

## 5. 第 5 回 合 同 委 員 会 資 料



**RICE MECHANIZATION PILOT PROJECT (RMP)**

**5TH JOINT COMMITTEE MEETING**

**July 1, 1985**

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**Japanese Technical Cooperation for the Rice Mechanization Pilot Project,  
Agricultural Mechanization Research Institute, Agricultural Research Center,  
Ministry of Agriculture.**

## FIFTH JOINT COMMITTEE MEETING

- I. Date : July 1, 1985
- II. Place : At the conference room of the  
Agricultural Mechanization Research  
Institute
- III. Attendance :

### Egyptian side

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|-----------------------------|--|
| 1. Dr. Ahmed El Sahrigi     | Director General, Agricultural<br>Mechanization Projects |
| 2. Dr. Mohamed El Ansary    | Dputy Director, Agricultural<br>Mechanization Projects   |
| 3. Mr. Osama Kamel          | Site Manager, Rice Mechanization<br>Center.              |
| 4. Mr. Ibrahim Mohamed Nour | Engineer, Workshop, Rice Mech-<br>anization Center.      |
| 5. Mr. Mostafa Abbas        | Engineer, Machinery Div., Rice<br>Mechanization Center.  |
| 6. Mr. Abd El Kaway Tanga   | Agonomist , Agronomy Div., Rice<br>Mechanization Center  |
| 7. Mr. Hamdy Samra          | "  |
| 8. Mr. Abd El Mageid Romeih | Engineer, Machinery Div., Rice<br>Mechanization Center.  |

### Japanese side

- |                          |   |
|--------------------------|---|
| 1. Dr. Takayuki TANAKA   | Team Leader of Japanese Experts         |
| 2. Mr. Seikichi SUGAWARA | Expert on Agricultural Mechanization    |
| 3. Mr. Teruhisa NUMBA    | Expert of Rice Cultivation              |
| 4. Mr. Yasuhiro KIMURA   | Expert on Agricultural Machinery        |
| 5. Mr. Kimio MIURA       | Coordinator/Liaison Officer             |
| 6. Mr. Shozo MATSUURA    | Dputy Representative, JICA CAIRO OFFICE |

Observer

Dr. Aly El Hossary

Undersecretary, Agricultural  
Engineering Affairs

IV. Agenda of the meeting

1. The progress and accomplishments in the implementation of the Rice Mechanization Project.
2. Annual operational work plan for the Rice Mechanization Pilot Project.
3. Others.

V. Meeting Minutes

Dr. Ahmed El Sahrighi, Director General of the Agricultural Mechanization Projects opened the meeting by an introductory speech, saying:

Gentlemen, I take this opportunity to express our thanks to all the members of the committee who attended this meeting and our gratitude to the Japanese people, JICA management, JICA Cairo office and our dear friends of the Japanese Team headed by Dr. T. Tanaka.

Dr. Ali El Hossary, Undersecretary for Agricultural Engineering Affairs then added that the project is one of the most successful projects in Egypt. Because under the direction of Dr. El Sahrighi has made significant contribution towards achieving its goals with the sincere cooperation of the Japanese government, JICA and the Japanese Team.

By now we have mechanized thirty thousand feddans of farmer's land and as the time progresses we see the Egyptian farmers mechanizing their operations after they had absorbed the technology introduced by the project..

The following are the conclusions of the discussions.

1. Dr. Ahmed El Sahrighi, Chairman of joint committee requested that the spore trap units to be provided by JICA and a Short Term expert to be assigned to the project on time in order to study the pathogenic races, forecasting of outbreak for the control of blast disease.
2. It is proposed that an RMC symposium will be held around February 1986 for reviewing the research activities which are being conducted by JICA and the project will request the participation of some Japanese scientists in the symposium..

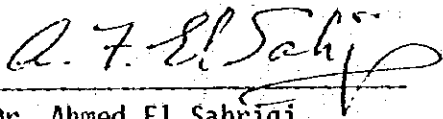
3. We have a plan to improve the experimental field at Meet El Dyba, expand the irrigation canal and prevention of water leaks out in the field.
4. It is necessary to evaluate the different factors such as seedling establishment rate, weed control, physiological actions for calper coated seeds and Yield per unit area.
5. The Japanese experts and their counterparts reviewed the performance of various activities during the year 1984/1985 in detail.

Dr. Takayuki Tanaka, Japanese Team leader stated the following remarks.

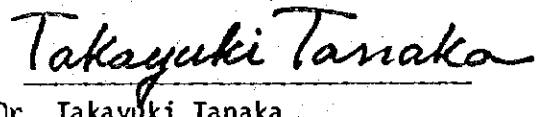
My sincere thanks to Dr. Ahmed El Sahrigi, Director of the Agricultural Mechanization Projects who have arranged this joint committee meeting which is a very important method to review and discuss our activities during the year 1984/1985 and our future workplan for 1985/1986.

Last year we encountered some difficulties in implementation due to irrigation water shortage. However, through the hard efforts of our Egyptian counterparts and the Japanese experts we were able to obtain several important results. I am pleased of their efforts and proud of their cooperation.

The year 1985/1986 is the last year for the technical cooperation project and I will try to do our best to achieve more results.



Dr. Ahmed El Sahrigi  
Director General, Agricultural  
Mechanization Projects.



Dr. Takayuki Tanaka  
Team Leader of Japanese  
Experts.

**ANNUAL OPERATIONAL WORK PLAN FOR THE RICE MECHANIZATION PILOT PROJECT  
(RMP )**

As a guide line for  
RMP Project from April  
1985 to March 1986

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Japanese Technical Cooperation for the Rice Mechanization Pilot Project

Annual Operational work Plan for 1985/86

Item	Month	4	5	6	7	8	9	10	11	12	1	2	3	Remarks
I. Verifying experiment on mechanized rice farming														
1) Preparation of the experimental field														Model infrastructure works
2) Verifying experiment on mechanization														Agronomy Div.
(a) Planting density and nitrogen quantity														"
(b) Nitrogen quantity and its different split application														"
(c) Plowing depth and grain yield difference														"
(d) Compost application														"
(e) Different nitrogen application time trial														"
(f) Relationship between irrigation method, nitrogen application method and inter-node elongation														"
(g) Varietal trial														"



