

## Appendix 1

### Speech by N. Koibuchi

Mr. , Chairman of the committee, committee members, Ladies and Gentlemen. Thank you very much for gathering to the 4th KATC Advisory Committee Meeting. It is my great honor to extend, on behalf of the KATC Japanese team, my most sincere gratitude to all members in this annual convention. This meeting is meant for better KATC programs. Our activities for the last one year should be properly assessed today so that our activities in the coming year will be carried out more effectively and efficiently. Your frank comments are the most valuable inputs for us.

In the coming year we are putting more emphasis on proposals for the future of KATC and its activities. Based on reviewing our past activities, we have to achieve two very important tasks. First one is to show KATC's future direction. Second one is to prepare recommendations for the purpose of improving the extension systems. I would like, by the way, to remind you that next year is the last year of the KATC project.

Visit of the final evaluation team is planned. The team, with its objective evaluation, will propose a direction for KATC's next step. We are planning to organize a special seminar to summarize all of our achievement and share it with concerned people and institutions. It will be also an important step for our next step.

During the project period, we have been managing the project under very difficult condition that is structural adjustment. Fortunately, we are receiving warm appreciation by our training participants and other people related to irrigated rice farming in many parts of the country. I should mention the effort made by the management and staff of KATC to achieve this reputation and hope that their services to the people are correctly assessed by the government.

KATC's next step will certainly require very firm economic foundation to support the institute to meet more diversified needs. I am afraid to say that Tanzanian Government are still not ready to take all the responsibility of the institute. I have a lot of worries on what will happen to KATC after June 1999. If there is a next phase to KATC project, I strongly suggest both Tanzanian Government and JICA to include establishing KATC's economic foundation for its self-reliance as one of the main task. Self-reliance can only be possible if there is a strategy to do so.

A yacht can be manipulated to sail against the wind. Negative force can be utilised as positive force. There may be more serious difficulty waiting for us. Our collective effort with wisdom can make a step forward even that is a small step. Toward the end and the most critical period of KATC project, we should reinforce our cooperation and try to make a small but certain step forward.

**KILIMANJARO AGRICULTURAL TRAINING CENTRE (KATC) PROJECT MOSHI**  
**P.O. BOX 1241, TEL. 52293/54247**  
**PROGRESS REPORT FROM APRIL 1997 - MARCH 1998**

**I. Staff List**

**Project Management**

- o Mr.R. J. Shayo - Principal (MSc., Agricultural Extension)
- o Mr.N. Koibuchi - Project Team Leader
- o Mr.K. Shiratori - Project Co-ordinator
- o Mr.A.G. Pyuza - Deputy Principal
- o Mr.E.S. Massawe - Co-ordinator of Studies

**Administration Unit**

- Mr.W.K. Mwanga - Office Supervisor
- Ms. G. Mshanga - Catering Officer (Diploma, Home Economics)
- Ms. L. Mchaki - Accounts Assistant (NABOCE)
- Ms. M. Buberwa - Stores Assistant (NAMMC)
- Mr. Chacha N. Wambura - Watchman
- Mr. Ndinga L. Mmanga - Watchman
- Mr. John T. Msawa - Watchman
- Mr. Wilfred J. Assenga - Watchman
- Mr. Valentine M. Njau - Watchman (retired 28/2/1998)

**Agricultural Extension and Training Department**

- Ms. T. K. Mugangala - Head of Department (Postgraduate Diploma, Rural Extension and Teaching)
- Ms. M. Mtika - Instructor (Diploma, Crop Production)
- Mrs M. Pyuza - Librarian
- Mr. D.N Uhwello - Audio-Visual Technician (Diploma, Animal Health)
- Mr. E.S. Massawe - Instructor (MSc., Agricultural Extension)
- Mr. R.J. Shayo - Instructor (MSc., Agricultural Extension)

**Rice Cultivation Department**

- Mr. A. G. Pyuza - Head of Department (MSc., Agricultural Extension)
- Mr. M. Tomitaka - Agronomist
- Mr. R. K. Lussewa - Instructor (BSc., Agriculture)
- Mr. N. Mvukiye - Instructor (BSc., Agriculture)
- Ms. J. Omari - Instructor (Diploma, Crop Production)

**Water Management Department**

- o Mr. G. Maregesi - Head of Department (MSc., Agricultural Engineering)
- Mr.Y. Satomi - Agricultural Civil Engineer
- Mr. K. Nkya - Instructor (BSc., Civil Engineering)
- Mr. G. S. Marawitti - Instructor (Diploma, Irrigation)

**Agricultural Machinery Department**

- o Mr. N. Nkondora - Head of Department (BSc., Agriculture)
- Mr. K. Yamaguchi - Agricultural Engineer (Machinery)
- Mr. F. J. Kimaryo - Instructor (Diploma, Agricultural Mechanization) (retired 5/4/1998)

Mr. E. D. Mziray - Instructor (Diploma, Agricultural Mechanization)  
 Mr. J. P. Ringo - Post-harvest Technician (Certificate, General Agriculture)  
 Mr. S. K. Mokoki - Assistant Mechanic (Certificate, Mechanical Technician)  
 Mr. L. Macha - Driver  
 Mr. G. Marka - Driver

**Production Farm**

Mr. Z.K. Sarakikya - Farm Manager (Diploma, Agriculture)  
 Mr. W.Ndoró - Field Officer - (Diploma, Crop Production)  
 Ms. Leah Kazoba - Assistant Field Officer (Certificate, Agriculture)

**2. Staff Requirements**

**2.1 Administration**

Stores Officer - 1  
 Secretary - 1  
 Cooks - 7  
 Watchmen - 4  
 Cleaners - 4

**2.2 Agricultural Extension and Training Department**

Diploma holder in agricultural education and extension - 1

**2.3 Rice Cultivation Department**

Diploma holder in Crop Production - 1  
 Laboratory Technician - 1

**2.4 Agricultural Machinery Department**

Bsc. holder in Agricultural Engineering - 1  
 Diploma holder in Agricultural Machinery - 1  
 Workshop Technician - 1  
 Tractor Operator - 1  
 Driver - 2

**2.5 Water Management Department**

Diploma in Irrigation - 1

**3. Staff Movement**

**Study Leave:**

Name	Name of course and place	Travel date	Return date
3.1 Mr. S. Marawitti ( Water Management Department)	Irrigation and drainage Japan	10/2/1997	21/11/1997
3.2 Mr. R. K. Lussewa ( Rice Cultivation Department)	Rice research techniques Japan	10/2/1997	17/11/1997
3.3 Mrs. M. Mtika (Agricultural Extension Department)	Agricultural Extension for Leaders - Japan	7/5/1997	23/7/1997
3.4 Mr. A. K. Nkya (Water Management Department)	Agricultural and Rural Development with Japan Environment Conservation	2/9/1997	28/11/1997

Name	Name of course and place	Travel date	Return date
3.5 Miss Janet Omari (Rice Cultivation Department)	Rice cultivation Japan	21/2/1998	25/10/1998
3.6 Mr. N. E. Mvukiye (Rice Cultivation Department)	MSc., Agriculture SUA Morogoro	16/9/1996	15/9/1998

Annual Leave:

Name	Department	Leave period
1. Mr.R.J. Shayo	Administration	29.12.97 - 25.1.98
2. Mr.A. Pyuza	Rice Cultivation	15.12.97 - 4.1.98
3. Mr.G. Maregesi	Water Management	15.12.97 - 11.1.98
4. Mr.N. Nkondora	Agricultural Machinery	1.9.97 - 28.9.97
5. Ms.T.K. Mugangala	Extension and Training	15.12.97 - 28.9.97
6. Mr.Z. Sarakikya	Farm Management	5.5.97 - 1.6.97
7. Mr.A.K. Nkya	Water Management	1.1.98 - 28.1.98
8. Mr.R.K. Lussewa	Rice Cultivation	8.12.97 - 5.1.98
9. Mrs.G. Mshanga	Administration	5.1.98 - 11.1.98
10. Mr.W. Ndoro	Farm Management	22.12.97 - 18.1.98
11. Mrs.Mary Mtika	Extension and Training	8.12.97 - 4.1.98
12. Mr. J. Ringo	Agricultural Machinery	-
13. Mr. V. Njau	Farm Management	2.3.98 - 29.3.98
14. Mr. W.K. Mwangi	Administration	29.12.97 - 25.1.98
15. Mrs.L. Mchaki	Administration	-
16. Mrs.M. Buberwa	Administration	8.12.97 - 21.12.97
17. Mr. G. Marka	Administration	5.5.97 - 1.6.97
18. Mr. L. Macha	Administration	8.12.97 - 21.12.97
19. Ms. J. Omari	Rice Cultivation	22.12.97 - 4.1.98
20. Mr. E. Massawe	Extension and Training	22.12.97 - 18.1.98
21. Ms. M. A. Pyuza	Administration	22.12.97 - 18.1.98
22. Mr. Chacha N. Wambura	Administration	17.11.97 - 14.12.97
23. Mr. Ndinga L. Mmanga	Administration	-
24. Mr. John T. Msawa	Administration	13.5.97 - 9.6.97
25. Mr. Wilfred J. Assenga	Administration	16.2.98 - 15.3.98
26. Mr. D.N. Uhwello	Extension and Training	
27. E.D. Mziray	Agricultural Machinery	9.3.98 - 5.4.98

3. Staff Departures:

Name	Department	Reason for Departure
Mr. J. Oshida (JICA Expert)	Extension and Training Department	End of contract
Mr. S. Tanaka (JICA Expert)	Water Management Department	End of contract
Mr. J.F. Kimaryo (AAT)	Agricultural Machinery Department	Retired on 5/4/1998
Mr. V.M. Njau (Watchman)	Administration	Retired on 28/2/1998

#### 4. New Staff Arrival

The following staff were transferred to KATC during the reporting period.

Name and Designation	Arrival date	Where arrived from
4.1 Mrs. M. Pyuza, (Librarian)		Transferred from MARTI Uyole, Mbeya
4.2 Mr. D. Uhwello (Audio-visual Technician)	17/10/1997	Transferred from MATI Tengeru, Arusha
4.3 Mr. Y. Satomi (JICA Expert)	13/6/1997	Dispatched from Japan to replace Mr. Tanaka as Water Management Expert

#### 5. Training Activities

KATC's main activity is training of field personnel and key farmers in the fields of irrigated rice cultivation, water management, rice mechanization and tractor operators. The following short courses were conducted by KATC during the reporting period:

Type of Course and target group	Sponsor	No.	No. of participants		
			M	F	Total
5.1 Rice Cultivation Courses for Village Extension Officers from Zanzibar, Lindi, Mtwara, Iringa, Ruvuma, Mbeya, Rukwa, and Kilimanjaro	KATC Project from 26/8 - 9/10/97 13/1/98 - 26/2/98	2	37	6	43
5.2 Azolla utilization course for extension officers and key farmers from Kilimanjaro, Tanga, Coast, Morogoro regions and Zanzibar	KATC Project from 21/10/97 - 30/10/97 3/3/98 - 10/3/98	2	38	13	51
5.3 Water Management Courses for Irrigation Technicians from Kigoma, Singida, Tabora, Dodoma, Zanzibar, Lindi, Mtwara, and Ruvuma	KATC Project from 6/5/97 - 4/6/97 26/1/97 - 26/2/98	2	31	1	32
5.4 Rice Mechanization Courses for Mechanization Officers from Mara, Mwanza, Kagera and Shinyanga	From 13/5/97 - 11/6/97	1	8		8
5.5 Tractor Operators Course for Government and privately employed tractor operators from Morogoro, Coast, Mbeya, Kilimanjaro, Tanga, Mwanza and Arusha	KATC Project From 2/4/97 - 30/4/97 30/9/97 - 29/10/97	2	21	-	21

Type of Course and target group	Sponsor	No.	No. of participants		
			M	F	Total
5.6 Key Farmers Courses for key rice growers from important rice growing areas of Zanzibar and Pemba	KATC Project from 14/4/97 - 25/4/97 16/6/97 - 27/6/97 10/11/97 - 28/11/97	3	77	18	95
5.7 Irrigation Extension course for Irrigation Technicians from Mbeya, Iringa, Tanga, and Arusha regions	River Basin Management and Small-holder Irrigation Improvement Programme (RBMSIIP) From 9/6/97 - 14/6/1997)	1	18	2	20
5.8 Rice cultivation course for key farmers from Kilimanjaro region	National Agricultural Extension Programme II (NAEP II) From 9/6/97 - 14/6/97	1	13	7	20
5.9 Rice cultivation course for key farmers from Morogoro region	Sokoine University of Agriculture - Tuskegee University, (SUA - TU) Project From 13/10/97 - 24/10/97	1	14	6	20
5.10 Irrigation scheme management course for irrigation association leaders from Tanga and Arusha regions	From 21/7/97 - 25/7/97 RBMSIIP	1	18	12	30
Total		14	275	65	340

## 6. Other Activities

### 6.1 Studies and Surveys:

The following studies and surveys were planned and a number of them carried out during the reporting period. Seven short term experts were dispatched by JICA to assist in carrying out these studies/surveys. Reports have been submitted and are available for perusal.

