soundness Analyses

The feasibility and soundness analyses presented in the Capital Assistance Paper for Loan 489-T-090 remain valid for this proposed amendment. Summary paragraphs from that CAP have been incorporated in this paper, but for a more detailed discussion, Section II. Institutional Aspects and Section IV. Economic and Financial Analysis should be read.

A. Technical Soundness

The technical soundness of the Project was evaluated from several perspectives:

1. The design and engineering standards - For all structures, except such specialized structures as major pumping stations, design drawings follow closely the U.S. Bureau of Reclamation pattern. The engineering and detailed design work for a representative sample of subprojects was examined in sufficient detail to assure that design and engineering work conforms with good engineering practice and meets Section 611 requirements.

2. Adequacy of other inputs and services necessary to make optimal use of irrigation facilities - Agricultural inputs (fertilizer, insecticides, pesticides, seeds) are widely available to farmers through both public and private marketing systems. While these systems undoubtedly could be improved, and need to expand considerably in future years, they have demonstrated a capacity to get purchased inputs to farmers in a reasonably efficient manner. For example, fertilizer usage by farmers has increased from 393,000 MT in 1965 to over 800,000 MT in 1973, or slightly over 100 percent. Annual rates of increase have been particularly marked during the past two years, being 20 percent in 1972 and 13 percent in 1973, largely as the result of government's high price policy. The IBRD Agricultural Sector Survey states: "A highly developed system of farmer cooperatives has enabled the government to carry out successful programs for... distributing fertilizer and other inputs required to expand crop and livestock production and increasing commercial marketing of agricultural products."

Korea has rather sizeable fertilizer manufacturing capacity, much of which has been AID financed. Until 1973, production had been sufficient to meet Korea's own needs and to export a small amount. In 1973, a small amount was imported. However, new production is coming on stream, expansions of existing plants are underway or planned, and a major new facility (the "Seventh Fertilizer Plant") is well along in planning. The ROK and the investors in these plants are being careful to ensure long-term raw materials availability. The Project Committee feels prospects are excellent that Korea's overall needs for fertilizer in the long run will be met.

The agricultural extension (guidance) service is much more advanced than in other developing countries, and through past performance has demonstrated the ability to perform in a more than adequate manner. A notable example of its capacity was its performance in disseminating information to farmers concerning the planting and cultivation of IR 667 rice in 1972, the first year in which that newly developed variety was planted extensively.

Storage facilities in terms of total capacity is probably adequate, but the quality of storage needs to be improved. AID assisted in improving both quantity and quality in 1972, when it financed the construction of 675 myon (district) level warehouses. The Government is continuing to build new storage facilities of a high standard. Adequate marketing arrangements already exist and it can be safely assumed that they will be expanded as required to absorb the increased production of the proposed project.

3. Rationalization of land-holdings for most efficient delivery of irrigation water - Land consolidation, or paddy rearrangement, is a firmly fixed and implemented policy of the ROKG. In general, however, the ADC does not become directly involved in paddy rearrangement efforts, which are customarily financed by the Provincial Governments and in some cases, by the farmers themselves. The ADC attempts to coordinate such local initiative with its irrigation projects because of the beneficial effects on the layout of lateral systems and delivery of irrigation water. Since the ADC has been quite successful in getting paddy rearrangement work done by local agencies, many of the proposed subprojects will have land consolidation as part of subproject construction, some will not. In the latter case, consolidation will occur only after more extended negotiations and the farmers become convinced that the benefits will significantly outweigh the costs.

B. Economic Feasibility

Incremental economic internal rates of return (IRRs) were calculated for each of the 88 irrigation systems and shown in Table I of the Annex to the CAP for Loan 489-T-090. This analysis considered all the investment through calendar year 1973 as a sunk cost, and the IRRs therefore disregarded these costs. Incremental benefits were considered to be the current values of the additional crop production which would stem from reasonably expected yield increases priced at estimated economic values for these crops. The incremental production costs^{1/} to attain the incremental benefits were also included in the calculations.

1. See Tables 3 and 4 in the Annex to the CAP for Loan 489-T-090 for breakdowns of production costs and benefits for the 88 irrigation systems.

The Project Committee used these incremental economic rates of return as the principal indicators of economic viability and Table I of the referenced Annex listed the systems in rank order from the highest rate of return to the lowest. As can be seen from that Table, (Column B), the economic IRRs for all 88 systems ranged from a high of 123% to a low of 12%. The proposed cut-off for AID financing was subproject No. 66 at 22% IRR. The balance of the system below this group (not eligible for AID financing) were shown for informational purposes. The reason for this fairly high cutoff was the relatively high opportunity cost of capital in Korea which was in the neighborhood of 20-25%. (The highest commercial bank over-draft rate then found in current statistics was 20%).

The Project Committee recently restudied the cost situation for the 66 eligible subprojects and developed estimates of subprojects completion cost. The revisions, mainly upwards, result from unit price increases greater than estimated at the time the May/1974 CAP was prepared and, in two cases, subproject design changes. Table 2 compares these revised estimates with those shown in Table I of the May/1974 CAP and also shows the original IRRs, as calculated for the May/1974 CAP.

Table 2 reveals that the bulk of the subprojects either show decreases in remaining cost or cost increases of 15 percent or less. Because of the slight cost variations on 46 subprojects, a visual check of the original incremental IRRs and the percentage change in estimated remaining costs was sufficient to verify that these subprojects still have IRRs above 22 percent. For the remaining 20 subprojects, MAP/ADC recalculated the IRRs using the revised remaining cost estimates, with the following determination:

<u>Subproject Number</u>	<u>Original IRR (%)</u>	<u>Revised IRR (%)</u>
11	67	45
16	58	47
20	49	35
25	46	33
34	37	29
35	36	26
39	32	17
40	30	25
43	29	32
47	28	24
51	25	18
52	25	23
56	24	20
57	24	20
58	24	22
59	24	21
61	23	16
63	23	20
65	22	20
66	22	22

According to the MAF/ADC's latest calculations, eight of the subprojects show new IRR's below 22 per cent, with subproject No. 61 dropping to 16 per cent. However, for the reasons cited below, the Project Committee recommends that these eight sub-projects be retained among the group of subprojects eligible for AID financing:

(1) The revised IRR calculations only took cost changes into consideration. In fact, commodity prices have increased sharply during 1974, thereby offsetting the effect of cost increases on the IRR's. Prices received by Korean farmers in 1974 for rice and barley will be 38.5% and 41.5% higher, respectively, than values used in the original IRR calculations.

(2) As will be discussed later, the beneficiaries of the Project are part of the poor majority in Korea, since all Korean farmers are small landholders and have low incomes by urban standards. For projects that impact directly on the poor majority, an IRR below the estimated opportunity cost of capital should be justifiable and a cut-off of 15% appears reasonable.

C. Financial Viability

Considering total project costs, financial rate of return calculations for the 66 subprojects (with rice at the internal support price of \$355 equivalent per MT and barley at \$228 equivalent per MT) ranged from 77% to 10% (see the last column of Table I in the Annex to the CAP for Loan 489-T-090). It was therefore concluded that on a strict benefit/cost ratio basis, all subprojects exceeded a one-to-one ratio by a substantial margin. Thus the requirements of FAA of Section 611(b) and App. Section 101 relating to the Memorandum of the President, dated May 15, 1962, and pertaining to cost/benefit ratios were met. Since the ROKG is subsidizing 70% of the capital costs of each of these systems, it follows that the farmers will benefit at these relatively attractive Financial Rates of Return enhanced by the effect of the Government subsidy.

The other test of financial viability is the ability of farmers to pay for the use of irrigation water. Based on the figures for all 88 systems (which would not be very different from the comparable figures for the 66 subprojects selected since the latter group contains the one very large project, Sin-gog) the average farmer in the project area would realize the net benefits of approximately won 165,000 (\$412) per annum. This is derived from the estimated "net profit" for all farmers shown as won 19,526,510,000 in Table 4 of the Annex to the CAP for Loan 489-T-090 divided by the 103,413 farmers in the 88 systems minus an estimated water charge averaging won 25,000 (\$62.50) per farm. The water

charge includes debt service on 30% of the project capital costs and covers all other expenses of delivering the water to the farmer including system maintenance costs. Thus the capacity of the farmer to pay water charges of \$62.50 after a return of \$475 per annum is obvious. We understand that the farmers pay their water charges assessments either in cash or kind after the harvest and only on the basis of some catastrophe are water charges either reduced or eliminated for an irrigation season.

D. Institutional Capability

Design, engineering, and construction supervision are the responsibilities of the ADC. In some cases, construction supervision will be entrusted to FLIA's who will also be responsible for operation and maintenance of the completed irrigation systems. The Project Committee's overall assessment is that the ADC and FLIA's have amply demonstrated their competence to manage irrigation projects of this type. This judgment was corroborated by IBRD personnel having long experience with irrigation activities in Korea, and most recently by the USAID Evaluation Committee headed by the Chief Engineer.

1. The Agricultural Development Corporation (ADC)

ADC, a semi-autonomous public entity within the Ministry of Agriculture and Fisheries, has overall responsibility for project execution. Established in early 1970 through consolidation of the Union of Land Improvement Associations and the Groundwater Development Corporation under the Rural Development Promotion Law, ADC has broad responsibilities for the development of land and water resources in rural areas throughout Korea. Although a relatively new organization, ADC has through its employees and predecessor agencies long experience in managing construction or irrigation projects. ADC is headed by a president, a vice president and a board of directors consisting of four members. The President and vice president are appointed for a four-year term by the President of the Republic of Korea, while the directors and other senior staff are appointed by ADC's president. The corporation is divided into six departments: General Affairs, Survey and Design, Construction, Kungang-Pyong Taek project, Foreign Services, and the Agricultural Engineering Research Center.

