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OUTLINE OF KOREAN AGRICULTURAL  
SECTOR STUDY (SEPT. 1971 - JUNE 1976)

- A Joint Project of USAID and ROKG -

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**I. Major Objectives of the Korean Agricultural Sector Study (KASS)**

1. To provide Korean agricultural policy makers with insight into the economic and social consequences over a planning horizon of following alternative strategies in developing Korea's agricultural sector.
2. To provide the Korean Government, the donor countries and international financiers with a comprehensive study and analysis of the components comprising the agricultural sector, and to make recommendations relative to those changes in policy, program and investment considered necessary to attain a given agricultural sector growth rate.
3. To recommend strategies, policies and programs to achieve specific development goals for the agricultural sector that are consistent with national values relative to food self-sufficiency levels, improved rural life, upgrading contributions of the agricultural sector to the general economy.
4. To improve and develop the capabilities of the MAF in program evaluation, analysis, program development, and policy formulation.

II. Two Main Reports (Sept. 1971 - Sept. 1972)

Korean Agricultural Sector Analysis and Recommended  
Development Strategies, 1971-1985

- Alternative I : This policy strategy set corresponds to the Third Five-Year Plan (TFYP), 1972 to 1976.
- Alternative II: This strategy set seeks increased effectiveness and efficiency in the attainment of the national goals of food self-sufficiency and rural income generation.
- Alternative III: An open economy free trade policy is assumed for agricultural products and inputs.

Summary of Policy Components of Alternatives II and III Relative to Alternative I

Policy Component	Emphasis or Position Relative to Alt. I	
	Alt. II	Alt. III
Research & extension programs	More	Same
Land & water development	Same	Less
Labor substitutes	As needed	As needed
Food price	Higher	Lower
Import policies	Same	Open
Infrastructure investment	More	Less
Family planning	More	More

Comparison of Consequences of  
Three Alternative Strategy Sets in 1985 (1970 = 100)

	Alt. I	Alt. II	Alt. III
Rice production (self-sufficiency,%)	114 (73.4)	141 (93.2)	84 (55.2)
Population	127	122	122
Value added in agriculture	173	217	123
Import of agricultural products	243	85	414

Recommended Goals for Korean Agricultural Sector Development

Food Supplies

1. Near self-sufficiency in rice by 1975, and self-sufficiency levels thereafter consistent with increasing agricultural incomes, foreign exchange availabilities and technological advances.
2. Complete or continued self-sufficiency in food barley, potatoes, fruits, vegetables, meat and poultry products by 1975, and 1985.
3. The importation of wheat and feed grains and other food-stuffs at levels consistent with the stated self-sufficiency goals for various foodstuffs and domestic ability to produce food surplus barley and forage as sources of feed.
4. In order to help keep demand for food consistent with supply, a net annual population growth rate of 1.5 percent by 1975, 1.4 percent by 1980 and 1.1 percent by 1985.

#### QUALITY OF RURAL LIFE

1. An increase in average total annual real per capita value added in agriculture at the annual rate of 9 percent.
2. An increase in per capita annual incomes from agriculture as a percentage of urban incomes from 33 percent in 1971 to 69 percent in 1985.
3. The improvement of physical infrastructure for better rural life--electricity, roads, housing and labor-saving facilities.
4. The maintenance of a moderately equal income distribution in Korean agriculture.
5. Upgrading of education - general and vocationed.
6. Land tenure changes with respect to farm ownership limitations and rental restrictions.

#### Contributions to Industrial Development

1. Ten million well trained people from 1970 to 1985 to help develop Korean industries and urban economy.
2. A 100 percent increase by 1985 in raw materials supplied to Korean industry.
3. Increased value added for Korean agriculture.
4. Decreased foreign exchange required for import of agricultural products.
5. The transfer of substantial claims on rural resource earnings to nonfarm residents via inheritances from farmers to their migrating descendants.