Studies/survey and their purposes	Department	Short Term Expert	Period
6.1.2 Appropriate Agricultural Machinery Development with the purpose of testing the developed machines	Agricultural Machinery Department	Dr. Hai Sakurai	6/1/ - 20/2/98
6.1.3 Agro-economic survey, to identify the factors which determine rice price	Agricultural Extension and Training Department	Mr. M. Senda	8/8/97 - 31/10/97

Studies/survey and their purposes	Department	Short Term Expert	Period
6.1.4 Gender analysis to identify socio-economic factors affecting women's activities in rice production	Agricultural Extension and Training Department	Dr. Araki (Miss)	23/1/98 - 31/3/98
6.1.5 Schistosomiasis control survey, to improve the strategy for schistosomiasis control campaign	Agricultural Extension and Training Department	Dr. Shimada	12/3/98 - 31/3/98
6.1.6 Water buffalo utilization	Production Farm and Agricultural Machinery Department	Mr. Putu Wardana and Abdulrochman from Indonesia	8/10/97 - 26/12/97
6.1.7 Soil Survey	Rice Cultivation	Dr. F. Nagumo	8/4/97 - 1/8/97
6.1.8 Audio Visual materials	Extension and Training	Mr. T. Nomura	25/3/97 - 19/9/97

## 6.2 Production Farm Activities:

### 6.2.1 Crop Production:

The Centre cultivated the following crops during the reporting period. Paddy cultivation was done mainly as part of training.

Crop produced	Hectarage (ha)	Production Cost (T.sh)	Amount harvested	Value in T.shs	Comments
6.2.1 Maize	1.6 ha	420,000	7,000 kg	560,000/=	T.sh 8,000 per bag of 100 kg
6.2.2 Watermelons	0.4 ha	68,000	684 kg	68,400/=	100/= per kg
6.2.3 Cabbages	0.15 ha	100,000	600 kg	60,000/=	100/= per kg
6.2.4 Tomatoes	0.2 ha	165,600	1,104 kg	110,400/=	100/= per kg
6.2.5 Onions	0.5 ha	48,000	315 kg	3,000/=	200/= kg
6.2.6 Soya beans	0.1 ha	25,000	63 kg	8,900/=	300/= kg
6.2.7 Sunflower	0.4 ha	63,000	457 kg	2,800/=	800/= per litre
6.2.8 Luceam for hay	1.2 ha				Still being established
6.2.7 Paddy	1.5 ha		6200 kg	744,000/=	For practical teaching and verification trials
Total	5.6	1,452,700		1,697,100/=	

### 6.2.2 Animal Power Programme:

KATC's animal power unit comprises of 7 water buffaloes (2 females, 1 bull, 2 castrated males and 2 calves), 2 oxen 64 ducks, 6 sheep and 6 goats.

The animals were trained to perform various farm operations as follows:

- Land preparation for paddy plots
- Land preparation for upland plots
- Transport
- Weeding in paddy plots
- Mowing around paddy plots
- Water buffaloes and oxen
- Water buffaloes and oxen
- Water buffaloes and oxen
- Ducks
- Sheep and goats

#### 6.2.3 Utilization of locally available resources:

- Azolla utilization:

Azolla is a water plant which, when properly used can be very beneficial to the rice farmer. It suppresses weeds in paddy plots by forming a dense canopy on the water surface. Besides, it is capable of releasing 30 - 60 kg of Nitrogen per hectare when properly incorporated into the soil. KATC continued to observe the characteristics of this plant and its adaptability to various farming situations.

- Paddy straw utilization:

Paddy straw is sometimes used as fodder for cattle even though it is not very nutritive. However majority of rice farmers burn paddy straw in order to maintain clean plots. KATC believes that the best way to utilize paddy straw is by converting it into compost manure, and returning it into the paddy plots to improve soil structure. KATC carried out a number of demonstrations to show to participants and the general public the procedure for making compost using paddy straw. One hectare of paddy produces about 5 - 7 tones of paddy straw.

Paddy straw has also been found to be very good material when utilized as substrate for mushroom production. KATC has recently demonstrated that good mushrooms can be produced on paddy straw. Plans are under way to establish a fully flagged mushroom production unit at KATC using the readily available paddy straw as substrate.

- Rice husk utilization:

Rice millers all over the country have great problems of disposing rice husks. KATC has acquired a number of rice husk cookers which are still being tested for utilization under local farmers situation. KATC is currently studying proposals to utilize carbonized rice husk as material for improving soil structure, and as substrate for mushroom production.



THE UNITED REPUBLIC OF TANZANIA  
MINISTRY OF AGRICULTURE AND CO-OPERATIVES

Telephone: (055) 54247/52293

Telefax: (055) - 52293



Kilimanjaro Agricultural Training Centre  
P.O. Box 1241  
MOSHI

Ref no.

25 January 1999

**FIFTH JOINT ADVISORY COMMITTEE MEETING**

**Matter Arising from Minutes of the Previous Meeting**

Item 6.1: Progress reports to include farm production report.

Action: Due to the excessive production costs experienced in previous years, caused by high labour costs, KATC Management Committee decided to lease out part of the production farm to staff at a charge of T.sh 50,000/= per hectare. By so doing the Centre made some income, (see financial report) and KATC staff became motivated.

Item 6.7: KR II Fund to increase institute capacity hand in hand with strengthening farmer training.

Action: Implemented. KATC received from KR II Fund, T.sh 36,000,000/= as part of the requested amount for dormitory and storage facility construction. Besides, farmers courses were conducted using funds from other projects and programmes. (See list of externally funded courses).

Item 8.1.1: Women participation in KATC courses.

Action: KATC continued to encourage participation, women in its courses by allowing nursing mothers to come with their babies. Three women responded and managed well after we successfully arranged for baby sitters.

Item 8.1.3: Requests for additional staff.

Action: Implemented. KATC received three new trainers during the reporting period, two from former MATI Mubondo and one from Coast region. Unfortunately, KATC also lost two trainer, one of whom resigned from civil service while the other one retired from service. One watchman also retired from service.

Item 8.1.5: Production farm.

Action: Implemented. Block "A" of the production farm has been successfully converted into paddy plots which covering 2.4 ha They have been leased to staff, earning the Centre a net income of T.sh 131,375/=.

Item 8.2.1 Meeting of the Self Help Fund Committee

Action: Could not be implemented as we were awaiting Ministry the re-structuring exercise to be completed.

Item 8.2.3: On sustainability of the Project, KATC Management submitted a detailed proposal to the Ministry requesting that NAFCO Kahe estate situated only seven kilometers from KATC should be handed over to the Centre to provide room for expansion and operation of economic activities. We received a most unfortunate reply that NAFCO Kahe Estate had been earmarked for privatization and that an investor had been identified. We are now requesting the Ministry to consider privatizing only part of the farm and let KATC have a portion of it.

**KILIMANJARO AGRICULTURAL TRAINING CENTRE**

**MONTHLY SELF HELP FUND REPORTS**

	<b>INCOME</b>	<b>EXPENDITURE</b>	<b>BALANCE</b>
<b>JULY 1998</b>			
Brought forward			4,858,274
Milling activities	1,650		
Machinery workshop	6,000		
Truck hiring	19,200		
Farm rent	28,000		
Farm produce	22,000		
Expenditure		62,000	
		14,250	
Total	76,850	76,250	4,858,874
<b>AUGUST 1998</b>			
Milling activities	3,270		
Hiring vehicles	88,400		
Sale of farm produce	23,250		
Expenditure		2,466,186	
Total	114,920	2,466,186	2,507,608
<b>SEPTEMBER 1998</b>			
Milling activities	9,594		
Truck hiring	22,200		
Sale of produce	139,725		
Farm rent	131,375		
Income from courses	964,875		
Expenditure		263,212	
		68,000	
Total	1,267,769	331,212	6,252,284
<b>NOVEMBER 1998</b>			
Milling activities	7,082.50		
Truck hiring	24,750.00		
Catering services	50,000.00		
Sale of farm produce	51,275.00		
Sale of seed	15,000.00		
Expenditure		94,000	
Total	148,107.50	94,000	6,306,391

KILIMANJARO AGRICULTURAL TRAINING CENTRE (KATC) MOSHI  
EXPENDITURE REPORT: JULY 1997 TO MARCH 1998  
(\* JICA EXPENDITURE: APRIL 1997 TO MARCH 1998)

Item	Amount of funds used				Total in T.sh
	Local funds T.sh	Source	Donor funds T.sh	Source	
<b>INCOME TO THE PROJECT</b>					
Amount received - total	13,109,709.00		157,419,250.05	JICA*	170,528,959.05
- breakdown	6,332,000.00	RBMSIIP			
	1,166,080.00	NAEP II			
	2,994,600.00	SUA - TU			
	2,328,029.00	SHERFS			
	289,000.00	SDPMA			
Revenue collected	2,489,592.00	Sales of goods and services			2,489,592.00
Total receipts	15,599,101.00		157,419,250.05		173,018,551.05
<b>DETAILS OF EXPENDITURE</b>					
Project management	37,000.00	SHF A/C	26,371,821.15	JICA*	26,408,821.15
Supplementing Tanzania budget			32,042,347.40	JICA*	32,042,347.40
Survey and dissemination			32,213,994.50	JICA*	32,213,994.50
Running courses - total	12,036,749.00		66,791,087.00	JICA*	78,827,836.00
- breakdown	4,548,000.00	RBMSIIP			
	995,160.00	NAEP II			
	2,451,100.00	SUA - TU			
	2,152,489.00	SHERFS			
	1,890,000.00	SDPMA			
Total expenditure	12,073,749.00		157,419,250.05		169,492,999.05
Balance	3,525,352.00		Nil		3,525,352.00
Balance B/F	4,516,594.00		Nil		4,516,594.00
Balance C/F	8,041,946.00		Nil		8,041,946.00

**KILIMANJARO AGRICULTURAL TRAINING CENTRE (KATC)**  
**PROJECT MOSHI**  
**P.O. BOX 1241, TEL. 52293**

**PROGRESS REPORT FROM APRIL 1998 - JANUARY 1999**

**1. Staff List**

**Project Management**

Mr. R.J. Shayo - Principal (Msc., Agricultural Extension)  
Mr. N. Koibuchi - Project Team Leader  
Mr. K. Shiratori - Project Co-ordinator  
Mr. A.G. Pyuza - Deputy Principal

**Administration Unit**

Mr. W.K. Mwangi - Office Supervisor  
Mr. Z.K. Sarakikya - Farm Manager  
Mr. W. Ngoro - Field Officer - (Diploma, Crop Production)  
Ms. G. Mshanga - Catering Officer (Diploma, Home Economics)  
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Mr. Chacha N. Wambura - Watchman  
Mr. Ndinga L. Mmanga - Watchman  
Mr. John T. Msawa - Watchman  
Mr. Wilfred J. Assenga - Watchman

**Agricultural Extension and Training Department**

Mr. E.S. Massawe - Head of Department (Msc. Agricultural Extension)  
Mr. Hiroshi Ishikawa - Extensionist  
Ms. M. Mtika - Instructor (Diploma, Crop Production)  
Mrs. M. Pyuza - Librarian  
Mr. D.N. Uhwello - Audio-Visual Technician (Diploma, Animal Health)

**Rice Cultivation Department**

Mr. A.G. Pyuza - Head of Department (Msc., Agricultural Extension)  
Mr. M. Tomitaka - Agronomist  
Mr. R.K. Lussewa - Instructor (Bsc., Agriculture)  
Mr. N. Mvukiye - Instructor (BSc., Agriculture)  
Ms. J. Omari - Instructor (Diploma, Crop Production)  
Mr. Maganda Matinka (Diploma, Crop Production)

**Water Management Department**

Mr. G. Maregesi - Head of Department (Msc., Agricultural Engineering)  
Mr. Y. Satomi - Agricultural Civil Engineer  
Mr. K. Nkya - Instructor (Bsc., Civil Engineering)  
Mr. G.S. Marawitti - Instructor (Diploma, Irrigation)

### Agricultural Machinery Department

Mr. N. Nkondora - Head of Department (Bsc., Agriculture)

Mr. K. Yamaguchi - Agricultural Engineer (Machinery)

Mr. A.B.K. Lusake (Diploma, Agro-mechanization) Mr. E.D. Mziray - Instructor  
(Diploma, Agricultural Mechanization)

Mr. J.P. Ringo - Post-harvest Technician (Certificate, General Agriculture)

Mr. S.K. Mokoki - Assistant Mechnic (Certificate, Mechanical Technician)

Mr. L. Macha - Driver

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## 2. Staff Requirements

### 2.1 Administration

Stores Officer - 1

Secretary - 1

Cooks - 7

Watchmen - 4

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### 2.2 Agricultural Extension and Training Department

Diploma holder in agricultural education and extension - 1

### 2.3 Rice Cultivation Department

Laboratory Technician - 1

### 2.4 Agricultural Machinery Department

Bsc., holder in Agricultural Engineering - 1

Workshop Technician - 1

Tractor Operator - 1

Driver - 2

### 2.5 Water Management Department

Diploma in Irrigation - 1

## 3. Staff Movement

### Study Leave:

Name	Name of course and place	Travel date	Return date
3.1 Ms. Jane Omari ( Rice Cultivation Department)	Rice Cultivation in Japan	21/2/1998	25/10/1998
3.2 Mr. N.E. Mvukiye (Rice Cultivation Department)	Msc., Agriculture SUA Morogoro	16/9/1996	15/9/1998
3.3 Ms. G. Mshanga (Administration Unit)	Human Nutrition in Japan	16/11/1998	05/02/1999

#### 4. Staff Transfer

Name	Department	Reason for departure
4.1 Ms. T.K. Mugangala	Extension & Training Department	Transferred

#### 5. New Staff Arrival

The following staff were transferred to KATC during the reporting period:

Name and designation	Arrival date	Where arrived from
5.1 Mr. Maganda Matinka	3.11.1998	Transferred from MARTI Mubondo
5.2 Mr. A.B.K. Lusaka	8.11.1998	Transferred from MARTI Mubondo

#### 6. Training Activities

KATC's main activity is training of field personnel and Key-farmers in the fields of irrigated rice cultivation, water management, rice mechanization and tractor operators. The following short courses were conducted by KATC during the reporting period:

Type of Course and target group	Sponsor	No.	No. of participants		
			M	F	Total
6.1 Rice Cultivation Courses for Village Extension Officers from Kilimanjaro, Kigoma, Tabora and Mbeya regions	KATC Project from 1/9-15/10/98	1	6	1	7
6.2 Water Management Courses for Irrigation Technicians from Arusha, Kilimanjaro, Coast, Kigoma and Kagera regions	KATC Project from 7/9-15/10/98	1	13	2	15
6.3 Rice Mechanization Courses for Mechanization Officers from Tabora, Kigoma, Mbeya, Iringa and Coast regions	KATC Project from 27/10-29/11/1998	1	9		9
6.4 Tractor Operators Course for government and privately employed tractor operators from Tabora, Singida, pemba, Mbeya regions	KATC Project from 2/7-31/7/1998	1	7		7
6.5 Key-farmers Courses for key rice growers from important rice growing areas of Rukwa, Ruvuma, Iringa, Mbeya and Tabora regions	KATC Project from 13/7-31/7/98 9/11-27/11/98 18/1-5/2/99	3	62	10	72

Type of Course and target group	Sponsor	No.	No. of participants		
			M	F	Total
6.6 Irrigation Scheme Management Course for Irrigation Association Leaders from Kilimanjaro, Tanga and Arusha regions	River Basin Management and Small-holder Irrigation Improvement Programme (RBMSIIP) from 6/7-21/7/1998	1	27	5	32
6.7 Irrigation Scheme Management Course for Irrigation Association Leaders from Iringa and Mbeya regions	RBMSIIP from 3/8-21/8/1998	1	27	15	42
6.8 Irrigation Scheme Management Course for Irrigation Association Leaders from Tanga, Iringa and Arusha regions	RBMSIIP from 28/9-16/10/98	1	20	10	30
<b>Total</b>		<b>10</b>	<b>171</b>	<b>43</b>	<b>214</b>

## 7. Other Activities

### 7.1 Studies and Surveys

The following studies and surveys were planned and a number of them carried out during the reporting period. Seven short term experts dispatched by JICA to assist in carrying out these studies/surveys. Reports have been submitted and are available for perusal.

Studies and their purposes	Department	Short Term Expert	Period
7.1.2 Water User's Survey	Water Management Department	Mr. Kenji Tamura	16/7-28/8/98
7.1.3 Rice Marketing	Extension	M. Sakurai	27/6-22/9/1998
7.1.4 Schistosomiasis control campaign	Extension	Shimada	12/3-3/4/98 15/9-16/12/1998
7.1.5 Malaria Vector	Extension	Dr. Tagaki	15/9-16/12/1998
7.1.6 Socio-gender	Extension	Dr. Araki	19/1-2/4/98
7.1.7 Water Resource Development	Water Management Department	Mr. S. Matsuzawa	8/1-5/3/1999
7.1.8 Technology transfer	Agrc. Machinery	Dr. H. Sakurai	6/1-20/2/1998



**KATC PROJECT FINAL REPORT (FROM JUNE, 1994 TO JANUARY, 1999)**

**I. Staff:**

**1. EXPATRIATE STAFF:**

Name	Position	Arrival date	Departure date	Comments
1. Mr. N. Koibuchi	Team Leader	4.7.1994		Long term expert
2. Mr. K. Shiratori	Co-ordinator	4.7.1994		Long term expert
3. Mr. S. Tanaka	WManagement	4.7.1994	30.6.1997	Long term expert
4. Mr. M. Tomitaka	Rice Cultivation	4.7.1994		Long term expert
5. Mr. J. Oshida	Extension Dept.	17.7.1995	30.6.1997	Long term expert
6. Mr. K. Yamaguchi	Agric. Machinery	4.7.1994		Long term expert
7. Mr. Y. Satomi	WManagement	12.6.1997		Long term expert
8. Mr. R. Yamada	Extension Dept	7.1996	30.11.1996	Short term expert
9. Mr. Yamamoto	Rice Cultivation	18.3.1995	23.4.1995	Short term expert
10. Mr. K. Tamura	WManagement	16.7.1998	28.8.1998	Short term expert
11. Mr. M. Senda	Extension Dept.	7.8.1997	8.11.1998	Short term expert
12. Mr. S. Senda	Extension Dept.	26.6.1998	23.9.1998	Short term expert
13. Mr. H. Sakurai	Agrc. Machinery	11.12.1995	21.1.1996	Short term expert
14. Mr. F. Nagumo	Rice Cultivation	7.4.1997	8.6.1997	Short term expert
15. Mr. T. Nomura	Extensation Dept.	23.3.1997	25.9.1997	Short term expert
16. Mr. D.A. Abdulrohama	Rice Cultivation	7.10.1997	8.12.1997	Short term expert
17. Mr. Putu Wardana	Rice Cultivation	7.10.1997	8.12.1997	Short term expert
18. Dr. Minako Araki	Extension Dept.	20.1.1998	21.3.1998	Short term expert
19. Dr. M. Shimada	Extension Dept.	15.9.1998	16.12.1998	Short term expert
20. Mr. M. Takagi	Extension Dept.	21.9.1998	22.11.1998	Short term expert
21. Mr. H. Suzuki	Extension Dept.	4.7.1994	27.3.1995	Short term expert
22. Mr. H. Iguchi	Consulting Engn.	21.9.1995	31.12.1995	Short term expert
23. Mr. Y. Seko	Rice Cultivation	18.3.1995	23.4.1995	Short term expert
24. Mr. S. Matsuzawa	Water Manag.	8.1.1999	5.3.1999	Short term expert

**1.2 COUNTERPARTS STAFF:**

1. Mr. R.J. Shayo	Principal	15.7.1994		
2. Mr. W.K. Mwangi	O/Supervisor II	1.8.1996		
3. Mrs. L. Mchaki	Accountant II	25.10.1995		
4. Mrs. G. Mshanga	AFO III	15.7.1994		
5. Mrs. M. Buberva	S.A	27.1.1995		
6. Mr. E.S. Massawe	S.A.O.I	10.10.1996		
7. Ms. T.K. Mugangala	S.A.A.T.II	5.1.1995	29.9.1998	Transferred
8. Mrs. Mary Mtika	A.F.O. III	15.7.1994		
9. Mr. A. Pyuza	A.T.O. I	1.9.1994		
10. Mr. R.K. Lusewa	A.O. II	15.7.1994		
11. Ms. Janet Omari	A.F.O. IV	15.9.1995		
12. Mr. G. Maregesi	A.E. II	1.8.1994		
13. Mr. K.A. Nkya	E.E. II	1.8.1994		
14. Mr. G.S. Marawitti	A.A.T. II	10.8.1995		
15. Mr. N. Nkondora	A.E. II	15.7.1994		
16. Mr. F. Kimario	A.F.O. II	15.7.1994	Retired	
17. Mr. E.D. Mziray	A.F.O. III	1.8.1994		
18. Mr. James P. Ringo	A.F.O. I	15.7.1994		
19. Mr. S.R. Kassian	A.T. Mechanics	15.6.1995		
20. Mr. L. Macha	Driver	20.7.1997		
21. Mr. George Marka	Driver	15.7.1994		

Name	Position	Arrival date	Departure date	Comments
23. Mr. W.B. Ndoro	A.F.O. II	15.7.1994		
24. Mrs. L. Kazoba	A.F.O. III	15.7.1994		
25. Mr. Valentine Njau	L.F.A. III	23.7.1996		
26. Mr. Deogratius N. Uhwello	A.L.T. I	20.10.1997		
27. Mr. Mary A. Pyuza	A.L.	26.5.1997		
28. Maganda P.P. Matinka	A.A.T. II	9.11.1998		
29. A.B.K. Lusake	A.A.T. II	3.11.1998		
30. V.M. Njao	Watchman	1.7.1994	28.2.1998	Retired
31. Chacha N. Wambura	Watchman	1.7.1994		
32. Ndinga L. Mmanga	Watchman	1.7.1994		
33. John T. Msawa	Watchman	1.7.1994		
34. Wilfred J. Assenga	Watchman	1.7.1994		
35. Ms. M. Harison	A.F.O. II	1.7.1994	19.8.1995	Passed away
36. N. Mvukiye	A.A.T. IV	18.8.1995		
37. A. Mshumba	A.F.O. II	14.12.1998		

### 1.3 PROJECT EMPLOYED SUPPORTING STAFF

1. Justa J. Mlay	Cook	7.11.1995		
2. Fausta K. Blasi	Cook	15.9.1995		
3. Veronica M. Shayo	Cook	11.3.1996		
4. Christine E. John	Cook	9.8.1995		
5. Marciali P. Kissima	Cook	15.9.1995		
6. Monica A. Urio	Cook	15.9.1995		
7. Elia Elihudi	Cleaner	15.9.1995		
8. Betty Moshly	Cleaner	3.2.1997		
9. Mary Ngodoki	Cleaner	3.2.1997		
10. Edna Manyanga	Cleaner	3.2.1997		
11. Cosmas Peter	Cleaner	3.2.1997		
12. Ernest Nangu	Cleaner	3.2.1997		
13. E. Sikumbili	Watchman	12.11.1997		
14. Peter Melo	Shamba work	1.4.1996		
15. Marko Msami	Shamba work	1.4.1996		
16. Richard Munisi	Shamba work	7.10.1996		
17. Iddi Athuman	Shamba work	1.7.1997		
18. Debora Kileo	Shamba work	10.10.1996		
19. Mohamudu Issa	Shamba work	1.7.1997	5.1.1999	Passed away
20. Ali Miraji	Mechanics	15.9.1995		
21. Erasto Shirima	Mechanics	15.3.1996		
22. Honest Macha	Shamba work	30.8.1996		
23. Friday Makanga	Shamba work	30.8.1996		
24. Miraji Mahamudu	Shamba work	10.4.1996		
25. Rashidi Daudi	Shamba work	15.5.1996		
26. Lucy John	Shamba work	10.6.1997		
27. Necma Joel	Shamba work	1.5.1996		

N.B: The project is coming to an end when 28 members of the supporting staff are yet to become government employees. They were employed by the project and are still receiving their salaries from donor fund. They include:

Cooks	6
Drivers	4
Secretaries	2
Cleaners	6
Labourers	15
Total	33

KATC is still maintaining the following vacant post:

1. Stores Officer	1
2. Watchmen	4
3. Laboratory assistant	1
4. Library Assistant	1
5. Tractor Operators	2
6. Drivers	3
Total	12

### 2. Staff Improvement:

In order to enhance the technical capabilities of staff, 13 members of KATC staff attended the following courses:

Name of the course	Place offered	Number attended
1. Agricultural Extension for Leader II	Tokyo International Centre	4
2. Rice Cultivation	Tsukuba International Center	3
3. Rice Mechanization	Tsukuba International Center	1
4. Agricultural Machinery Design	Tsukuba International Center	1
5. Water Management	Tsukuba International Center	2
6. Rural Development with Environmental Conservation Course	Tokyo International Center	1
7. M.Sc. Soil Science	SUA Morogoro	1
	Total	13

### 3. Course conducted:

Seven types of courses were organized and conducted at KATC:

COURSE	NO.	NO. OF PARTICIPANTS		
		Males	Females	Total
1. Rice cultivation for Extension Officers	7	109	17	126
2. Water management for Irrigation Technicians	7	122	1	123
3. Rice mechanization for Mechanization Officers	5	39	0	39
4. Rice cultivation for Key-farmers	15	379	92	471
5. Scheme management for farmers' leaders	6	134	45	179
6. Azolla Utilization Seminar	2	38	13	51
Tractor operators' course	5	45	0	45
<b>TOTAL</b>	<b>44</b>	<b>866</b>	<b>168</b>	<b>1034</b>

#### 4. Area covered:

The courses conducted at KATC drew participants from rice growing areas of 22 region of Tanzania as follows:

Region	No. of participants		
	Male	Female	Total
Arusha	84	22	106
Dar es Salaam	24	4	28
Dodoma	27	2	29
Iringa	55	12	67
Kagera	5	0	5
Kigoma	10	0	10
Kilimanjaro	86	21	107
Lindi	19	3	22
Mara	19	3	22
Mbeya	39	12	51
Morogoro	67	56	123
Mtwara	29	3	32
Mwanza	39	1	40
Pwani	22	4	26
Rukwa	21	0	21
Ruvuma	26	2	28
Shinyanga	52	2	54
Singida	25	2	27
Tabora	53	6	59
Tanga	83	22	105
Zanzibar	28	10	38
Pemba	25	9	34
Total	838	196	1034

## 5. FIELD STUDIES AND SURVEYS CONDUCTED BY KATC

KATC managed to conduct a number of field studies and surveys with the help from JICA Short- Term Experts who visited the Centre on a regular basis.