The Project Committee considers that ADC has sound management and adequate staff to handle the acceleration of subprojects under the proposed loan in addition to its other work, including the IBRD-funded activities. This is because actual construction is carried out by private

contractors. The 88 systems are all ongoing efforts that are staffed based on the past rate of anticipated funding. Likewise, all basic design work has been completed. Little extra staff will be needed to permit a significant acceleration. The on-site staff normally includes a resident engineer (ADC) and an inspection team (ADC and FLIA) consisting of two members. At most, the larger projects might need an additional inspector or two. Such personnel are normally engineers-in-training or technicians. The on-site staff is supported and supplemented by the Provincial Office (or in some cases an Intermediate District office). These offices seem adequately staffed. It was noticed that, in the three Provincial Offices contacted, the basic staff exhibited a permanence of personnel that is unusual by U.S. engineering standards. Key personnel generally had 20 to 25 years of service, usually all in that one location. It appears that there is a reluctance to move to other communities. This tends to stabilize such offices.

2. Farm Land Improvement Associations

The Farm Land Improvement Associations (FLIA) show a remarkable similarity to the Irrigation Districts of the Western United States. These are associations of farmers with a common interest in the continued success of an irrigation system. This arrangement has proven in the U.S. to be generally much more successful than the private irrigation company in business to supply water. The FLIA, like the U.S. Irrigation District, has the authority to "tax" the waterusers for funds for the operation and maintenance of the irrigation system and for repayment of debts of the FLIA. Because of the direct farmer involvement, the management must do a satisfactory job and becomes very sensitive to the farmer's needs. An Irrigation Engineer contracted by AID to appraise the overall soundness of the project rated the maintenance operations of the FLIAs as slightly better than the average Irrigation District of comparable size in the United States, probably because of the greater availability of hand labor.

3. Contractors

For each subproject there is normally one prime private construction contractor selected on the basis of his low bid. In preparing his bid, he may vary price from 80% to 100% of the official unit costs established for that year by the Economic Planning Board and he has flexibility in pricing his override (the indirect costs including contingency, overhead, profit, etc.). The selected contractor is retained to complete the project provided his work is satisfactory, but the contract is funded only one year at a time. New prices are negotiated in succeeding years based on the new EPB established official unit costs. The amount of work to be done is fixed by budget availability and the new costs. The contractor posts a Performance Bond in the amount of 10% of the contract cost for each annual contract amount. There has been an excellent record of performance with only limited instances of failure.

V. Compliance with Congressional Directives

A. Focus on Poor Majority

This project will directly impact on Korea's poor majority and comply with the Congressional directive "to give highest priority to undertakings submitted by host governments which directly improve the lives of the poorest of their people and their capacity to participate in the development of their countries". As stated earlier, the incomes of Korea's rural population are, on the average, 25% lower than those of Koreans living in urban areas. This Project will benefit about 95,000 farm households, approximately 560,000 individuals, roughly 4 percent of the total farm population of Korea. Individual farm household net annual incomes after project completion will be increased on the average of about won 165,000, (\$412), or 125 percent of present income from their lands.

While all Korean farms are small, with farms averaging only 0.92 hectares, and virtually all Korean farmers are poor, with average incomes in 1972 of \$180 per capita, the farms within the project area are probably below this per capita average since they now have rain-fed paddy fields while the majority of the paddy lands nationwide suitable for irrigation are fully irrigated. Even if the Project farm families have incomes at the \$180 per capita level, the Project would add \$70 per capita of net income for a new total of \$250, which would bring their incomes up to the national average for 1972. Thus this activity will provide long-term benefits to a substantial number of the poorer people in Korea.

Recognizing that within each sub-project area, there is a mixture of relatively richer farmers and relatively poorer farmers, the Project Committee has sought assurance that there are no impediments to full participation in project benefits by the relatively poorer farmers. This assurance is provided by the fact that all farmers in each sub-project area are members of the Farm Land Improvement Association which operates the irrigation system, and are entitled to equal access to sub-project benefits. The sub-projects are small in size, highly labor intensive, and of the type generally associated with maintenance and conservation of resources. They were selected in response to needs expressed at the village level - both relatively poor and relatively rich farmers. Recent site visits by the USAID Project Committee confirm that these sub-projects enable the poor to take an active part in the economic life of the community. In every instance where limited irrigation services have already been made available, new canals and channels have been completed to permit equal distribution to all farms in the area.

Since construction methods on these subprojects are relatively labor intensive, with unskilled labor costs constituting approximately 30 percent of total project cost compared with only 3 percent for unskilled labor costs under the highly intensive machine methods utilized by the UNDP Upland and Watershed Management Project in Korea, this project will also have a favorable short term impact on rural income. In terms of employment of rural people, approximately 13 million man days of employment will be provided during the period of project construction. In addition, rural people will be employed during the off-season for the maintenance of the irrigation systems. Thus there will be a large immediate and lesser, continuing supplement to rural income in the sub-project areas from these activities. These short-term effects will preferentially benefit the smaller landholders and relatively poorer farmers who derive a higher percentage of their income from off-the-farm activities.

B. Impact on the Status of Women

Women will enjoy the same economic benefits resulting from this Project as incomes of rural households increase. In addition, a small percentage of land-owners in the sub-project areas are women who participate in the affairs of the FLJA's on the same basis as men. More enlightening, however, is to regard this Project in the context of a more comprehensive rural development effort initiated by ROKG in 1971, under the name of The Sae Maeul (New Community) Movement. The objective of The Sae Maeul Movement is to improve the standard of living in rural areas through the modernization of thinking and social patterns, physical and environmental improvement and creation of more non-agricultural jobs leading to increased productivity and incomes. The movement will embrace all Korean villages, including those participating in the AID-funded Project, with the transition to independent, self-reliant new communities completed by 1977.

According to an IBRD economic report on Korea, "each Sae Maeul village will have an elected village leader, as well as an elected woman leader for handling affairs relevant to women. The increasing role of women in village life, both through the activities within Sae Maeul proper as well as indirectly because of more financial independence from their families, especially among the younger generation, has been enhanced by the availability of cash earning jobs in Sae Maeul industries and related services". By mid-1973, 85 small factories employing a total of 12,000 workers had been established under the Sae Maeul program. Most of the jobs provided were filled by female workers.

In summary, to the extent that The Sae Maeul Movement succeeds nationally and in the areas benefitting from this proposed Project, the status of women in rural Korean society will be fundamentally altered.

C. Environmental Aspects

Refer to Annex B for a discussion of the effects of this proposed Project on the environment.

VI Prospects for Repayment

A. Korea's Balance of Payment Position and Debt Service Capacity

While "oil crisis" effects have greatly increased Korea's import bill and temporarily eliminated export growth (in the latter part of 1974 and probably the first half of 1975) Korea's long-term balance of payments prospects remain good, based on its past performance and favorable competitive factors.

After two relatively small BOP deficits and a large increase in foreign exchange reserves in 1972-73, Korea is experiencing a very large deficit in 1974 and a small loss on gross reserves. As Table VII-1 indicates, the current account deficit will increase from \$309 million to about \$1.5 billion in 1974. Exports will be up about 42% but imports will expand by about 60%, mainly due to price increases. Invisible payments will also be up sharply but service receipts will remain about the same due to a decline in revenues from Japanese tourists. Despite an increase of over \$400 million in long-term capital inflows in 1974, another \$400 million in net short-term credits will be required to finance the large deficit.

Due to the international recession, Korea's exports began a downward trend in the second half of 1974 which is likely to last through the first half of 1975. While the government has made no official forecast for the uncertain year ahead, the general expectation is that a stronger second half will result in an increase of 7-8% in both exports and imports for the year as a whole. The tentative Embassy estimates shown in Table VII-1 forecast a current account deficit of nearly \$1.7 billion in 1975, which will be financed almost entirely by long-term capital inflows, including bank loans, special IMF credits and Korea's first IBRD program loan.

Assuming an end to the current international recession, Korea should resume strong export growth and begin to narrow its BOP deficit in 1976. The government is proceeding with its long-term heavy industry plan for 1973-81, although original plan estimates have been outdated by events in 1973-74. No formal revision of the 1973-81 estimates has been made, although the estimate of total foreign capital needs has been informally increased from \$10 to \$14-15 billion, due to the BOP and price effects of the oil crisis.

Korea's debt-service ratio improved in 1974, as foreign exchange earnings again outpaced debt service. The ratio is expected to drop from 13.9% in 1973 to about 11.8% in 1974 (see Table VII-2). Since 1970 the ratio has fallen steadily from a potentially dangerous 21% level, due partly to a shift to longer-term debt obtained on more favorable terms. This trend will be reversed in 1975 since export earnings are expected to increase somewhat less than the probable 14% increase in debt service. No government forecast is yet available but the Embassy estimates in Table VII-2 that the debt service ratio will slightly rise to about 12.5% in 1975.

For the longer term no great increase in the debt service ratio is expected, on the assumption that export growth is resumed. The government, which had expected the service ratio for long-term debt to increase to 7.6% by 1981, has informally estimated that the effect of the oil crisis on the BOP will be to increase that ratio by 2-4%, i.e. to about 10-12% in 1981 or roughly the ratio prevailing in 1973-74. Continued high interest rates would of course increase the burden of servicing long-term debt, as well as making it costly to service the higher level of short-term bank and trade credits incurred in 1974.

B. Specific Arrangements for Repayment of Loan

Repayment of this loan will be charge against ROKG general resources. From sub-section A above it can be seen that the Korean economy should have no problem with undertaking this additional foreign exchange debt servicing burden. USAID further believes that ROKG revenues will be sufficient to provide budgetary resources for servicing of this proposed debt.