## Investment Priorities on the Korean Agricultural Sector

### Land and water resource development

Irrigation  
Drainage  
Upland development

### Agricultural input and product marketing

System of product marketing: farm to first receiver  
Agricultural credit requirements  
Market information system  
Farm storage requirements  
Deamdns for Transportation facilities

### Agricultural research investment

## Recommended Policies and Program

### Foodgrains

High rice policy up to 1975.

Dual price policy for barley.

Forward price policy for rice and barley.

### Technology

Emphasis on development of high-yielding varieties of grains (The national average yield of polished rice in 1980 should be 4.5 MT per hectare, and that of barley 3.4MT).

### Livestock industry

Development of domestic forage crops.

Increased supplies of poultry meat primarily by small farmers.

### Land and Water resource

Completion of paddy land rearrangement, 42 thousand hectares.

Priority on completion of on-going irrigation projects.

Expansion of drainage improvement for 190 thousand hectares of paddy land.

Reclamation of 200 thousand hectares of forest land.

### Agricultural Marketing and Credit

Modernization of marketing facilities for collection, storage, processing, transportation and grading of farm products.

Improved regulation of marketing systems.

Expanded credit for production and marketing of farm products.

Institutional credit for farm-land transaction.

Maintenance of the Agricultural Coops' shares in farm products and material input marketing at a 20 percent level.

### Rural Infrastructure

Expansion of road network, especially local feeder roads.

Electrification of one million farm-households.

Improved facilities for health and sanitation, communication and education.

### Family Planning

Strengthening family planning activities especially for low income groups in urban centers and rural people.

## Administration

Changes in the MAF organization on the basis of functional principles.

Heavier reliance on the free market mechanisms for agricultural policy implementation.

Separation of agricultural statistical data collection agencies from the provincial and local governments.

## III. Utilization of KASS Models

1. A projection of demand for and supply of food from 1973 to 1981 (March 1973).
2. Computerizing the MAF demand-supply model for livestock products (December 1973).
3. An analysis of short-term grain policy alternatives for the remainder of the 1974 rice year (July 1974)
4. An analysis of alternative purchase prices for rice (September 1974).
5. An analysis of alternative purchase prices for barley (May 1975).
6. A projection of demand for and supply of food to the year 2,000 under varying resource constraints and prices assumed as a base run for 4th Five-Year Plan.

## IV. Institutionalization of Agricultural Systems Simulation Work in Korea.

1. Three Elements for Successful Institutionalization

**A. Trained manpower**

The development of professional resources should be taken as a high order of priority through formal and on-the-job training programs. Introducing a course in systems science at universities is desirable as a long-run attempt to develop professional manpower needed for systems analysis and simulation models.

It is also important that the staff should be equipped with favorable attitudes toward systems simulation approach together with technical know-how.

**B. Organizational set-up**

A viable organization is usually goal-oriented, responsive to changing needs and innovations, and effective in communications.

Internal working relationships - Communication  
- Control  
- Coordination

External working relationship-Linkage

**C. Supporting service and management**

Supply of quality data

Accessibility to computer service

Financial support

Provision of incentives-achievement criterion

Effective leadership-professional qualification

Interdisciplinary team work

**2. Problems facing KASM Development**

Shortage of trained manpower in system analysis

Insufficient data base.

Insufficient supporting service including computer service, salaries scale, etc.

Gaps in understanding of systems analysis (needs, methodologies) between researchers and potential users.

The National Agricultural Economics Research Institute (NAERI), therefore, should be given opportunities to grow as the strong organizational base for the development of KASM. In effect, KASM is a "institute contract model" for the building of professional capacity in Korea as a part of US technical assistance programs. A concentrated effort is needed for institutionalizing KASM on a solid base.

For these efforts be effective, it is required that changes should be made not only in the number of skilled manpower, organizational structure and provision of supporting services, but also in the attitudes of the concerned persons toward systems analysis and simulation approach.

