

AMERICAN

Department of State

Proj 4890683-2  
Pr -  
PO-AAD-458-B1

489-683

**UNCLASSIFIED**  
CLASSIFICATION

For each address check one ACTION:

DISTRIBUTION

TO - AID/W

TOAID A- 597

ACTION

X

10p

INFO.

DATE SENT

11/30/71

FROM - Seoul

SUBJECT - Science & Technology PROP

REFERENCE -

*35 copies to the Director*

Attached is a non-capital project paper (PROP), covering project 489-11-660-683, Science and Technology. This project paper is based on the current Five-Year Plans which have been developed by The Ministry of Science and Technology. The ROKG has participated in the development of this project paper and USAID has on file a copy of the PROP, which has been cleared by Minister ~~Choi, Hyung Sup.~~ of MOST. ~~Minister Choi, Hyung Sup.~~ of MOST.

We would appreciate AID/W's expeditious approval of this paper to enable the Mission to execute the Project Agreement with the ROKG.

HABIB

PAGE OF PAGES

DRAFTED BY		OFFICE	PHONE NO.	DATE	APPROVED BY:
PRM:DBarrett		PRM		11/24/71	Director:M. H. B. Adler
AID AND OTHER CLEARANCES					
PSD:BStory (draft)					
PRM:WLDavis					
<b>UNCLASSIFIED</b> CLASSIFICATION					

I. PROJECT IDENTIFICATION

1. PROJECT TITLE  <p style="text-align: center;"><b>SCIENCE AND TECHNOLOGY</b></p>		APPENDIX ATTACHED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 2. PROJECT NO. (M.O. 1095.2) <p style="text-align: center;"><b>489-11-680-683</b></p>
3. RECIPIENT (specify) <p style="text-align: center;"><b>Republic of Korea</b></p> <input checked="" type="checkbox"/> COUNTRY _____ <input type="checkbox"/> REGIONAL _____ <input type="checkbox"/> INTERREGIONAL _____	4. LIFE OF PROJECT BEGINS FY <u>72</u> ENDS FY <u>77</u>	
		5. SUBMISSION <b>11/16/71</b> <input checked="" type="checkbox"/> ORIGINAL _____ DATE <input type="checkbox"/> REV. NO. _____ DATE CONTR./PASA NO. _____

*A.I.D.*  
 Reference Center  
 Room 1886 NS

II. FUNDING (\$000) AND MAN MONTHS (MM) REQUIREMENTS

A. FUNDING BY FISCAL YEAR	B. TOTAL \$	C. PERSONNEL		D. PARTICIPANTS		E. COMMODITIES \$	F. OTHER COSTS \$	G. PASA/CONTR.		H. LOCAL EXCHANGE CURRENCY RATE: \$ US <u>370</u> (U.S. OWNED)		
		(1) \$	(2) MM	(1) \$	(2) MM			(1) \$	(2) MM	(1) U.S. GRANT LOAN	(2) COOP COUNTRY	
											(A) JOINT	(B) BUDGET
1. PRIOR THRU ACTUAL FY												
2. OPN. FY 1972	227	179	42	40	47		6	103	22			20
3. BUDGET FY 1972	300	230	52	70	68			170	33			27
4. BUDGET J1 FY1974	100	113	27	70	80			60	14			30
5. BUDGET +2 FY1976	100	112	23	50	53			55	12			32
6. BUDGET +3 FY1976	145	90	21	55	60			30	3			24
7. ALL SUBQ. FY	29	79	17	10	11			15	4			19
8. GRAND TOTAL	1,106	803	184	295	303		8	420	103			152

9. OTHER DONOR CONTRIBUTIONS

(A) NAME OF DONOR	(B) KIND OF GOODS/SERVICES	(C) AMOUNT
N/A		

III. ORIGINATING OFFICE CLEARANCE

1. DRAFTER <i>Richard W. Goodrich</i>	TITLE Deputy Multisector Officer	DATE 11-18-71
2. CLEARANCE OFFICER Michael H. B. Adler	TITLE Director	DATE