Table VI--1

Balance of Payments Forecast

	In million U.S. dollars			
	1972	1973	E1974	E1975
I. Goods and Services	-541	-499	-1,760	-1,950
1. Merchandise Exports	1,676	3,271	4,650	5,000
2. Merchandise Imports	2,250	3,837	6,130	6,600
Trade Balance	-575	-566	-1,480	-1,600
3. Invisible Receipts	551	849	840	900
4. Invisible Payments	517	782	1,120	1,250
Invisible Balance	34	67	-280	-350
II. Transfer Payments (Net)	170	190	260	260
Current Account Balance	-371	-309	-1,500	-1,590
III. Capital Transactions (Net)	489	630	1,446	1,760
5. Long-term Capital (Gross)	738	907	1,348	1,910
6. Amortization (on LT Cap.)	-228	-341	-316	-340
7. Short-term Capital & Others (Net)	-21	64	414	190
IV. Errors & Omissions	41	19		
V. Changes in Foreign Exchange Holdings (Increase = minus)	-159	-340	54	-70
VI. Foreign Exchange Holdings	694	1,034	980	1,050

Source: ROKG data and Embassy estimates.

Table VI-2

Debt Service Payments and Ratios
(million of dollars)

	<u>A1972</u>	<u>A1973</u>	<u>E1974</u>	<u>E1975</u>
A. Foreign Exchange Earnings				
1. Commodity Exports	<u>2,227</u>	<u>4,120</u>	<u>5,490</u>	<u>5,900</u>
2. Service Earnings	1,676	3,271	4,650	5,000
	551	849	840	900
B. Principal Repayments	272	404	380	400
C. Interest Payments	<u>126</u>	<u>170</u>	<u>270</u>	<u>340</u>
D. Total Debt Service	398	574	650	740
E. (Of which 1-3 year debt)	(44)	(62)	(64)	(60)
F. Debt Service Ratio (D/A x 100)	17.9	13.9	11.8	12.5

Source: ROKG data and Embassy estimates.

VII. Implementation

A. Reimbursement

Since two objectives of undertaking this Project are (1) to assist the ROKG in the early completion of high pay-off irrigation systems, some of which have been worked on for some time, and (2) to assure adequate advance funding by the ROKG for the construction of these systems, the mechanism of reimbursement only after sub-project completion was selected by the Project Committee as the appropriate incentive. For funds provided under this proposed Amendment, reimbursement would be 75% of the costs incurred and paid after 1/1/75 for completion of each eligible sub-project, and expenditures made prior to that date would be regarded as sunk costs. However, the \$17.2 million provided initially under Loan 489-T-090 would continue to reimburse for costs incurred since 1/1/74, until that amount was fully disbursed. On the average, the 75% reimbursement is not expected to exceed the total direct costs paid to contractors, and paid for material supplies and direct engineering and supervision. The remaining 25% for which the ROKG will not be reimbursed may be considered as covering ADC other direct project charges, land acquisition, and all remaining costs.

The Project Committee developed the following outline identifying the type of information required to document a request for reimbursement. In discussion with ROKG representatives, they indicated that the required information would be readily available to them to facilitate preparation of this documentation.

Documentation Required for Reimbursement Under This Proposed Amendment

Upon completion of a sub-project the ADC will submit through EPB to USAID a request for reimbursement of 75% of the actual costs to complete the sub-project as itemized in item (3) below supported by the following evidence in form and substance satisfactory to AID:

- (1) A certification by ADC that the sub-project has been completed in accordance with ADC approved plans and specifications.
- (2) An endorsement by the concerned FLIA on the above certification.
- (3) A statement of payments made year by year for sub-project costs incurred from 1/1/75 and itemized as follows:
 - (a) Total payments to contractors for work accomplished from 1/1/75.
 - (b) Total cost of materials and equipment (excluding reparations supplied items) charged to and incorporated in sub-project from 1/1/75.

- (c) Construction supervision and design modification work (if any) done.
- (d) Any other direct charge of ADC on items (a) and (b) above.
- (e) Land acquisition costs (right-of-way), if any, incurred from 1/1/75.

B. Actual Cost Reimbursement

Based on experience in the Philippines, AID/W initially suggested the use of a fixed cost type of reimbursement procedure under which 75% of the estimated cost of completion of each sub-project would be established beforehand as the amount to be reimbursed upon completion regardless of actual cost. Based on a review of the "Statement of John E. Milgate, Associate Director, International Division (of United States General Accounting Office) on the Use of the Fixed Cost Reimbursement Method for Dispensing United States Economic Assistance Abroad," USAID concluded that most of the benefits cited in this statement stemmed from the reimbursement feature rather than the fixed cost feature and that an actual cost basis was more appropriate in the instant case where a number of individually engineered sub-projects will be completed over a period of time. Reimbursement against actual expenditures is administratively much simpler in many respects, and especially so because it automatically adjusts for legitimate escalated costs in each of the future years that sub-projects will be completed.

The procedure which is being used, however, included important characteristics of a fixed cost system. Maximum unit costs of various elements of work (e.g. per cubic yard of earth moved, concrete in place, manhours of other labor used, etc.) are fixed annually by the ROKG. These costs apply not only to ADC contracted work but government-wide and cannot be exceeded in contracts for project work. Thus the principal variables are amounts of work done and these can be readily inspected and controlled.

Since each of these 66 sub-projects is unique in its design, all are under construction and are at various stages of completion, the task would be monumental to independently verify the estimated costs for completing all of them. After reviewing this situation with the ADC the Project Committee Irrigation Engineer concluded that ADC is doing a competent job of cost estimating for these sub-projects on a current year basis and that such costs are estimated within plus or minus ten percent. Since AID has ADC's 1974 estimates of the cost based upon current prices to complete each sub-project, these can be used as benchmarks for testing actual cost prior to reimbursement. These 1974 cost estimates are backed up in ADC's records by breakdowns of the remaining cost elements and are readily accessible to USAID. AID retains the right of detailed post audit of these sub-projects, and will do so on a random sample basis.

The Project Committee reviewed the planning, record keeping and control procedures to be employed on this work and also observed the results of past performance. These gave confidence that ADC and the concerned FLIA's have strong qualifications for the control of costs and any additional motivation which might be provided by a total fixed cost procedure was not necessary to hold expenditures down.

After careful consideration of the pros and cons of the two alternatives, (fixed cost vs. actual cost) as discussed above, it was decided that, on balance, actual cost reimbursement was the most appropriate and feasible method under this loan.

C. Monitoring

The Korean organizations responsible for implementation, most particularly the ADC and FLIA's, have jointly proven themselves completely capable of carrying out the work in a most satisfactory manner. There is ample evidence in both completed and partially finished projects of their ability to plan, design, build and operate such works and of their determination to produce high quality work, all without outside supervision or pressure. The ADC project staffs are supplemented by inspectors and engineers assigned to each sub-project by the concerned FLIA's who, as the owners, have primary interest in getting a well and economically constructed project. For this reason, the documentation required for reimbursement includes an endorsement by the FLIA of the ADC certification of completion in accordance with ADC approved plans and specifications.

Utilizing the existing comprehensive internal reporting system, USAID has worked out project progress reporting arrangements with the ADC and MAF. These reports serve to keep USAID well informed of sub-project progress and of the manner in which costs and cash flow are developing.

Prior to responding favorably to a request for reimbursement on each subproject, USAID will compare the actual costs against the original cost estimate. Provided that differences are explainable by USAID's experience with cost escalation during the intervening period, the required documents are in order, and no significant adverse information of the sub-project is known by USAID, reimbursement would be made. As provided by the standard loan agreement provision, AID retains the right to audit. Audits will be made on a random sample basis and for specific sub-projects whenever available information suggests such an audit is warranted.

D. Evaluation

The evaluation plan is to conduct sample surveys to measure increases in food grain production and farm incomes at intervals of two and three years after completion of a sub-project. The surveys will help to determine whether the projected output and financial returns actually materialize. If there are significant differences between the original forecasts and results, an attempt will be made to determine the reason.

The random sample of sub-projects to be evaluated will be made in such a way as to isolate differences based on (a) geographic/climatic distribution, (b) pump vs. gravity water supply, and (c) medium vs. small size of the system. To permit comparison with the situation prevailing prior to the Project, base-line data will be collected in those sub-project areas where the sample surveys will later be conducted. The evaluation design will also permit a determination of the project's impact on relatively poorer farmers in the sub-project area.

The MAF and ADC have already developed an evaluation plan with the help of a project analyst from the Michigan State University contract. This plan was reviewed by the USAID Project Committee and judged to be acceptable. Base-line survey forms are now being finalized, and it is expected that the surveys will be conducted in January and February 1975.

E. Implementation Plan for Project (Loan Plus Amendment)

- | | |
|---|--------------------------------|
| 1. Authorization of First Loan Amendment | December 1974 |
| 2. Baseline evaluation studies | January-February 1975 |
| 3. CP's met for Advance (under initial Loan) | January 1975 |
| 4. SIC issued for Advance | February 1975 |
| 5. Signature of First Loan Amendment | February 1975 |
| 6. Initial CP's met for Reimbursement under initial Loan | March 1975 |
| 7. SIC issued for Reimbursement | March 1975 |
| 8. Authorization of Second Loan Amendment | June 1975 |
| 9. Signature of Second Loan Amendment | July 1975 |
| 10. Initial CP's met for Reimbursement under Amendments | August 1975 |
| 11. Reimbursement for completed sub-projects through SIC issuances or increases | March 1975 through August 1978 |
| 12. Complete disbursement of initial Loan | June 1976 |
| 13. Follow-up evaluation studies | Fall 1976 and 1977 |
| 14. Complete disbursement of amendments | August 1978 |

VIII. Conditions and Covenants

The conditions described under Sections 3.1 and 3.3 of the existing loan agreement, and all covenants describe therein, will be made applicable to the \$6.5 million to be added by this loan amendment. Additionally the loan agreement amendment will require the following specific conditions precedent:

A. A legal opinion of the ROKG Minister of Justice attesting to the validity and legally binding character of the loan agreement amendment.

