

Tables

Table 1.3.1 Field Inventory Report of the Potential Paddy Field Areas in Each District (1/4)

Name of the District	Serial Number	Priority by DAO	Name of the Place (Name of Village and Pards)	Sub-county and County	Location Coordinate	Map number (1:50000)	Site Condition	Irrigation Type	Estimated Area	Flow condition	Farmer condition	Problems	
1. BUDAKA	1-1	②	Nyauza	Kamankoli Buda	N 01-03-37.2 E 34-06-20.5 H 1105m	54/3	The water from the Niamara river is the source of the irrigation water. Random transhumant and direct seeping Nyauza wetland conservation Assoc. members of 100 farmers was registered in 1993. The conservation association consists of 250 farmers.		120 acres at present but will be expanded about 200 acres				
	1-2		Wilomba	Kamankoli Buda	N 01-03-06.3 E 34-02-31.0 H 1097m	54/3 or 64/1	Rain fed Paddy field		Western side of the Nyauza				
	1-3		Zani	Kamankoli	N 01-04-36.4 E 34-06-42.9	54/3							
2. PALISA	2-1	①	Karehi and Anusiat Bosis	Pailpa S/C	N 01-09-49.5 E 33-44-59.2 H 1070m	53/3	Too much water. Drainage is required. Regulating reservoir will be necessary to provide. Water depth is too deep.	I	Possible to expand paddy field area 600 acres	200 farms with 120 farmers (including F. O. P. in each parish)			
	2-2		Suna Village Betward	Pailpa TC	N 01-10-01.8 E 33-43-32.8 H 1075m	53/3	Ploughing		A few hectares.	A few hectares.	W.C.A -sankwa (upland) -NAWOU		
	2-3		Bulaira Kamahala Goleli	Bulaira S/C	N 01-04-36.4 E 34-06-42.9		permanent flow		50-65 acres		29 owner farms, no farmer are Bulaira W.C.A Goleli Fr. Sch. largest owner	floods, tools, finance, Ox-ploughs	
3. BUGHI	3-1		Kibumba				Tilda rice company rent the area.			Kibumba River			
	3-2	②	Magoala Downward from the District Office	Magoala Buvanga S/C	N 00-53-01.6 E 33-43-32.9 H 1138.7m	63/3	Kadoma and Kibumba river		About 50 acres				
	3-3	②	Buwini 15 min from Buvanga	Buwini Buvanga S/C	N 00-31-52.7 E 33-51-20.1 H 1122m	63/4	Town is Buvanga and river is Namasat		Large area of Paddy field				
4. KUMI	4-1	①	Olima Kanyun Kanyun	Kanyun S/C	N 01-20-02.9 E 33-54-38.1 H 1105m	53/2	The area is surrounded by tilly area. The District Agricultural Officer said this area is the highest potentiality. 1st priority.						
	4-2	②	Olie	Kanyun S/C	N 01-21-50.4 E 33-58-32.2	53/2			Over 1000 acres				
	4-3		Kabwin	Kabwin	N 01-23 E 33-43	53/2	near lake Ologole						
4-4		Kajumaka	Kanyun S/C Kanyun Parish	N 01-23 E 33-43				150 acres			Farmers well organised 100 farmers Obolera F. O. P. (1993) with 20 Odobono Farmers (2003) 50 members active not registered		

Table 1.3.1 Field Inventory Report of the Potential Paddy Field Areas in Each District (2/4)

