

2. 要請書

2-1 「北部農業普及センター建設計画」

PROJECT PROPOSAL FOR THE GOVERNMENT OF JAPAN
PROJECT-TYPE TECHNICAL CO-OPERATION

ESTABLISHMENT OF
AGRICULTURAL EXTENSION CENTRE
IN THE NORTH VIETNAM

Submitted by :

Department of Agricultural Extension

*Ministry of Agriculture and Food Industry
Government of the Socialist Republic of Vietnam*

---- 1994 ----

Applicant : The Government of
the Socialist Republic of
Vietnam

Project title : Establishment of Agri.
Extension Centre in the North.

Economic Sector : Agriculture

Project Site : Thanh Xuan sub. dist.-
Thanh Tri dist. - Hanoi City

Responsible Ministry :
(Ministry requesting the Aid)
Ministry of Agri. and Food
Industry.

Implementing Agency :
(Agency in charge of execution of
the project)
Department of Agri. Extension.

II- Project Description

I- Background

(1)- Current situation of the sector : Agriculture plays an important role in Vietnam. About 75% of the population and 70% of workforce of the country participate in this sector. More than 30% of the country output value is from agriculture. In recent years, due to the renovation of economy, considerable achievements have been made in this field. However, agricultural production in Vietnam, especially in the North, is still facing some main constraints as follows.

- Disasters : It is usually suffered by storms, floods, droughts and cold weather. For only ten years recently, disasters occurred in 9/20 crop seasons (occupied 45% of the these crop seasons).

- Over crowded population : Average population in the North is 460 persons/km².

- Low yield of agricultural production : due to the lack of knowledge of farmers on farming technology.

The main orientations of agriculture in the coming years are to produce more food for the domestic demand, to ensure social stability, to diversify the agricultural structure by planting different kinds of vegetables, fruit trees, long-term and short-term industrial crops and to raise pigs, poultry, cattle, fishes... Following the change of management mechanism, farm-household has become an autonomic economic unit since a few years ago (in place of agricultural co-operative previously). Farm-households have to carry out their production work in the most effective way on the land allotted to them by themselves. So, they

need more assistance in the farming technology to increase the yield of crop production and livestock.

(2)- Problems to be solved in the sector :

- Low productivity of agricultural production.
- Low income and high unemployment ratio in rural area.

(3)- Necessity and Importance of improvement in the Sector which lead to the formulation of the Project.

Among 26 provinces in the Northern part of Vietnam, there are 11 in the North mountainous region, 2 in the Midland region, 5 in the central coast of Northland region and 7 in the Red River Delta region.

Total area in the North :	166,662.9 km ²
Population of North Vietnam is :	34,696,900
Agricultural population is :	29,906,800
Farm households is :	5,603,960

Average managing farm land is : 0.3 ha/farm-household.

Farmers in the North have little experience independent and small-scale farm activities when the land has been transferred to them from agriculture co-operatives.

It is clearly that the farmers in the North should be trained on farming technology, on marketing knowledge to improve their production and then increase their living standard.

(4)- Relations between the sector and the project :

The Agricultural Extension System has newly been established in Vietnam (1993). The Provincial Agricultural Extension Center was also set up in all northern provinces, but have not enough the extension staff. The average number of extension staff of each provincial center is only 15-16. All of them are technicians on crop production and livestock. They have not been trained on extension method. The Extension Stations of the districts are not yet established due to the lack of extension workers. If extension staff are trained on extension service, they will help the farmers more effective on farming techniques and on economical knowledge which will increase the agricultural productivity and then increase their living-standard. When District Extension Stations are established they will play important role in agriculture production.

(5)- Reasons why Technical Co-operation with Japan is requested for this particular project.

Japan is an Asian country having long experiences on extension service. After the Second World War, there were so many problems in agriculture of Japan which should be solved. Based on re-organisation of Agricultural Extension system, its unique extension activities were carried out in rural area and gathered many achievements. In addition, Japan has more experiences on the field of training extension staff and has the similar agricultural extension system with Vietnam : national level, prefecture level, district level of extension offices. So that is the reasons why Vietnamese Government proposes the Technical Co-operation with Japan for this project.

2- Objectives and Outline of the project :

(1) Objectives of the project :

(i) Short-term objectives : Agricultural Extension Center in the North Vietnam will be established in order to :

- Organise regular training courses on extension service for extension staff of 26 provinces in the North.

- Set-up demonstrations, and on-farm trials on crop production or livestock for transference of new technology to the farmer.

(ii) Medium and long-term objectives :

- In the future, this Center will become the National Extension Center for all country and will have relationship with other Extension Centers in the Asia-Pacific Region.

- Due to the improvement of farmers knowledge, advanced technologies will be applied in production, the productivity of agriculture will be increased by 25-30%, the income of farmers will be increased and then the home-life of farmers will be improved.

(iii) Please fully describe the relations between the project and objectives and how the project will contribute to the accomplishment of the objectives.

If the project is implemented, almost of extension workers, core farmers of North Vietnam will be trained on extension service, on farming technology, and on economical management. Many new technologies on crop production, livestock, product processing... will be applied in production. The productivity will be increased, the farmers will get high income and their living-standard will be improved, and finally the objectives of the project will be accomplished.

(2) Outline of the Project (please give a full description of the content of Technical Co-operation) :

The Agricultural Extension Center in the North Vietnam will be the place to organise :

- Training courses on extension service for the leaders of Provincial Agricultural Extension Centers.

- Training courses on extension method for extension workers.

- Workshops, seminars on farming technology, farming management, to exchange experiences among extension workers.

- Special training courses for core farmers : rice, vegetable, maize production, livestock, home-life.

- Lecture on agricultural management for rural Youth.

- The Center is also the place where new farming technologies will be transferred to the farmers through demonstrations and field visits.

It will be also the place for the technical co-operation among Japanese and Vietnamese experts on agricultural extension.

To accomplish above functions the Center will have following facilities :

- Equipment for on-farm experiment and demonstration farm : irrigation equipment, agricultural machines etc.

- Training and Administration equipment : computer, facsimile, video machine, slide projector, overhead projector, sound system...