IV. PROJECT AUTHORIZATION

1. CONDITIONS OF APPROVAL

2. CLEARANCES

BUR/OFF.	SIGNATURE	DATE	BUR/OFF.	SIGNATURE	DATE

3. APPROVAL AAs OR OFFICE DIRECTORS	4. APPROVAL A/AID (See M.O. 1025.1 VI C)
SIGNATURE _____	SIGNATURE _____
DATE _____	DATE _____
TITLE _____	ADMINISTRATOR, AGENCY FOR INTERNATIONAL DEVELOPMENT

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## A. The Project Goal

### 1. Goal Statement

To help make Korea industrially competitive in international markets.

### 2. Measurements of Goal Achievement

Korea's economy is highly dependent upon exports. In order for Korea to move from a figure of \$882 million in exports for 1970 to a projected amount of \$3,510 million in 1976, Korea must "adapt" foreign technologies and intensify the development of native research and technology. While admittedly this project provides only limited advisory services and funds for participant training, we believe that it will contribute to the efforts of the ROKG in achieving a \$3,510 million export target, recognizing, of course, that other totally unrelated stimuli for expanding exports will also contribute to this goal.

### 3. Assumptions of Goal Achievement

The basic assumption, which has a direct and causative relationship to total achievement, is that Korean industry will diversify its products in concert with changing world markets, and that it will accept transferred and adapted technologies.

## B. Statement of Project Purpose

In support of defined goals of the ROKG Third Five-Year Plan for the development of science and technology, this project has the following purposes:

1. To provide continuing technical advice to the Ministry of Science and Technology on operational planning and policy development in research, manpower programs, and in management of scientific information.
2. To provide requested U.S. expertise in support of specialized industrial research efforts to KIST and other responsible ROK research institutions, both public and private, in areas critical to industrial development.
3. To provide KIST with specific U.S. expertise for the planning of program development or program expansion in regard to newly defined problem priorities in the fields of science and technology.

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4. To assist in developing international linkages for the Korean scientific effort through organized information exchange, personnel exchange, technological adaptation, international training, specifically relating to the achievement of already defined goals.

#### Conditions Expected at the End of the Project

This project is designed to make specific contributions to ROEG achievement of already defined goals. While project "inputs" cannot alone achieve these goals, it is planned that these inputs will make measurable contributions to achieving the following conditions in Korea by the end of the project:

1. An effective Ministry of Science and Technology whose organizational, policy definition and planning efforts contribute specifically to scientific and technological contributions to the overall economic development of the Republic.
2. Trained scientific Korean leadership serving in key managerial policy making and planning positions in both the ROEG and in ROK private industrial efforts in the field of science and technology.
3. Significant ROEG progress toward the achievement of a \$3.5 billion export target.
4. The adaptation of a significant number of foreign technologies relating to product development.
5. Expanding ROEG institutional capability for research and for the production of high level scientific and engineering manpower.
6. Expanded international institutional linkages involving the direct exchange of technologies, research, and personnel.
7. The development of a national system of scientific information collection and dissemination.

#### Basic Assumptions

This is, of course, based on the assumption that the ROEG will continue to emphasize the value of applied science and technology in the economic development of their country, and will continue to support this emphasis with their own financial resources, institutional development, and personnel.

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### C. Outputs

There are two major end products which can reasonably be anticipated to materialize as the result of the technical assistance involved in this project. First, the contacts between the Science Advisor and the Minister of MOST will lead to the development of a set of recommended policies to assist MOST, in the establishment of R & D priorities, the training of scientific manpower, efficient planning, and expanded relationships in the international science field.

Second, that portion of the technical assistance which is provided by contract and FASA specialists from the U.S.--plus the training of Korean specialists in the U.S.--will result in a series of recommended technologies as well as more competent managers.