Item	Month	4 5 6 7 8 9 10 11 12 1 2 3	Remarks
(h) Growth trail of different leaf-age seedling under the salinity condition		_____	Agronomy Div.
(i) Relationship between plowing depth and transplanter's accuracy		_____	Mechanization and machinery Divs.
(j) Study on rice blast disease and its control		_____	"
(k) Weed control		_____	"
(l) Trial for seedling (Study on H2SO4, Ph, Sc, Cl and Zink )		_____	"
(m) Suitable time for harvesting		_____	"
(n) Trial for drying system		_____	"
(o) Data collection of maintenance and repair		_____	"
(p) Variation of soil hardness for clover and wheat field from last irrigation		_____	"
(q) Relationship between soil hardness and plowing method by chisel, rotary plow		_____	"

Item	Month 4 5 6 7 8 9 10 11 12 1 2 3	Remarks
<p>II. Economic study on mechanized rice farming</p> <p>1) Survey on existing farming system</p> <p>2) Economic analysis of traditional rice farming and mechanized rice farming</p> <p>III. Establishment of mechanized rice farming system</p> <p>1) Data collection and analysis on traditional cultivation system</p> <p>2) Study on farming system</p> <p>(a) Traditional method</p> <p>(b) Mechanized method</p> <p>3) Establishment</p> <p>IV. Advice and guidance on training for operation and maintenance of agricultural machinery</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Mechanization and machinery Divs.</p> <p>Mechanization and machinery Divs.</p> <p>"</p> <p>"</p>

Item	Month	4	5	6	7	8	9	10	11	12	1	2	3	Remarks
1) Advice and guidance for making training curriculum		---	---	---	---	---	---	---	---	---	---	---	---	Agronomy, mechanization and machinery Divs.
2) Making training material and equipment		---	---	---	---	---	---	---	---	---	---	---	---	Film shooting
3) Conducting training activities		---	---	---	---	---	---	---	---	---	---	---	---	"
V. Advice and guidance for the demonstration activities of mechanized rice farming		---	---	---	---	---	---	---	---	---	---	---	---	"
1) Execution of demonstration (Method, Operation and management )		---	---	---	---	---	---	---	---	---	---	---	---	"
2) Others		---	---	---	---	---	---	---	---	---	---	---	---	"

Item	Month	4	5	6	7	8	9	10	11	12	1	2	3	Remarks
VI. Seminar		—	—	—	—	—	—	—	—	—	—	—	—	
VII. Lecture on rice cultivation, mechanization and others		—	—	—	—	—	—	—	—	—	—	—	—	
VIII. Symposium		—	—	—	—	—	—	—	—	—	—	—	—	Will be requested short-term experts
IX. Observational trip		—	—	—	—	—	—	—	—	—	—	—	—	Agricultural research Institutes and others related organizations
X. Japanese class		—	—	—	—	—	—	—	—	—	—	—	—	

Item	Month	4	5	6	7	8	9	10	11	12	1	2	3	Remarks
XI. Dispatch of Japanese expert (Long-term assignment) 1) Team Leader Dr. T. Tanaka 2) Agricultural Machinery Mr. S. Sugawara Mr. Y. Kimura 3) Rice cultivation Mr. T. Numba 4) Liaison Officer Mr. K. Miura (Sort-term assignment) 1) Blast Disease control 2) Agricultural Machinery 3) Paddy water management														'84.4.3 - '86.4.2 '83.3.4.- '86.8.17 '81.12.8- '85.12.7 '82.2.9 - '86.2.8 '85.5.7 - '86.8.17 '85.7 - 9 (3 months) '85.7 - 9 (3 months) '85.7 - 9 (3 months)

Item	Month	Remarks
XIII.Provision of equipment and machinery	4 5 6 7 8 9 10 11 12 1 2 3	Transplanters, combine and others

Item	Month												Remarks
	4	5	6	7	8	9	10	11	12	1	2	3	
4) Mechanized rice farming									_____				'85.10 - 12 (3 months)
5) Rice cultivation									_____				'85. 7 - 9 (3 months)
6) Training material (16 m/m film)									_____				3 Persons x 2 times (4 weeks x 2)
XII. Training of Egyptian personnel in Japan													
1) Mr. Said El Mosely El Shahawy									_____				Observational tour ( 2 weeks )
2) Mr. Mohamed Yusef Abd El Maule									_____				Agricultural Extension ( 3 months )
3) Mr. Abd El Gawad El Aziz Al Suliman									_____				Weed control (From June 6 for 2 months)
4) Mr. Mustafa Mohamed Fayed Esea													Rice cultivation ( 9 months )
5) Mr. Abd El Gawad El Saoud Baly									_____				Economic analysis ( 3 months )
6) Mr. Ibrahim Aly Yousef Khaia									_____				Agricultural Machinery ( 6 months )
7) Mr. Asar Mohamed Asar													Rice Production and Mechanization ( 9 months )

XV. Training Program of rice mechanization

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1st day	Opening and orientation	9:00 - 10:00
	Preliminary test	10:00 - 11:00
	Mechanization in Egypt	11:00 - 13:00
	Planning for mechanized rice transplating	14:00 - 16:00
.....		
2nd day	Soil selection for seedling boxes and seedling preparation	9:00 - 11:00
	Seed selection, soaking and seed disinfection	11:00 - 16:00
.....		
3rd day	Suitable time for transplanting and quality of seedling	9:00 - 11:00
	Seedling disease and its control	11:00 - 13:00
	Zink and micro elements	14:00 - 15:00
	Film (Rice Cultivation in Japan)	15:00 - 16:00
.....		
4th day	Paddy field preparation	9:00 - 10:00
	Kinds of soil for seedling boxes	10:00 - 11:00
	Practice of seed hastening	11:00 - 13:00
.....		
5th day	Rice cultivation technics and stage of growth	9:00 - 13:00
	Practice for soil selection and fill up to seedling boxes	14:00 - 16:00
.....		
6th day	Direct sowing	9:00 - 10:00
	Economic study for mechanized rice cultivation	10:00 - 13:00
	Practice of sowing and pile up seedling boxes	14:00 - 16:00