- Soil analysis facilities.

- Extension equipment :

- + Crop-related equipment : chlorophyll meter, hand refractometer, microscope, self recording hygrometer and thermometer, pH meter, flame photometer, spectrophotometer, electronic balance etc.

- + Livestock-related equipment : supersonic meat quality inspection device, grass moisture meter, cattle measuring device.

- + Home-life improvement-related : salt concentration gauge, calorie counter etc.

- Vehicles : car, minibus, truck.

(3) Input Plan (please describe in detail) :

(a) Japanese Input : For the implementation of the project, technical assistance and provision of equipment will be requested :

(i) Short-term Experts (Number of Experts)(Sector, their field)

- Expert assisted for the installation and the usage of project facilities and equipment : 1 person
- Rice production expert : 1 person
- Vegetable expert : 1 person
- Home-life expert : 1 person

(ii) Long-term experts (number of experts)(sector, their field) :

- Chief Technical Advisor 1 person
- Training expert on Extension service 1 person
- Training expert on Extension management 1 person

(iii) Acceptance of trainees (number of trainees)(sector, their field) :

- Trainers of the Agri. Ex. Center in the North on extension service : 3 person/each year.
- Extension workers : 10 persons/each year.
- Subject-matter-specialists (home-life, crop production, livestock) : 5 persons/each year.
- Extension leaders at national & provincial level : 3 persons/each year.

(iv) Provision of equipment (please describe the major equipment to be provided)

(Total amount of the cost)

- Equipment for demonstration farm :
 - + Irrigation equipment : 200,000 \$US
 - + Agricultural Machines : 200,000 \$US
- Training and administration equipment (computer, facsimile, video machine, slide projector, overhead projector sound system... : 200,000 \$US
- Soil analysis facilities... : 200,000 \$US
- Extension equipment (crop related equipment, livestock related equipment, home-life improvement related...) : 100,000 \$US

- Vehicles :	
+ Four wheel driver car (1)	40,000 \$US
+ Minibus (1)	40,000 \$US
+ Pick-up truck (1)	30,000 \$US
- Short-term and long-term experts :	800,000 \$US
- Overseas training of local staffs :	300,000 \$US
- In-country training of extension workers and core farmers :	200,000 \$US
Total cost :	<u>2,310,000 \$US</u>

(b) Vietnamese input :

(i) Counterpart personnel (number of counterpart personnel)(sector, their field) :

There will have 15 staff and workers at the Agricultural Extension Center in the North and more than one thousand of extension workers and core farmers will participate to the implementation of the project.

(ii) Facilities and equipment (please describe in detail) :

- Building office and storage.
- Land for demonstration farm.
- Salaries of Vietnamese staff and workers

(c) Period of co-operation :

(i) Year to be started : 1995 5 (years)

3- Benefit, Effect and Publicity of the project

(1) Population that will benefit directly from the project : There will have 200 extension workers and 1,000 core farmers who will be trained annually and get benefit directly from this project.

(2) Population that will benefit indirectly from this project : More than 20 million farmers in the North Vietnam, will benefited indirectly from this project.

(3) Area that will benefit from the project : More than 1 million hectares of farm land in the North Vietnam.

(4) Economic and Social Effects of the project (please describe in detail):

(i) Current situation : as mentioned above, the knowledge of farmers in the north is very limited on agricultural production, leading to the low productivity of production, low living-standard of farmers. Average food output per capita in the North is only 271.4kg in paddy rice equivalent, which of all the country is 348.9kg.

(ii) Expected effect of the project : The knowledge and skills of extension workers and farmers will be improved and more new technologies will be applied in production. The cultivated area in the region will be expanded by 20%-30% and food output will be increased about 1 million tons (in paddy rice equivalent), contributing for the growth rate of food output up to 5% every year, the average food productivity per capita will be more than 300kg/person (in paddy rice equivalent). More than 1,000 million Vietnamese dong will be increased each year.

4- Request to other donors :

(1) Is there any request made to other donors for assistance closely related to this project?

1- Yes.

x 2- No.

(2) If yes, please fill in below :

- (i) Name of the donors;
 - (ii) Title and outline of the assistance;
 - (iii) Possibilities that the donor will extend the assistance requested;
 - (iv) In the case where other donors do not extend assistance, please describe in detail appropriateness and effectiveness of this project;
 - (v) In the case where other donors extend loans, please describe the reason why Japan's Technical Co-operation is requested for the project.
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5- Priority :

(Please describe priority of this project among other projects for which requests are made to Japan).

Among the proposed agricultural projects, highest priority is given to the implementation of this project.

(Please attach project list with priorities).

6- Ministry and Agency in-charge of the project :

(1) Outline of Implementing Agency (please describe in detail)
(The Agency in charge of the execution of the project).

(i) Organisation chart of the Agency (in general)
(Please mark the responsible department and division in charge of the project).
(Please attach detailed organisation chart pointing out the responsible department, division and sections in charge of this project).

Department of Agricultural Extension is responsible for the implementation of the project. It has 7 divisions : Administration Division, Planning and International co-operation Division, Information and Training Division, Food crop Division, Industrial crop Division, Grazing animal Division, In-farm animal Division and 2 Agricultural Extension branches : one in the South, one in the Central part of Vietnam. (Please see attachment 4).

If the project is implemented, a project office will be set up, and will be managed by the Director of the Department.

(ii) Authorities and Duties of the Agency :

- Management of extension service in all the country.
- Transference of new technologies on agricultural production to farmers by extension methods.
- Improvement of skills and knowledge of the farmers on farming technology through training courses, field visits, workshops...

(iii) Personnel (Please mention the number of staff, workers and employees of the Agency and responsible department, division and section in charge of the project).

There are 60 staff and workers of the Department, including : Specialists on crop production, specialists on livestock, accountants, workers (drivers, servers...)

(iv) Budget (Revenue and Expenditure)

(If mentioned in local currency, please mention the latest foreign exchange rate of the currency to the \$US or the Japanese yen).

Budget in 1994 : 16 billion Vietnamese dong; equivalent 1.5 million \$US (1 \$US \approx 11,000 VN dong).