Name of the District	Serial Number	Priority by DAO	Name of the Place (Name of Village and Parish)	Sub-county and County	Location Coordinate	Map number (1:50000)	Site Condition	Irrigation Type	Estimated Area	Flow condition	Farmers condition	Problems
5. BUKEDEA	5-1	②	Chodang	Kudungoré Kadungoré Parish	N 01-14-369 E 33-55-745	53/4		I	2000 acres		827 farm household no farm organization 100 owners on cultivated farms	
	5-2		Kachumbala		N 01-14 E 34-05	54/3						
	5-3		Koliri		N 01-21 E 34-14	54/1	near lake Okemal					
6. SIRONKO	6-1	①	Takonyi Bujur	Bunambuye	N 01-23-23.8 E 33-54-38.0	54/2	Drainage Canal and irrigation canal have been provided by the farmers. There are 20 Rice growing farmers in the area but not organized.	III	1000-1500 acres		31 farmers all tenants 4 owners Labour cooperative	irretrievable river flow generator
	6-2	②	Bumano Nohhago	Muyembe	N 01-21 E 34-19	54/2	water from Sipi river	III	4000 acres		25 farmers, 1 owner Busuwa rice project 24 tenants	transport
	6-3	③	Bubuhula Busuwa rice g/c	Bukhala	N 01-19 E 34-15	54/1						
7. NAMUTUMBA	7-1	①	Nawogies Nwanzidul	Namulamba Naktampa	N 00-42-57.9 E 33-54-34.9	63/3	Both side of the road, paddy field field is widely spread	I	A few hundred hectares of paddy field 6000 acres		1000 farmers Tawesole farm, gp (1994)10 Babusaka farm, gp (1984)10	Control of water flow Land ownership not clear
	7-2		Namanzinda Village	Bulange	N 00-44-21.6 E 33-50-07.8	63/3	No ridge					
	7-3		Nawanzokoro Village	Bulange	N 00-44-34.2 E 33-41-32.5	63/3	Seasonal swamp area. Jan and Feb. no water. From June cultivation started.					
8. GANGA	8-1	③	Wanzobo	Namunyuva	N 00-36-30.7 E 33-40-04.2	63/3	Kovero River Water stands for about one month from Apr-May. Max water depth is about 50cm from the field Planting start from June. 8 bags/acre. New Khimba and	I	1000 hectares		200 owners 40 tenants Fishing in lowland	Floods
	8-1	③	Wanzobo	Namunyuva	N 00-36-30.7 E 33-40-04.2	63/3	A part of the Kovero swamp area. Random Trans-planting		Few hectares			
	8-1	③	Wanzobo	Namunyuva	N 00-36-30.7 E 33-40-04.2	63/3	See attached sheets					
9. BUTALEJA	9-1		Doho Irrigation Scheme		N 00-56-59.5 E 34-05-34.0	64/1						
	9-2	①	Nakwanga Swamp Busuwa	Busuwire	N 00-51 E 33-56	63/2	There is a Dam constructed by Govt in 1970's but no longer existant.	I	100 acres		400 farms, one owner, no F. OR.	water control limits
10. TORORO	10-1		Ware Village	Nagongera	N 01-01 E 34-06	54/3	Adjacent to Nwanzala river.		About 1ha			
	10-2	②	Nyuniadi Paga	Paga g/c	N 00-49 E 33-58	63/2	Approach it at Scada on Nagongera Busuwa road.	I	700 acres		200 Farm 50 owners 60 tenants	water control, roads improved need.

Table 1.3.1 Field Inventory Report of the Potential Paddy Field Areas in Each District (3/4)

Name of the District	Serial Number	Priority by DAO	Name of the Place (Name of Village and Parish)	Sub-county and County	Location Coordinate	Map number (1:50000)	Site Condition	Irrigation Type	Estimated Area	Flow condition	Farmers condition	Problems
11. MAYUGE	11-1	①	Lubutu Village	Imuyiro County	N 00-24-53.9 E 33-26-57.8 H 1166m	722	No river course and channel. No ridge, direct seeping.		about 1 ha of paddy field.			
	11-2	②	Bukapibe Nibukero	Imuyiro	N 00-24-02.8 E 33-26-08.7 H 1157m	722	No channel. There is a ridge along the paddy field.	I	about 2 to 3 ha.		Labour coop(1974) 30members	
	11-3	③	Kaluba-Bushasha Kaluba	Kivirwach/ Kaluba Parish	N 00-24-58.9 E 33-26-37.3 H 1165m	722	Seasonal swamp area. About 10 ha of paddy field. Highest Priority.	I	300 - 500acres		200 farm owners 10 farmer cultivator 5 sharely farmers	extension, quality
11-4	①	Nidnokelo	Imuyiro	N 00-23 E 33-25 H	722	No river course and channel.		1500 acres		Labour coop(1996)20 members 100 farm HH, 20 engaged family 100 famas tenants no wetland Cont. Ass.		water control, inputs, credit, extension service
	②	Moyase	M.T.C				No river course and channel.					
12. BUSIA	12-1	⑤	Chawo parish	Bustema	N 00-33-37.5 E 34-01-30.0 H 1109m	643	A drainage canal is located in the central of the area. The slope of the area is other steep for paddy field Surprise paddy field can be seen		About 10ha	Permanent Flow	Farmers have turned rice cultivation for 2 years. The harvested rice is mostly consumed at home and remaining is sold to the local shops.	
	12-2	③	Mshempi Parish	Maesha	N 00-25 E 33-56 H	732	Seasonal wetlands Paddy has not been introduced yet.			Permanent Flow		
12-3	①	Same Village	Buhaha Parish	Buhaha	N 00-20-407 E 32-02-246 H 1134m	741	Wetland with Permanent flow.	I	100acres		Only one farmer cultivates the paddy. Village is remote.	
	②	Buhaha Village	Buhaha Parish	Buhaha	N 00-22 E 34-01 H	741	Wetland with permanent flow.					
12-5	②	Okane Village	Buhaha Parish	Buhaha	N 00-34 E 34-04 H	643	Wetland with permanent flow. During rain, the paddy was cultivated.					
	12-6	Mumira	Mwanga parish	Mwasu	N 00-25 E 33-02 H	741	Permanent flow.					
12-7		Lumbaka	Buhaha Parish	Buhaha					100acres			
13. MASAPWA	13-1	②	Bumbobi Village	Buseba GC	N 00-59-19.1 E 34-09-38.4 H 1160m	641	This water resource is a springs flow. Water flow will be enough for more than 10 ha of paddy field.	I	120 acres	water not sufficient	250 farmers No farmers org 2 fish ponds	
	13-2		Busekaye	BungoSho	N 01-03 E 34-11 H	543	Namatala River Paddy field is widely spread to Tororo and Pallisa Districts.					
14. MABALE	14-1	①	Buwanyana	Buwanyana Parish	N 00-31 E 34-15 H	642	Khamisany River. Road made through the wetland	I	150-300 acres		40-60 farmers Buwanyana F. op rice, 100members 1 owner K'Gong, 100 tenants	
15. BUDUBA												