Study	Duration	Short term Expert & Counterparts
5.1 Agro-economic survey	21/3 - 23/7/1995 19/7 - 14/10/1996	R. Yamada T. Mugangala
5.2 Audio- visual material production	24/3 - 23/9/1997	T. Nomura D. Uhwello
5.3 Rice market survey	7/8 - 3/10/1997	M. Senda M. Mtika L. Kazoba
5.4 Rice market survey	27/6 - 22/9/1998	S. Sakurai M. Mtika L. Kazoba
5.5 Socio-gender survey	19/1 - 2/4/1998	Dr. A. Minako T. K. Mugangala M. A. Mtika
5.6 Schistosomiasis control Campaign in Lower Moshi Irrigation Project	4/1 - 21/1/1997 12/3 - 2/4/1998 15/9 - 16/12/1998	Dr. Shimada T. K. Mugangala L. Kazoba E. Massawe
5.7 Malaria vector survey	15/9 - 16/12/1998	Dr. Takagi E. S. Massawe
5.8 Survey on rice growing soils	20/10 - 19/12/1995 7/4 - 4/8/1997	Dr. Nagumo A. G. Pyuza
5.9 Survey on irrigated rice environment with special reference to Schistosomiasis	1/12 - 26/12/1995	Prof. K. Yasuraoka A. G. Pyuza
5.10 Rice diseases	14/3 - 14/7/1995 10/5 - 12/11/1996	T. Yamamoto R. K. Lussewa
5.11 Survey on Azolla	10/5 - 11/6/1996	Prof. I. Watanabe N. Mvukiye
5.12 Azolla-duck- rice culture	25/10 - 5/11/1996 25/10 - 22/11/1996	T. Furuno Prof. M. Manda Z. Sarakikya
5.13 Water distribution methods and allocation in irrigation schemes	16/3 - 8/4/1995	S. Yoshikatsu G. Maregesi
5.14 Water resources in Lower Moshi Irrigation Project	3/11 - 30/11/1995	T. Yanagida G. Maregesi K. A. Nkya
5.15 Water users' groups/associations in selected rice growing areas	9/12/1995 - 20/1/1996 20/9 - 17/12/1996 16/7 - 30/8/1995	K. Tamura G. Maregesi K. A. Nkya G. S. Marawitti
5.16 Water resource development methods	8/1 - 5/3/1999	S. Matsuzawa G. S. Marawitti K. A. Nkya G. Maregesi
5.17 Need survey of appropriate technology transfer	9/12/1995 - 20/1/1996 6/1 - 20/2/1998	Dr. H. Sakurai N. Nkondora F. J. Kimaryo E. D. Mziray

Kilimanjaro Agricultural Training Centre

Externally funded courses conducted at KATC

Period	Course name	Region	Participants			Sponsor
			M	F	Total	
26/5-4/6/1997	Irrigation Extension	Arusha, Tanga, Iringa, Mbeya	18	2	20	RBMSIIP
9-14/6/1997	Rice Cultivation	Kilimanjaro	13	7	20	NAEP II
21-25/7/1997	Irrigation Scheme Management	Arusha, Tanga	18	12	30	RBMSIIP
13-24/10/1997	Rice Cultivation	Morogoro	14	6	20	SUA-TU Project
6/4-24/4/1998	Irrigation Scheme Management	Shinyanga, Dodoma, Tabora, Mwanza, Singida	24	2	26	SDPMA
6/7-21/7/1998	Irrigation Scheme Management	Tanga, Kilimanjaro, Arusha	27	5	32	RBMSIIP
3/8-21/8/98	Irrigation Scheme Management	Iringa, Mbeya	27	15	42	RBMSIIP
28/9-16/10/1998	Irrigation Scheme Management	Tanga, Iringa, Arusha	20	10	30	RBMSIIP
<b>GRAND TOTAL</b>			<b>161</b>	<b>59</b>	<b>220</b>	

Abbreviations:

RBMSIIP: River Basin Management and Small-holder Irrigation Improvement Project

NAEP II: National Agricultural Extension Programme II

SUA-TU Project: Sokoine University of Agriculture/Tuskegeensis Project

SDPMA: Small Holder Development Project for Marginal Areas

### 3 KATCで作成した研修教材等のリスト

#### (1) 部門別概括

##### 1) 農業普及・研修部門

- 中核農民研修コース修了者のアンケート結果
- Notes from The Teaching Methodology Seminar For KATC Staff

##### 2) 稲作部門

- 稲作栽培コース関連の研修員向け各種アンケート様式
- Evaluation Report of the Sixth Rice Cultivation Training Course (13th January-26th February, 1998)
- List of teaching materials
- Progress Report on Activities of Rice Cultivation Department from July, 1994 to December 1998
- Training of Agricultural Field Officers at KATC

##### 3) 水管理部門

- List of teaching materials

##### 4) 農業機械部門

- The Evaluation Report on 3rd Tractor Operator's Course
- The Evaluation Report on 3rd Rice Mechanization Course
- List of teaching materials

(2) 稲作部門教材リスト

- Seed Selection / Seed Germination / Calculation / Soaking
- Rice in World and Tanzania
- Rice Crop Husbandry-2
- Malaria and Rice Irrigation
- Towards Stronger Research -- Extension Linkage
- Nursery Preparation
- Seeding in the Nursery
- The Lower Moshi Irrigation Project
- Rice Farming Community Development
- Rice soil types distributed in Tanzania and the regional variation in fertility status
- Teaching Notes on Plant Nutrients and Fertilizers in Rice Production
- Teaching Notes on Fertilizer Calculation
- Community Leadership
- Management of Demonstration Plot
- 7<sup>th</sup> Rice Cultivation Course Farm Records
- Gender Issues in Irrigated Areas for Cultivation of Rice
- 7<sup>th</sup> Cultivation Course 1998 Nutrition Improvement
- 7<sup>th</sup> Cultivation Course 1998 Rice and Irrigation 1 (Operation and Maintenance of Irrigation Facilities)
- Different Implements used in Land Preparation, Their Advantages and Disadvantages
- Rice Pest and Their Control Measures
- Important Rice Diseases
- The Concept and Descriptions of Plant Diseases with a Case Study of Common Rice Diseases in Tanzania
- Weeds and Weeds Control in Rice
- Variety Testing
- Extension Methods and Approaches
- Rice Farming Surveys
- 7<sup>th</sup> Cultivation Course 1998 Pesticides Registration and Control in Tanzania
- 7<sup>th</sup> Cultivation Course 1998 Types of Pesticides Formulations
- 7<sup>th</sup> Cultivation Course 1998 Safe Handling and Use of Pesticides
- 7<sup>th</sup> Cultivation Course 1998 Disposal of Unwanted Pesticides and Empty Containers on the Farm
- Harvesting and Post-harvest Operations
- 7<sup>th</sup> Cultivation Course 1998 Rice Marketing and Distribution System in Tanzania
- Production Technologies and Current Activities of the Rice Research Program
- Workshop of Rice Farming Extension Planning



(3) 水管理部門の研修教材リスト

教材名	主な内容
農業気象	気象観測器具の使用方法和データ解析手法
地形測量	水準、平板、三角、トラバース等測量の実施方法
かんがい計画一般	かんがい計画の考え方と作成手順等
消費水量の算定	作物カレンダーに即したかんがい水量（かんがいカレンダー）の作成手法、消費水量の算定手法と実測値との整合手法
水利用可能量の測定方法	河川流量等の測定方法と解析手法
かんがい施設の種類と目的	かんがい施設の種類とそれぞれの目的の解説
水路工	各水路系における調査・設計の方法
施工管理	かんがい排水工事に係る出来高、品質、写真等の管理方法
かんがい施設の操作・維持管理	かんがい必要水量の算定、水収支計算を踏まえたローテーションブロック毎の水配分計画の作成方法、施設の操作および維持管理の方法等
農村環境保全のあり方	かんがい排水導入に伴う環境悪化の抑制の考え方等（例えば、住血吸虫媒介する貝の繁殖を押さえるための水路のライニングによる流速の確保など）

(4) 農業機械部門の教材リスト

Teaching materials

Tractor Operator's course

Textbook/Teachingnote	Implement used for land preparation (Kiswahili)
	Implement used for transplanting, seeding, weeding and plant protection (Kiswahili)
	Harvesting and processing machine (Kiswahili)
	Mechanism of tractor -Engine (Kiswahili) -Power trains (Kiswahili) -Hydraulic system (Kiswahili) -Other components (Kiswahili) -Tractor trouble shooting (Kiswahili)
	Maintenance methods of tractor (Kiswahili)
	Demonstration of power tiller (Kiswahili)
	Video

Rice mechanization

Text/Teaching note	Agricultural mechanization in rice farming
	Agricultural mechanization planning
	Different implement used for land preparation, their advantages and disadvantages
	Implement used for transplanting, seeding, weeding and plant protection
	Harvesting and processing machine (Kiswahili)
	Tractor trouble shooting
	Maintenance servicing and check up
	Workshop management
	Method of performance test of direct paddling
	Safety precautions of tractor

4 水管理コースの研修カリキュラム

Timetable for the 7th Water Management Training Course from 7th September-15th October, 1995

Day	Date	9.00 - 10.30	11.00 - 12.30	13.30 - 15.00	Remarks
		Subject	Subject	Subject	
1	4/Mon	O Orientation	O Opening	O Test(1)	
2	5/Tue	L Environmental Impacts of Irrigation	L Environmental Impacts of Irrigation	P Environmental Impacts of Irrigation	
3	6/Wed	L Agronomy	P Agronomy	L Crop Water Requirements	
4	7/Thu	L Crop Water Requirements	P Crop Water Requirements	P Crop Water Requirements	
5	8/Fri	L Irrigation Planning	L Irrigation Planning	P Irrigation Planning	
6	9/Sat				
7	10/Sun				
8	11/Mon	O Presentation of report	O Presentation of report	O Presentation of report	
9	12/Tue	O Presentation of report	O Presentation of report	O Presentation of report	
10	13/Wed	L Water application methods	L Water application methods	P Water application methods	
11	14/Thu	L Measurement of irrigation water	L Measurement of irrigation water	P Measurement of irrigation water	
12	15/Fri	L Agricultural Extension(1)	L Agricultural Extension(2)	P Agricultural Extension(2)	
13	16/Sat				
14	17/Sun				
15	18/Mon	L Rice cultivation(1)	L Rice cultivation(2)	P Rice Cultivation(3)	
16	19/Tue	P Rice cultivation(4)	L Rice cultivation(5)	L Agricultural Extension(3)	
17	20/Wed	S Field Trip	S Field Trip	S Field Trip	
18	21/Thu	S Field Trip	S Field Trip	S Field Trip	
19	22/Fri	S Field Trip	S Returning Moshi		
20	23/Sat				
21	24/Sun				
22	25/Mon	L Irrigation Facilities & Structures	L Irrigation Facilities & Structures	P Irrigation Facilities & Structures	
23	26/Tue	L Canal works	L Canal works	L Canal works	
24	27/Wed	P Canal works	P Canal works	P Canal works	
25	28/Thu	L Management of irrigation Systems	L Management of irrigation Systems	P Management of Irrigation Systems	
26	29/Fri	L Operation & Maintenance(LMIP)	L Operation & Maintenance(LMIP)	P Operation & Maintenance(LMIP)	
27	30/Sat				
28	31/Sun				
29	01-Jun	L Topographical Survey	L Topographical Survey	L Topographical Survey	
30	02/Tue	P Topographical Survey	P Topographical Survey	P Topographical Survey	
31	03/Wed	P Topographical Survey	P Topographical Survey	P Topographical Survey	
32	04/Thu	P Topographical Survey & Design	P Topographical Survey & Design	P Topographical Survey & Design	
33	05/Fri	P Topographical Survey & Design	P Topographical Survey & Design	P Topographical Survey & Design	
34	12/Mon	L Construction Management	L Construction Management	L Construction Management	
35	13/Tue	L Construction Management	P Construction Management	P Construction Management	
36	14/Wed	P Construction Management	P Construction Management	Final Evaluation Test	
37	15/Thu	O Course Evaluation	O Course Evaluation	O Closing Ceremony	

5 PROGRESS REPORT ON ACTIVITIES OF RICE CULTIVATION DEPARTMENT  
FROM JULY, 1994 TO DECEMBER, 1998

**PROGRESS REPORT ON  
ACTIVITIES OF RICE CULTIVATION DEPARTMENT  
FROM JULY, 1994 TO DECEMBER, 1998**

A.G. Pyuza, R.K. Lussewa, N.E. Mvukiye, J.N. Omari, M. Matinka and M. Tomitaka

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## **0. Introduction**

Kilimanjaro Agricultural Training Centre (KATC) Project commenced on 1st July, 1994 as a 5 year technical cooperation project between the Ministry of Agriculture (then), Tanzania and Japan International Cooperation Agency (JICA). Following the experience of irrigated rice farming development in Kilimanjaro region, the KATC Project was established to enhance technical capabilities of training instructors, other government personnel and farmers on irrigated rice cultivation techniques and related topics.

### **0.1 Outline of KATC Project**

The Japanese Implementation Survey Team and the concerned authorities of the Government of the United Republic of Tanzania agreed on the Japanese Technical Cooperation for KATC Project on 21st January, 1994. According to the Master Plan of the Project, the activities of the Project were:

With respect to irrigated rice cultivation, the following activities are implemented in the fields of agricultural extension and training, rice cultivation, water management, and agricultural machinery:

- (1) Enhancement of technical capability of trainers
  - a) On the job training through the activities of (2) to (5) below
  - b) Counterpart training in Japan
- (2) Improvement of training methods
  - a) Training plan
  - b) Training curriculum
- (3) Improvement of training materials
  - a) Information collection
  - b) Verification trial
  - c) Field survey
  - d) Preparation of training manual
- (4) Training for government personnel and key-farmers
  - a) Training
  - b) Seminar
  - c) Follow-up guidance for ex-trainees
- (5) Improvement of extension methods.

The context of KATC Project was summarized in a Project Design Matrix (PDM) form (Appendix 1). The Tentative Schedule of Implementation (TSI) attached to the R/D mentioned that among the activities mentioned above, (5) was to be covered by the field of agricultural extension and training. Some minor modifications were made during the visits of Project Consultation Survey Teams in 1995 and in 1997. Except the input (project running cost) from Tanzanian side, however, general contents of the PDM are still valid at the end of the cooperation period.

### **0.2 Outline of the activities of Rice Cultivation Department**

KATC Information Booklet on Training Courses (1998/99) states that "The Rice Cultivation Department organizes rice cultivation courses for extension officers from rice growing areas. It also organizes and teaches rice cultivation topics in all other courses. Other activities include collecting information on rice farming in the country, conducting rice cultivation trials, coordinating collaboration activities between KATC and other rice related institutions, and preparing training materials on rice cultivation. Even though the focus is mainly on improvement of irrigated rice farming, significant attention is also paid to diversified rice-based farming practices in the country." The main activity of the Department was to conduct training

courses for extension officers working for improvement of rice cultivation.