B. A revised, comprehensive financial plan essentially updating the financial plan submitted in accordance with Section 3.1 (c) of the Loan Agreement. This revised plan shall again include a schedule of actual and projected eligible expenditures by sub-project and calendar year, beginning with 1974, until the completion of the Project, defined as the 66 irrigation sub-projects eligible for reimbursement under the Loan. It shall also include a schedule of funding which identifies the source of funds, as now altered by this Loan Amendment, and demonstrates that all funds required will be available when needed to ensure expeditious completion of all 66 sub-projects.

ANNEXES

THE MAP OF IRRIGATION PROJECT

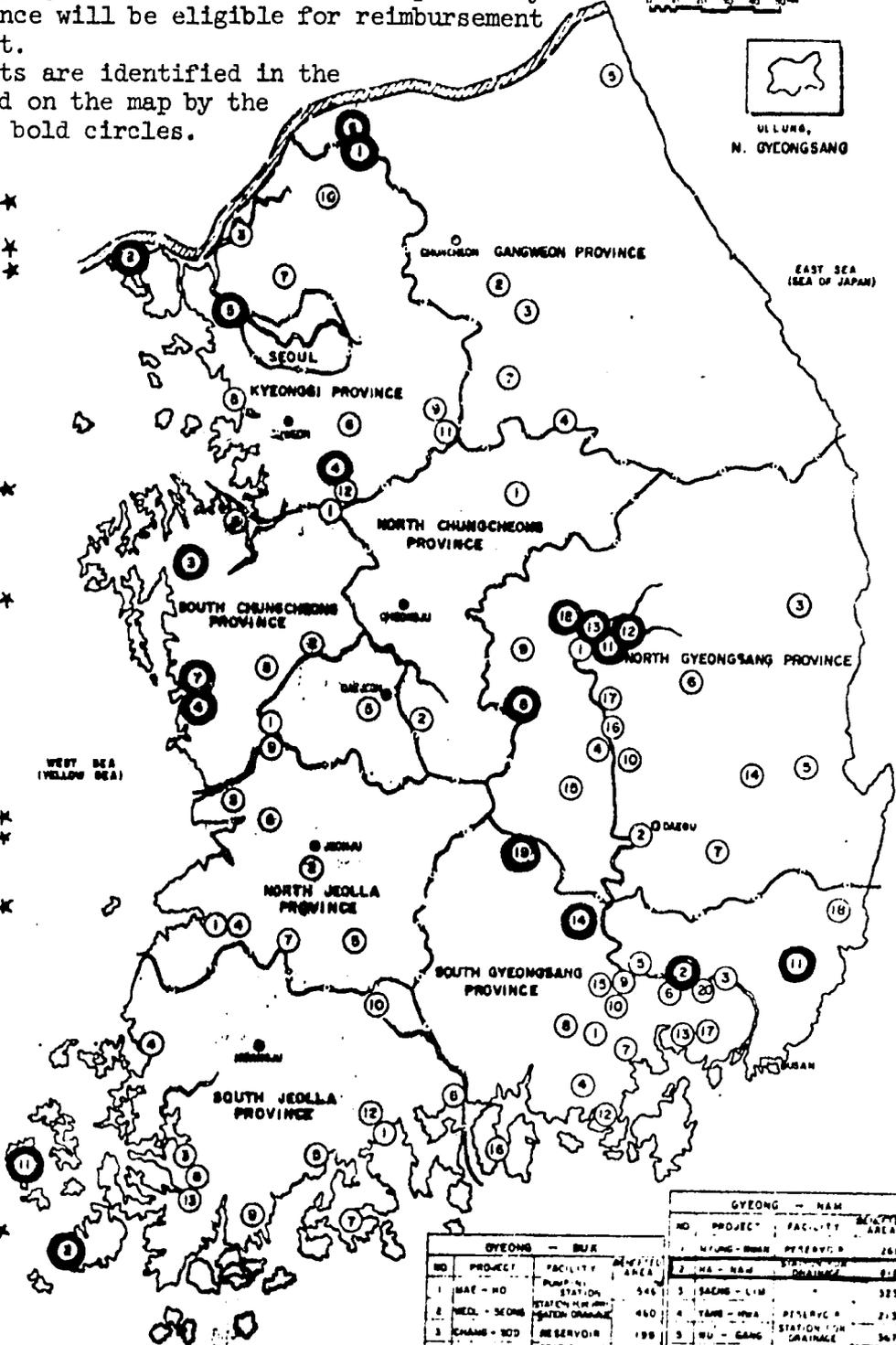
Identifying the 19 sub-projects that will not be completed by the end of 1975, and hence will be eligible for reimbursement under the Loan Amendment.

NOTE: These sub-projects are identified in the legends by asterisks and on the map by the bold circles.

0 10 20 30 40 KM



HYEONG - GI			
NO.	PROJECT	FACILITY	BENEFITED AREA
1	CHU - HAN	PUMPING STATION	800
2	MUN		760
3	YU - DONG	RESERVOIR	2,160
4	SIN - GUK	PUMPING STATION	15,928
5	DO - CHEA	RESERVOIR	192
6	BAK - SUGA		180
7	MUN - AM	PUMPING STATION	288
8	NEUNG - SEO	PUMPING STATION	2,028
9	GOONG - PYONG		210
10	YEO - JU		180
11	HA - DUN	RESERVOIR	300
HANG - WEON			
12	CHEO - WEON	RESERVOIR	2,602
13	HWA - CHON		200
14	SAE - MUN		155
15	HWANG - GUN		122
16	SEO - JIN		500
17	YOHU - SING		202
18	DO - WEON		180
CHUNG - BUK			
19	SEUNG - GUN	PUMPING STATION	889
20	DONG - TI	RESERVOIR	780
CHUNG - NAM			
21	HANG - HA	PUMPING STATION	231
22	JEONG - AN	RESERVOIR	227
23	DO - PUNG		1,487
24	CHANG - DONG	INTAKE-WEIR	954
25	HAK - HA	RESERVOIR	827
26	UNG - HAE		300
27	SEUNG - YEKU		200
28	WUN - GOK		280
29	SE - GU	PUMPING STATION	317
JUN - BUK			
30	GU - TUK	RESERVOIR	508
31	AN - GUK		201
32	NA - PU	PUMPING STATION	149
33	JUNG - SUP	FIELD CANAL	2,828
34	DO - BOK	RESERVOIR	78
35	MAN - KYONG	WEIR	2,099
36	JEONG - CHUN	RESERVOIR	109
JUN - NAM			
37	DO - YONG	RESERVOIR	420
38	SI - SAN		402
39	DO - GAP		147
40	TONG - AM		181
41	DOG - BAN		445
42	MANG - JUA	PUMPING STATION	320
43	KEUM - SA	RESERVOIR	288
44	BONG - WOL		70
45	BONG - SAN		140
46	KU - MAN		318
47	DO - CHO	PUMPING STATION	142
48	SANG - BONG	RESERVOIR	80
49	O - RTU		180



LEGEND	
(○)	PROVINCIAL BEAT
—	PROVINCIAL BORDER
—	RIVER
(*)	AREA NUMBER

GYEONG - BUK			
NO.	PROJECT	FACILITY	BENEFITED AREA
1	MAE - HO	PUMPING STATION	546
2	HEO - SEONG	STATION FOR DRAINAGE	480
3	CHANG - BOD	RESERVOIR	198
4	BANG - JEONG	STATION FOR DRAINAGE	631
5	SI - GYE	RESERVOIR	276
6	JEON - BOK		140
7	BONG - HAE		180
8	BONG - HONG		1,000
9	BONG - GYEH		132
10	SA - SAN		118
11	WANG - SOO	PUMPING STATION	2,937
12	PUNG - GANG		1,800
13	PUNG - YANG		1,689
14	HWA - BUK	RESERVOIR	180
15	GPO - JEON		334
16	SE - DEON		110
17	WONG - AN		45
18	HAN - HAN	PUMPING STATION	370

GYEONG - NAM			
NO.	PROJECT	FACILITY	BENEFITED AREA
1	HA - HAN	STATION FOR DRAINAGE	268
2	SAENG - LIM		323
3	YANG - HWA	RESERVOIR	213
4	BU - GANG	STATION FOR DRAINAGE	367
5	CHANG - WEL	RESERVOIR	1,822
6	JOONG - BUK		180
7	HA - JIN	PUMPING STATION	156
8	HA - GI		393
9	YOON - HAE	STATION FOR DRAINAGE	650
10	DO - YEON	RESERVOIR	268
11	WEON - SAN		100
12	BULMO - SAN		270
13	CHO - GYE	PUMPING STATION	1,140
14	BAEK - GOK	STATION FOR DRAINAGE	275
15	DO - JEONG	RESERVOIR	86
16	JANG - YOD	PUMPING STATION	1,377
17	DONG - GEON	IRRIGATION	592
18	SE - HO	RESERVOIR	1,168
19	SI - BUK	STATION FOR DRAINAGE	364

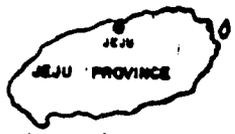


Table 1

Schedule of Subproject Completions by Year and
Estimated Remaining Construction Costs