#### Basic Assumptions

During 1972 and 1973 it is expected that those provided specialized training will put forward specific technological recommendations in the field of agricultural chemicals, special alloys, food technology, mechanical engineering, organic chemistry, metallurgy, foundry technology, electrical engineering, chemical technology and polymer chemistry.

### D. Project Inputs

Project assistance to ROKG efforts is planned to incorporate the following:

1. The provision of a direct-hire science advisor during the life of the project to advise MOST and key personnel related to that Ministry and keep them informed on advancement in science and technological development having potential application in Korea.
2. The provision of select U.S. specialists for short-term assignments in Korea in a variety of scientific and technological fields.
3. The provision of participant training for Korean leadership in science and technology throughout the life of the project.
4. Provision of financial support as detailed below:

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## A Summary of the Financing of this Project Follows:

## U.S. Financing in Dollars (\$000)

<u>Fiscal Year</u>	<u>Direct Hire</u>	<u>PASA</u>	<u>Participants</u>	<u>Contracts</u>	<u>Other</u>	<u>Total</u>
1972	41		40	138	8	227
1973	60	40	70	130	-	300
1974	53	-	70	60	-	183
1975	57	-	50	55	-	162
1976	60	-	55	30	-	145
1977	<u>64</u>	<u>-</u>	<u>10</u>	<u>15</u>	<u>-</u>	<u>89</u>
TOTAL	335	40	295	428	8	1,106

Local Currency Financing \*  
(W Millions)

<u>Calendar Year</u>	<u>Direct Hire</u>	<u>Contract</u>	<u>Conferences &amp; Seminars</u>	<u>Total</u>
1972	2.8	2.6	2.0	7.4
1973	3.4	2.0	4.0	10.0
1974	4.0	1.3	6.0	11.3
1975	4.6	1.3	2 6.0	11.9
1976	5.2	.7	3.0	8.9
1977	<u>4.6</u>	<u>.4</u>	<u>2.0</u>	<u>7.0</u>
TOTAL	24.6	8.9	23.0	56.5

(Actual Total Dollar Equivalent \$152,356)

\* Subject to negotiation and approval of the Economic Planning Board.

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### E. Rationale

Major scientific research efforts have not been established long enough to make a significant impact upon the economy of Korea. Consequently, the status of science and its application generally reflects the country's underdevelopment. Opportunities for high-quality graduate study in science have been virtually non-existent, with the predictable result that inadequately trained graduates move into industry lacking the skills to solve its technological woes. A secondary, and perhaps an equally unfortunate result, has been the massive migration of bright students to the U.S. where they have entered lucrative industrial jobs following graduation from U.S. graduate schools.

This educational weakness in science training has deprived Korean industry of a badly needed infusion of science-oriented talent. It has also seriously affected the country's research efforts, and in combination with the meager salaries paid to researchers, has reduced research laboratories to shelters of apathy and inefficiency. For all practical purposes, private research is virtually non-existent, and the major proportion of all so-called research is actually routine analysis, testing and inspection. Under these conditions it is obvious that the economy derives minimal benefits from basic, applied, and developmental research.

As industry expands during the 1970's, the need for experienced and well-trained technologists will become increasingly acute. The pressure imposed upon Korean export industry by competitive world markets has already convinced Korean top executives that their existence virtually depends upon increasing the quality of engineering and research.

It seems virtually self-evident that the benefits derived from the application of science and technology are available only when the conditions for development are also present. Among these are (1) a readiness to accept change as the critical adjunct to development; (2) the willingness to incorporate the scientific method in the social environment and value system; and, of course, (3) the existence of essential infrastructure facilities. The growth of the scientific community; the progressive attitude of the government; the coming of age of top management and the heightened status of the graduate scientist and engineer, all point up a climate of receptivity that holds unusually good promise for providing an environment in which U.S. A.I.D. assistance may make a substantial contribution. The recent development of a TFYP for Science and Technology, which is geared to basic priorities set forth in the ROKG national TFYP, further holds excellent promise for the effective application of new technologies.