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7th day	Rice transplanter	9:00 - 13:00
	Practice of rice transplanter	14:00 - 16:00
8th day	Relation between panicle formation and maximum tillering stage	9:00 - 13:00
	Greening of seedling	14:00 - 16:00
9th day	Cost of mechanized rice transplanting	9:00 - 11:00
	Paddy weeds and its control	11:00 - 13:00
	Practice of greening	14:00 - 16:00
10th day	Operation and maintenance of transplanter	9:00 - 11:00
	Practice for operation of transplanter	11:00 - 16:00
11th day	Fertilizer application and its effect	9:00 - 13:00
	Maintenance and daily checking of transplanter	14:00 - 16:00
12th day	Adjustment of transplanter and its practice	9:00 - 16:00
13th day	Practice of fertilizer application	9:00 - 16:00
14th day	Harvesting with reaper, binder, harvester, and thresher	9:00 - 13:00
	Practice of harvesting machines	14:00 - 16:00
15th day	Traditional and mechanized rice cultivation	9:00 - 11:00
16th day	Practice of combine	14:00 - 16:00
	Final evaluation test and closing ceremony	9:00 - 13:00

XVI. RMC Seminar

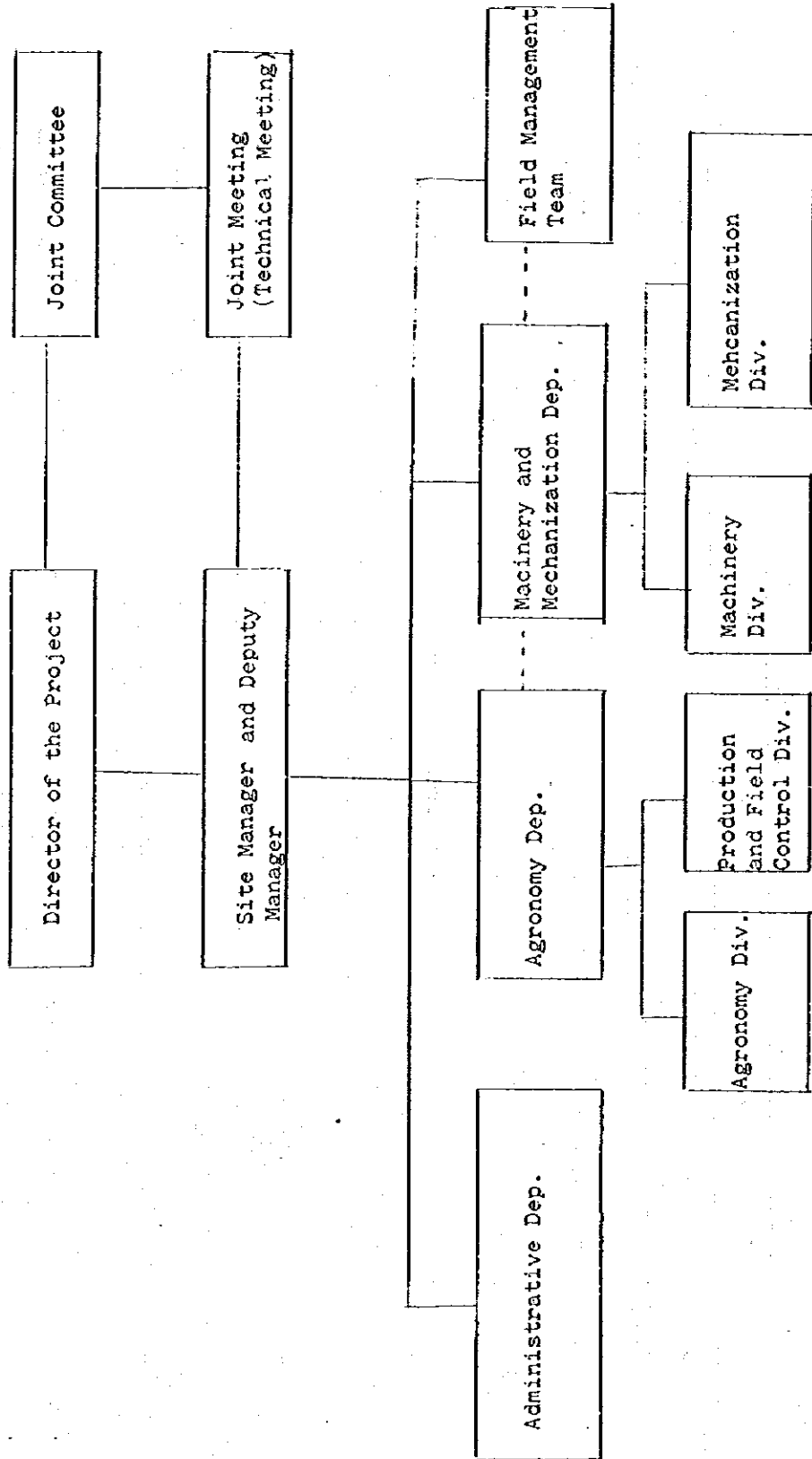
No.	Subject	Lecturer	Date
1.	Weed control in Egyptian paddy field	Dr.Minoru TAKABAYASHI	2nd Sep. 1984
2.	Studies on the light-curves of carbon assimilation of rice plants	Dr.Takayuki TANAKA	28th Oct. 1984
3.	The economic advantage of rice mechanization in small and middle size farmers	Mr.Setsuya HARADA Mr.Abdel Gawad E.Baly Mr.Ahmed Mohamed Ehtial	25th Nov. 1984
4.	Raising seedling and rice transplanting	Mr.Seikichi SUGAWARA Mr.Fatehi El-Nemr	6th Janu.1985
5.	Mechanized harvesting	Mr.Nour El-Din Saleh Mr.Yasuhir KIMURA Mr.Essam Ghazy Mr.Asar Mohamed	27th Janu.1985
6.	Nitrogen transformation and tis effect for paddy plant and paddy plant seasonal change	Mr.Nour El-Din Saleh Mr.Mohamed Yousef	25th Mar. 1985
7.	Framework of rice mechanization system for middle and small scale farmers	Mr.Shouichi KIMURA	7th Apl. 1985
8. *	Paddy weed control	Mr.Fatehi El Nemr	30th June 1985
9. *	Problems of traditional rice cultivation technics and technical improvements in mechanized transplanting	Mr.Mohamed Itman Mr.Abdel Rahman Imara	8th July 1985
10. *	Results of trials and survey in Agronomy ,1984	Mr.Teruhisa NAMBA Mr.El Tanga	Aug. 1985

\* = Tentative Plan

XVII. Publication of Annual Report, Text book, Technical manual and others

No.	Title	O:accomplished P:Planning	Remarks
1.	Annual Report 1982/83	O	In english
2.	Preliminary Report on Research Highlights in in 1983	O	"
3.	Results of the trial and survey in agronomy Division, RMP in 1983/84	O	"
4.	Theory and practice of fertilizer techniques	O	"
5.	General information of RICE MECHANIZATION CENTER	O	"
6.	Nursery and mechanized transplanting	O	In arabic
7.	Raising seedling and mechanized harvesting	O	"
8.	Annual Report 1984/85	P	In english
9.	Report on the Rice Mechanization Pilot Project from 1981 to 1986	P	"