(2) Outline of Supervising Ministry (Please describe in detail) :

(i) Organisation chart of the Ministry (in general)

(Please mark the responsible department and division in charge of the project and implementing agency).

(Please attach detailed organization chart pointing out the responsible department division and sections in charge of the project and implementing agency).

(Please see attachment 3).

(ii) Authorities and Duties of the Ministry :

The Ministry of Agriculture and Food Industry is in charge of the development of agriculture in the whole country.

(iii) Personnel (Please mentions the number of staff, workers and employees of the Ministry and responsible department, division and section).

The total number of staff, workers and employees of MAFI is 400 persons.

(iv) Budget (Revenue and Expenditure)

(If mentioned in local currency, please mention the latest foreign exchange rate of the currency, please mention the latest foreign exchange rate of the currency to the \$US or the Japanese yen).

Budget of MAFI for 1994 amounted to 80 billion VN dong.

7- Capabilities of the Implementing Agency :

(Please describe the capabilities of the agency to manage, sustain and operate the project).

(1) Current situation : Land area of the Agricultural Extension Centre in the North has been prepared by the Ministry and Department of Agricultural Extension. Staff and local specialists are available. Budget is not yet available.

(2) Problems of the Agency :

- Shortage of budget.
- Lack of knowledge on extension method.
- Lack of demonstration farm and training center on xtension service.

(3) Improvement plan (If any please describe in detail the contents of such a plan that will enable the Agency to handle the project more effectively and efficiently).

- Establishing the Agricultural Extension Center in the North Vietnam for the purpose of demonstration and training extension workers and core farmers.

- Improving extension knowledge by overseas and in-country training courses.

8- Operation and Management of the Project :

(1) Personnel (Please fill in the number of personnel)

	Current	When the project in started
Supervising Ministry		
People's committee		
Implementing Agency	60	75
Service of construction		
Directly Responsible personnel	5	15

(In case of hospital research institutes training centers, please attach the functional personnel charts).

(In the case where necessary personnel are not yet recruited, when and how this is to be done).

(2) Budget (Please fill in the budget in the below table)

(If mentioned in local currency, please refer to the latest foreign exchange rate of the currency to the \$US or Japanese yen).

	2 years ago (1992)	1 year ago (1993)	Now (1994)	When the project will be completed (1999)
Supervising ministry	30	60	80	
Implementing Agency	-	7	16	
Directly budget of the project				

(1 \$US = 11,000 VN dong - 1994)

(In the case where additional budgetary allocation is needed for the implementation of the project, please answer the following question)

(i) Has the additional budget been already allocated?

1. Yes

x 2. No.

(ii) If no, how and when the additional budget be allocated?

Additional budget will be allocated when the project is implemented.

(3) Technical Abilities of total staff :

(i) Please describe technical abilities of local staff operating the project. The abilities of local staff are sufficient for the operation of the project but their knowledge on extension service is still limited.

(ii) Please describe in detail educational background of those who are in charge of the project :

Almost of staff, who are in charge of the project, graduated BSc. level on crop or animal production. Some workers graduated the high school level.

9- List of Related Projects

(Please fill in below if there is a project executed by another donor country or international organization in related area)

(1) Name of donor No

(2) Project title

(3) Project outline

(4) Type of Assistance

(Grant, loan, technical assistance etc.)

(5) Project period

(6) Relations with this project

(If there are many project, please attach a list of those projects explained in the same way).

10- Grant Aid.

(1) Has Grant Aid been extended to this projects?

(i) Yes

x (ii) No.

(2) Is Grant Aid needed for the implementation of this project?

x (i) Yes

(ii) No.

(3) If no, please describe the reasons why Grant Aid is not needed.

III/- General Development Plan

1- Title of the Plan (Please attach the whole volume of the latest general development plan) : Five years plan (1991-1995)

2- Economic and Social situation (Please mention the basic statistics of economic fundamentals).

(1) GNP : 230 \$US per capita per year (1990 estimate).

(2) National income, sector by sector.

	1991	1992	1993
① Total :			
- Billion VN dong	76,707	110,535	136,571
- %	100	100	100
② Goods:			
- Billion VN dong	49,310	67,648	80,268
- %	64.3	61.2	58.8
a) Industry :			
- Billion VN dong	15,193	23,956	29,371
- %	19.8	21.7	21.5
b) Construction :			
- Billion VN dong	3,058	6,179	9,423
- %	4.0	5.6	6.9
c) Agriculture and forestry :			
- Billion VN dong	30,314	36,468	39,998
- %	39.5	33.0	29.3
d) Others :			
- Billion VN dong	744	1,045	1,475
- %	1.0	0.9	1.1
③ Services :			
- Billion VN dong	27,397	42,887	56,303
- %	35.7	38.8	41.2

(3) Unemployment rate around : 3% in 1989.

(4) Inflation rate : 17.4% in 1992.

(5) Growth rate : Average growth rate of national income from 1986 to 1992 was 3.9%.

(6) Balance of international payments : (in 1993)

Exports : 2,970.3 millions rubble/dollars.

Imports : 3,414.5 millions rubble/dollars.

(7) Labour population (as a whole, and sector by sector) : in 1992.

Thousands person

	Total	Of which	
		State	Non state
<u>Total</u>	<u>31,818.2</u>	<u>3,038.3</u>	<u>28,780.6</u>
<u>Material productive sector</u>	<u>29,782.8</u>	<u>1,833.8</u>	<u>27,949.0</u>
Industry	3,450.0	694.7	2,755.3
Construction	825.0	303.4	521.6
Agriculture	22,998.3	280.5	22,717.8
Forestry	210.0	68.9	141.1
Transport	483.6	137.3	346.3
Postal service and tele-communication	50.7	50.7	-
Trade, material supply	1,735.0	286.5	1,448.5
Other	30.2	11.8	18.4
<u>Non material productive sector</u>	<u>2,036.1</u>	<u>1,204.5</u>	<u>831.6</u>

(8) Debt. Service ratio.

(9) Outstanding Debts.