### 0.3 Staff and other members of Rice Cultivation Department

There are five Tanzanian government staff members working in the Rice Cultivation Department at the moment (Table 1). They are Mr. Adam.G. Pyuza (Deputy-Principal of KATC and Head of the Department) who joined KATC from the Ministry of Agriculture Research and Training Institute-Uyole (MARTI-Uyole) in October 1994, Mr. Rashid K. Lussewa (BSc in Agriculture) who joined KATC from Kilimanjaro Agricultural Development Project (KADP) in July 1994, Mr. Ndimubandi E. Mvukiye who joined KATC after graduation from Sokoine University of Agriculture (BSc in Agriculture) in August 1995, Ms Janet N.Omari who joined KATC after graduation from MATI-Ukiriguru (Diploma in Crop Production) in September 1995, and Mr. Maganda Matinka (Diploma in Crop Production) who reported at KATC in October 1998 from Ministry of Agriculture Training Institute (MATI)-Mubondo in Kigoma region. There was Ms Magdalena H. Kyusa (Diploma in Crop Production, she usually used Harrison as her family name) who joined KATC from KADP in July 1994 and worked in the Department until she passed away on 19th August, 1995. There was Mrs. Veronica. P. Lyakurwa (Diploma in Crop Production) who had been transferred from Coffee Training Institute at Lyamungu in Kilimanjaro region. She worked in the Department from mid-September to early November, 1998 when her transfer was cancelled. There has been a long-term JICA expert, Mr. Motonori Tomitaka, for the field of rice cultivation since July 1994 to June 1999.

Out of the staff members, three of them attended the JICA's training courses in Japan (for about 10 months each) and another one pursued a MSc course at the Sokoine University of Agriculture (for about 2 years) during the cooperation period.

Table 1. Staff members of Rice Cultivation Department (as of December 1998).

Name	Term of service	Remarks
A.G. Pyuza*	Since October 1994	Head of the Department MSc in Agricultural Technology
R.K. Lussewa*	Since July 1994	BSc in Agriculture
N.E. Mvukiye**	Since August 1995	MSc in Soil Science and Land Management
J.N. Omari (Ms)*	Since September 1995	Diploma in Crop Production
M. Matinka	Since October 1998	Diploma in Crop Production
M. Tomitaka	Since July 1995 to June 1999	JICA's Expert

Note: \*Attended JICA's training courses in the cooperation period (about 10 months each).

\*\*Pursued MSc in the cooperation period (about 2 years).

Besides, there are 5 labourers who have worked for Rice Cultivation Department since the early stage of the Project. They are Mr. Honest Macha, Mr. Friday Makange, Mr. Miraji Mahamdu, Ms Lucy John and Ms Necma Joel. It should be noted that they have contributed a lot to field activities of the Department.

### 1. Enhancement of Technical Capability of Trainers

The enhancement of technical capabilities of Tanzanian staff, one of the most important activities of KATC Project, was achieved through on the job training by long- and short- term experts, training of counterpart personnel in Japan and other methods.

### 1.1 On the job training by the long-term expert

In accordance with the activities mentioned in the TSI, the long-term expert had been cooperating with, and advising, the staff members in Rice Cultivation Department (and also some other members at KATC) on the following:

- (1) Rice survey methods and paddy field management.
- (2) Preparation of training materials and reports.
- (3) Planning, preparation, implementation and evaluation of training courses.
- (4) Teaching methods in lecture and practical sessions.
- (5) Preparation and conducting of seminars.
- (6) Publication of KATC Information Booklet on Training Courses and of KATC Newsletter (Rice and People in Tanzania).

Abilities of the staff members on management of paddy cultivation trials and organizing training courses have been improved in the past years. Technical and management issues were regularly being discussed among the staff members to improve the plot management, quality of data collection and presentation, and training courses. Through the acquired experiences, survey forms, teaching materials and teaching methods have been improved.

During the preparation of KATC Information Booklet on Training Courses, contents of training courses and qualities of the participants were discussed every year. The editorial committee meeting for the newsletter was held every quarter of a year. General agricultural knowledge and English language skills of the committee members (Heads of Departments, JICA's Experts) have contributed to the improvement of articles.

### 1.2 On the job training by short-term experts

There were several short-term experts who worked for related fields of Rice Cultivation Department. Each short-term expert was assigned a counterpart to advise and guide on the technical matters in the respective area of specialization. Towards the end of assignment period, the short-term expert(s) and the respective counterpart(s) presented on their activities in the seminars. Through literature review, field survey, handling of equipment and preparation of seminar papers with the short-term experts, the counterparts improved their knowledge, technologies and skills in their areas of specialization. Major activities of the short-term experts are mentioned in Item 3.3.

Table 2. Short-term experts who worked for related fields of the Rice Cultivation Department, KATC during the period between July 1994 to June 1999.

Name of		Area of specialization	Period of assignment
Short-term expert	Main counterpart		
T. Yamamoto	R.K. Lussewa	Rice diseases	14/3-14/7/1995, 10/5-12/11/1996
F. Nagumo	A. G. Pyuza	Paddy soil survey and interpretation	20/10-19/12/1995, 7/4-4/8/1997
K. Yasuraoka	A. G. Pyuza	Irrigated rice environment	1-26/12/1995
I. Watanabe	N.E. Mvukiye	Azolla survey	10/5-11/6/1996
T. Furuno and M. Manda	Z.K. Sarakikya*	Azolla-duck-rice culture	25/10-5/11/1996 and 25/10-22/11/1996
P. Wardana and H.D. Abudulrochman	W. Ndoro* and V. Njau*	Water buffalo training	5/10-26/12/1997

Note: \*Members of Production Farm who were assigned as counterparts. M. Tomitaka and members of Rice Cultivation Department collaborated for the accomplishment of the task.

### **1.3 Technical exchange programme**

Through the technical exchange programme of JICA, A.G. Pyuza, together with some other senior members of KATC, visited Egypt and Kenya from 20th August to 1st September, 1995 (M. Tomitaka joined them only for Kenya). The programme provided a good opportunity to learn by examples, how JICA's cooperation projects were being implemented. Utilization of locally available resources such as rice straw compost and puddling by oxen in Mwea Irrigation Agriculture Development Project in Kenya encouraged the implementation of similar ideas initiated by KATC.

Under the same programme, KATC received visitors from Irrigated Rice Mechanization Project in Ivory Coast (from 17th to 21st February, 1995), Mwea Irrigation Agricultural Development Project in Kenya (from 9th to 12th September, 1996), and National Irrigation Board of Kenya (from 4th to 5th December, 1996).

### **1.4 Training of counterpart personnel in Japan**

Three (3) staff members of the Rice Cultivation Department attended JICA's group training courses in Japan in the cooperation period. They were:

- (1) A. G. Pyuza who attended the Rice Production Course from 26th February to 25th October, 1996.
- (2) R.K. Lussewa who attended the Rice Research Techniques Course from 10th February to 17th November, 1997.
- (3) J.N. Omari who attended the Rice Cultivation Course (Asian Countries) from 24th February to 22nd October, 1998.

They were exposed to the intensive training of rice production and research, and acquired information on how to improve rice cultivation techniques through attending lectures, conducting experiments, visiting rice related organizations, staying in homes of advanced farmers, and so on. However, there were some cases which needed extra attention especially the different rice cultivation practices in Japan and in Tanzania, because of the difference in climate and other factors (rice price, labour cost, taste preference, quality requirement, etc.) between the two countries. Through staying at JICA's Tsukuba International Centre and observing the implementation of training courses, they also got ideas on improving KATC. They are very much thankful to JICA for being provided with the opportunities of attending such intensive and attractive training courses.

### **1.5 In-country training**

Improvement of qualification of trainers is important for any training institute. Pursuing higher qualification has been encouraged for staff members who have such ambitions and secured scholarships. N.E. Mvukiye studied at Sokoine University of Agriculture (SUA) for about two years since August, 1996 and pursued MSc in Soil Science and Land Management. His study was sponsored by SUA through Soil Science MSc Programme by NORAD.

It was felt important that the trainers at KATC should be equipped with both broad information on rice farming and related field and good presentation skills of the topics. Then, KATC trainers were exposed to different training sessions on training methods. Several seminars and workshops on technical issues related to rice farming were also conducted at KATC as shown in Item 4.5.

## **2. Improvement of Training Methods**

Training approaches have been formulated and improved through (1) collection of information on rice farming and agricultural extension, (2) improvement of the capabilities of trainers and training materials, (3) reinforcing research-training-extension-farmer linkage. Emphasis has



been paid on promoting the implementation of extension plan after concerned people were trained.

## **2.1 Training plan**

The number of participants and duration of course period were not mentioned in the PDM of KATC Project. It was planned that the scope of training courses would be decided during the one year period of preparation of the Project. Immediately after starting the Project, based on various project documents such as Preliminary Survey Report, Long-term Survey Report and Implementation Survey Report, the training plan was discussed and outlined. It was agreed that the following courses would be conducted from the second year of cooperation period to cover all the regions of the Mainland and Unguja and Pemba islands in Zanzibar:

- (1) Rice Cultivation Course for agricultural field officers which would be organized by Rice Cultivation Department.
- (2) Key-farmer's Course which would be organized by Agricultural Extension and Training Department.
- (3) Water Management Course for irrigation technicians which would be organized by Water Management Department.
- (4) Rice Mechanization Course for agricultural mechanization officers and Tractor Operator's Course which would be organized by Agricultural Machinery Department.

Other factors which were considered during the preparation of the training plan were:

- (1) Limitation of KATC hostel's accommodation of only 40 persons.
- (2) Uncertain budget from Tanzanian side.
- (3) Amount and allocation time of the budget for training from JICA.

### **2.1.1 Formulation of training plan**

Rice Cultivation Department formulated the training plan for Rice Cultivation Courses and provided some suggestions for Key-farmer's Courses. Training plans for the Rice Cultivation Courses and Key-farmer's Courses were prepared as follows:

- (1) All 20 regions in the Mainland and Zanzibar (Unguja and Pemba islands) would be covered in the 7 Rice Cultivation Courses to be conducted in 3 and half years (about 3 regions per course).
- (2) About 20 agricultural field officers would be trained per course, then about 140 agricultural field officers would be trained in the cooperation period.
- (3) Training period for a Rice Cultivation Course would be 38 days.
- (4) Regional Agricultural and Livestock Development Officers (RALDOs) would be requested to nominate most of the participants. Some others would be nominated by Principals of Ministry of Agriculture Training Institutes (MATIs) and KATC.
- (5) The first course would cover the northern zone in the Mainland where most trainers were more familiar with rice farming situation than other areas.
- (6) Participants of KATC's training course would receive 2,000 Tanzanian Shillings per day as daily allowance (1,000 Tanzanian Shillings from Tanzanian side and 1,000 Tanzanian Shillings from JICA funds).
- (7) Ex-trainees of Rice Cultivation Courses would attend Key-farmer's Courses together with their 3 key-farmers (except tutors of MATIs, those from Lower Moshi Irrigation Project and Bagamoyo Agricultural Development Project).
- (8) Training period for a Key-farmer's Course would be 12 days.

### **2.1.2 Review of training plan**

There were some changes of the training plan:

- (1) The number of participants was almost equal among regions in the first course. It was modified as 8 participants for one region, 4 participants for each of the other 2 regions and about 4 participants from other sources (including 1 from neighbouring village), from the

second course.

(2) The number of Key-farmer's Courses per each Rice Cultivation Course were to decrease from 3 to 2, from 4th Key-farmer's Course.

(3) Duration of Rice Cultivation Course was to be extended to 45 days from the 3rd course.

(4) Duration of Key-farmer's Course was to be extended to 19 days from the 10th course.

(5) Except the extension officers (who also attended the Key-farmer's Course), KATC provided only one course per person so as to provide opportunities to a larger number of concerned people.

These reviews were not always so implemented. For example, when IFAD supporting Southern Highland Extension and Rural Finance Services co-financed the 6th Rice Cultivation Course, the number of regions was increased from 3 to 4 and the number of participants was changed to 5 per region. As a result, to accommodate participants in the KATC hostel, the number of key-farmers per extension officer was reduced to 2. This also affected the target regions for the 7th Rice Cultivation Course. Moreover, there were some ex-participants of the Rice Cultivation Course who also attended the Water Management Course.

## **2.2 Training curriculum**

Training curriculum for Rice Cultivation Course were formulated and improved with the intention that knowledge acquired by the participants during the course would be implemented effectively after attending the course. One of the major change in the training curriculum was the extension of course duration from 38 days to 45 days, from the 3rd course.

### **2.2.1 Formulation of training curriculum**

The Rice Cultivation Course tried to cover practical aspects of rice cultivation techniques and their extension methods. Not only rice cultivation practices in Lower Moshi Irrigation Project but also diversified rice cultivation situations in the country such as availability of input materials and output market were also taken into account during curriculum development. The course consisted of lectures, practices, field visits, presentations and discussions. The main sessions of the course were as follows:

- (1) Preparation of the report on rice farming and agricultural extension in the assignment areas, by potential participants (being done before attending the course).
- (2) Presentation and discussion of rice farming and agricultural extension in the assignment areas (the papers would be compiled by the end of the course).
- (3) Lectures and practices on (a) improved rice cultivation including seed selection, nursery preparation and management, fertilizer application, transplanting, plant protection and others, (b) agricultural extension methods such as demonstration plot, farm record, adult education, (c) other topics related to rice farming such as water related diseases, water management, and agricultural machinery.
- (4) Study tours to rice growing areas and rice related institutions.
- (5) Workshop of agricultural extension planning.