### 3. Institutionalization Plan for KASS

#### First Phase (1971-73): Initiation

- 1) Completion of Korean Agricultural Sector Analysis and Development Strategies, 1971-85 and Investment Priorities in Korean Agricultural Sector.
- 2) To initiate the building of individual policy models such as foodgrain management, population and migration, recursive linear programming for resource allocation, and livestock development.
- 3) To train Korean counterpart economists and programmers primarily on the job and at MSU.

- 4) To organize a workshop with respect to the major research findings and methodologies employed by KASS for policy makers, economic analysts in the Government and private agencies(July 30 - Aug. 9, 1973)
- 5) Documentation of KASS models - User's Manual (Special Report No.9)

Second Phase (1974-76): Development (See pp.23-24, BRIEFING)

- 1) Upgrading the status of KASS team in NAERI to a level of permanent division.
- 2) To intensify the training programs for the NAERI staff on simulation analysis and computer programming.
- 3) Introduction of an internship system for the Ph.D. candidates in agricultural economics at universities within and outside the country.
- 4) To round out the individual policy models which were initiated in the First Phase.
- 5) Completion of 16-sector input-output model(NECON).
- 6) To develop closer ties with policy makers and action program agencies related to agriculture.
- 7) To sponsor one workshop on systems simulation for decision makers and economic analysts in the public and private agencies.
- 8) To participate in the development of software library.
- 9) Actively taking part in the formulation of 4th Five-Year Plan (1977-81).
- 10) To improve the data base in terms of collection of quality statistical data.

Third Phase (1977-80 and thereafter): Maturing or Graduation.

- 1) To upgrade the capacity of NAERIA in terms of trained experienced manpower, and timely generating reliable information for decision makers.
- 2) To initiate new policy models including forestry and fishery sectors.
- 3) To assist the universities interested in opening a regular course in systems science.
- 4) To actively engage in extension programs toward the potential users of systems simulation analysis.
- 5) To internalize the KASM-type analysis in the core process of economic policy planning in the Ministries.

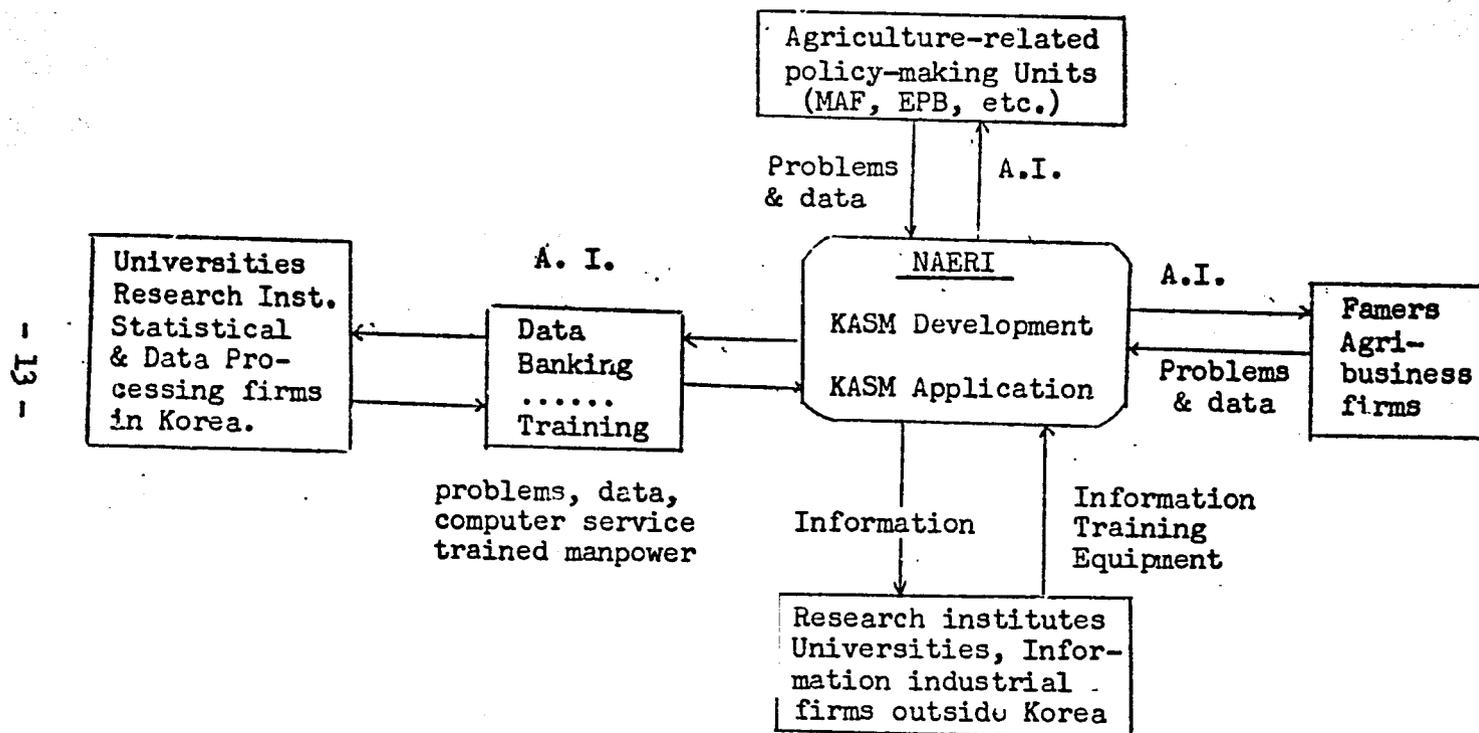
4. Manpower Requirement for KASS in 1976.