(10) Major Items of Exports and Imports and their value :

Exports : rubber, coffee, rice, peanut, tea, crude oil, coal.

Imports : fertiliser, metal, benzene oil, cotton, insecticides, motor trucks, motor cars, medicaments.

(11) Major trading partner : Russia, Japan, Hongkong, French, Singapore, China.

(12) Population and its growth rate :

Thousands person

	1986	1987	1988	1989	1990	1991
Population	61,109	62,452	63,728	64,774	66,233	67,678
Growth rate (%)		2.2	2.2	2.0	2.3	2.2

(13) Average life expectancy (Male and Female)

Male : 62 years

Female : 66 years

(14) Death rate and Birth rate (in 1989)

- Death rate : 0.7%

- Birth rate : 3.1%

(15) Medical structure.

(16) Ten disease most afflicting the nation : Malaria, Tuberculosis, Diarrhoea, Influenza...

(17) Illiteracy rate : Illiteracy rate was 12.3% in 1989.

(18) Other data.

3- Outline of the plan :

(1) Most important sectors in the plan : Agriculture and Industry.

(2) Basic objectives of the plan

(Please describe in detail the objectives by using concrete figures)

Agricultural Production target up to 1995.

. Food production : 25 million tons.

. Animal production : 1.2 million tons.

. Seafood production : 1.2 million tons.

(3) How will the above-mentioned objectives be achieved?

(Please mention specific projects and programme to achieve the objectives.

4- When will the plan be executed and completed?

The plan was started in 1991 and will be completed in 1995.

5- Relations between this project and the general development plan.

(Please describe the significance of the project in the general plan).

This project belongs to the agricultural programme of the plan and is the one of priority projects to be implemented.

6- Is there any assistance that others donors have extended/will extend to the projects and for programme listed in the general plan?

(i) Yes

x (ii) No

(iii) If yes, please give basic information on the assistance

(a) Name of donor

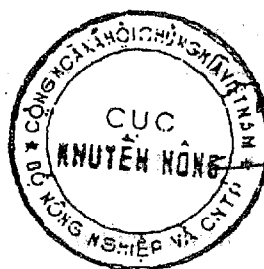
(b) Project title.

(c) Project cost.

(d) Type of Assistance (Grant, Loan, Technical Assistance, etc.)

(e) Project outline.

CỤC TRƯỞNG



Nguyễn Ngọc Châu

Project-Type Technical Cooperation (Summary)

Applicant: **The Government of the Socialist Republic
of Vietnam**

Project Title: **Strengthening the Marketable Power of
Agro-Products through the Application of
Agricultural Engineering Technology**

Economic Sector: **Agriculture and Rural Development**

Responsible Ministry: **Ministry of Agriculture and
Rural Development**

Implementing Agency: **The Vietnam Institute of
Agricultural Engineering (VIAE)**

Address: A2 Phuong Mai - Dong Da - Hanoi
Tel: 84.4.8523187; 84.4.8522724
Fax: 84.4.8521131
Email: viae@fpt.vn

Project Title:

**Strengthening the Marketable Power
of Agro-Products through the Application of
Agricultural Engineering Technology
(Summary)**

I. Background

In the process of carrying out industrialization and modernization of the country, the Government has given extreme concern to industrialization and modernization in agriculture and rural areas. Agricultural Mechanization and Electrification plays a very important part in this great career, it is a motive source to promote the shift of economy structure and the improvement of the production technology in agriculture.

The general objective on the Strategy for Socio-Economic Development in the period 2001-2010 of the Party as set forth in the Draft of the Political Report to the coming IX Congress is: *"To promote industrialization and modernization, bringing the country out of the less developed status..., refurnish industrially-advanced technologies for the Sectors of agriculture, industry, services, creating a foundation for the country to become, basically, an industrial country by the year 2020"*

In order to achieve this objective, the immediate task is to increase the rate of investment in the development of engineering catering for the Sectors of agriculture, forestry, agro-products processing, handicrafts and rural industries, ensuring the production throughout cultivated areas with high products quality, meeting the demand at home and for exportation. Since we start the development at a low starting point, under lots of challenges and with the increasingly-developing tendency of internationalization, regionization of the world economy, it requires the country to develop steadily at a rapid rate. Therefore, it needs to expand bilateral and multilateral international cooperation, to expand exchange of information that aims to increase internal capacity so as to solve the problems being existed in the production which could not be able to cover rapidly by our own efforts.

II. Status on the development of the agricultural engineering sub-sector during past recent years

An overview of the development process after 15 years pursuing *doi moi*, (renovation) has shown that, the need in agricultural engineering for the production has become a practical issue. Based upon the appropriate organization of engineering services, the agricultural mechanization has contributed actively to intensive cultivation, multiple cropping, and expansion of cultivated land, increase

of labor productivity and quality of agro-products, promotion of socialization and commercialization of the agricultural production.

Until late 1999, 13.6 million horse power have been supplied for use in agriculture, forestry, water resources, fishery; 1.9 billion kWh of electrical power have been utilized for irrigation and drainage and for other production operations, stationary processing. In average, the power input per cultivated hectare reached up 0.421 hp/ha. The rate of mechanization in the operations for agricultural production, storage and processing of agro-products has been increased. The mechanization rate of land preparation has seen increased from 22% in 1996 to 36% in 1999, and it is from 30% to 85-90% in rice threshing during the same period that helps to reduce about 10% losses caused by natural calamities. The capacity in irrigation has ensured over 53% of sown area under irrigation and 30%, under drainage. The gross output in processing industries of agro-forest products has increased continuously with an average increasing rate of 12 to 14% per annum. Up to present, already 130,000 tractors of different types have been supplied for use in agriculture, out of which, 88% big tractors, 97% power tillers, over one million water pumps, 300,000 rice threshers, one million agricultural machines, 3,000 drying equipment, approximately 200,000 grinders and millers, 111,000 transportation means of different types, nearly 700,000 motors and internal engines, etc., are under direct management by farmers.