For every Rice Cultivation Course, one extension officer working in a nearby village attended. The participants visited the village to observe rice farming practices and to interview rice farmers, then prepared a rice extension plan for the extension officer and villagers.

Rice Cultivation Department also collaborated with the Agricultural Extension and Training Department on the formulation of curriculum for Key-farmer's Course. It was agreed that some important steps such as seed selection and treatment, nursery preparation, fertilizer application and transplanting were to be practiced by the participants.

### **2.2.2 Modification of training curriculum**

The duration of the 1st and 2nd Rice Cultivation Courses was 38 days. It was extended to 45 days from the 3rd to the 7th course. The training curriculum had been modified to accommodate the following:

- (1) Presentation and discussion of rice extension plans of all participants.
- (2) Lectures by rice researchers and discussions on research-training-extension linkages.
- (3) Safe use of agricultural chemicals.
- (4) Human nutrition, rice marketing and gender issues.
- (5) Reduction of the duration of study tour due to financial constraints (7th course).

Table 3. Curriculum of Rice Cultivation Course.

Subjects	Main topics	Methods (90 minutes/unit)	Total (%)
Rice production	Presentation of participants papers on rice farming and agricultural extension Rice in the world and in Tanzania Seed selection, soaking and incubation Nursery preparation and seeding Uprooting and transplanting rice seedlings Variety and morphology of rice Paddy soils and fertilizer use Plant protection and pesticide use** Rice and irrigation Rice and agricultural machinery Post harvest operation and marketing Rice research work in Tanzania**	Lecture (16) Practice (17) Presentation (7)	40 (42)
Agricultural extension	Community leaders Demonstration plot Farm records Gender issues Farm survey Research-training-extension linkage	Lecture (9) Practice (7) Discussion (1)	17 (18)
Extension planning	Rice farming community development Workshop on agricultural extension planning Presentation of rice extension plan	Lecture (1) Workshop (9) Presentation (4)	14 (15)
Related subjects	Water related diseases** Human nutrition	Lecture (3) Practice (2)	5 (5)
Study trip	Visit Lower Moshi Irrigation Project Visit Mombo Irrigation Scheme, Tanga Visit Mlingano Agricultural Research Institute Visit Mkomazi village, Tanga Visit Mijongweni village, Kilimanjaro	Lecture (1) Visit (10)	11 (11)
Other related matters	Orientation of the course Introduction and final tests Review and evaluation of the course Guidance on the key-farmer's course	Test (2) Visit (1) Discussion (6)	9 (9)
Total	Lecture (30), Practice (26), Presentation (11), Visit (11), Workshop (9), Discussion (7), Test (2)		96 (100)

Note: \*From the time table of 7th Rice Cultivation Course.

\*\*Conducted by external lecturers.

The curriculum for Key-farmer's Course was also modified. At first, there was an opinion that it was difficult to let farmers attend training courses for more than 2 weeks. Later,

following the views of farmers who attended the Key-farmer's Course, the period was extended to 19 days. Extension of course period provided time for extension planning exercise for each group (extension officer and key-farmers), increased number of days for study tour (from 1 night to 2 nights), added some other topics (e.g. nutrition, rice marketing, environment management and gender issues).

### **3. Improvement of Training Materials**

References of training materials for Rice Cultivation Course were collected from IRRI (International Rice Research Institute) in the Philippines, Japan and other sources. Papers presented at the seminars and workshops organized by KATC were also useful. Some training materials were prepared together with short-term experts, some others were obtained during the trainers' training in Japan. In addition to the training materials, the Training Manual for Rice Cultivation Course has been prepared for smooth preparation and implementation of similar courses in the future.

#### **3.1 Information collection**

KATC has paid efforts in collecting, accumulating, processing and disseminating information on rice and related topics in the country. Through information collection, KATC recognized areas of specialization among concerned institutions, what should be done by KATC, what should be done by other parties, and what should be done in collaboration of KATC and other parties.

##### **3.1.1 Rice Research Programme**

KATC has obtained information related to rice farming from the Rice Research Programme. Some researchers attended the Staff Orientation Seminar on Irrigated Rice Farming, Seminar for RALDOs on Rice Farming, and Seminar on Prospect and Constraint of Rice Farming in Tanzania. Most of rice researchers in the country attended the Workshop on Rice Cultivation Survey Methods held at KATC to share information among concerned parties. Members of the Rice Cultivation Department attended the Annual Research Coordinating Committee Meeting of Rice Research Programme in 1994, 1995 and 1997. Through requesting the participants of Key-farmer's Course, KATC collected and then presented seeds of local rice cultivars to the Rice Research Programme.

##### **3.1.2 Tropical Pesticide Research Institute (TPRI)**

Since the early stage of the Project, KATC has been closely collaborating with TPRI (Tropical Pesticide Research Institute, Arusha). KATC requested TPRI researchers to lecture on water related diseases and weed control at the Staff Orientation Seminar on Irrigated Rice Farming. Rice Cultivation Course included one day of lecture and observation of water related diseases since its first course. There were several TPRI researchers who worked together with short-term experts dispatched to KATC in the field of water related diseases (e.g. schistosomiasis, malaria). The TPRI researchers also helped in the campaign of controlling water related diseases in LMIP, which was implemented by concerned parties such as KATC, KADP, Lower Moshi Rice Growers Association, and Village Governments. KATC also accepted a request from TPRI for 2 plots for field trials of a TPRI staff member who pursued a PhD course. KATC requested TPRI to deliver lectures on safe use of agricultural chemicals since the 3rd Rice Cultivation Course. KATC also requested TPRI for plant quarantine services on importing seeds of rice varieties.

##### **3.1.3 Kilimanjaro Agricultural Development Project (KADP)**

KATC Project requested Kilimanjaro Agricultural Development Project (KADP) to cooperate in its activities especially on training. History of KADP was presented during the Staff Orientation Seminar by the Director. Participants of the Rice Cultivation Course were taught the history of

Lower Moshi Irrigation Project (LMIP) and visited rice growing areas inside and outside of it. KATC trained some staff of KADP and farmers in LMIP especially on azolla utilization in rice cultivation. Using KATC's Production Farm, 42 newly introduced rice varieties were planted in 1998 in collaboration with KADP. It is expected that collaboration between KATC and KADP will be further enhanced for improvement of rice farming in the area.

#### **3.1.4 Mlingano Agricultural Research Institute**

KATC requested Mlingano Agricultural Research Institute on soil related information and analysis of soil samples collected by KATC staff (including short-term experts) and participants of the Rice Cultivation Training Courses. One researcher from the Institute attended the Staff Orientation Seminar on Irrigated Rice Farming and presented a paper on overview information on paddy soils in the country. The Institute was one of the destinations for the study tours of Rice Cultivation Courses. Participants of the Courses were taught the procedures of soil sampling and soils analysis at the Institute. KATC (Rice Cultivation Department) attended National Soil Research Coordinating Committee meeting in 1995, 1996 and 1998.

#### **3.1.5 Sokoine University of Agriculture (SUA)**

KATC received assistance from the Sokoine University of Agriculture (SUA) in form of resource persons for the Staff Orientation Seminar on Irrigated Rice Farming, Workshop on Rice Cultivation Survey Methods and others. Scholars of SUA collaborated with the Department when it surveyed rice diseases, insects, paddy soils and others. SUA was also one of destinations for the study tours of Rice Cultivation Courses. KATC had presented seeds of local rice cultivars after receiving them from the participants of Key-farmer's Courses. KATC was requested by SUA/Tuskegeensis Project and conducted a training for 20 farmers from 13th to 24th October, 1997. There were also groups of students from SUA who stayed at KATC for about a month for their field practicals.

#### **3.1.6 University of Dar es Salaam**

KATC received collaboration from the University of Dar es Salaam especially on information of azolla in the country and mushroom production technologies using rice straws. Dr. G.M. Wagner of the university attended the Seminar on Prospect and Constraint of Rice Farming in Tanzania as a resource person on azolla. He accompanied Prof. I. Watanabe when he visited Zanzibar for azolla investigation. KATC sent 3 participants for Mushroom Production Training Course held at Botany Department of the university.

#### **3.1.7 International rice research institute (IRRI)**

KATC received information and materials from IRRI in the Philippines. Staff members of Rice Cultivation Department attended the IRRI-Tanzania Rice Research Meeting on 5th May, 1995. KATC and KADP had received rice seeds of 30 lines from IRRI in 1997. KATC also requested for a permission from IRRI to translate a book titled "A Farmer's Primer on Growing Rice (Second Edition)". The right of translation was granted in 1998 and the translation work will be done by Tanzanian staff members.

### **3.2 Verification trials**

As a training institute on irrigated rice cultivation, KATC has been demonstrating transplanting method of irrigated rice cultivation. Participants and visitors become familiar with the irrigated rice cultivation through observation of different demonstration plots. Since the 1998 late season, after converting "A" plots from upland to paddy plots, irrigated rice cultivation has been demonstrated by KATC members and rice seed production was started. Some of the main rice cultivation trials conducted at KATC are as follows:

#### **3.2.1 Demonstration of irrigated rice cultivation**

Participants of Rice Cultivation Courses practiced some important steps of irrigated rice cultivation. Rice seeds were sorted by water, disinfected with fungicide and pregerminated before being sown into the nursery which was they also prepared. After preparation of the main

plot and basal fertilizer application, rice seedlings of 25 days old were transplanted by the participants. Weeding and the first top-dressing of nitrogen fertilizer was also done by the participants. The plot was demonstrated as an example of irrigated rice cultivation. Due to a short period of the course, the participants could not harvest paddy which they planted. However, using other plots, the participants also practiced plant growth survey and yield survey to confirm the yield level of irrigated rice cultivation. Participants of Key-farmer's Course also practiced some important steps of irrigated rice cultivation. Efforts had been paid to show uniform growth and maturity to obtain good yield under irrigated rice cultivation.

### **3.2.2 Transplanting rice varieties in every month**

Although the participants of KATC's training courses stayed at KATC for a short period (at most 45 days), it was better to let them see the life cycle of rice plant. The monthly transplanting of rice seedlings was initiated for showing different growth stages of rice plant at any time in the year. For example, the seedlings of 4 rice varieties (IR54, Line 88, RD23 and Wahiwahi) were transplanted every month in 1998. The plots were used for observation of different growth stages of rice plants. They were also used for practice of growth and yield surveys.

### **3.2.3 Rice cultivation under different soil management practices**

Industrial fertilizers are widely used for rice cultivation in LMIP and some other irrigation schemes. But rice is also produced without application of any fertilizer in many other areas. In addition, azolla was distributed in some irrigation schemes, but it was not recognized as a bio-fertilizer. Demonstration of different soil management practices started in 1996 to show diversified soil management practices in irrigated rice cultivation. Industrial fertilizer (urea, triple super phosphate) and bio-fertilizers (cow dung manure, rice straw compost, azolla) were demonstrated. Fertilizer of industry or biotic origin, nitrogen fertilizer increased paddy yield. Main problem of bio-fertilizer utilization was collection and distribution of huge amounts. Azolla-duck-rice culture was also demonstrated as an example of environmentally friendly rice cultivation practices. Protection of ducks from wild animals is the main area of importance. Minimum-tillage was also demonstrated but it required making transplanting holes by stick. The percolation rate of water was too high in minimum-tillage plots. Although resources recycle rice farming is not easy to establish and disseminate, it is important to pursue ways of better utilization of locally available resources in rice cultivation.

### **3.2.4 Observation of introduced rice varieties**

KATC had recognized the importance of varieties and their seeds recommendable to different rice farming areas, but it did not introduced rice varieties from other countries during the early stage of cooperation. The LMIP area was not infested by rice blast and rice yellow mottle virus (RYMV) diseases, then KATC did not want to make a risk of introducing any disease through introduction of other varieties.

However, because of segregation of IR54 variety caused by production of rice without paying much attention to maintaining the purity and susceptibility of IR54 against sheath rot disease in cool season, renewal of IR54 seeds and replacement of IR54 variety became issues of discussion among staff members of KADP and KATC. Together with KADP, 42 rice varieties were planted in January 1998 under plant quarantine inspection. They were obtained from IRRI (30 lines) and Egypt (12 lines). It is expected that re-introduced seeds of IR54 variety will replace the old seeds. It is also expected that some of the lines may replace IR54 in the future.

### **3.2.5 Rice seed production**

Both extension officers and key-farmers who attended KATC's courses showed a strong interest on seeds of attractive varieties. After consultation and under the limitation of the stock available, KATC provided paddy grains following the request of the participants and visitors. For example, 26 participants of 14th Key-farmer's Course conducted in November, 1998 went

back to their villages with 421 kg of IR54, 36 kg of RD23 and 7 kg of Wahiwahi.

KATC has been studying the possibility of being a rice seed production center especially for irrigated conditions. Variety comparison and rice seed production are expected to be included in the main activities of KATC in the future.

### **3.3 Field survey**

KATC invited short-term experts in different fields for conducting surveys. Results of field surveys were presented at the seminars and compiled as reports. As it was mentioned earlier, the capacities of trainers have been improved through working together with the short-term experts. The reports have been utilized as reference materials in teaching.

#### **3.3.1 Survey on rice diseases**

Together with Mr. Tsuyoshi Yamamoto, a survey on rice diseases was during the periods from 14th March to 14th July, 1995 and 10th May to 12th November, 1996. The survey team visited 17 regions in the mainland (except Rukwa, Kigoma and Kagera regions) and Unguja island (Zanzibar). Mr. R.K. Lussewa improved his knowledge and skills on rice diseases through surveying rice diseases with T. Yamamoto. "Brief on rice diseases survey in Tanzania and Rice Diseases -Symptoms, Diagnoses and their Control-" were submitted by T. Yamamoto.