Field	No. of Experts			
	Ph.D.	MS	BS	Sub-total
Systems science	3 (1)	2		5 (1)
Economics and Agricultural Economics	5 (2)	2	1	8 (2)
Technical Agriculture	2 (2)			2 (2)
Sociology	1 (1)			1 (1)
Public Administration	1 (1)			1 (1)
Computer Programming		2	1	3
<b>Total</b>	<b>12 (7)</b>	<b>6</b>	<b>2</b>	<b>20 (7)</b>

5. Attitudes Relevant to Institutionalization of Agricultural Sector Simulation Study in Korea.

By whom Toward what	Professionals in KASS	Other professionals (potential cooperators)	Administ- ration officers (budget, personnel, etc.)	Policy makers
Economic Planning		X	X	X
Systems simulation approach	X	X	X	X
Scientist as a profession	X		X	X
Agriculture			X	X
NAERI	X	X	X	X
Technical aid programs	X		X	X

6. Functional Relationships between NAERI and Related Agencies for Development and Uses of Systems Simulation Model.



NAERI = National Agricultural Economics Research Institute  
 MAF = Ministry of Agriculture & Fisheries  
 EPB = Economic Planning Board  
 A.I. = Analytical Information

National Agricultural Economics Research Institute

Agricultural Development Division

1. Analysis and evaluation of agricultural investment projects.
2. Regional agricultural development and planning.
3. Farm land use and land tenure system.
4. Coordination of research projects and publications.

Rural Economics Division

1. Rural population and farm employment.
2. Formation and distribution of farm income.
3. Sociological studies on rural community.
4. Agricultural history.

Agricultural Production Economics Division

1. Farm organization and farm planning.
2. Agricultural mechanization.
3. Costs and returns to farm enterprises.
4. Water resource development and management in agriculture

Agricultural Marketing Division

1. Marketing of agricultural products and inputs
2. Consumption pattern of agricultural products.

3. Agricultural prices and credit.

Agricultural Sector Analysis Division

1. Macro-analysis of agricultural sector.
2. Agricultural growth and long-run projection
3. Foreign agriculture and international trade of agricultural products.

STAFFING

Researchers	39 persons
Research Assistants	16 "
Administrative Staff	20 "
Total	<hr/> 75 "