However, it is observed that the development rate of the Agricultural Engineering sub-sector is still low, as a result, it has not met the practical demand of production. The unit power input per hectare is still low: less than 0.5 hp/ha while it is much greater in other countries in the region, and, the mechanization rate in other operations of complicated technical requirements like transplanting, sowing and harvesting is almost not considerable. Currently, the proportion of agro-products under industrial processing is still low as compared with total available raw material sources while the equipment and technologies being applied in this branch is old and out-of-date resulting to a low competitive power. The production and processing of seeds are still underdeveloped, there is still lack of good and integrated equipment in this area that is causing the status of seeds of low quality and affects crops yields.

There are many reasons that are causing these existing problems, in which, the current work on research and development, design and manufacture, testing and evaluation of the Agricultural Engineering branch has revealed its poor capability and has not met the urgent demand of a commoditive agricultural production under a market competitive economy. The system of instruments and equipment for research and development is still too little and obsolete to provide adequate output as required by the present tasks.

Recently, the Vietnamese Government has released the Resolution No.09/2000 NQ/CP which sets forth the task for the next coming ten years as: *“ To study and selection of technologies and design, manufacture of appropriate machines types, catering for the mechanization in the land operations at a rate of over 70%; in grain sowing of short-term crops, planting and harvesting, for several production branches under need. To study to enhance the manufacture quality of several equipment so as to promote competitive capacity of the home-made products against the foreign commodities of the same kind being existed in the Vietnamese market and also, toward exportation”*.

In order to complete these tasks, the investment for modernization of the system of research and development institution of the Agricultural Engineering sub-sectors becoming an urgent need that aims to meet the demand from agricultural production and rural development, facilitating the integration of Vietnam in the region and in the world.

III. Reasons why Japan's Technical Cooperation is requested for the Project

It is known that, an agriculture being mechanized with a high efficiency and benefit will be an epochal change in agricultural production in the 20th century, it has a capacity to enhance the prosperity and development of the nations worldwide with Japan as a typical case.

- With regard to agricultural production area, Vietnam and Japan have similar features: land is scarce, the population density is high, small field plot with rice being the major crop. After achieving the mechanization in rice transplanting by the years of 1970's, Japan has attained complete mechanization in all operations of the production process. Presently, it has obtained high level of mechanization and many operations are under automatic control. The labor input per hectare is reduced to 300 hours. The agricultural labor ratio reduced to less than 5% in total social labor, and the average income by a farm household is higher than that of a staff in urban area. The Japanese machinery has been exported to many countries in the world.

- The manufacturing branch of agricultural machinery in Japan has developed at a very high rate; presently, there are over 130 companies engaged in manufacturing engines and agricultural machinery of different types for hundred thousands of various products. Particularly, the Japanese machinery is of innovative types that are suitable to the agronomic conditions in Vietnam with a

very high quality and reliability grade of the products. The Japanese experts, with their accumulated experiences, could be able to deal with problems and constraints in the agricultural mechanization development.

- Through the technical cooperation, the Vietnamese staff could learn a great deal of experiences and advanced production technology including the importation of appropriate machines so as to create a new step of development in the Agricultural Engineering sub-sector. This will cater for the agricultural production, proceed to the shift of economy structure aiming at increasing technological and services proportions towards industrialization of agriculture and rural areas.

IV. Contents of the Technical Cooperation

- *Development of appropriate machinery and technology for mechanizing selected operations* of cultivation for several main crops under need (principally for rice and sugar canes) in the commoditive growing zones and in the area where crop yield of concern is still low. Carrying out research and development and application of machinery for:

- + Rice sowing and transplanting
- + Mechanization in harvesting with high productivity and quality for selected crops
- + Improved small mobile power and attachments

- *Development of appropriate machinery and technology to apply in storage and primary processing* of selected agro-products.

- + Study for developing rapidly equipment and technologies for primary processing and storage of fresh fruits aiming to reduce damages that are causing losses to farmers.

- + Efforts should be concentrated to equipment and technique for drying and storage of food like summer-autumn rice, winter corn, and peanut for export.

- + Next, to study and apply largely equipment and technology catering for, principally, in-the-spot processing of agro-products of small scale.

- *Through the training and development of human resources*, to increase the quality in the design, development, improvement and application of machinery and equipment following the contents of the Technical Cooperation into production, in the timely access of communication, data processing, and in the access of the demand catering for manufacturing prototypes under need, with high reliability and high economic efficiency.

V. Project outputs

- Appropriate machinery in terms of type and size for suitable use in the operations of prior concern of several main crops will be selected and developed.
- Applying largely equipment and advanced technologies in agricultural production, processing of agro-products, lowering damages and losses, increasing the quantity and the quality of the commodities, and, generate the competitive capability in the integration into the market in the region and in the world.
- Contributing to pushing up structure shifting in economy and labor in agriculture and in rural areas, expansion of traditional occupations, small and craft industries, through which, increasing rural inhabitants' livelihood.
- With the trained staff and equipment being supported, upgrading the capacity in the research, testing, selection and evaluation of machinery and equipment following the contents of the Technical Cooperation for research and transfer of technologies to agricultural production during the Project implementation and after the completion of the Project, based upon this, increasing the share of the Agricultural Engineering Science and Technology in total gross output in agriculture equivalent to the level of advanced countries of the regions.

VI. Total budget as required for the Project

- The Project budget as required to obtain the objective as put forward in terms of special equipment, machine prototypes, equipment for use in the testing and evaluation, measuring instruments, equipment for calculation and data processing.
- The total budget as requested for the assistance from the Japanese Government: US\$ 3,602,000
- Implementing Agency: The Vietnam Institute of Agricultural Engineering, (VIAE), Ministry of Agriculture and Rural Development.

The Vietnam Institute of Agricultural Engineering

Vietnam Institute of Agricultural Engineering (VIAE)
Major Issues requested for Technical Cooperation with JICA
(Date: 7 November 2000)

I. MECHANIZATION OF SEVERAL MAIN OPERATIONS FOR MAJOR CROPS.

STUDY ON MECHANIZATION OF SEVERAL MAIN OPERATIONS FOR RICE AND SOME MAJOR CROPS PRODUCTION, CONTRIBUTING TO INTENSIVE CULTIVATION, INCREASING PRODUCTS QUALITY, REDUCING LABOR INTENSITY AND LOSSES, CREATING SUITABLE CONDITION FOR PROMOTING MECHANIZATION TOWARDS INDUSTRIALIZATION AND MODERNIZATION IN AGRICULTURE AND RURAL AREAS.