Table 1.3.1 Field Inventory Report of the Potential Paddy Field Areas in Each District (4/4)

Name of the District	Serial Number	Priority by DAO	Name of the Place (Name of Village and Parish)	Sub-county and County	Location Coordinate	Map number (1:50000)	Site Condition	Irrigation Type	Estimated Area	Flow condition	Farmers condition	Problems
16. KALIRO	16-1		Saka Village	Nanwira	N 01-07-26.4	53/3	Up stream of the Lake Kyoga. Papyrus area and stream flow can be seen.					
					E 33-35-42.9							
					H 1037m							
16-2			Nanwira Buzantoko	Nanwira	N 01-04	53/3	Information from Marketing Team					
					E 33-33							
16-3	①		Buwale Kaliro rural parish	Nanungo s/c	N 00-55	63/1		I	1500-2000 acres		400 farmers, 250 owners, rice production, 600 tenants Tugyezshi 29 farms (F.org) women 80 35 people	
					E 33-32							
16-4			Nawana Kaliro rural parish	Nanungo s/c	N 01-46		Forest reserve but legally rented to farmers	I	150-200 acres		Kaliro Farmers Op.(2003)20 members	
					E 33-44							
17. KAMULI	17-1	②	Lumbuye Swamp	Nanungo	N 00-55-01.9	62/2	Swamp area and reed or thatch bush. No water during Jan and Feb. Ox stowing has been adopted. There is no ridge. There is a natural pond along the road. Potential swamp for new development.					
					E 33-24-24.0							
					H 1067m							
18. SOROTI	18-1	①	Omugera Village Gweri parish Alera	Gweri s/c	N 01-46	43/3 or 43/1	200m to the lake	I	200 acres	permanent flow	community owners no farm households on 1ha/farm random transplanting	
					E 33-44							
					H							
18-2		②	Abarin	Tubur s/c	N 01-58	42/2						
					E 32-27							
18-3			Ahusa	Tubur	N 01-59	43/1						
					E 33-31							
18-4			Mukura Mukura parish	Aruet S/c	N 01-34	43/3						
					E 33-38							
18-5			Avalwali Avalwali	Gweri S/c	N		too good accessibility	I	150-300 acres		80 farms communal ownership mixed 250/4/acre	
					E							
19. AMURIA	19-1		Montemun Amolo Parish	Wera S/c	N			I	100 acres		15 farms with 1 land owner communal ownership	
					E							
20. KATAKWI	20-1	①	Kondolo	Amoto Parish	N 02-54	43/2	Prominent area for pilot area Gausan Dam					
					E 33-56							
20-2	②		Genton Ochorintong Alirela parish	Kardwi s/c	N 01-54	43/2	Lake Asaraka	I	200-300 acres		80 farms with 1 owner Open F op (2001)20members SOCADDO groundnuts and soyflower.	control of insects Improved varieties credit & labor costs
					E 33-54							
21. KABERAMADDO	21-1		Anyara Anyara	Anyara S/c	N 01-57	42/2	Anyara Swamp					
					E 33-23							
21-2			Kakaki Okonon	Kakali S/c	N 01-09	42/2	Alueka Swamp					
					E 33-23							
21-3			Ochero	Ochero	N 01-01	42/3						
					E 32-01							

Table 1.6.1 PDM: Budaka (Pallisa) District: Jami/Kakoli Pilot Project (Group-1) (1/7)

LOCATION OF SITE: Kakoli swamp, Budaka (Pallisa) District
COMMUNITY: Jami and Kakoli villages
EXECUTING AGENCY: MAAIF, District Agricultural Office

TARGET GROUP:
IMPLEMENT PERIOD:

Small holder paddy rice growers
 from Jan. '05 to Jul. '06

Ver. 02

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p>Overall Goal Similar rehabilitation works of existing paddy field is carried out by PRGA in other basins in district and reduces rampant development and encroachment of wetlands.</p>	<ul style="list-style-type: none"> •No. of paddy fields development projects planned or implemented •No. of PRGAs established or registered recently •Change of encroached wetland area 	<ul style="list-style-type: none"> •Interview with district office •Interview with NEMA 	Political will for farmers' livelihood improvement continues.
<p>Project Purpose Paddy yield increases in PRGA members fields.</p>	<ul style="list-style-type: none"> •Yield at paddy field of PRGA members and benchmark farmers, and at and demonstration plots 	<ul style="list-style-type: none"> •Interview with PRGA members and benchmark farmers 	The cost for facility rehabilitation is procured.
<p>Outputs Function of irrigation facilities is rehabilitated. O&M of irrigation facilities are carried out appropriately by PRGA PRGA is established as CBO, and the members repay its cost. PRGA members reserve allotments for O&M and renovation of irrigation facilities in PRGA account. Extension staff becomes capable to train PRGA members how to grow paddy. Demonstration plots are managed well and paddy cultivation skill of PRGA members is improved PRGA members grow paddy rice with minimum impact to wetland.</p>	<p>Rate of levelling and bunds worked in farmers fields Rate of participation to the maintenance work Collection rate of loan repayment Collection rate of reserve for O&M of irrigation facilities Quality and frequency of advice to PRGA Improvement of paddy cultivation skill of PRGA members Result of Water & soil testing</p>	<p>PRGA members interview Copy of maintenance record of PRGA Copy of account book of PRGA PRGA members and extension personnel interview Water and soil monitoring record</p>	<p>PRGA members have intension to participate in O&M of facilities, and have willingness to pay the necessary cost There is no damage by any water related disaster.</p>
<p>Activities <u>Land and Water Resources Development</u> •Construction of new water intake structures •Rehabilitation and restructuring of irrigation and drainage canals •On-farm development (levelling & bunds) by farmers •Support for farmers training on O&M of farm facilities and land & water management by local irrigation engineer <u>Production Technology Development</u> •Preparation and provision of technical guidelines and standard cropping calendar for paddy rice cultivation •Establishment of demonstration plots •Demonstration of advanced farming practice and adequate farming tools in demonstration plots •Technical guidance and on-the-job practices for PRGA members by extension staff <u>Organisational and Institutional Development</u> •Orientation for agreement exchange on participatory development works •Workshop and orientation on PRGA formation for farmer representatives and local gov. staff •Support to establish PRGA as CBO •Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff •Workshop on financial management of PRGA for farmer representatives and local gov. staff •Workshop on introduction of agricultural support system for farmer representatives and local gov. staff •Workshop on organisational management skills of PRGA for farmer representatives and local gov. staff <u>Environmental Conservation</u> •Support for district to monitor environmental indices i.e. water and soil quality •Support for district to instruct farmers on environment-friendly farming practices based on monitoring data</p>	<p>Inputs <u>Ugandan Side</u> Counterpart for Study Team Local Government Staff <u>Japanese Side</u> Land and Water Res. Dev. Technical Training •Irrigation and drainage Study team Materials Facilitators •Paddy Production Study team Demonstration plots Materials Facilitators Organisation & Institution Study team Materials Facilitators Environment Study team Materials Facilitators</p>		<p>Local government staff and farmer representatives can attend training. Local budget is appropriated for local government staff and extension staff.</p> <p>Pre-conditions Counterpart agencies and local government cooperate with the project.</p>

PRGA: Primary Rice Growers Association, CBO: Community Based Organisation

Table 1.6.1 PDM: Bugiri District: Kasolwe Pilot Project (Group-2) (2/7)

LOCATION OF SITE: Kasolwe swamp, Bugiri District
COMMUNITY: Bupala and Kiteigaluwa villages
EXECUTING AGENCY: MAAIF, District Agricultural Office

TARGET GROUP:
IMPLEMENT PERIOD:

Small holder paddy rice growers
 from Jan. '05 to Jul. '06

Ver. 02

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p><u>Overall Goal</u> Similar improvement works of existing paddy field is carried out by PRGA in other basins in district and reduces rampant development and encroachment of wetlands.</p>	<ul style="list-style-type: none"> • No. of paddy fields development projects planned or implemented • No. of PRGAs established or registered recently • Change of encroached wetland area 	<ul style="list-style-type: none"> • Interview with district office • Interview with NEMA 	Political will for farmers' livelihood improvement continues
<p><u>Project Purpose</u> Paddy yield increases in PRGA members fields</p>	<ul style="list-style-type: none"> • Yield at paddy field of PRGA members and benchmark farmers and at demonstration plots 	<ul style="list-style-type: none"> • Interview with PRGA members and benchmark farmers 	The cost for facility rehabilitation is procured.
<p><u>Outputs</u> Function of irrigation facilities is improved. O&M of irrigation facilities are properly managed by PRGA PRGA is established as CBO and the members repay its cost PRGA members reserve allotments for O&M and renovation of irrigation facilities in PRGA account Extension staff become capable to train PRGA members how to grow paddy Demonstration plots are managed well and paddy cultivation skill of PRGA members is improved PRGA members grow paddy rice with minimum impact to wetland</p>	<p>Rate of levelling and bunds worked in farmers fields Rate of participation to the maintenance work Collection rate of loan repayment Collection rate of reserve for O&M of irrigation facilities Quality and frequency of advice to PRGA Improvement of paddy cultivation skill of PRGA members Result of Water and soil Testing</p>	<p>PRGA members interview Copy of maintenance record of PRGA Copy of account book of PRGA PRGA members and extension personnel interview Water and soil monitoring record</p>	<p>PRGA members have intension to participate in O&M of facilities, and have willingness to pay the necessary cost There is no damage by any water related disaster.</p>
<p><u>Activities</u> <u>Land and Water Resources Development</u> • Construction of new water intake structures, irrigation / drainage canals, and farm roads • Collector drain and on-farm development (levelling & bunds) by farmers • Support for farmers training on O&M of irrigation facilities and land & water management by local irrigation engineer <u>Production Technology Development</u> • Preparation and provision of technical guidelines and standard cropping calendar for paddy rice cultivation • Establishment of demonstration plots • Demonstration of advanced farming practice and adequate farming tools / materials in demonstration plots • Technical guidance and on-the-job practices for PRGA members by extension staff <u>Organisational and Institutional Development</u> • Orientation for agreement exchange on participatory development works • Workshop and orientation on PRGA formation for farmer representatives and local gov. staff • Support to establish farmer PRGA as CBO • Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff • Workshop on financial management of PRGA for farmer representatives and local gov. staff • Workshop on introduction of agricultural support system for farmer representatives and local gov. staff • Workshop on organisational management skills of farmer PRGA for farmer representatives and local gov. staff <u>Environmental Conservation</u> • Support for district to monitor environmental indices i.e. water and soil quality • Support for district to instruct farmers on environment-friendly farming practices based on monitoring data</p>	<p><u>Inputs</u> <u>Ugandan Side</u> Counterpart for Study Team Local Government Staff <u>Japanese Side</u> Land and Water Res. Dev. Technical Training • Irrigation and drainage Study team Materials Facilitators • Paddy Production Study team Demonstration plots Materials Facilitators Organisation & Institution Study team Materials Facilitators Environment Study team Materials Facilitators</p>	<p>Local government staff and farmer representatives can attend training. Local budget is appropriated for local government staff and extension staff.</p>	<p><u>Pre-conditions</u> Counterpart agencies and local government cooperate with the project</p>

PRGA: Primary Rice Growers Association, CBO: Community Based Organisation

Table 1.6.1 PDM: Kumi District: Kajamaka Pilot Project (Group-3) (3/7)

LOCATION OF SITE: Kumi District
COMMUNITY: Olimai and Omurang villages
EXECUTING AGENCY: MAAIF, District Agricultural Office

TARGET GROUP: Small holder paddy rice growers
IMPLEMENT PERIOD: Aug. '05 to Jul. '06

Ver. 02

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<u>Overall Goal</u> Diversification of upland crops fields to paddy fields in compliance with environmental guidelines expand to other area in district.	<ul style="list-style-type: none"> No. of paddy fields development projects planned or implemented Expansion of diversification to paddy fields 	<ul style="list-style-type: none"> Interview with district office Interview with NEMA 	Political will for farmers' livelihood improvement continues
<u>Project Purpose</u> Existing upland crops fields are diversified to paddy fields with consensus of PRGA members.	<ul style="list-style-type: none"> Area of diversified and paddy planted area No. of PRGA members who grow rice Process of consensus building 	<ul style="list-style-type: none"> Interview with district office and PRGA members Record of discussion of PRGA 	Cost of developing upland into paddy land is procured.
<u>Outputs</u> O&M of irrigation facilities are properly managed by PRGA	Rate of participation to rate of maintenance work	Copy of maintenance record of PRGA	PRGA members have intension to participate in O&M of facilities, and have willingness to pay the necessary cost. There is no damage by any water related disaster.
PRGA is established as CBO, and the members repay its cost	Collection rate of loan repayment	Copy of account book of PRGA	
PRGA members reserve allotments for O&M and replacement of irrigation facilities in PRGA account	Collection rate of reserve for O&M of irrigation facilities	PRGA members and extension personnel interview	
Extension staff become capable to teach PRGA members how to grow paddy	Quality and frequency of advice to PRGA	Progress report	
Demonstration plots are managed well and paddy cultivation skill of PRGA members is improved	Improvement of paddy cultivation skill of PRGA members	Water and soil monitoring record	
Local gov. staff understand new paddy field development procedure in line with environmental guidelines PRGA members grow paddy rice with minimum impact to wetland	Results of technical training Result of Water & soil testing		
<u>Activities</u> <u>Land and Water Resources Development</u> <ul style="list-style-type: none"> Construction of new water intake structures, irrigation canals, and farm roads On- farm development (levelling & bunds) by farmers Support for farmers training on O&M of irrigation facilities and land & water management by local irrigation engineer <u>Production Technology Development</u> <ul style="list-style-type: none"> Preparation and provision of technical guidelines and standard cropping calendar for paddy rice cultivation Establishment of demonstration plots Demonstration of advanced farming practice and adequate farming tools / materials in demonstration plots Technical guidance and on-the-job practices for PRGA members by extension staff <u>Organisational and Institutional Development</u> <ul style="list-style-type: none"> Orientation for agreement exchange on participatory development works Workshop and orientation on PRGA formation for farmer representatives and local gov. staff Support to establish PRGA as CBO Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff Support of PRGA as Wetland Users Association Workshop on financial management of PRGA for farmer representatives and local gov. staff Workshop on introduction of agricultural support system for farmer representatives and local gov. staff Workshop on organisational management skills of PRGA for farmer representatives and local gov. staff <u>Environmental Conservation</u> <ul style="list-style-type: none"> Support on Community Wetland Management Plan preparation Workshop on new development and wetland conservation for farmer representatives and local gov. staff Support for district to monitor environmental indices i.e. water and soil quality Support for district to instruct farmers on environment- friendly farming practices based on monitoring data 	<u>Inputs</u> <u>Ugandan Side</u> Counterpart for Study Team Local Government Staff <u>Japanese Side</u> Land and Water Res. Dev. Technical Training <ul style="list-style-type: none"> Irrigation and drainage Study team Materials Facilitators Paddy Production Study team Demonstration plots Materials Facilitators Organisation & Institution Study team Local consultants Materials Facilitators Environment Study team Materials Facilitators	Local government staff and farmer representatives can attend training. Local budget is appropriated for local government staff and extension staff.	
			<u>Pre-conditions</u> Counterpart agencies and local government cooperate with the project