XVIII. Operational Organizational Chart of the Project



THE PROGRESS AND ACHIEVEMENT IN THE IMPLEMENTATION OF THE RICE  
MECHANIZATION PILOT PROJECT (RMP)

Activities of the RMP  
Project from April 1984  
to March 1985

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Japanese Technical Cooperation for the Rice Mechanization Pilot Project

THE PROGRESS AND ACHIVEMENT IN THE IMPLEMENTATION OF THE RICE MECHANIZATION  
PILOT PROJECT

I. Verifying experiment on mechanized rice farming

1. Selection of suitable variety for mechanized rice cultivation (Agronomy Div.)

According to the results of varietal trials used by Akihikari, Nipponbare, Giza-172 and 173 which were selected through varietal trials in 1983 at the Kallin Center, The Akihikari and Nipponbare had shown high adoption for mechanized rice cultivation with the yield of 9.2 and 8.1 ton per ha. respectively.

But, remaining two varieties such as Giza-172 and 173 showed some difficulty for mechanized rice cultivation because of lodging and blast disease.

2. Establishment of raising seedling method (Agronomy Div.)

The raising of healthy seedling is most important points to stimulate the initial growth of rice plants and expanding of yield capacity such as panicle number per unit area and spikelet number per panicle in mechanized rice cultivation. And the seeds quantity per tray are related to the following points;

- (1) Occurrence of high missing hills
- (2) Ununiformal seedling number per hill
- (3) Quality of seedling

Above mentioned points are strongly influenced to grain yield. The optimum seeds quantity and raising duration should be 200 g per tray by dry seeds and 21 days respectively. And nitrogen fertilizer application to a seedling tray is about 5 g at the time of 2 days before transplanting and it is effective for promotion of initial growth after transplanting.

Contrary to this points, treatment of zinc sulfate which applied 5 g per tray at the time of 5 days before transplanting were indicated high efficiency to promote the initial growth and grain yield increase.

3. Establishment of fertilization techniques (Agronomy Div.)

Nitrogen, phosphate and potassium three major elements were confirmed to be indispensable through the trials of 1983. As a result of statistically examined the relation between establishment of yield and each element had shown significant differences of spikelets per unit area. And it indicated that the balance of

Three major elements were very important at the initial and middle stages of rice plant growth.

On the other hand, the soils in Nile Delta is extremely low contents of organic matter. therefore, compost application trials were conducted and confirmed that the high efficiency in the rice plants.

Through various trials and observations conducted past three years, it had shown the extremely close plus correlation between spikelet number and grain yield per m<sup>2</sup>. According to this points, grain yield were determined with the volume of yield capacity which produce before heading of rice plants.

The reasons of this factors are the amount of extremely high radiation at after heading of rice plants and it is most advantagous points to rice cultivation as well as mechanized rice cultivation in Egypt.

With above connection, two factor trials were conducted such as planting density and nitrogen fertilizer quantity to ensure the spikelets number per unit area on the mechanized rice cultivation, and obtained following results;

- (1) Nitrogen quantity is suitable between 100 to 150 kg per ha. with dense transplanting such as 27.7 hills per m<sup>2</sup>
  - (2) Plots of 200 kg per ha. of nitrogen in both 18.5 and 27.7 per m<sup>2</sup> observed the yield decreasing due to over growth and lodging
4. Seedling establishment on mechanized direct seeding method with dry field condition (Agronomy Div.)

As a result of seeding trials, it was confirmed that establishment ratio of seedling had been increased along with soil crushing ratio and irrigation method had been more strongly influenced to it.

Namely, the plot of flood water irrigation method had been sharply down the seedling establishment ratio against maximum seedling establishment with 80 % of soil moisture absorption method which put the water to small ditch in the plot and absorpt the water in the soils.

5. Improvemnet of raising seedling method (Mechanization Div.)

The method of raising seedling had been contributed to meet special kind of soil conditions such as high PH value and cohesive soil etc., in Nile Delta since project was started. However, it has been also pointed out that the raising seedling method should be more improved in order to obtain healthy seedling in this region through the advice and guidance activities of Kafr El Sheikh which was planned by MOA since 1983.

The trials had been conducted to obtain health seedling and following points were cleared ;

- (1) The normal soils which was selected from remarkable crop growing area such as wheat and clover was adapted for bed soil rather than Tameiya. The Tameiya was required to prevent stuck up seedling with transplanting fingers which was designed by crack type push rod at the early stage but it had been already improved to spring type push rod which could be avoid the trouble of stuck up seedling with transplanting fingers.
- (2) Zinc application for seedling bed soils had been recongnized to good effect for healhy seedling growth
- (3) The effect of sulfuric acid for PH value adjustment of bed soils was reaffirmed for seedling growth

#### 6. Seasonal change of cropping for mechanized rice cultivation (Mechanization Div.)

The Rice cultivation in Nile Delta is completely included under the alternation of land usage between dry and flooded conditions. The cropping season for rice cultivation is strongly restrained by pre-crop harvesting and post-crop planting season.

On the other hand, in order to develop mechanized rice cultivation system, it is very much important to make clear the condition of the possibility of expansion of rice cropping season with high yield for late planting. The expanded rice cropping season will make more high workikng efficiency per year for machinery utilization.

The trials were conducted with the standpoint of above mentioend by use of early, middle and late maturing varieties. The cropping seasons were set up from 15th of May up to 20th of July with 14 different stages of transplanting.

The results of trials were as follows:

- (1) It was cleared that the variation of growth period for paddy plant was controled by two factots such as number of days from transplanting up to heading and ripeing days. The variation of growth period were as follows;
  - i) Akihikari , 3 days
  - ii) Giza 173 , 4 days
  - iii) Giza 172 ,19 days



(2) The most suitable cropping season of three varieties was confirmed 30th May with highest yield which were obtained 11.2 ton/ha for Giza 172, 10.29 ton/ha for Giza 173 and 9.71 ton/ha for Akihikari. And it was cleared that the variation of yield by seasonal change of cropping for paddy plant were influenced by number of spikelets /m<sup>2</sup> which has cleared that the tendency to decrease before and after 30th of May.