The contents for the cooperation study include:

I.1 Study on agricultural motive vehicle and power transmission system

- Study on the structure and technical approaches aiming to increase the durability and the performance of the tractor working on the water field (including power tiller and four wheel tractor of 25 - 30 hp).

I.2 Study on the procedures and equipment for use in mechanization of several principal operations in cultivation and harvesting of major crops:

***Issue 1.** Study on the mechanization of the rice sowing and transplanting suitable to the requirement of rice cultivation in water field and agronomic conditions in the two main rice growing regions in Vietnam.*

- To introduce the technological procedures and related system of equipment line for infant seedlings production that are suitable to intensive cultivation and for the preparation of the mechanization of rice sowing and transplanting.
- To develop a system of machinery appropriate to the application in both two main rice-growing zones.

***Issue 2.** Study on the mechanization of rice and sugar canes harvesting, principally for the two rice -growing zones in Vietnam.*

- To develop a system of harvesting machinery, including combine harvesting machine working in both dry and water field, the rice being standing or lodged conditions. The machines obtain high quality of harvested products, in terms of the high rate of cleanliness, low rate of damaged and unthreshed grains. The

machines components are of high reliability and durability, ease in moving and transportation.

- Study, selection and design a system of machinery for harvesting sugar canes including cutting, leaf stripping of the sugar canes in whole stem condition, leaf chopping after harvesting.

I.3 Study the technological procedures and equipment for water-saving irrigation for crops, particularly, for crops on dry soil condition.

- Applied study on the technology and equipment in water-saving irrigation (sprinkler, drip irrigation, etc.) for vegetables and several industrial crops (tea, coffee, etc.) that are suitable to the agronomic condition for widely application in different zones.

- Study and application of new technology on submersible pump catering for production, domestic life, etc. under specific condition ensuring the durability and service life of the water-seal components.

II. ON PRIMARY PROCESSING AND STORAGE OF AGRO-PRODUCTS

STUDY ON PRIMARY PROCESSING OF SELECTED COMMODITIVE AGRO-PRODUCTS OF MEDIUM AND SMALL SCALE TO INCREASE THE QUALITY AND MARKETABLE VALUE OF AGRO-PRODUCTS AFTER HARVESTING, PRIMARY PROCESSING AIMING TO PROMOTE PRODUCTION, GENERATE INCOME AND EMPLOYMENT OPPORTUNITIES TO FARMERS.

Issue 1. Study on the appropriate technology and equipment for the storage of vegetable and fresh fruits catering for the domestic demand and for export.

Issue 2. Study on the technology and equipment for grain classifying / sorting and treatment of several main crops, aiming to increase quality products after primary and fine processing.

- To establish and complete an equipment system based upon advanced technology for use in the classification of the food, industrial grains aiming to increase the quality of the products after primary and fine processing.

Issue 3. . Study on several main technologies and equipment for the processing of fresh fruits.

- Technologies and equipment for condensation
- Technologies and equipment for aseptic sterilization
- Technologies and equipment for drying fruits meal

***Issue 4.** Applied study the technology and equipment of drying and storage of major agro-products to increase the agro-products quality after harvesting, reducing losses, so as to obtain gradually the standards for export of processed products and the processing efficiency.*

- Study and application of the appropriate technology and equipment in the drying of major crops grains and foodstuffs (using tower dryer, heat pump, etc.) to obtain higher quality of dried products and lower specific energy consumption.

III. IMPROVEMENT OF THE PROCEDURES AND APPROACHES IN THE EXTENSION OF VIAE TECHNICAL PROGRESSES TO THE PRODUCTION UNITS (STATE AND PRIVATE ENTERPRISES AND HOUSEHODS).

- To provide information to farmers/users about the new technical progresses.
 - To provide guidance on the manufacture, utilization, maintenance and repair of agricultural machinery and equipment.
-

SOCIALIST REPUBLIC OF VIETNAM
Ministry of Agriculture and Rural Development (MARD)

PROJECT PROPOSAL

FOR JAPANESE TECHNICAL COOPERATION

Project title: Enforcement of Research Ability of Vietnam
Institute for Water Resources Research (VIWRR)
in Water Resources Development under
the Consideration of Environment

Responsible Ministry: Ministry of Agriculture and Rural
Development (MARD)

Implementing Agency: Vietnam Institute for Water Resources
Research (VIWRR)

Period of Cooperation: 5 Years (2000-2004)

Hanoi, July 1999

**THE TERMS OF REFERENCE
FOR JAPAN S TECHNICAL COOPERATION
(PROJECT - TYPE)**

Applicant:

The Government of the Socialist
Republic of Vietnam

Project title:

Enforcement of Research Ability
of Vietnam Institute for Water
Resources Research (VIWRR)
in Water Resources Development under
the Consideration of Environment

Economic sector:

Water Resources Development and Environment Conservation

Responsible Ministry

(Ministry requesting the aid)

Ministry of Agriculture and
Rural Development (MARD)

Implementing Agency:

(Agency in charge of execution of the project)

Vietnam Institute for Water
Resources Research (VIWRR)

PROJECT DESCRIPTION:

1. Background: *(please describe in detail).*

(1) Current situation of rural development and water resources research

Vietnam is fundamentally an agricultural country, with 80% of total population (75 million) living in rural villages. The agricultural production accounts for about 25% of GDP, and about 36% of total export, which is recognized to be a great contribution to national economy.

As for the agricultural structure, however, the tillage area per farmhouse is very small with 0.24ha in the northern part, and moreover, the productivity is deeply dependent on the local weather, which makes farmers' income very unstable. About 17% of rural households of this country are hunger-stricken (more than 50% of rural population is under poverty-line defined by World Bank), and besides, the national population is increasing as high as 2.0% per year. That is why Vietnamese government puts the most important and urgent political priority on agricultural production increase for national food security and poverty alleviation in rural area.