<u>1974 Completions</u>			<u>1975 Completions</u>			<u>1976 and 1977</u>		
<u>Name</u>	<u>1/ Rank Order</u>	<u>Estimated^{2/} Remaining Construc- tion Costs (Mil. won)</u>	<u>Name</u>	<u>1/ Rank Order</u>	<u>Estimated^{2/} Remaining Construc- tion Costs (Mil. won)</u>	<u>Name</u>	<u>1/ Rank Order</u>	<u>Estimated^{2/} Remaining Construc- tion Costs (Mil. won)</u>
Ha-gi	1	124	Chang-woon	3	323	Cheol-woon	5	544
Yoon-nae	2	136	Jang-yoo	10	451	Chang-dong	6	443
Seong-su	4	174	Neung-seo	11	593	Pung-gang	7	613
Go-deok	8	95	Im-jin	14	232	Cho-gye	9	288
In-deok	65	148	Jeong-an	20	122	Sin-gog	44	4,501
Myung-kwan	12	104	Cho-jeon	21	196	Pung-yang	13	718
Jang-ha	16	95	Man-kyung-gang	22	213	Yang-seo	15	1,273
Se-do	17	92	Expansion of			Ha-nam	36	541
Cheong-yong	18	130	Keum-dong	23	302	Dong-song	41	812
Gun-am	19	98	Mae-ho	26	250	Do-cho	45	292
Do-gap	24	71	Yi-bug	27	218	Ko-pung	46	1,064
O-ryu	25	121	Ku-man	28	272	Ji-san	47	792
An-deok	31	108	Gi-gye	29	208	Yi-dong	49	1,434
Hwa-chon	33	109	Na-po	30	204	Seong-yeon	51	312
Do-bong	35	66	Yang-hwa	32	150	San-nam	52	329
Yong-am	38	135	Ma-dun	34	318	Gong-seong	58	1,143
Gae-wun	40	105	Dong-cheon	37	131	Gyo-dong	59	490
Yeo-ju	54	124	Ma-jin	39	245	Ga-jo	62	1,387
Da-jeong	55	97	Jeom-gog	42	121	Go-yeon	63	459
Hwang-dun	56	146	Saeing-lim	43	241			
Song-weol	57	88	Geo-jin	48	248			
Total		2,366	Keum-sa	50	262	Total		17,435

Table 1 · (Cont'd)

<u>Name</u>	<u>1975 Completions</u>	
	<u>1/ Rank Order</u>	<u>Estimated^{2/} Remaining Construc- tion Costs (Mil. won)</u>
Joong-bug	53	199
Mang-deok	60	273
Cho-dae	61	247
Goong-pyung	64	140
Hak-ha	66	<u>470</u>
Total		6,629

^{1/} Rank Order shown in Table 1 of May/1974 CAP has been revised by deletion of number 13, Jeoung-eup, and number 55, O-weon. Those projects have been replaced by In-deok and Hak-ha, now numbered 65 and 66.

^{2/} "Estimated remaining construction costs" are roughly equivalent to "estimated eligible costs". Before reimbursement, minor amounts for taxes will be deducted from actual costs.

Table 2

Comparison of Original and Revised Remaining Construction Cost Estimates, and Original Incremental IRRs

Rank Order Based on IRR <u>1/</u>	Name of Subproject	Remaining Construction Cost			Original Incremental IRR (%)
		Original	Revised	Percentage Change	
		-----Millions of Won-----			
1	Ha-gi	110	124	+13	123
2	Yoon-nae	136	136	0	121
3	Chang-woon	309	323	+5	117
4	Seong-Su	141	174	+23	114
5	Cheol-woon	615	544	-12	86
6	Chang-dong	263	443	+68	85
7	Pung-gang	511	613	+20	75
8	Go-deok	88	95	+8	75
9	Cho-gye	294	288	-2	74
10	Jang-yoo	388	451	+16	69
11	Neung-seo	469	593	+26	67
12	Myung-kwan	106	104	-2	63
13	Pung-yang	728	718	-1	63
14	Im-jin	221	232	+5	61
15	Yang-seo	1,211	1,273	+5	60
16	Jang-ha	73	95	+30	58
17	Se-do	99	92	-7	56
18	Cheong-yong	111	130	+17	54
19	Gun-am	106	98	-8	52
20	Jeong-an	99	122	+23	49
21	Cho-jeon	177	196	+11	48
22	Man-kyung-gang	1,176	213	-82	48

Table 2 (Cont'd)

Rank Order Based on IRR <u>1/</u>	Name of Subproject	Remaining Construction Cost			Original Incremental IRR (%)
		Original	Revised	Percentage Change	
		----- Millions of Won -----			
23	Expansion of Keum-dong	298	302	+1	47
24	Do-gap	74	71	-4	46
25	O-ryu	82	121	+48	46
26	Mae-ho	259	250	-3	45
27	Yi-bug	210	218	+4	44
28	Ku-man	249	272	+9	44
29	Gi-gye	183	208	+14	44
30	Na-po	224	204	-9	43
31	An-deok	113	108	-4	41
32	Yang-hwa	136	150	+10	40
33	Hwa-chon	96	109	+14	37
34	Ma-dun	242	318	+31	37
35	Do-bong	48	66	+38	36
36	Ha-nam	536	541	+1	36
37	Dong-cheon	122	131	+7	35
38	Yong-am	128	135	+5	33
39	Ma-jin	124	245	+98	32
40	Gae-wun	77	105	+36	30
41	Dong-song	805	812	+1	30
42	Jeom-gog	113	121	+7	30
43	Saeing-lim	176	241	+37	29
44	Sin-gog	4,215	4,501	+7	29
45	Do-cho	273	292	+7	29

Table 2 (Cont'd)

Rank Order Based on IRR ^{1/}	Name of Subproject	Remaining Construction Cost			Original Incremental IRR (%)
		Original	Revised	Percentage Change	
		-----Millions of Won -----			
46	Ko-pung	1,010	1,064	+5	28
47	Ji-san	661	792	+20	28
48	Geo-jin	234	248	+6	27
49	Yi-dong	1,473	1,434	-3	26
50	Keum-sa	259	262	+1	26
51	Seong-yeon	226	312	+38	25
52	San-nam	301	329	+9	25
53	Joong-bug	195	199	+2	25
54	Yeo-ju	117	124	+6	25
55	Da-jeong	90	97	+8	24
56	Hwang-dun	90	146	+62	24
57	Song-weol	74	88	+19	24
58	Gong-seong	1,044	1,143	+9	24
59	Gyo-dong	455	490	+8	24
60	Mang-deok	326	273	-16	23
61	Cho-dae	177	247	+40	23
62	Ga-jo	1,338	1,387	+4	23
63	Go-yeon	408	459	+13	22
64	Goong-pyung	153	140	-8	22
65	In-deok	128	148	+16	22
66	Hak-ha	458	470	+3	22

^{1/} Rank Order shown in Table 1 of May/1974 CAP has been revised by deletion of number 13, Jeoung-eup and number 55, O-weon. These projects have been replaced by In-deok and Hak-ha, now numbered 65 and 66 respectively.

ANNEX A
 BASIC PROJECT DESIGN
 ROKG SMALL/MEDIUM IRRIGATION - II
 (Addendum to Loan 4717-030)