(3) In order to obtain 6 ton/ha, the suitable cropping seasons for transplanting can be determined as follows;

i) Akihikari and Giza 173, 15th May to 15th June

ii) Giza 172, 15th May to 5th July

And also harvesting period for above three varieties were confirmed by the following trials;

i) Akihikari, 23rd Aug. to 21st Oct.

ii) Giza 173 , 24th Sep. to 23rd Oct.

iii) Giza 172, 6th Oct. to 15th Nov.

Consequently , the working duration for rice transplanter and combine by utilized three different varieties such as early, middle and late maturing varieties are possible to extend as follows;

i) Working duration per year for rice transplanting, 50 days

ii) Working duration per year for combine, 82 days

(4) In order to obtain high yield under the late planting cultivation , the following points should be investigated;

i) Establishment of healthy raising seedling method

ii) Selection of short-culmed and panicle weight type variety

iii) Modification of rice transplanter for more dense planting

iv) Establishment of a method for early stage growth acceleration

v) Establishment of optimum fertilizer application method including times and quality

## 7. Verification trials of rice transplanters (Mechanization Div.)

The field capacity and transplanting accuracy were investigated for 4 row warking type, 6 row riding type and 8 row riding type.

It was cleared that the transplanting accuracy for three different kinds of transplanters were almost the same and the field capacity were also not much differentiation. But the exhaustion by utilized 4 row warking type transplanter is still remaining as problem.

## 8. Weed control (mechanization Div.)

(1) Paddy weeds of R.M.C. are identified and the main weeds were as follow;

- i) Echnochloacrus -galli
- ii) E. colonum
- iii) Cyperus difformis
- iv) C.rotundus
- v) Ammannia Spp.
- vi) Panicum repens
- vii) Cynodon D.
- viii) Paspalum paspaloides
- ix) Scirpus Spp.
- x) Eclipta alba

(2) On mechanization transplanting cultivation, in the case that irrigation water is sufficient and Cyperus rotundus is not so much, one application is suitable (for exmaple, Pyrazolate butachlar granule, CNP butachlor granule etc. ). In the case that irrigation water is not sufficient or Cyperus rotundus immerges to much, systematic treatments combined with early stage treatment and post emergence treatment will be suitable.

## 9. Establishment of plowing and leveling method (Machinery Div.)

Soils in the Delta shows remarkable hardness due to dry conditions and its plowing works are so difficult. Therefore, investigation of hard variation of soils from the last irrigation stage of winter crops to the plowing for rice cultivation had been conducted and was cleared that the soils above 15 cm of upper layer had been inceased its hardaess by the passage of time. But below 15 cm of soil layer were almost no variation.

The relationship between soil hardness and plowing methods were also investigated from standpoint of harrowing capacity (efficiency). According to the results, the rotory plowing method was recognized advantage for harrowing capacity compare with chisel plow. However, the differentiation of harrowing capacity had no meaning after irrigated to the field.

Because of melting, for instance, the big soils (10 cm  $\phi$ ) was melted within 30 minutes after absorbed irrigation water.

The chisel plowing method was confirmed that suitable method for plowing in this region with high working capacity and high working efficiency compare with the other plowing methods.

#### 10. Suitable working method of walking type transplanter (Machinery Div.)

Soils in Nile Delta shows remarkable stickness when water supply to the field. consequently, operation of walking type transplanters are made great tiredness, so the operators are more fond of riding type transplanters. But the machines cost between the both are quite different. So the suitable working method of walking type transplanters were examined in order to selection of types of transplanters and which is meet to the scale of farming. As a result, walking type transplanter's accuracy was very high at the time of 2 days after puddling with 13 cm of plowing depth and operator's tiredness was less than 3 days after puddling.

#### 11. Improvement for establishment of seedling by mechanical direct sowing on dry condition (Machinery Div.)

Aim at low cost of raising nursery and expenses for transplanting works, the trial was carried out relation between plowing system and ratio of seedling establishment by mechanical dry direct sowing.

The following were confirmed;

- (1) The ratio of seedling establishment was closely related with the ratio of plowing clod diameter
- (2) Rotary plowing method for 3 times was shown 60 % establishment and which was higher than chisel plowing

#### 12. Mechanical harvesting (Machinery Div.)

Reaper(no binding type)combination with thresher and head threshing type combine were conducted as the system of mechanical harvesting.

Both reaper and combine were good results except complete lodging of rice plants. The reaping direction of 45 lodging degree could reaped in either way and grain losses were very less. But complete lodging field were necessary to reaped by following or left direction.

The rate to working by reaper was recorded 1.5 hours and working efficiency was shown 88.86. From this point of view, reaper is essentially expected to combine with thresher.

Harvesting by combine for long straw variety(Giza-172) was trouble with discharge because straw stucked in the outlet device, but working speed down around 0.4m/Sec., it could be easily harvested within 5 % of grain loss.

## II. Economic study on mechanized rice farming

- (1) Expenses of mechanized transplanting and those of conventional transplanting per feddan were calculated and made a report on the basis of collected data by the Mechanization Div.. It shows that mechanized transplanting is 11LE (13 %) cheaper in cost than conventional transplanting
- (2) The cost was divided into nursery and transplanting, cost of nursery is 4.85 LE (13 %) higher for the mechanized transplanting and the cost of transplanting, 15.85 LE (35 %) cheaper for the mechanized transplanting
- (3) Study on harvesting compare with combine and conventional method is being conducted in the experimental field at Meet El Dyba.

## III. Establishment of the mechanical rice farming system

The four different of rice mechanization farming systems which were considered to adapt for this region's circumstances were planned according to the verification trials and survey results. These four systems will be conducted as verification trials to collect more detail data in 1985/86 at RMC.

## IV. Advice and guidance on training for operational and maintenance of agricultural machinery

The training activity was conducted since Oct. 1982 at Kallin Center. The trainees had been mainly selected from Kafr El Sheikh governorate but after established Rice Mechanization Center with full accommodation for trainees in April 1984 at Meet El Dyba, the trainees were selected all the governorate which were conducted mechanized rice cultivation system. The number of trainees by governoratewise since Oct, 1982 up to Feb, 1985 were mentioned as follows;

- |             |    |
|-------------|----|
| (1) Bihira  | 13 |
| (2) Sharkia | 10 |
| (3) Kalubia | 8  |

(4) El-Menia	1
(5) Cairo	1
(6) Kafr El Sheikh	441
(7) Gharbia	9
(8) Beniswif	1

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Total	484
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#### V. Advice and guidance for the demonstration of mechanized rice farming

- (1) Demonstration of mechanized rice cultivation is being conducted in the experimental field at Meet El Dyba
- (2) The advice and guidance for mechanized rice cultivation demonstration area t Kafr El Sheikh governorate were conducted form end of April up to the first week of July for 2552 feddans . The technical differentiaition between trained engineer and untrained are clearly recognized.