In order to improve farmhouse economy, raising land productivity (income per ha) is one of the most important and effective measures. To raise land productivity, both rice production increase and cropping diversification, irrigation/drainage facilities and rational water-use system are in real necessities. In addition for this country, development of new water resources, both in surface water and ground water, occupies a very important position. However, development of new water resources necessarily involves sort of environmental impacts. Therefore, the ability in

researching, developing new assessment methods, and training in these fields has become an urgent demand in Vietnam. And also, it must be emphasized that the study about deterioration of rural water quality and rural environment, caused by the increase of water demands for industry and daily life, has been adding its importance in recent years.

In the field of water resources, both development and conservation, Vietnam Institute for Water Resources Research (VIWRR) is a leading research institution. The Institute has been founded since 1959 and continuously growing to meet requirements of the national development in Water Resources sector. The institute has a number of functions:

- Conducting research on 6 main areas: 1/ Water resources development and Environment; 2/ River and Coastal engineering; flood control; 3/Irrigation and Drainage; land reclamation; 4/ Application of new technologies on construction and rehabilitation of hydraulic structures; 5/ Economics and Policy for water resources development; 6/ Mechanization and Automation of Hydraulic works;
- Technology transfer;
- Consultancy on water resources development and related issues
- Postgraduate training.

(2) The problems to be solved by this proposed project.

Although VIWRR has been widely recognized as one of the leading 41 national research institutes, the institute has been suffering from increasing difficulties to perform its function and duties as;

- Lack of experiences and facilities in studying new research area, such as coexistence of natural environment conservation and water resources development; rationalization of water-use by organizational water management; and rural safe drinking water supply and sanitation...
- In order to control water quality in river network and urban ground water, it is necessary to set up a monitoring system.
- Lack of international information about new technology and technical materials (books, journals, computer software, etc.).
- Most of available research equipment and facilities in the institute are out of date and very frequently in ill conditions, because those were installed since 1959's foundation.
- New equipment, up-to-date research method and staff training for such modern technology are severely demanded in order to solve such urgent but complicated problems as water resources development under the environmental considerations.

(3) The necessity and importance lead to the formation of this project.

Since Vietnam was reunified (1975), the National Economic Rehabilitation and Development Strategy has emphasized agriculture as a major economic sector, food as the number-one national strategic target and irrigation as the leading measure in agricultural cultivation.

Besides, water resources development also shows its very important role for the national development through activities concerning flood control, domestic and industrial water supply, and rural water supply and sanitation contributing to sustainable rural development.

Currently, environment becomes great issue in Vietnam. It gets as special attention of the Government as the natural resources conservation issue does. In 1994 and 1998, environment and water laws were issued by the National Assembly of Vietnam.

Science and technology are identified as a key factor for every development process. It is, therefore, deemed necessary to enforce research ability in water resources development under the consideration of environment of VIWRR, the leading scientific and technical institution in the water resources sector as mentioned above, to meet increasingly given requirements.

(4) The relationship between the Project and MARD.

The major output of the project is the capacity-enhanced VIWRR, which, in turn, can continuously help MARD to give appropriate decisions on activities concerning water resources development and environment conservation. Also, the capacity-enhanced VIWRR can provide various technical advice effectively and transfer advanced technology to proceed the development of the water resources sector contributing to the high achievement of agriculture as well as of national security, the utmost targets of MARD.

(5) The reason why Japan technical cooperation is requested for this Project.

According to the Japanese ODA policy to Vietnam, Japan has been emphasizing the following five sectors: 1/Human resources development; 2/Basic infrastructure; 3/Agricultural & rural development + poverty alleviation; 4/Education, health & medical care; and 5/Environment conservation.

This proposed project is considered to be deeply related to all of these criteria, and we recognize that Japan and Vietnam are two nations with many similarities in natural conditions, cropping system, rural structure, traditional way of thinking, etc., which may have best condition to transfer experience and internationally approved technology from Japan to Vietnam.

As mentioned above, VIWRR has been acting very important role in Vietnam. However, due to severe lack of fund, the Vietnamese government could not satisfy financial requirement of upgrading VIWRR to meet recent needs for research activities concerning environment and water resources development. That is why this project requests Japanese government to support.

2. Objectives and outline of the Project.

(1) Project objectives.

(i) Short term objectives.

- To enforce research ability on Conservation of natural environment and Water resources development;

- To enforce research ability on Rationalization of water use and management; rural safe drinking water supply and sanitation;
- To enforce training ability on Postgraduate and technology transfer;
- To enforce ability on Monitoring of water quality and quantity;
- To enforce ability on Exchanging information (both internal and external);
- To enforce research ability by introducing new research equipment and modern Technology.

(ii) Long term objectives.

- To enhance the research ability of the Institute to be able to fulfill its functions and duties in respect to national development;
- To strengthen the capacity of the Institute and its prestige that enable to participate in international activities in the field of water resources.

(iii) Please fully describe the relationship between the Project and objectives and how the Project will contribute to the accomplishment of the objectives.

Project staff will be scientists from VIWRR who are eager and have ability on approaching new technology. Since the project is sufficiently equipped by Japanese experienced experts and modern research facilities, the Institute will strengthen research ability in both human resources and equipment. Therefore, the objectives must be achieved during the project life.

(2) Outline of the Project. (Please give a full description of the content of Technical Cooperation)

- Provision of advice by long term experts from Japan on environment and water resources development; hydraulics; hydraulic structure; irrigation and drainage; water resources economics and policy; water quality, rural safe drinking water supply and sanitation.
- Provision of advice and training for use and installation of new modern equipment by short-term experts from Japan.
- Provision of professional training in Japan and Vietnam.
- Exchange senior experts and experience between Vietnam and Japan by organizing study tours or joint research projects and so on.
- Investigation, selection and set up water quality monitoring networks
- Careful selection and installation of modern research equipment at the Institute laboratories and at water quality monitoring stations, with supervision by experienced Japanese experts.
- Exchange of international information.