#### **3.3.2 Survey on irrigated rice environment**

Prof. Kazuo Yasuraoka surveyed irrigated rice environment with special reference to schistosomiasis. The survey was conducted during the period from 1st to 26th December, 1995. Together with TPRI researchers, it was conducted in Lower Moshi Irrigation Project, Tanganyika Planters' Company and Kileo village (Mwanga district). "A Brief Environment Survey of Rice-farming Irrigation System in Kilimanjaro with Special Reference to Schistosomiasis Control" was submitted by K. Yasuraoka. The results indicated the importance of schistosomiasis control for the farmers and children living in irrigated rice cultivation areas and followed by efforts of concerned parties to promote public health campaign in LMIP area.

#### **3.3.3 Survey on rice growing soils**

Together with Dr. Fujio Nagumo, a survey on paddy soils was conducted during the periods from 20th October to 19th December, 1995 and 7th April to 4th August, 1997. Mr. A.G. Pyuza improved his skills on soil sample collection and knowledge on soil analysis data interpretation through working together with F. Nagumo. "Progress Report on Characterization of Soils under Rice Cultivation in Tanzania", "Rice Soil Types Distributed in Tanzania and the Regional Variation in Fertility Status", "Teaching Material for Rice Soil in Tanzania, and Training Material for Soil Survey" were submitted by F. Nagumo.

#### **3.3.4 Survey on azolla distribution and utilization**

Together with Prof. Iwao Watanabe, a survey on distribution of azolla was conducted during the period from 10th May to 11th June, 1996. Mr. N.E. Mvukiye improved his knowledge and technologies on how to utilize azolla in rice cultivation through working together with I. Watanabe. Based on the recommendations, KATC continued the trial of azolla utilization. N.E. Mvukiye worked on azolla when he pursued MSc Programme at Sokoine University of Agriculture afterwards. "Azolla Use and Rice Production in Tanzania" was submitted by I. Watanabe.

#### **3.3.5 Survey on azolla-duck-rice combined farming**

Together with Mr. Takao Furuno and Prof. Masaharu Manda who stayed during the period from 25th October to 5th November, 1996 and 25th October to 22nd November, 1996, respectively, a survey on azolla-duck-rice combined farming was conducted. Mr. Z.K. Sarakikya (Production Farm) worked together with them. After guidance on how to practice azolla-duck-rice culture by the short-term experts, it has been displayed at the Production Farm. "Present Status and Future Prospects of Azolla-Duck-Rice Culture in Tanzania" was submitted by T. Furuno and "Possibilities and Prospects of Duck Utilization in Paddy Field in Tanzania"

was submitted by M. Manda.

### **3.3.6 Survey on water buffalo utilization**

Together with Mr. Putu Wardana and Mr. H. Diman Abudulrochman (Indonesians), water buffaloes at KATC were trained during the periods from 5th October to 26th December, 1997. Mr. William B. Ngoro and Mr. V. Njau worked together with the Indonesian experts. Some other members of Rice Cultivation Department and Agricultural Machinery Department also worked together. Water buffaloes have been used in land preparation and transport since then. "Progress Report of Water Buffalo Training for Rice Farming in Tanzania" was submitted by P. Wardana and H.D. Abudulrochman.

## **3.4 Preparation of training materials**

Training materials are important for KATC as a training institute. Rice Cultivation Department used some publications from IRRI and others in Rice Cultivation Course. Some of them are:

- (1) A Farmer's primer on growing rice, IRRI
- (2) Mambo muhimu kwa mkulima wa mpunga, IRRI
- (3) Field problems of tropical rice, IRRI
- (4) Handbook of tropical rice cultivation, Association for International Cooperation of Agriculture and Forestry (AICAF), Japan

At the same time, the Department has been paying efforts on preparing own training materials and references. Short-term experts assigned to KATC also collaborated on the preparation of training materials.

### **3.4.1 Improvement of rice cultivation (educational video)**

Together with a short-term expert of video film production, Mr. Toru Nomura, an educational video of "Improvement of Rice Cultivation" was made in 1997. The story was written by M. Tomitaka and narrated by A.G. Pyuza.

### **3.4.2 Improvement of rice farming**

Through improving the narration of the educational video (Improvement of Rice Cultivation), Improvement of Rice Farming was prepared by M. Tomitaka and it was translated in Swahili by A.G. Pyuza. They have been used as summarized texts for training participants and visitors.

### **3.4.3 Rice diseases in Tanzania**

Based on the survey of rice diseases of Mr. T. Yamamoto, 1,000 copies of "Rice Diseases in Tanzania" were published by AICAF. It has pictures of important rice diseases in Tanzania and helps to survey rice diseases in the field.

### **3.4.4 Extension planning for improvement of rice farming**

"Extension Planning for Improvement of Rice Farming" was prepared by M. Tomitaka. It guided the workshop of extension planning in Rice Cultivation Course. Ms M. Muka (Agricultural Extension Training Department) collaborated during the preparation of the text, especially translation of Extension Plan Matrix in Swahili.

### **3.4.5 Rice farming in Tanzania**

Through compilation of some papers presented at the seminars, workshops and training courses held by KATC, "Rice Farming in Tanzania" is to be prepared as general information of rice farming practices and issues in 1990s.

### **3.4.6 Irrigated rice production guide**

Based on the experiences of conducting 7 Rice Cultivation Courses, "Irrigated Rice Production Guide" is to be compiled as a general guide for irrigated rice cultivation. Concerned trainers share preparation of respective chapters.

### **3.4.7 Lower Moshi Irrigation Project textbook**

Since the development of LMIP was the base of KATC Project, the history and impact of LMIP was studied by some KATC members in 1995. It is expected that the reports are to be compiled.



### **3.4.8 Translation of "A Farmer's Primer on Growing Rice"**

KATC requested and received a permission from IRRI to translate "A Farmer's Primer on Growing Rice (2nd edition)" in Swahili. The translation will be done by the Tanzanian staff members.

### **3.4.9 Papers of the participants who attended the rice cultivation courses**

Participants of Rice Cultivation Course were required to present papers on rice cultivation and agricultural extension in the assignment areas. The papers were presented and discussed during the early part of the course. They were then edited and compiled towards the end of the course. Some of them appeared in "Rice and People in Tanzania (KATC's Newsletter)". The following reports contain information on rice farming in Tanzania in late 1990s.

- (1) Rice farming and agricultural extension in some 18 areas in Tanga, Arusha and Kilimanjaro regions in Tanzania -Papers presented at the first rice cultivation training course (12th September - 19th October, 1995) organized by KATC-, pp.66.
- (2) Rice farming and agricultural extension in some 19 areas in Morogoro, Coast, Dar es Salaam and Kilimanjaro regions in Tanzania -Papers presented at the second rice cultivation training course (16th January - 22nd February, 1996) organized by KATC-, pp.63.
- (3) Rice farming and agricultural extension in some 19 areas in Shinyanga, Mwanza, Mara, Arusha and Kilimanjaro regions in Tanzania -Papers presented at the third rice cultivation training course (27th August - 10th October, 1996) organized by KATC-, pp.82.
- (4) Rice farming and agricultural extension in some 19 areas in Tabora, Dodoma, Singida, Tanga and Kilimanjaro regions in Tanzania -Papers presented at the fourth rice cultivation training course (14th January - 27th February, 1997) organized by KATC-, pp.94.
- (5) Rice farming and agricultural extension in some 20 areas in Zanzibar and Mtwara, Lindi, Arusha and Kilimanjaro regions in Tanzania -Papers presented at the fifth rice cultivation training course (26th August - 9th October, 1997) organized by KATC-, pp.81.
- (6) Rice farming and agricultural extension in some 23 areas in Ruvuma, Mbeya, Rukwa, Iringa, Shinyanga and Kilimanjaro regions in Tanzania -Papers presented at the sixth rice cultivation training course (13th January - 26th February, 1998) organized by KATC-, pp.94.
- (7) Rice farming and agricultural extension in some 7 areas in Kigoma, Tabora, Mbeya and Kilimanjaro regions -Papers presented at the seventh rice cultivation training course (1st September - 15th October, 1998) organized by KATC-, pp.32

## **4. Training of Government Personnel and Key-farmers**

Training of government personnel and farmers is the most important activity of KATC. The Rice Cultivation Department conducted 7 Rice Cultivation Courses in the cooperation period. There were 125 participants who completed the course. The Department closely worked with Agricultural Extension and Training Department in conducting Key-farmer's Course. The Department also collaborated with Water Management Department on Water Management Course and Agricultural Machinery Department on Rice Mechanization Course and Tractor Operator's Course.

According to the survey of participants' impressions, most of them were more equipped with rice cultivation technologies and extension methods after attending the course. They went back with confidence of implementing rice extension especially after attending Key-farmer's Course together with their key-farmers.

Since 1997, there were some other courses, funded by other projects, conducted at KATC. They were funded by River Basin and Small-holder Irrigation Improvement Project, National Agricultural Extension Project II, and others. Some KATC's original courses were also co-financed by other projects (e.g. Southern Highlands Extension and Rural Finance Services).

#### 4.1 Training for agricultural extension officers

KATC Information Booklet on Training Courses (1998/99) stipulated that "Rice Cultivation Course is aimed at improving the technical capabilities of agricultural field officers working in/for rice growing areas/projects in the country. The course covers a range of knowledge and techniques of rice cultivation especially under irrigated and rainfed lowland conditions and other related subjects for agricultural extension activities."

After a preparation period of about 1 year, the 1st Rice Cultivation Course was opened in September, 1995. It was planned that the courses start from the neighbouring regions and it would cover 3 regions per course. It was sometimes not easy to communicate with concerned offices for nomination of participants. Due to several reasons, there were some proposed participants who did not report to the course. Communication between KATC and RALDOs and communication within the region or district were not always smooth. It seemed that some extension officers could not shoulder the travel expenses from their working sites to KATC although the expenses were to be refunded upon their arrivals to KATC.

In total, 125 participants completed the Rice Cultivation Course. Among those, 17 were female and 5 were tutors at other agricultural training institutes (e.g. Mlingano, Ilonga, Tumbi, Mtwara, Uyole). Besides the number of participants who completed the course, there were 2 others who were discontinued from the course due to miss-handling of application form and health problem.

Table 4. Number of participants who attended the rice cultivation courses held at KATC during the JICA's cooperation period from July 1994 to June 1999.

Course	Regions/areas of attendance (figures are number of attendants*)	Total**
1st course	Tanga (8), Arusha (4), Kilimanjaro (6)	18 (5)
2nd course	Morogoro (8), Coast (5), Dar es Salaam (5) and Kilimanjaro (2)	20 (2)
3rd course	Shinyanga (8), Mwanza (4), Mara (4), Arusha (1), Kilimanjaro (1)	18 (1)
4th course	Tabora (9), Dodoma (4), Singida (3), Tanga (2), Kilimanjaro (1)	19 (2)
5th course	Zanzibar (4 each from Unguja and Pemba), Mtwara (6), Lindi (3), Kilimanjaro (2), Arusha (1)	20 (3)
6th course	Mbeya (6), Ruvuma (5), Rukwa (5), Iringa (5), Shinyanga (1), Kilimanjaro (1)	23 (3)
7th course	Kilimanjaro (3), Kigoma (2), Tabora (1), Mbeya (1), Kagera (0)	7 (1)
Total	Kilimanjaro (16), Tanga (10), Tabora (10), Shinyanga (9), Morogoro (8), Zanzibar (8), Mbeya (7), Arusha (6), Mtwara (6), Coast (5), Dar es Salaam (5), Ruvuma (5), Rukwa (5), Iringa (5), Dodoma (4), Mwanza (4), Mara (4), Singida (3), Lindi (3), Kigoma (2), Kagera (0)	125 (17)

Note: \*At least 4 participants were invited from each region.

\*\*Figures in parentheses are number of female participants.

##### 4.1.1 First rice cultivation course

It was conducted for 18 extension officers working in rice growing areas in Tanga (8), Arusha (4) and Kilimanjaro (6) from 12th September to 19th October, 1995 (38 days). There were 13 male and 5 female participants, one of them was a tutor at MATI-Mlingano others were agricultural extension officers. The course consisted of lecture and field practice of rice farming, study tour, extension planning workshop and other topics (water related diseases, water management, agricultural machinery). The instructors paid a lot of efforts for preparation of teaching materials, implementation of course and compilation of participants' reports. The success of the course provided confidence among instructors and encouraged the management

of succeeding courses.

#### **4.1.2 Second rice cultivation course**

It was conducted for 20 extension officers working in Morogoro (8), Coast (5), Dar es Salaam (5) and Kilimanjaro (2) from 16th January to 22nd February, 1996 (38 days). There were 18 male and 2 female participants attended, one of them was a tutor at MATI-Ilonga. As aiming at 2 Key-farmer's Courses to be followed after a Rice Cultivation Course, number of participants per region were modified.

#### **4.1.3 Third rice cultivation course**

There were initially 19 extension officers from rice growing regions of Shinyanga (8), Mwanza (4), Mara (4), Arusha (2) and Kilimanjaro (1). From this course, every participant presented his/her rice extension plan. Due to a health problem, 1 female participant suspended the course after 3 weeks of attendance, then the number of participant became 18. There was only 1 female participant at last.

#### **4.1.4 Fourth rice cultivation course**

It was conducted for 19 participants coming from Tabora (9), Dodoma (4), Singida (3), Tanga (2) and Kilimanjaro (1). Except one tutor from MATI-Tumbi, Tabora region, they were agricultural extension officers. There were only 2 female participants.