#### VI. Model infrastructure

The second improvement of experimental filed at Meet El Dyba was made to expand irrigation canel and installation of water supply pump with the total cost of twenty eight (28)million Japanese yen.

#### VII. Dispatch of expert

Six long-term experts and four short-term experts were dispatched to the Project

#### VIII. Supply of equipment and machinery

Total amount of grant aid for equipment and machinery was ninety five (95) million yen for fiscal year 1984

#### IX. Training of Egyptian personnel in Japan

Six counterpart officials were participated in (1) group training (2) Individual training and (3) Observational tour



## 6. RMCセミナー等実績と計画





I RMCセミナー開催実績と計画

No	タ イ ト ル	講 演 者	開 催 日
1.	Weed Control in Egyptian paddy field	高 林 實	59年 9 月 2 日
2.	Studies on the Light-Curves of carbon assimilation of rice plants	田 中 孝 幸	" 10月28日
3.	The economic advantage of vice mechanigation in Small and middle size farmers	原 田 節 也 Mr. Abdel Gawad E. Baly Mr. Ahmed Mohamed E	" 11月25日
4.	Raising seedling and vice transplan ting	菅 原 清 吉 Mr. Fatehy El-Nemr Mr. Novr El-Din S	60年 1 月 6 日
5.	Mechanized harvesting	木 村 安 弘 Mr. Essam Ghazy Mr. Asar Mohamed	60年 1 月 27日
6.	Nitrogen transformation an its ettect for pasdy plant an paddy plant seasonal change	Mr. Nour El-Din S Mr. Mohamed Yousef	60年 3 月 25日
7.	Framework of rice mechanization system for middle and small scale farmers	木 村 勝 一	60年 4 月 7 日
8.	Paddy weed control	Mr. Fatehy El-Nemr Mr. Mohamed Itman	60年 6 月 30日
9.	Problems of Traditional Rice Cultivation technics and technical improvements in mechanized transplantiing	Mr. Abdel Rahman I 堀 波 輝 久	60年 7 月 15日
10.	Results of trials and survey in Agronomy, 1984	Mr. El Tanga	60年 9 月 16日

II. 年報、訓練用教材作成等の実績と計画

No.	年度	タイトル
1.	57/58	Annual Report 1982-83
2.	58	Preliminary Report on Research Highlights in 1983
3.	58/59	Results of the trial and Survey in Agronomy Division, RMP in 1983-84
4.	59	Theory and practice of Fertilizer Techniques
5.	"	育苗と機械移植(アラビア語)
6.	"	Raising seedling and mechanized Harvesting
7.	"	General Information, Rice mechanization Center
8.	60	Annual Report 1984-85
9.	"	Report on the Rice Mechanization pilot project for 1981/1986
10.	"	農業機械の維持管理と利用に関するマニュアル(英文)
11.	"	教材用16mm映画フィルム

Ⅲ 各種ローカルコスト負担実績

№	事業	項目	年度	予算(支出)額	事業内容
1.	無償資金協力		57	14億円	米作機械化センター本館、講堂棟、研修宿舎、食堂棟、ネットハウス、トラクター庫、ワークショップ、水槽の建設
2.	モデルインフラ		56	900万円	カリン実験圃場の整備 農道、用水路、排水路、分水槽、仮設工事
3.	パイロットインフラ		57	5700万円	ミートエルクイバ米作機械化センター付属圃場の整備 農道、排水路、構造物、畦、整地工事
4.	モデルインフラ		59	2800万円	ミートエルクイバ米作機械化センター付属圃場の整備 用排水路の拡充、揚水機場の設置工事等
5.	モデルインフラ		60	3000万円	支線用水路の整備、水路、圃場の漏水対策

6.	現地業務費		56	1,280,000円	現地業務費、現地研究費、貧困国対策費総額
			57	4,707,000円	
			58	5,112,000円	
			59	6,337,000円	
			60	6,576,000円	

7.	普及効果測定事業		60	1,390,000円	調査謝金、車輛借上費、他
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IV 専門家派遣の実績と計画

〈長期専門家派遣実績〉

No	専門家名	専門分野	派遣期間	所属先
1	富田 豊雄	チームリーダー	57. 4. 6~59. 4. 5	農林水産省農業技術研究所
2	田中 幸吉	"	59. 4. 3~61. 4. 2	農林水産省北陸農業試験場
3	菅原 清吉	農業機械	58. 3. 4~61. 8. 17	モラノン農業開発プロジェクト専門家
4	難波 輝久	稲作機械	57. 2. 9~61. 2. 8	JICA(元民間公社職員)
5	木村 安弘	農業機械	56. 12. 8~60. 12. 7	JICA(元民間公社職員)
6	成瀬 猛	農業業務調整	57. 2. 9~60. 2. 8	JICA(元協力職員)
7	三浦 喜英男	"	60. 5. 7~61. 8. 17	JICA職員

〈短期専門家派遣実績〉

No	専門家名	専門分野	派遣期間	所属先
1	富田 豊雄	チームリーダー	56. 12. 8~57. 3. 7	農林水産省農業技術研究所
2	松原 八郎雄	施工管理	57. 3. 10~57. 6. 1	三協コンサルタンツ㈱
3	倉光 英真	"	57. 10. 7~58. 6. 30	"
4	広瀬 安理	"	57. 12. 7~58. 6. 22	"
5	波多野 忠雄	経済分析	58. 10. 21~58. 12. 20	農林水産省東北農業試験場
6	清野 馨	土壌肥料	58. 10. 21~58. 11. 20	"
7	加藤 富造	農業機械	59. 1. 6~59. 2. 5	JICA(元国際農業研修センター)
8	高林 實一	水田雑草防除	59. 7. 7~59. 9. 6	農林水産省九州農業試験場
9	井上 幸一	灌漑施設設計	59. 8. 17~59. 9. 15	三協コンサルタンツ㈱
10	柴田 勝	土壌・地下水	"	"