NARRATIVE SUMMARY	QUANTITATIVELY VERIFIABLE INDICATORS		ASSUMPTIONS CONCERNING LINKAGES												
	INDICATOR	SPECIFIC TARGETS*													
<p>1. Minimize food grain imports.</p> <p>2. Increase incomes of the rural population.</p>	<p>1. Metric tons of imported rice and barley compared with long-term trend (effect attributable to project).</p> <p>2a. Per capita income of total farm population in project area.</p> <p>2b. Percentage increase in per capita income of relatively poorest farmers in project area.</p>	<p>* The targets listed below relate to the overall ROKG small/medium irrigation program of 88 systems. The portion of these targets attributable to the loan, as outlined, will depend upon the amount of the loan and the specific systems which the loan finances.</p> <table border="1"> <tr> <td>Pre-Project - 1974</td> <td>Post-Project - 1978</td> </tr> <tr> <td>957,000 (1973)</td> <td>750,000</td> </tr> <tr> <td>\$180</td> <td>\$250</td> </tr> <tr> <td>-</td> <td>> 40% (project average)</td> </tr> </table>	Pre-Project - 1974	Post-Project - 1978	957,000 (1973)	750,000	\$180	\$250	-	> 40% (project average)	<p>ASSUMPTIONS LINKING GOAL/PURPOSE</p> <p>The domestic demand for food grains</p> <ol style="list-style-type: none"> Will maintain a predictable relationship with population and income increases. Food grain production will not be significantly affected by disasters such as drought, flood, pest, or disease. Adequate processing, transport, and marketing facilities will permit the delivery of surplus production from the project area to areas of demand, effectively substituting for imported food grains. Organizational and marketing arrangements in the project area will encourage and facilitate participation by the poorest farm families and ensure that they receive a fair share of additional income generated. 				
Pre-Project - 1974	Post-Project - 1978														
957,000 (1973)	750,000														
\$180	\$250														
-	> 40% (project average)														
PURPOSE	<p>END-PROJECT OBJECTIVES:</p> <ol style="list-style-type: none"> Use rate of paddy land irrigated through project. (comparative) Per hectare yield of rice and barley production in project area. Value of rice and barley production, in project area at 1974 prices. 	<table border="1"> <tr> <td>Pre-Project - 1974</td> <td>Post-Project - 1978</td> </tr> <tr> <td>115%</td> <td>165%</td> </tr> <tr> <td>Rice: 2712 kg/ha Barley: 1940 kg/ha</td> <td>Rice: 3750 kg/ha Barley: 2134 kg/ha</td> </tr> <tr> <td>\$58.7 million</td> <td>\$122.5 million</td> </tr> </table>	Pre-Project - 1974	Post-Project - 1978	115%	165%	Rice: 2712 kg/ha Barley: 1940 kg/ha	Rice: 3750 kg/ha Barley: 2134 kg/ha	\$58.7 million	\$122.5 million	<p>ASSUMPTIONS LINKING PURPOSE/OUTPUTS</p> <ol style="list-style-type: none"> ROKG domestic support prices for rice and barley will continue to encourage production of these two commodities. Other agricultural inputs and services necessary to obtain optimal benefits from irrigation will be readily available to farmers in the project area at economic prices. The agricultural extension service will instruct farmers in the project areas in the most effective use of new irrigation facilities. 				
Pre-Project - 1974	Post-Project - 1978														
115%	165%														
Rice: 2712 kg/ha Barley: 1940 kg/ha	Rice: 3750 kg/ha Barley: 2134 kg/ha														
\$58.7 million	\$122.5 million														
<p>COMPLETION</p> <ol style="list-style-type: none"> Completion of small/medium irrigation systems. Conversion of land (clearing, leveling, terracing, etc.) into irrigable paddy land. Improved capabilities of PLMA's to operate and maintain irrigation facilities. Delivery of irrigation water to farm land in project area. 	<ol style="list-style-type: none"> Number of new irrigation systems in operation. Hectares of irrigable paddy land in project area, compared to situation prior to project. Percentage of PLMA's fully staffed and trained to perform management functions effectively. Hectares of fully irrigated paddy land, i.e., access to adequate irrigation water (0.55 meters) to satisfy total water requirements (1.22 meters) for optimum yields in drought year. 	<table border="1"> <tr> <td>Pre-Project - 1974</td> <td>Post-Project - 1978</td> </tr> <tr> <td>0</td> <td>58**</td> </tr> <tr> <td>48,220 ha</td> <td>65,874 ha</td> </tr> <tr> <td>to be estimated</td> <td>100%</td> </tr> <tr> <td>0</td> <td>65,874 ha</td> </tr> </table> <p>**66 of these are eligible for AID financing</p>	Pre-Project - 1974	Post-Project - 1978	0	58**	48,220 ha	65,874 ha	to be estimated	100%	0	65,874 ha	<p>ASSUMPTIONS LINKING OUTPUTS/INPUTS</p> <ol style="list-style-type: none"> AEC can effectively supervise construction of the sub-projects in conformance with adequate engineering standards. Construction costs will remain consistent with project estimates. The small/medium irrigation project continues to be an ROKG priority activity. With the stimulus of the AID loan, ROKG will budget sufficient funds to complete all the sub-projects by 1977. 		
Pre-Project - 1974	Post-Project - 1978														
0	58**														
48,220 ha	65,874 ha														
to be estimated	100%														
0	65,874 ha														
<p>INPUTS</p> <ol style="list-style-type: none"> Contractor services Equipment and construction materials. Land acquisition and conversion. Construction supervision by ADC. Training of AEC and PLMA staff. Other direct inputs. 	<p>NOTE: Quantities and costs of inputs necessary to complete each of 88 irrigation systems were estimated by the Ministry of Agriculture and Fisheries, and submitted to USAID in December 1973, as part of the loan application. ROKG engineers verified that quantity and cost estimates were reasonable. Summary completion costs for all systems are given in Table I of the Pre-Loan Amendment. The loan agreements would reimburse MAF for 75% of the actual cost of completing several of the irrigation systems.</p>	<p>The amount of inputs to be financed by the loan, at maximum and minimum levels, is shown below:</p> <table border="1"> <tr> <td></td> <td>Maximum AID Input</td> <td>Minimum Input</td> <td>Total Project Input</td> </tr> <tr> <td>Max. level</td> <td>\$23.5 million</td> <td>\$7.8 million</td> <td>\$31.3 million</td> </tr> <tr> <td>Min. level</td> <td>6.5 million</td> <td>2.2 million</td> <td>8.7 million</td> </tr> </table>		Maximum AID Input	Minimum Input	Total Project Input	Max. level	\$23.5 million	\$7.8 million	\$31.3 million	Min. level	6.5 million	2.2 million	8.7 million	
	Maximum AID Input	Minimum Input	Total Project Input												
Max. level	\$23.5 million	\$7.8 million	\$31.3 million												
Min. level	6.5 million	2.2 million	8.7 million												

Analysis of Environmental Impact

The possible harmful environment aspect of this Project is the likely slightly higher health hazard of water-related diseases (including encephalitis and malaria, both with mosquitos as the vector), while on the positive side there should be a lessening of silt flow and flooding.

When considering the possible environmental problems, it is necessary to view the current situation and the changes that will be made. The conversion of forests and upland crop areas to irrigated paddy will, of course, increase the shallow water areas conducive to mosquito breeding. However, the fact that the bulk of the land is already in paddy and will remain in paddy minimizes the local change. The addition of irrigation water on lands that are wet most of the time from accumulated rain will not greatly increase the mosquito problem. The inclusion of drainage in many of the project units would tend toward a reduction of the mosquito problem at certain times of the year, but the net effect would be minor because of the overwhelming balance of wet lands -- on an overall area and time basis.

Beyond the local effect of change, this overall irrigation plan should be viewed as a part of the total situation in Korea. Each sub-project is relatively small within its locality and the total program is an even smaller part of the national total. The full 88 systems proposal includes a total of about 18,000 hectares of land to be converted to paddy in contrast with 1,275,000 hectares of paddy in Korea in 1971. Thus, Korea's paddy lands would be increased by only 1.4 percent by the total 88 systems.

Most of the reservoirs in this program have relatively steep banks, thus affording very little shallow water for mosquito breeding. Furthermore, the changes of reservoir level during the filling and use periods of the summer should reduce even that minor area which is conducive to mosquito reproduction.

The foregoing discussion cannot be quantified; however, it seems likely that the mosquito breeding opportunity in Korea would be increased by considerably less than two percent.

Most paddy fields can be managed to reduce the mosquito breeding by drying the surface of the land for a day or two without damage to the crop. This would kill the mosquito larvae. However, it appears highly unlikely that the farmers would participate in such a program over a wide enough geographic area to have a worthwhile impact. With irrigation water available, a farmer might be more receptive to draining his fields periodically than would the farmer who must depend upon the water that he can retain in his rain-fed paddy. If a mosquito control program were to be attempted, it would have to be on a much more comprehensive basis than these project areas in order for it to do any good at all.

It is understood that malaria is not present except in some localities of the extreme south coast, and is not considered to be a significant problem there. Much of Korea is too high and cold for this disease. Encephalitis is somewhat more common.

Water conveniently available in irrigation ditches often becomes a domestic water source in rural areas with obvious health hazards. Such small surface water sources are common conveyors of any water-borne disease including those of the gastro-entroy tract. The latter class of disease is probably endemic to most of the area involved and its prevention is partly a matter of the development of a safe potable water supply. A side, minor observation on this is that it is interesting to find at least some farmers now use water purification tablets in their "ditch-water" for home use. It is doubtful that the irrigation ditch will present a significantly greater risk than the presently used sources.

Beyond the possible health hazards, there are other environmental aspects. The conversion of "forests" (mainly scrub waste lands) and upland to paddy has a beneficial result on reducing the sediment ("silt") transported to the streams and downstream areas. The paddies and reservoirs all retain water and thus help to decrease the downstream flooding. A number of the subprojects include drainage for agricultural benefit, and this also tends to reduce the environmental problems of flooding. These environmental benefits have not been claimed in the economic analyses and probably outweigh the possible minor overall increase in the incidence of water-related diseases.

This environmental analysis was based on the observations of Mr. William D. Romig, an irrigation engineer contracted by AID to visit a sample of sub-project sites during February and March of 1974. His observations were corroborated by Mr. George Reasonover, Chief Engineer, USAID/Korea, during visits to the sites of seven nearly completed sub-projects in November 1975.



ECONOMIC PLANNING BOARD
REPUBLIC OF KOREA
Seoul, Korea

November 20, 1974

Mr. Zachary M. Hahn
Chief, Office of Development Loan
USAID/K

Dear Mr. Hahn:

With this letter I would like to present my Government's request for a Loan of Eight Million and Five Hundred Thousand Dollars (U.S. \$8,500,000) under your Government's Development Loan Program. This Loan, a portion of the 23.5 million dollars available for fiscal year 1975, would constitute your second financing for our endeavour to improve our nation-wide agricultural irrigation facilities, ensuing your first Loan Financing \$17,200,000) under a Loan Agreement executed on September 11, 1974 (AID Loan No. 489-T-090).

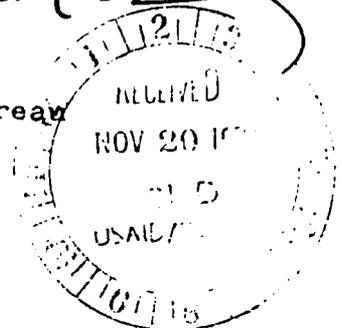
The proposed irrigation project when executed will bring forth a remarkable increase of food grains production in Korea. And we cannot emphasize too much the significance of our joint endeavour in connection with a world-wide food problem and an urgent need for the development of our agricultural sector.

The Government is now seeking consent of our National Assembly on the Loan as it did with the first loan last December. Further, we are well prepared to expedite the implementation of the programs to be promoted under your First Loan Financing, whose accomplishments will surely affect your consideration of the requested Second Loan.

In view of the foregoing, I sincerely hope that you share with us a sense of necessity of the proposed loan. Your proper action in this matter will be appreciated.