#### **4.1.5 Fifth rice cultivation course**

It was conducted for 20 extension officers working in Zanzibar (4 each from Unguja and Pemba), Mtwara (6), Lindi (3), Kilimanjaro (2) and Arusha (1) from 26th August to 9th October, 1997. There were 17 male and 3 female participants. Most of them were agricultural extension officers except one each irrigation technician and trainer (from MATI-Mtwara).

#### **4.1.6 Sixth rice cultivation course**

It was conducted from 13th January to 26th February, 1998. There were totally 23 participants. Among those, 20 came from the southern highland regions (5 each from Ruvuma, Mbeya, Rukwa and Iringa) and 1 each from Shinyanga region, Kilimanjaro region and MARTI-Uyole. There were 20 male and 3 female participants. Most of them were agricultural extension officers except 3 irrigation technicians and 1 trainer. The course was partly funded by IFAD collaborating Southern Highlands Extension and Rural Finance Services Project. There was a problem in nomination of participants for the course. KATC requested respective RALDOs of Iringa, Mbeya and Ruvuma regions to nominate the participants in October, 1998. After IFAD decided to co-finance the course, Rukwa region was added and many participants-to-be once nominated by RALDOs were changed by IFAD. KATC strongly asked IFAD to inform all the concerned people, including those who were once nominated by RALDOs, there were 4 extension officers nominated by RALDO-Ruvuma reported to KATC. Later they were returned to Ruvuma. Their reports on rice farming and agricultural extension were included as appendices to the report of the participants of this course. The case showed the difficulties of collaboration with other projects under poor communication facilities and network (e.g. between KATC and IFAD, between IFAD and RALDO offices). However, it was an epoch making course because validities of KATC's training courses were appreciated and the course was partly funded by other programme.

#### **4.1.7 Seventh rice cultivation course**

It was conducted from 1st September to 15th October, 1998. There were 7 participants of agricultural extension officers from Kilimanjaro (3), Kigoma (2), Tabora (1) and Mbeya (1). One of them was female. There was no participants from Kagera region. The period of study tour was reduced to 2 nights because of financial constraint.

#### **4.2 Special course (azolla utilization in rice cultivation)**

The Azolla Utilization in Rice Cultivation Course was conducted 2 times with intention of improving azolla utilization in the areas where there was azolla. Aspects for improving azolla

utilization in rice cultivation such as plot levelling, raising and transplanting healthy rice seedlings, shallow water depth after transplanting were taught together with the practices and field visits of azolla growing areas. Advantages and disadvantages of azolla were discussed in the class and the field. Through attending the course, farmers' perception on azolla had changed from weed to green manure.

#### **4.2.1 First course on azolla utilization in rice cultivation**

The first course was conducted from 21st to 30th October, 1997 for 5 irrigation schemes in Kilimanjaro (Lower Moshi), Tanga (Mombo, Kwemazandu), Morogoro (Mkindo) and Coast (Segeni) for 25 participants (6 government officers and 19 farmers).

#### **4.2.2 Second course on azolla utilization in rice cultivation**

The second course was conducted from 3rd to 10th March, 1998 for 5 irrigated rice cultivation areas in Unguja (Mwera, Mtwango), Pemba (Mangwena, Tibirinzi) and Kilimanjaro (Mandaka Mnono) for 26 participants (7 government officers and 19 farmers).

### **4.3 Follow-up guidance for ex-participants**

Rice Cultivation Department conducted the follow-up visits for ex-participants only in Dar es Salaam and Morogoro region. Although there are strong requests from ex-participants, due to time conflict with other activities, frequencies of conducting the follow-up visit have been limited. Together with other works such as field surveys with short-term experts, follow-up guidance was also conducted for some ex-participants.

#### **4.3.1 Dar es Salaam region**

It was conducted on 2nd and 3rd July, 1997. Some ex-participant farmers initiated to change rice cultivation from direct sowing in un-banded plot to transplanting in banded and levelled plot. Collaboration of ex-trainees (extension officers and key-farmers) in rice cultivation extension encouraged the KATC staff. There was a strong request from RALDO and DALDOs on training of crop officers and subject matter specialists on rice cultivation.

#### **4.3.2 Morogoro region**

It was conducted on 6th and 7th October, 1997. Similar to the cases in Dar es Salaam, it was proved that KATC's approach of training farmers together with their extension officers was effective in disseminating the improved rice cultivation package. Details of the visit were reported in Rice and People in Tanzania Vol.

#### **4.3.3 Other places**

Follow-up guidances have been conducted for some other areas in Kilimanjaro, Arusha and Tanga regions especially when visited with short-term experts for field survey and other purposes. The Principal, Team Leader and some other members of KATC visited the lake zone in June, 1998 and reported there were positive impacts of training courses.

### **4.4 Outreach training**

Importance of outreach training was recognized during the early stage of cooperation period and it was added into the TSI of the Project when JICA's Consultation Survey Team visited Tanzania early 1995. However, due to time, manpower and financial constraints, Rice Cultivation Department has not conducted it yet. It was agreed that all the concerned Departments of KATC would conduct the outreach training together (with follow-up guidances for ex-trainees).

### **4.5 Conduct seminars**

Rice Cultivation Department was fully involved for organizing some seminars and workshops held at KATC. However, due to several reasons, compilation of proceedings for respective seminar was not completed. Some staff members also attended other seminars organized by other Departments such as Seminar on Rice Mechanization in Tanzania organized by

Agricultural Machinery Department and held during the period from 2nd to 4th June, 1998.

#### **4.5.1 Staff orientation seminar on irrigated rice farming**

The seminar aimed at orienting KATC staff on irrigated rice farming and other related subjects by providing broad based information on the various aspects of rice farming. It was conducted from 27th February to 10th March, 1995. Touring of Lower Moshi Irrigation Project was one another activity during the seminar for familiarization. Through participating the seminar, KATC staff members shared overall views on the direction of KATC Project and some contents of training courses. Papers presented at the seminar are as follows:

- (1) Rice farming in Tanzania by A.N. Kihupi (SUA: Sokoine University of Agriculture)
- (2) Rice research in Tanzania by Z.K. Kanyeka (Coordinator, National Rice Research Programme and Director, KATRIN: Kilombero Agricultural Training and Research Institute)
- (3) Soils and soil fertility of rice growing areas in Tanzania by J.P. Magoggo (Milingano Agricultural Research Institute)
- (4) Crop protection in rice production in Tanzania (insect pests and diseases) by N.J.M. Kibanda (KATRIN)
- (5) Crop protection in rice production in Tanzania (weeds) by E.L. Ritoine (TPRI: Tropical Pesticides Research Institute)
- (6) Vector-borne diseases associated with irrigation development -with attention on malaria- by F.W. Mosha (Director, TPRI)
- (7) Irrigation, rice and schistosomiasis control in Tanzania by F.M.J. Nguma (TPRI)
- (8) Performance of irrigated agriculture in Tanzania by R.J.M. Temu and R.F. Rambau (Irrigation Section, MoA: Ministry of Agriculture)
- (9) Rain water harvesting techniques -case of rice production in Tanzania- by N. Hatibu (SUP)
- (10) Review of water users' associations in farmer-managed irrigation systems in Tanzania by M. Kagubila (Consultant)
- (11) Water right in irrigation schemes in Tanzania by S.A.S. Faraji and F. Masanja (Ministry of Water, Energy and Minerals)
- (12) Lower Moshi Irrigation Project by G.R. Moshi (Kilimanjaro Region)
- (13) Role of mechanization in agricultural production in Tanzania by M. Lyimo (Mechanization Unit, MoA)
- (14) Effective utilization of draft animal power in agriculture by A.K. Kayumbo (Formerly worked at Mechanization Unit, MoA)
- (15) Rice mechanization in Tanzania by R.M. Shetto (MARTI-Uyole: Ministry of Agriculture Research and Training Institute-Uyole)
- (16) Selected socio-economic aspects of irrigated rice in Tanzania by C.K. Chiza (Project Director, Rehabilitation of Traditional Irrigation Schemes)
- (17) Case of extension worker in Usangu Irrigation Project by J.L. Ndossi (Usangu Village Irrigation Project, Mbeya)
- (18) Rice production activities in Usangu Plains by H. Mwansyange (Key-farmer, Usangu Village Irrigation Project, original paper in Kiswahili)
- (19) Gender sensitivity in rice production and marketing in Tanzania by D.G. Sungusia (Irrigation Section, MoA)
- (20) Present conditions and future strategies of extension activities in Tanzania by B.W. Rwenyagira (Extension Section, MoA, submitted the paper but did not present)

#### **4.5.2 Seminar for RALDOs on rice farming**

KATC recognized the importance of establishing strong linkages with the Regional Agricultural and Livestock Development Officers (RALDOs) for recruitment of participants to the training courses and follow-up guidance of ex-trainees. In this context, Seminar for RALDOs on Rice Farming was organized and conducted from 12th to 15th December, 1995. Purposes of the seminar were:

- (1) To accumulate and share knowledge, information and experiences on rice farming development among policy makers, researchers and regional officers.
- (2) To show KATC activities and to reinforce linkages between KATC, RALDOs, Rice Research Programme and other concerned organizations.

There were 15 regions, out of 20 regions in the mainland, attended the seminar. In addition, there were 2 other regions not attending but submitting their papers on rice farming and agricultural extension. The RALDOs became familiar with KATC activities and more cooperative on nomination of training candidates. The following 6 papers were presented by resource persons:

- (1) Historical background and function of KATC by R.J. Shayo (Principal, KATC)
- (2) Rice farming in Tanzania by Z.L. Kanyeka (Coordinator, Rice Research Programme)
- (3) Agricultural extension services in Tanzania by M. Mtweve (Extension Section, MoA)
- (4) Vector borne diseases associated with irrigation development by F.W. Masha (Director, TPRI)
- (5) Agricultural mechanization in rice farming by I.K. Mwendu (Mechanization Unit, MoA)
- (6) The role and future prospects of KATC by J.B. Ndunguru (Assistant Commissioner, Training Section, MoA)

#### **4.5.3 Seminar on potentials and constraints of rice farming in Tanzania**

The seminar was held at KATC during the period from 12th to 15th March, 1996. Purpose of the seminar was to share knowledge, information and experiences among researchers, trainers and crop officers on (1) Rice Yellow Mottle Virus (RYMV) disease as one of alarming threats in rice production in Africa and (2) azolla as an example of utilizing locally available resources in rice cultivation. Besides resource persons and tutors, there were 10 crop officers from major rice growing districts and Zanzibar attended the seminar. It was recognized that the RYMV disease was an very importance disease and rice breeders were requested to find the genes against the disease. Possibilities of azolla as bio-fertilizer was introduced and the participants became interested in utilization of azolla in rice cultivation. The following papers were presented by resource persons at the seminar:

- (1) Rice yellow mottle virus (RYMV) disease incidence in Africa, Okhoba, Moses Mulomi, National Irrigation Board, Kenya
- (2) Breeding for resistance to rice yellow mottle virus, T.M. Masajo, Madagascar-IRRI Rice Research Project
- (3) Rice yellow mottle virus (RYMV) disease in Tanzania, Kanyeka, Z., Kibanda, J. and Mbapila, J., National Rice Research Programme, Tanzania
- (4) Potential biofertilizers for rice in Tanzania, G.M. Wagner, University of Dar es Salaam
- (5) Azolla utilization on rice based cropping systems in Zanzibar, Fadhila H. Ali, Ministry of Agriculture, Livestock and Natural Resources, Zanzibar

#### **4.5.4 Workshop on rice cultivation survey methods**

The workshop was conducted to enable participants become more familiar with (1) current aspects of rice research, (2) rice cultivation methods, and (3) rice growth and yield survey procedures. It was held from 2nd to 11th December, 1997 and there were about 25 participants attended. They were 15 rice researchers, 3 district subject matter specialists (crops), 1 extension officer from an irrigation scheme and KATC staff. There were 2 scholars from SUA invited to the workshop as resource persons. Through lectures of resource persons and field practices on yield survey, importance of sharing a similar survey procedure form was recognized. It was agreed that KATC would be utilized as a site for variety comparison under irrigated condition. Papers presented by the resource persons were as follows:

- (1) Experimental procedures for rice research by K.P. Sibuga
- (2) Rice research at Sokoine University of Agriculture by A.L. Kihupi

Kilimanjaro Agricultural Training Centre

Externally funded courses conducted at KATC

Period	Course name	Region	Participants			Sponsor
			M	F	Total	
26/5-4/6/1997	Irrigation Extension	Arusha, Tanga, Iringa, Mbeya	18	2	20	RBMSIIP
9-14/6/1997	Rice Cultivation	Kilimanjaro	13	7	20	NAEP II
21-25/7/1997	Irrigation Scheme Management	Arusha, Tanga	18	12	30	RBMSIIP
13-24/10/1997	Rice Cultivation	Morogoro	14	6	20	SUA-TU Project
6/4-24/4/1998	Irrigation Scheme Management	Shinyanga, Dodoma, Tabora, Mwanza, Singida	24	2	26	SDPMA
6/7-21/7/1998	Irrigation Scheme Management	Tanga, Kilimanjaro, Arusha	27	5	32	RBMSIIP
3/8-21/8/98	Irrigation Scheme Management	Iringa, Mbeya	27	15	42	RBMSIIP
28/9-16/10/1998	Irrigation Scheme Management	Tanga, Iringa, Arusha	20	10	30	RBMSIIP
		<b>GRAND TOTAL</b>	<b>161</b>	<b>59</b>	<b>220</b>	

Abbreviations:

RBMSIIP: River Basin Management and Small-holder Irrigation Improvement Project

NAEP II: National Agricultural Extension Programme II

SUA-TU Project: Sokoine University of Agriculture/Tuskegeensis Project

SDPMA: Small Holder Development Project for Marginal Areas











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