No	専門家名	専門分野	派遣期間	所属先
11	原田 節也	経済分析	59. 9. 15~59. 12. 13	農林水産省中国農業試験場
12	木村 勝一	機械化体系	60. 2. 12~60. 4. 11	農林水産省東北農業試験場
13	井上 幸一	施工管理	JICA本部記入	三協コンサルタンツ㈱
14	倉光 英真	"		
15	渡辺 香也	視聴覚(16%)	60. 3. 3~60. 3. 17	ビス コ
16	増見 國弘	業務調整	60. 2. 21~60. 5. 20	JICA特別嘱託

〈短期専門家派遣計画 60年度〉

No	専門家名	専門分野	派遣期間	所属先
1	渡辺 香也	視聴覚(16%)	60. 6. 11~60. 7. 7	ビス コ
2	相良 國成	"	"	"
3	藤崎 成定	"	"	"
4	"	いもち病防除	60. 7 ~ 3ヶ月	
5	"	農業機械	"	
6	"	水管理	"	
7	"	経済評価	60. 10 ~ 3ヶ月	
8	"	湛水直播	60. 7 ~ 3ヶ月	
9	森 泰	視聴覚(16%)	60. 10 ~ 25日	3名 ビスコ

※ 専門家要請書を提出(3名)する予定

V 機材供与の実績と計画（年度別主要供与機材）

56	57	58	59	60	61
<p>クボタトラクター-L3001HDT ヤンマー " YM241DT(2台) " 田植機 YP 6001 タボタ " NSP-6 ブッシュステーションアゴシ1144 " 3363 アスクラウ(2台) ロータリーティラー、ロータ リーハロー、バダハロー、 ガスウェルディングセット、 スプレヤー、ワークショッ プ機材、作業用ゴム長ぐつ、 木箱種子、農薬(ダイアジノ ン他)、育苗施設、百葉箱、 自記温度計、貯孕フックス、 かんがい用ポンプ他</p>	<p>ヤンマーコンバインTC3500 クボタ " RX2100 " ハーベスター-HH700 ダットサンステーションアゴシ180B ニッサンバートルハブ954 " 3221 ニッサンビリアンマイクローバ1133 " アーバン " 6077 " ディーゼルトラクター(ニコン) 6526、オートバイ(10台)、 溶接機1台、精米機(キンマ ーSS-10)、農薬、タイブ ライター、セロックス、冷蔵 庫、エフコロン(3台)、スラ イド映写機、16%映画用カ メラ、16%映写機、種子水 分計、PHメーター、ワグネ ルポット、ビーカー、メスシ リンダー、種子盆、自記温度 計、稈歩合測定器、上皿天 秤、寒冷しか、土壌検定器、 種子水分計、他</p>	<p>コマガルドーザ-D20PLFB5 クボタ " M7500DT " M4500DT " L3001DT(26) ヤンマーコンバインTC14102 " TC3500A クボタ田植機NSR6 " SPR8000 無線機、クボタローパー、中 西播種プラント、クボタハー ベストターHH701(3台)、 トレーラー(4台)、ドリル シルダー(2台)、弧ム機、 代かきロータリー(ニッフル HY-201)、プロードキ ャスター(ニッフルHGH250)、 田植機等スベアパーツ、除草 剤、坪刈用脱穀機、屠糞、糞 摺機、精米機、水稻収量診断 器、稈歩合測定器、土壌検 定器、台秤、定温器、キーボ ックス、放送用アンソセット、 他</p>	<p>マイクローバス、小型トラクター ジープ(スズキ)、オートバイ (5台)、太陽熱乾燥機 (3台)、精米機、サブソイ ラー、特殊ロータリー、ペイ ラー、リッパ(クボタAR 120)、揚水ポンプ、コン バイン、条播機(2台)、頭 微鏡3台、蒸留器、自動葉面 積測定器、N分解蒸留測定、 演出装置、PHメーター、郡 落相對照屋計、線虫検診器具 セット、土壌高圧滅菌器、シ ューカー、実物投影機、長期 自記温度計、パイメタル、 自記日照計、寒冷計、野窓み シート、ロビッチ自記日照計、 農薬、タイプライター2台、 書籍、カルパー粉剤、各種ス ベアパーツ、モデルインフラ 用機材</p>	<p>田植機(3台)、草刈機(6台) コンバイン、レンジプロメータ ー、防除機(5台)、パワー スプレヤー、ストローカッ ター、カッターモデル(4)、トレ ンナー、揚水ポンプ(4)、小型 トラクター(3台)、ワークショ ップ機材、グラインダー、農 薬、農業資材、実験機器、各 種農業機械のスベアパーツ、 育苗箱、防鳥網、他</p>	
29,846千円	44,730千円	87,000千円	95,000千円	55,000千円	

V 研修員の受入れ実績と計画

年度	研修員名	受入期間	受入機関	研修内容
56	Dr. Hossary	56.10.17~56.10.24	JICA、農林水産省	農業生物資源研究所、筑波国際農業研修センター等(高級)
57	Mr. Osama K.	57.4.25~57.5.18	"	ヤンマー、久保田農機、機械化研究所等視察
	Mr. A. Mageid	57.10.16~57.11.15	"	ヤンマーディゼル、農業研究センター等視察
	Mr. EL. Tanga	58.2.26~58.12.14	JICA、筑波国際農業研修センター	稲栽培コース(集)
	Dr. A. F. Sahrigi	58.2.6~58.2.17	JICA、農林水産省	農業生物資源研究所、農業研究センター等視察(準高級)
	Dr. Zakaria El H.	58.10.16~58.10.29	"	九州農業試験場、九州大学、普及所等視察
58	Mr. Doma	58.5.10~58.5.29	"	ヤンマー、久保田農機等視察
	Mr. Handy M. E.	59.3.29~59.10.31	秋田県農業試験場、八郎潟支場	稲栽培に関する個別研修
	Mr. Nour Saleh	59.3.1~59.10.31	"	"
	Mr. Mustafa S. A	59.2.23~59.11.30	JICA、筑波国際農業研修センター	稲作機械化コース(集)
	Mr. EL. Sombaty	59.7.9~59.7.25	JICA、農林水産省	東北農業試験場、秋田県農試八郎潟支場等視察
59	Mr. A. M. Abtiyal	59.6.28~59.8.31	農業研究センター	水田雑草に関する個別研修
	Mr. M. Bideer	59.6.14~59.12.22	JICA、社日本農業機械工業会他	農業機械整備コース(集)
	Mr. Osama K	59.11.28~59.12.17	JICA、農林水産省	農業生物資源研究所、農業研究センター、筑波国際農業研修センターにて Management の研修
	Mr. Samir	60.2.25~60.11.30	JICA、筑波国際農業研修センター	稲栽培コース(集)
	Mr. Essam M. Chazy	"	"	稲作機械化コース(集)
60	Mr. Abd. EL-Gawad	60.6.6~60.8.5	九州農業試験場	水田雑草防除
	Mr. Ibrahim Aly Y. K.	60.6.~6ヶ月	JICA、筑波国際農業研修センター or 農業研究センター	農業機械全般(要請は農業機械整備コース)
	Mr. Mohamed Yusef M.	60.8.15~60.12.14	農林水産省普及教育課	農業普及(要請は稲病虫害コース)
	Mr. Saïd E. M. E. S.	60.9.~2週間	JICA、農林水産省	北院農業試験場、農業研究センター等視察(一般)
	Mr. AE. Gawad E. S. Baly	60.6.~3ヶ月	中国農業試験場(原田節也研究官)	統計分析
Mr. Mustafa M. Esea	60.2.~10ヶ月	JICA、筑波国際農業研修センター	稲栽培コース(研修)	
Mr. Asar M. Asar	"	"	稲作機械化コース	