PRGA: Primary Rice Growers Association, CBO: Community Based Organisation

Table 1.6.1 PDM: Sironko District: Muyembe Pilot Project (Group-4) (4/7)

LOCATION OF SITE: Sironko District
COMMUNITY: Bunamono and Bunamunane villages
EXECUTING AGENCY: MAAIF, District Agricultural Office

TARGET GROUP:
IMPLEMENT PERIOD:

Small holder paddy rice growers
 Aug. '05 to Jul. '06

Ver. 02

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p><u>Overall Goal</u> New paddy field developments in compliance with environmental guidelines expand to other area in district.</p>	<ul style="list-style-type: none"> No. of paddy fields development projects planned or implemented No. of Community Wetland Management Plan prepared 	<ul style="list-style-type: none"> Interview with district office Interview with NEMA 	Political will for farmers livelihood improvement continue
<p><u>Project Purpose</u> New paddy field development in wetland is implemented with consensus of PRGA members.</p>	<ul style="list-style-type: none"> Scale of newly developed and paddy planted area Process to consensus 	<ul style="list-style-type: none"> Interview with district office and PRGA members Record of discussion of PRGA 	Investment of new paddy field rehabilitation is prepared
<p><u>Outputs</u> O&M of irrigation facilities are properly managed by PRGA PRGA is established as CBO, and the members repay its cost PRGA members reserve allotments for O&M and replacement of irrigation facilities in PRGA account Extension staff become capable to teach PRGA members how to grow paddy Demonstration plots are organized well and paddy cultivation skill of PRGA members is improved Local gov. staff understand new paddy field development procedure in line with environmental guidelines Farmers grow paddy rice with minimum impact to wetland</p>	<p>Participatory rate of maintenance work Collection rate of loan repayment Collection rate of reserve for O&M of irrigation facilities Quality and frequency of advice to PRGA Improvement of paddy cultivation skill of PRGA members Result of workshop Water & soil samples may comply with standard</p>	<p>Maintenance record of PRGA Copy of account book of PRGA PRGA members and extension personnel interview Progress report Water and soil monitoring record</p>	<p>PRGA members have intension to participate in O&M of facilities, and have willingness to pay the necessary cost There is no damage by any water related disaster.</p>
<p><u>Activities</u> <u>Land and Water Resources Development</u> • Topographic survey • Construction of new water intake structures, irrigation / drainage canals, and farm roads • On- farm development (levelling & bunds) by farmers • Support for farmers training on O&M of irrigation facilities and land & water management by local irrigation engineer <u>Production Technology Development</u> • Preparation and provision of technical guidelines and standard cropping calendar for paddy rice cultivation • Establishment of demonstration plots • Demonstration of advanced farming practice and adequate farming tools / materials in demonstration plots • Technical guidance and on-the-job practices for PRGA members by extension staff. <u>Organisational and Institutional Development</u> • Orientation for agreement exchange on participatory development works • Workshop and orientation on PRGA formation for farmer representatives and local gov. staff • Support to establish PRGA as CBO registration • Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff • Support of PRGA as Wetland Users Association • Workshop on financial management of PRGA for farmer representatives and local gov. staff • Workshop on introduction of agricultural support system for farmer representatives and local gov. staff • Workshop on organisational management skills of PRGA for farmer representatives and local gov. staff <u>Environmental Conservation</u> • Support on Community Wetland Management Plan preparation • Workshop on new development and wetland conservation for farmer representatives and local gov. staff • Support for district to monitor environmental indices i.e. water and soil quality • Support for district to instruct farmers on environment- friendly farming practices based on monitoring data</p>	<p><u>Inputs</u> <u>Ugandan Side</u> Counterpart for Study Team Local Government Staff <u>Japanese Side</u> Land and Water Res. Dev. Technical Training • Irrigation and drainage Study team Materials Facilitators • Paddy Production Study team Demonstration plots Materials Facilitators Organisation & Institution Study team Local consultants Materials Facilitators Environment Study team Materials Facilitators</p>	<p>Local government staff and farmer representatives are trainable Local budget is appropriated for local government staff and extension staff.</p>	<p><u>Pre-conditions</u> Counterpart agencies and local government cooperate with the project</p>