Sincerely yours,

Woong Soo Rhee
Director
Economic Cooperation Bureau



CERTIFICATION PURSUANT TO SECTION 611(e) OF
THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, Michael H. B. Adler, the principal officer of the Agency for International Development in Korea, having taken into account among other things, the maintenance and utilization of projects in Korea previously financed or assisted by the United States, do hereby certify that in my judgement Korea has both the financial capability and the human resources capability to effectively utilize the assistance to be provided under the Irrigation Project Loan Amendment.



Michael H. B. Adler

11/27/74
Date

CHECKLIST OF STATUTORY CRITERIA
(Irrigation Project)
(Loan Amendment No. 489-T-090A)

The following abbreviations are used:

FAA - Foreign Assistance Act of 1961, as amended.

FAA, 1973 - Foreign Assistance Act of 1973.

App. - Foreign Assistance and Related Programs
Appropriation Act, 1974.

MMA - Merchant Marine Act of 1936, as amended.

BASIC AUTHORITY

1. FAA §103; §104; §105;
§106; §107. Is loan being made

a. for agriculture, rural development or nutrition; 1.a. Yes.

b. for population planning or health; 1.b. No.

c. for education, public administration, or human resources development; 1.c. No.

d. to solve economic and social development problems in fields such as transportation, power, industry, urban development, and export development; 1.d. No.

e. in support of the general economy of the recipient country or for development programs conducted by private or international organizations. 1.e. Yes, the loan is supportive of the agricultural economy through increased production.

COUNTRY PERFORMANCE

Progress Towards Country Goals

2. FAA §201(b)(5), (7) & (8); §208

A. Describe extent to which country is:

(1) Making appropriate efforts to increase food production and improve means for food storage and distribution.

2.A.(1). From 1962 through 1972 the National Income accounts show that the real value added in the agriculture sector increased by approximately 55% (a growth rate of 4.5% per year). Significantly, this period included the two drought years of 1967 and 1968; however, significant investments have been and are being made in irrigation facilities which will minimize future weather influences on production.

Beginning in 1970, the ROKG adopted a high rice price policy and significantly increased rice prices relative to other prices. Rice prices were increased 23% in 1970, 35% in 1971 and 25% in 1972. Since then prices have been increased approximately in line with increases in the general price level. These increases have provided additional incentive for farmers to use fertilizer and other inputs required to increase production.

Under loan 489-H-088 for agricultural research, substantial effort and expenditure will be made to develop and introduce new crop varieties. Under previous A.I.D. assistance, food storage capacity was improved and increased.

(2) Creating a favorable climate for foreign and domestic private enterprise and investment.

2.A.(2). Korea has taken a number of effective steps to create a favorable investment climate. A liberal foreign investment law was enacted, and intensive study is being undertaken by the ROKG of means of expanding capital markets. An investment center has been

established, and domestic investment has been assisted by a number of A.I.D. loans such as the loans to the Korea Development Bank.

(3) Increasing the public's role in the developmental process.

2.A.(3). Koreans are basically a homogeneous people whose society is relatively free and politically stable. Korea does not possess deep sectional, religious or social cleavages. Korea's rapid economic development benefits increasingly larger segments of the population.

(4)(a) Allocating available budgetary resources to development.

2.A.(4)(a). Korea has wisely allocated its resources in such a way as to maximize its economic development while maintaining sufficient military forces to insure a relative freedom from threatened external aggression.

(b) Diverting such resources for unnecessary military expenditure (See also Item No. 20) and intervention in affairs of other free and independent nations.) (See also Item No. 11).

2.A.(4)(b). Korea is not so diverting such resources and is not intervening in other free and independent nations' affairs.

(5) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.

2.A.(5). Korean land reform programs have eliminated the large landholding class and have created a large number of independent farmers who own their own small farms. The ROKG has assisted in the establishment of a number of farm and fishery cooperatives which have been of significant assistance to the farm and fishery communities.

Korea basically has a private enterprise type economy. AID has assisted the ROKG in its efforts to reform the equity of tax rates and collection procedures. These reforms have greatly increased both the amount of taxes collected and the equity with which the program is administered.

On October 17, 1972, the President of Korea declared martial law, giving as reasons domestic and international political developments. Under the martial law, political liberties were restricted and the Korean press was placed under tight control. A new constitution has since been adopted and martial law lifted on December 13, 1972, but restrictions on political activity and press freedom continue.

(6) Willing to contribute funds to the project or program.

(7) Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.

2.A.(6). The ROKG will provide at least 25% of the total capital cost of the project.

2.A.(7). The ROKG has made significant progress in its efforts to provide a better life for the average Korean citizen. The Government has encouraged the rapid expansion of small and medium industry, stimulated the development of farmer credit unions and fishing cooperatives and has helped in many other ways to better the lot of its people. Korea already has a high literacy rate and is concerned about extending better health care to all its people.

B. Are above factors taken into account in the furnishing of the subject assistance?

2.B. Yes.

Treatment of U.S. Citizens and Firms.

3. FAA 8020(c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?

3. No such situation is known to exist.

4. FAA §620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?

4. No such actions are known to have occurred.

5. FAA §620(o): Fishermen's Protective Act §5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters,

5. Korea has not so seized or imposed any penalty or sanction.

a. has any deduction required by Fishermen's Protective Act been made?

5.a. Not applicable.

b. has complete denial of assistance been considered by A.I.D. Administrator?

5.b. Not applicable.

Relations with U.S. Government and Other Nations

6. FAA §620(a). Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba?

6. No.

7. FAA §620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?

7. Yes, the required determination has been made.

8. FAA §620(d). If assistance is for any productive enterprise which will compete in the United States with United States enterprise, is there an agreement by the recipient country to prevent export to the United States of more than 20% of the enterprise's annual production during the life of the loan?

8. The loan is not intended for such purposes.

9. FAA §620(f). Is recipient country a Communist country?

9. No.

10. FAA §620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression? 10. No.
11. FAA §620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property? 11. No such situation is known to have occurred.
12. FAA §620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the A.I.D. administrator within the past year considered denying assistance to such government for this reason? 12. Korea has instituted such a program.
13. FAA §620(n). Does recipient country furnish goods to North Viet-Nam or permit ships or aircraft under its flag to carry cargoes to or from North Viet-Nam? 13. No.
14. FAA §620(q). Is the government of the recipient country in default on interest or principal of any A.I.D. loan to the country? 14. No.
15. FAA §620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? 15. No.
16. FAA §620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the A.I.D. Administrator in determining the current A.I.D. Operational Year Budget? 16. Korea is not a member of the United Nations.

17. FAA §481. Has the government of recipient country failed to take adequate steps to prevent narcotics drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?

17. No.

18. FAA, 1973 §29. If (a) military base is located in recipient country, and was constructed or is being maintained or operated with funds furnished by U.S., and (b) U.S. personnel carry out military operations from such base, has the President determined that the government of recipient country has authorized regular access to U.S. correspondents to such base?

18. See Presidential Determination No. 74-14, made January 28, 1974.

Military Expenditures

19. FAA §620(s). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (Consideration of these points is to be coordinated with the Bureau for Program and Policy Coordination, Regional Coordinators and Military Assistance Staff (PPC/RC).)

19. For 1974, 29.5% of the budget is for military expenditures, including an estimated \$15 million of foreign exchange resources for military equipment. No money for sophisticated weapons has been spent since the statutory limitation became effective.

Conditions of The Loan

General Soundness

20. FAA §201(d). Information and conclusion on reasonableness and legality (under laws of country and the United States) of lending and relending terms of the loan.
20. The interest rate is not higher than Korea's applicable legal rate of interest. Re the reasonableness of the loan terms, see the CAP, Section VI.
21. FAA s201(b)(2); s201(e): Information and conclusion on activity's economic and technical soundness. If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to A.I.D. an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?
21. The ROKG has submitted an application for such funds containing the requisite assurances. Re the project's economic and technical soundness, see the CAP, Section IV.
22. FAA s201(b)(2). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.
22. See the CAP, Section VI.
23. FAA s201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.
23. Financing of this project on terms comparable to those proposed for this loan is believed not to be available from other free-world sources, including private sources within the U.S.
24. FAA s611(a)(1). Prior to signing of loan will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the United States of the assistance?
24. Yes.

25. FAA s611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of loan?

25. No such legislation is required.

26. FAA s611(e). If loan is for Capital Assistance, and all U.S. assistance to project now exceeds \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?

26. The Mission Director has so certified. See Annex D.

Loan's Relationship to Achievement of Country and Regional Goals

27. FAA s207; s113. Extent to which assistance reflects appropriate emphasis on; (a) encouraging development of democratic, economic, political, and social institutions; (b) self-help in meeting the country's food needs; (c) improving availability of trained manpower in the country; (d) programs designed to meet the country's health needs; (e) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (f) integrating women into the recipient country's national economy.

27. The small/medium-scale irrigation systems to be financed under this loan are directed specifically toward enabling Korea to better meet its food needs through increased productivity and the arable land base. These systems will be operated and maintained by associations of farmers (Farm Land Improvement Associations).

There is no direct relation to Items 27.(c)., 27.(d)., 27.(e)., and 27.(f).

28. FAA s209. Is project susceptible of execution as part of regional project? If so why is project not so executed?

28. No.

29. FAA §201(b)(4). Information and conclusion on activity's relationship to, and consistency with, other development activities, and its contribution to realizable long-range objectives.

29. This project is consistent with Korea's overall efforts to increase the growth rate of the agriculture sector and improve the country's ability to meet its food needs.

30. FAA §201(b)(9). Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth.

30. The project will contribute to the achievement of self-sustaining growth through increased food production and higher rural incomes.