受入実績16名、計画7名(但し60年度中は4名)、60年度の研修員候補者のリストは優先順位に従い(上から)記載した。

Ⅶ 1 側負担によるプロジェクト運営経費の支出実績と計画

1982/83~1986/87までの運営予算は550,000LE(1億500万円)  
農業省で確保されている。

(1) 年度別支出総額(予算)

年 度	支 出 総 額	備 考
'82/'83	140,000LE	1US#=1.32LE
'83/'84	90,000LE	
'84/'85	90,000LE	
'85/'86	90,000LE	
'86/'87	90,000LE	
合 計	550,000LE	

プロジェクトの運営経費はプロジェクト発足した年度から執行されるものであるが、本プロジェクトの場合R/Dを承認するための諸手続(意図表明書簡の署名)もあり初年度('81/'82)に予算執行がなされなかった。

(2) '84/'85年度運営費の支出内容

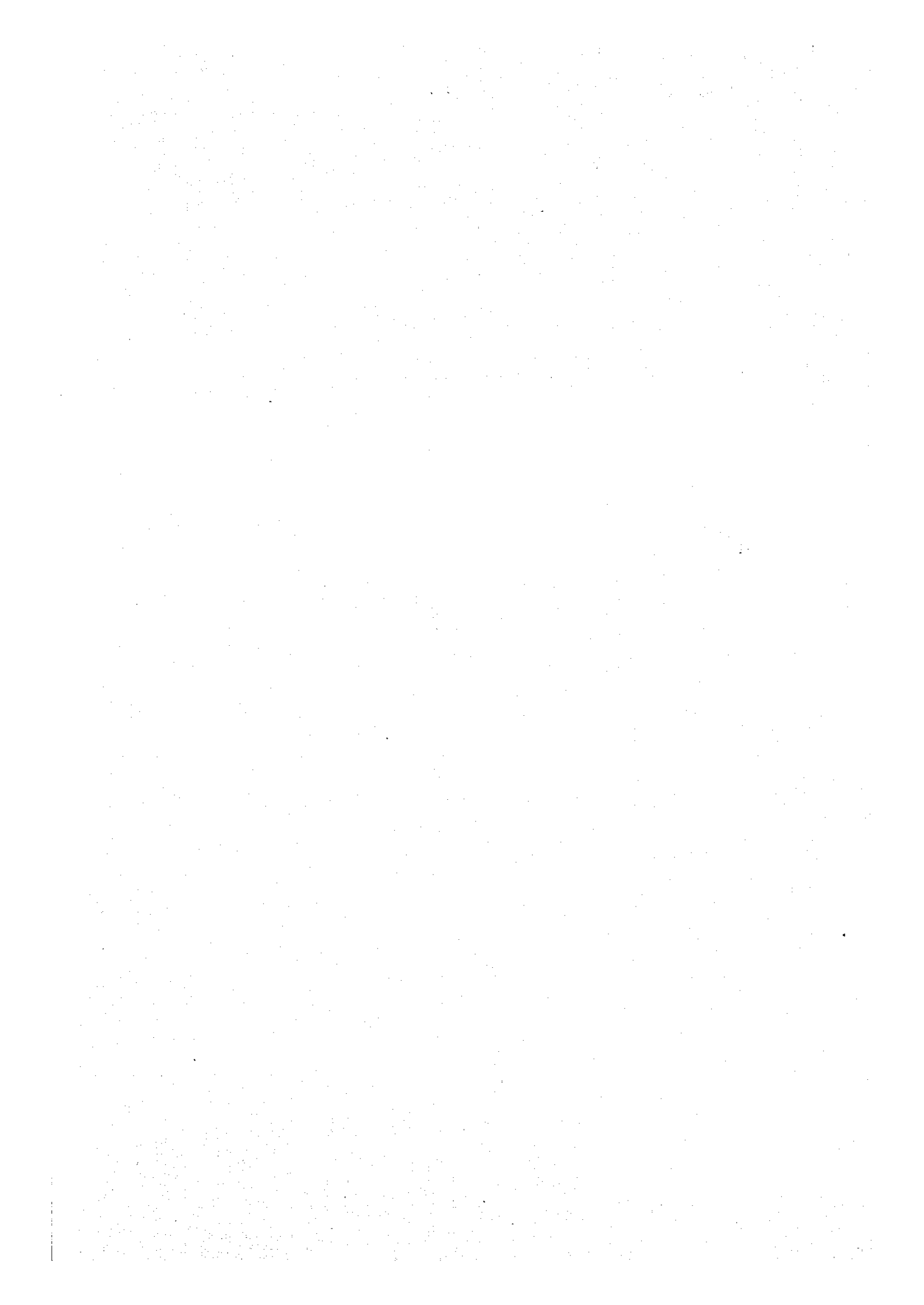
No	費 目	支 出 額
1	燃 料 費	15,000LE
2	農業資材、事務用品費	18,000LE
3	施 設 管 理 費	18,000LE
4	農機パーツ購入費	12,000LE
5	圃 場 人 夫 賃	11,000LE
6	供与機材通関経費	15,000LE
7	その他(臨時人夫等)	10,000LE
	合 計	99,000LE











JICA