PRGA: Primary Rice Growers Association, CBO: Community Based Organisation

Table 1.6.1 PDM: Pilot Projects in 6 Districts (5/7)

LOCATION OF SITE: Namutumba (Iganga), Butaleja (Tororo), Mayuge, Busia, Manafwa (Mbale,), and Kairo (Kamuli) Districts
COMMUNITY: Villages
EXECUTING AGENCY: MAAIF, District Agricultural Office
TARGET GROUP: Small holder paddy rice growers
IMPLEMENT PERIOD: August. '05 to Jul. '06

Ver. 02

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p>Overall Goal Environmental-friendly paddy growing areas expand.</p>	<ul style="list-style-type: none"> • Change in the size of paddy planted area • No. of PRGAs established or registered recently 	<ul style="list-style-type: none"> • Paddy planted area • Interview with NEMA staff, district staff and PRGA members 	<p>Political will for farmers' livelihood improvement continues</p>
<p>Project Purpose</p> <ul style="list-style-type: none"> • PRGA members' paddy production skills are improved. • Organisational management capacity of PRGA members is improved. 	<ul style="list-style-type: none"> • Yield of PRGA members fields • Status of PRGA activities 	<ul style="list-style-type: none"> • Interview with PRGA members • PRGA activity record 	<p>Local government assists PRGA</p>
<p>Outputs</p> <p>Farmer representatives and local government staff understand following issues:</p> <ul style="list-style-type: none"> — Meaning of environment conscious paddy cultivation — Potential of advanced paddy production — Meaning of organizing PRGA, and its cost and procedures — Importance of O&M of facilities and concerned cost <p>PRGA is established.</p> <p>Demonstration paddy plots and extension staff show advanced paddy growing technology to PRGA members.</p>	<p>% of attendance and score</p> <p>Progress of PRGA establishment</p> <p>Paddy yield at demonstration plots</p>	<p>Roll book & examination</p> <p>P/P monitoring</p> <p>Interview with benchmark farmers and extension staff</p>	<p>Participants educate others on what is learnt.</p> <p>There is no damage by any water related disaster.</p>
<p>Activities</p> <p><u>Production Technology Development</u></p> <ul style="list-style-type: none"> • Preparation and provision of technical guidelines for rice production technology and standard cropping calendar • Establishment of demonstration plots • Direct instructions to PRGA members by extension staff • Demonstration of advanced farming practices of paddy cultivation • Technical training at 4 P/P sites for farmer representatives <p><u>Organisational and Institutional Development</u></p> <ul style="list-style-type: none"> • Workshop and orientation on PRGA formation for farmer representatives and local gov. staff • Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff • Workshop on financial management of PRGA for farmer representatives and local gov. staff • Workshop on introduction of agricultural support system for farmer representatives and local gov. staff • Workshop on wetland use and management for farmer representatives and local gov. staff • Workshop on organisational management skills of PRGA for local gov. staff 	<p>Inputs</p> <p><u>Ugandan Side</u></p> <p>Counterpart for Study Team Local Government Staff</p> <p><u>Japanese Side</u></p> <p>Technical Training</p> <ul style="list-style-type: none"> • Paddy Production <p>Study team Demonstration plots Materials Facilitators</p> <p>Organisation & Institution</p> <p>Study team Facilitators Materials</p>	<p>A constant attendance of workshops by the participants.</p> <p>Local budget is appropriated for local government staff and extension staff.</p> <p>Pre-conditions</p> <p>Beneficiaries understand meaning of this Pilot Project</p>	

PRGA: Primary Rice Growers Association.

Table 1.6.1 PDM: Pilot Projects in 3 Districts (6/7)

LOCATION OF SITE: Soroti, Amuria (Katakwi) and Kaberamaido DISTRICTS: Small holder paddy rice growers
 COMMUNITY: Villages
 EXECUTING AGENCY: MAAIF, District Agricultural Office IMPLEMENT PERIOD: Aug. '05 to Jul. '06