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## F. Narrative Statement and Implementation Plan

### A. For FY-72

During the first year of the project, the Mission will provide a direct-hire science advisor who will work directly with the Ministry of Science and Technology, and appropriate ROK institutions across the whole range of policy development, specific planning, and project implementation.

A special NAS study team will provide advice on a critical analysis of the Third Five-Year Plan for science and technology and for means of strengthening the organization and functions of ROK institutions.

Short-term U.S. specialists from the National Science Foundation (NSF) will be brought to Korea to survey and advise on the potential role of science information management and to evaluate the MOST program for science promotion. Other specialists in such fields as environmental problems, atomic energy control, etc., will be provided as requested.

Highly specialized short-term experts will be recruited to assist KIST in researching special alloys, agricultural chemicals, etc.

Specifically designed participant training programs for ROKG officials in science policy, organizational administration, national scientific and technological planning, research management, and scientific and information management will be designed and implemented.

### B. For FY-73

The second year of the project calls for the continuation of the same types of assistance, with the addition of a specially designed relationship with the Argonne Laboratory of the U.S. Atomic Energy Commission. This infusion of highly specialized technologists from the U.S. Atomic Energy Commission will provide direction to the Korea Atomic Energy Research Institute in continuing its efforts to the development of processes directly geared to industrial needs.

The Mission will continue to provide a direct-hire science advisor and a special input from NAS in the form of a four-man review panel or advisory committee for depth familiarization with major problem areas of Korean science and technology and subsequent identification of program opportunities.



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Short-term specialists will be recruited to extend efforts and studies commenced during FY-72 in the public sector field, and others will be provided to work with KIST scientists in the fields of metallurgy, electrical engineering, food technology, mechanical engineering, chemical engineering, organic and polymer chemistry.

Participant training for ROEG officials will continue in specialized fields essentially unchanged from those of FY-72 with the exception of academic training in metrology.

KIST wishes to reactivate Korea's relationship with special sections of the atomic energy community in the U.S. In the early 60's the AERI of Korea enjoyed a sister relationship with the Argonne Laboratories. The exchange of people and information involved in this institutional relationship will be renewed in FY-73.

C. For FY-74 - FY-77

The Mission will, in each year, continue to provide a special NAS-Korea Advisory Committee of about five persons committed to serve for several years and to familiarize themselves in some depth with the major problems of Korean science and technology. With increasing intimacy of relationships with Korean counterparts, such a group could acquire an extremely effective advisory role. It would meet in conference once a year with the KIST hierarchy complemented, hopefully, by key people in EPB, other ministries, universities and KIST.

During the balance of the project's life, the Mission will continue to provide the services of a Science Advisor on a full-time, direct-hire basis. This kind of top-level guidance, extended over a six-year period, will be a significant and critical factor in bringing scientific competency to a level where its achievements would automatically ensure ROEG initiative and implementation.

**AIRGRAM**

**DEPARTMENT OF STATE**

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FROM - AID/WASHINGTON

SUBJECT - Science and Technology PROP  
Project 489-11-230-683

REFERENCE - TOAID A-597

DATE SENT

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ATT.

We are sending you herewith a copy of subject PROP which was approved by the Acting Director, O/EAD, on December 22, 1971. Because of TA funding limitations this fiscal year, the implementation of this project is being deferred until FY 1973.

ROGERS

Attachment: Memo to O/EAD, dated 12/13/71  
Authorization No. 0093, 12/22/71

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DRAFTED BY	OFFICE	PHONE NO.	DATE	APPROVED BY:
HJKinney:re	ASIA/KPA/K	29084	2/29/72	Cleo F. Shook , Director

AID AND OTHER CLEARANCES  
ASIA/KPA/K:CSBall, Jr.  
ASIA/DP, ALezin (draft)

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