Implementation schedule:

- Year 2000
 - ◊ Preliminary survey from Japan and R/D (project approval)
 - ◊ Investigation of water quality monitoring network;
 - ◊ Selection of research equipment;
 - ◊ Establishment the project office; arrangement for long term experts.

- Year 2001

- ◊ Supervision to the VIWRR staff by long term and short term experts
- ◊ Receipt and installation of equipment;
- ◊ Exchange experts, experience and training for VIWRR staff;
- ◊ Layout of water quality monitoring network

- Year 2002

- ◊ Continuous supervision to the staff by long term and short term experts
- ◊ Continuous receipt and installation of equipment;
- ◊ Exchange experts, experience and training for VIWRR staff;
- ◊ Installation equipment for water quality monitoring network

- Year 2003

- ◊ Continuous supervision to the staff by long term and short term experts
- ◊ Exchange experts, experience and training for VIWRR staff;
- ◊ Data collection and analysis for water quality monitoring network
- ◊ Joint research on some topics conducted by Japanese and Vietnamese scientists.

- Year 2004

- ◊ Continuous supervision to the staff by long term and short term experts
- ◊ Participation of Vietnamese Scientists on professional workshops in Japan and international workshop.
- ◊ Data collection and analysis for water quality monitoring network
- ◊ Joint research on some topic conducted by Japanese and Vietnamese scientists.

(3) Input plan (*please describe in detail*)

(a) Japanese input

(i) Short-term Experts (*number of experts*)(*sector, their field*)

- Installation of new research equipment and staff training (equipment engineer) 2 persons x 2 months/year (for first 3 years)
- Setting up of water quality monitoring system
2 persons x 3 months/year (for 2years)
- Analysis and establishment of data-base on water quality monitoring system
2 persons x 2 months/year (for 2years)

(ii) Long-term Experts (*number of Expert*)(*sector, their field*)

- Term Leader (Water policy and economic assessment expert)
- Coordinator (Technical cooperation management expert)
- Water resources development expert
- Environment assessment expert
- Water-use management expert

(iii) Acceptance of trainees (*number of trainees*) (*sector, their field*)

- Training courses in Japan 40 trainees
- International training courses 2 trainees (every year)
- Study tours to Japan 3 trainees (every year)
- Local training conducted in Vietnam by Japanese and Vietnamese trainers: 20 trainees (every year)

(iv) Provision of equipment (*please describe the major equipment to be provided*)

- Researching facilities/equipment for water quality monitoring system and other environmental issues to be studied.
- Machinery/equipment/facilities for the Institute laboratories
- Vehicles for field study

(b) Vietnamese input

(i) Counterpart personnel (*number of counterpart personnel*) (*Sector, their field*)

- Leader of counterpart (Professor/ass. Prof./PhD) 1 person
- Staff with postgraduate degree: 5 persons
- Staff with BA degree and supporting staff: 20 persons

(ii) Facilities and Equipment (*please describe in detail*)

- Project office, local material and housing for equipment;
- Administration support (drivers, telephone, electricity...)

(c) Period of Cooperation: 5 years

- (i) Year to be started: (2000-2004)

3. Benefit Effect and publicity of the Project

(1) People that will benefit directly of the Project.

- The project staff (from VIWRR) will have good opportunity to improve their knowledge and get more experiences.
- Japanese and Vietnamese staff of the project will better understand water related issues of both countries that would benefit to bilateral cooperation between two nations.
- As VIWRR has a function of postgraduate training, improvement of the institute staff and good equipment brought by the project would benefit to many postgraduate trainees.

(2) People that will benefit indirectly of the Project.

- VIWRR has very close relationship with other research institutions and provincial divisions. When this institute becomes a stronger research body, local institutions will benefit from research collaborations in relevant topics.
- Government of Vietnam will have essential information to assess current water quality and to take necessary measures to protect environment

- Department of International Cooperation will be the head department in charge of this project

(iv) **Budget:** 9-10 billions VND/year

(2) Outline of supervising Ministry *(Please describe in detail)*

(i) Organization chart of Ministry (in general)

See an attached chart.

(ii) Authorities and duties of Ministry of Agriculture and Rural Development (MARD).

MARD is on behalf of Government of Vietnam for Agriculture and Rural Development with main responsibilities as follows:

- Agricultural Development: Increase of agricultural production, insurance of natural food security...
- Food processing,
- Forestry development and protection;
- Water resources development and conservation; flood control;
- Rural development: improvement of rural infrastructure, poverty alleviation...

(iii) **Personnel**

There are about 700 staff in departments of MARD

7. Capabilities of the implementing agency

(Please describe the capability of the agency to manage, sustain and operate the project)

(1) Current situation

VIWRR is a leading research institute in field of water resources with many qualified staffs available in various study fields which enable to carry out wide range of research works and technology application for water resources and environmental development. The Institute has well identified that upgrade of research capacity of the Institute is a critical for development in future to solve national problems in water conservation. Therefore, the Institute will provide the best conditions available to fulfill the project.

(2) Problems of the Agency

- Insufficient fund for research and technology application activities
- Lack of research equipment;
- Lack of experience in water related aspects at international level
- Poor network of international communication and lack of means of transport.

(3) Promotion plan

Water resources and environmental development is an increasingly important aspect for national development. Consequently, research activities and technology transfer become critical role to support in making decisions of national water conservation. Implementation of this project will provide good

conditions for research achievement in future as well as create good opportunity for the Institute to involve some international activities.

8. Operation and management of the Project.

(1) **Personnel** (*please fill in the number of personnel*)

	Current	When the project is started
Supervising Ministry*	03	10
Implementing Agency**	10	200
Directly Responsible Personnel***	07	26

Note: * Staff in the MARD office
** Staff of VIWRR
*** Staff of VIWRR and the project

9. List of Related Project.

none

10. Grant Aid:

(1) Has Grant Aid been extended to this project?

(i) Yes X (ii) No

(2) Is Grant Aid needed for the implementation of this project?

X (i) Yes (ii) No

if No, please describe the reasons why Grant Aid is not needed

VIETNAM INSTITUTE FOR WATER RESOURCES RESEARCH