31. FAA §209. Information and conclusion whether assistance will encourage regional development programs.

31. This project is not directed at a regional problem.

32. FAA s111. Discuss the extent to which the loan will strengthen the participation of urban and rural poor in their country's development, and will assist in the development of cooperatives which will enable and encourage greater numbers of poor people to help themselves toward a better life.

32. The loan will strengthen the Farm Land Improvement Associations which are farmer associations. Due to land reform almost all Korean farmers are land owners and all farmers in the project area are small and relatively poor.

33. FAA s201(f). If this is a project loan, describe how such project will promote the country's economic development taking into account the country's human and material resources requirements and relationship between ultimate objectives of the project and overall economic development.

33. See Items 29. and 30. above.

34. FAA s281(a). Describe extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the country, through the encouragement of democratic, private and local governmental institutions.

34. See Item 32. above.

35. FAA s281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

35. The project recognizes the need and desire of small farmers for increased incomes and improvement in the quality of life. Also it recognizes the general priority given to achieving to the extent possible self-sufficiency in the domestic production of grains. There will be greater participation in the Farm Land Improvement Associations.

36. FAA §201(b)(3). In what ways does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities?

36. See Items 27., 29., and 30. above.

37. FAA §601(a). Information and conclusions whether loan will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

37. There is no direct relationship between this loan and the objectives stated in Sec. 601(a) of the Foreign Assistance Act, except for improving the technical efficiency of agriculture and strengthening the cooperative effort through farmer participation in the Farm Land Improvement Associations.

38. FAA §619. If assistance is for newly independent country, is it furnished through multi-lateral organizations or plans to the maximum extent appropriate?

38. Korea is not a newly independent nation.

Loan's Effect on U.S. and A.I.D. Program

39. FAA §201(b)(6). Information and conclusion on possible effects of loan on U.S. economy, with special

39. The loan should result in up to 72,000 metric tons of additional rice production per year. This will

reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving the U.S. balance of payments position.

occur earlier than would be the case if the loan were not made. To the extent this rice or substitute grain would have been imported from the United States on a commercial basis, this loan will have an adverse effect on the U.S. economy. As far as loan dollars are concerned these will be used exclusively for financing U.S. goods and services.

40. FAA §202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources.

40. All of the loan will be used to finance the procurement of equipment, materials, and services from private sources. The beneficiaries of the project will all be private farmers.

41. FAA §601(b). Information and conclusion on how the loan will encourage U.S. private trade and investment abroad and how it will encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

41. This will be accomplished through the trade generated by the Special Letter of Credit procedures planned.

42. FAA §601(d). If a capital project, are engineering and professional services of U.S. firms and their affiliates used to the maximum extent consistent with the national interest?

42. It has been determined that Korea has adequate engineering services to complete this project, the components of which have already been designed.

43. FAA §602. Information and conclusion whether U.S. small business will participate equitably in the furnishing of goods and service financed by the loan.

43. Not applicable to the Special Letter of Credit procedure being utilized.

44. FAA §620(h). Will the loan promote or assist the foreign aid projects or activities of the Communist-Bloc countries?

44. No.

45. FAA §621. If Technical Assistance is financed by the loan, information and conclusion whether such assistance will be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis. If the facilities of other Federal agencies will be utilized, information and conclusion on whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.

45. No portion of the project involves the financing of technical assistance.

Loans Compliance with Specific Requirements

46. FAA §110(a); §208(e). In what manner has or will the recipient country provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the Loan is to be made?

46. The loan agreement so provides and the planned administrative arrangements will assure it.

47. FAA §112. Will loan be used to finance police training or related program in recipient country?

47. No.

48. FAA §114. Will loan be used to pay for performance of abortions or to motivate or coerce persons to practice abortions?

48. No.

49. FAA §201(b). Is the country among the 20 countries in which development loan funds may be used to make loans in this fiscal year?

49. Yes.

50. FAA §201(d). Is interest rate of loan at least 2% per annum during grace period and at least 3% per annum thereafter?
50. Yes.
51. FAA §201(f). If this is a project loan, what provisions have been made for appropriate participation by the recipient country's private enterprise?
51. Local private contractors will be employed in the construction of the irrigation systems.
52. FAA §604(a). Will all commodity procurement financed under the loan be from the United States except as otherwise determined by the President?
52. Commodity procurement will be limited to Korea and the U.S.
53. FAA §604(b). What provision is made to prevent financing commodity procurement in bulk at prices higher than adjusted U.S. market price?
53. No part of this loan will be used for bulk commodity procurement.
54. FAA §604(d). If the cooperating country discriminates against U.S. marine insurance companies, will loan agreement require that marine insurance be placed in the United States on commodities financed by the loan?
54. Not applicable under the Special Letter of Credit procedures planned.
55. FAA §604(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity?
55. No part of this loan will be used for such procurement.
56. FAA §604(f). If loan finances a commodity import program, will arrangements be made for supplier certification to A.I.D. and A.I.D. approval of commodity as eligible and suitable?
56. Not applicable under the Special Letter of Credit procedures planned.

57. FAA §608(a). Information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.
57. U.S. Government excess property is not appropriate for use in the activity to be financed hereunder.
58. FAA s611(b); App. s101. If loan finances water or water-related land resource construction project or program, is there a benefit-cost computation made, insofar as practicable, in accordance with the procedures set forth in the Memorandum of the President dated May 15, 1962?
58. Yes.
59. FAA s611(c). If contracts for construction are to be financed what provision will be made that they be let on a competitive basis to maximum extent practicable?
59. All construction contracts were let on a competitive basis.
60. FAA s612(b); s636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the United States are utilized to meet the cost of contractual and other services?
60. Korea is not an excess currency country. Local costs in excess of 25% will be contributed by Korea.
61. App. s113. Will any of loan funds be used to acquire currency of recipient country from non-U.S. Treasury sources when excess currency of that country is on deposit in U.S. Treasury?
61. Korea is not an excess currency country.
62. FAA s612(d). Does the United States own excess foreign currency and, if so, what arrangements have been made for its release?
62. No.

63. FAA s620(g). What provision is there against use of subject assistance to compensate owners for expropriated or nationalized property?
63. The loan agreement stipulates that only eligible commodities and services can be financed under the loan.
64. FAA s620(k). If construction of productive enterprise, will aggregate value of assistance to be furnished by the United States exceed \$100 million?
64. No.
65. FAA s636(i). Will any loan funds be used to finance purchase, long-term lease, or exchange of motor vehicle manufactured outside the United States or any guaranty of such transaction?
65. No.
66. App. s103. Will any loan funds be used to pay pensions, etc., for military personnel?
66. No.
67. App. s105. If loan is for capital project, is there provision for A.I.D. approval of all contractors and contract terms?
67. To the extent Section 105 is applicable the contracts and contractors will be approved, such approval to be conducted in accord with the spirit in which the project was undertaken and with due regard to the respective duties and obligations of the ROKG.
68. App. s107. Will any loan funds be used to pay UN assessments?
68. No.
69. App. s108. Compliance with regulations on employment of U.S. and local personnel. (A.I.D. Regulation 7).
69. Compliance will be assured through approval of the ROKG's contracting rules and procedures.
70. App. s110. Will any of loan funds be used to carry out provisions of FAA §209(d)?
70. No.

71. App. s114. Describe how the Committee on Appropriations of the Senate and House have been or will be notified concerning the activity, program, project, country, or other operation to be financed by the Loan.

71. The Committee will be given the requisite notice before the loan is authorized.

72. App. s601. Will any loan funds be used for publicity or propaganda purposes within the United States not authorized by Congress?

72. No.

73. MMA s901. b; FAA s640 C.

(a) Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed with funds made available under this loan shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates.

73. Not applicable under the Special Letter of Credit procedures planned.

(b) Will grant be made to loan recipient to pay all or any portion of such differential as may exist between U.S. and foreign-flag vessel rates?

74. Section 30 and 31 of PL 93-189 (FAA of 1973). Will any part of the loan be used to finance directly or indirectly military or paramilitary operations by the U.S. or by foreign forces in or over Laos, Cambodia, North Vietnam, South Vietnam, or Thailand?

74. No.

75. Section 37 of PL 93-189 (FAA of 1973); App. s. 111. Will any part of this loan be used to aid or assist generally or in the reconstruction of North Vietnam?

75. No.

76. App. s112. Will any of the funds appropriated or local currencies generated as a result of AID assistance be used for support of police or prison construction and administration in South Vietnam or for support of police training of South Vietnamese?

76. No.

77. App. s604. Will any of the funds appropriated for this project be used to furnish petroleum fuels produced in the continental United States to Southeast Asia for use by non-U.S. nationals?

77. No.

AID-DLC/P-
Annex F

A.I.D. Loan No. 489-T-090A
Project No. 489-22-120-706
Amendment No. 1

LOAN AUTHORIZATION AMENDMENT
Provided from: Food and Nutrition Category
(Korea: Irrigation Project)

Pursuant to the authority vested in the Administrator, Agency for International Development ("A.I.D."), by the Foreign Assistance Act of 1961, as amended, (the "Act") and Delegations of Authority issued thereunder, I hereby authorize pursuant to Part I, Chapter I, Section 103 and Chapter 2, Title I, the Development Loan Fund, the amendment of the Loan Authorization for A.I.D. Loan No. 489-T-090, dated May 31, 1974, to the Government of the Republic of Korea ("Borrower"), as follows:

- a. The amount of the Loan is increased by Six Million Five Hundred Thousand Dollars (\$6,500,000) to a total amount not to exceed ~~Twenty~~ **Three Million Seven Hundred Thousand Dollars (\$23,700,000)**.
- b. The loan increase shall be subject to such other terms and conditions as A.I.D. may deem advisable consistent with the terms and conditions of the original Loan Authorization, signed May 31, 1974.

Administrator

Date