Ver. 02

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<u>Overall Goal</u> New paddy field developments in compliance with environmental guidelines expand in each district.	<ul style="list-style-type: none"> No. of paddy fields development projects planned or implemented No. of Community Wetland Management Plan prepared 	<ul style="list-style-type: none"> Interview with district office Interview with NEMA 	Political will for farmers' livelihood improvement continues
<u>Project Purpose</u> <ul style="list-style-type: none"> PRGA members' paddy production skills are improved. Organisational management capacity of PRGA members is improved. 	<ul style="list-style-type: none"> Yield of at fields of PRGA members fields and benchmark farmers and at demonstration plots Status of PRGA activities 	<ul style="list-style-type: none"> Interview with PRGA members and benchmark farmers PRGA activity record 	Local government assists PRGA
<u>Outputs</u> Farmer representatives and local government staff understand following issues: <ul style="list-style-type: none"> — Meaning of environment conscious paddy cultivation — Potential of advanced paddy production — Meaning of organizing PRGA, and its cost and procedures — Importance of O&M of facilities and concerned cost PRGA is established.	% of attendance and score Progress of PRGA establishment	Roll book & examination P/P monitoring	Participants educate others on what is learnt. There is no damage by any water related disaster.
<u>Activities</u> <p><u>Production Technology Development</u></p> <ul style="list-style-type: none"> Preparation and provision of technical guidelines and standard cropping calendar for paddy rice cultivation Technical training at 4 P/P sites for farmer representatives <p><u>Organisational and Institutional Development</u></p> <ul style="list-style-type: none"> Workshop and orientation on PRGA formation for farmer representatives and local gov. staff Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff Workshop on financial management of PRGA for farmer representatives and local gov. staff Workshop on introduction of agricultural support system for farmer representatives and local gov. staff Workshop on organisational management skills of PRGA for local gov. staff <p><u>Environmental Conservation</u></p> <ul style="list-style-type: none"> Workshop on new development and wetland conservation for farmer representatives and local gov. staff Lessons of process of Community Wetland Management Plan making in Sironko P/P site for farmer representatives and local gov. staff 	<u>Inputs</u> <p><u>Ugandan Side</u> Counterpart for the Study Team</p> <p><u>Japanese Side</u> <u>Technical Training</u></p> <ul style="list-style-type: none"> Paddy Production <ul style="list-style-type: none"> Study team Materials Facilitators Organisation & Institution <ul style="list-style-type: none"> Study team Facilitators Materials Environment <ul style="list-style-type: none"> Study team Facilitators 	A constant attendance of workshops by the participants. Local budget is appropriated for local government staff and extension staff. <u>Pre-conditions</u> Beneficiaries understand meanings of this Pilot Project	

PRGA: Primary Rice Growers Association

Table 1.6.1 PDM: Technical Training Pilot Project (7/7)

LOCATION OF SITE: Doho, Butaleja
(Tororo) Districts
EXECUTING AGENCY: MAAIF, NARO

TARGET GROUP: Extension personnel,
Irrigation Engineers of 13 districts and MAAIF
IMPLEMENT PERIOD: Feb '05 to Jul. '06

Ver. 02

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p><u>Overall Goal</u></p> <ul style="list-style-type: none"> • Extension services on rice cultivation are provided in major paddy growing areas in the districts. • New development plan of farmland in collaboration with MAAIF is prepared. • Good seeds are supplied to other area. 	<ul style="list-style-type: none"> • No. of paddy areas where extension services are provided • No. of plots or area intended for new development • No. of districts where the seeds are supplied 	<ul style="list-style-type: none"> • Interview with district staff • Interview with MAAIF and district staff • Interview with seed growers 	<ul style="list-style-type: none"> • Political will for farmers' livelihood improvement continues • AICAD involves Ugandan eng.
<p><u>Project Purpose</u></p> <ul style="list-style-type: none"> • Extension staff of each district train farmers in paddy rice cultivation properly. • Irrigation engineers of each district and MAAIF are capable to plan an irrigation development and to train PRGA in basic O&M practice. • Good seed multiplication is set up at Doho Rice Scheme. 	<ul style="list-style-type: none"> • Quality and frequency of advice to PRGA • Existence of irrigation development plan • Quality and frequency of advice to PRGA • Quantity and Quality of seed prepared 	<ul style="list-style-type: none"> • Interview with PRGA members and extension staff • Interview with PRGA members and irrigation engineers • Quantity of stored seed and evaluation of the seed users 	<p>The trained personnel have financial and material resources to carry out training on their own.</p>
<p><u>Outputs</u></p> <p>Advanced paddy cultivation techniques are acquired by extension staff of the districts.</p> <p>Importance of land & water management, irrigation & drainage, and O&M are understood by irrigation engineers from the districts and MAAIF.</p> <p>Appropriate paddy varieties are identified and standard cropping calendar for Eastern Uganda is prepared.</p> <p>Capable seed growers are developed.</p>	<p>% of attendance and results of questionnaire</p> <p>% of attendance and score</p> <p>Result of adaptability test</p> <p>Output of technical training</p> <p>% of attendance and results of questionnaire</p>	<p>Roll book and questionnaire</p> <p>Roll book and examination</p> <p>Progress Report</p> <p>Roll book and questionnaire</p>	<p>The trained personnel can implement the practices in their fields.</p>
<p><u>Activities</u></p> <p><u>Technical Training at Doho</u></p> <ul style="list-style-type: none"> • Paddy Production <ul style="list-style-type: none"> - Preparation of group training materials - Training of extension staff • Irrigation engineering <ul style="list-style-type: none"> - Preparation of group training materials - Training of irrigation engineer - OJT at Pallisa P/P <p><u>Paddy Experimental Farm</u></p> <ul style="list-style-type: none"> • Adaptability test • Compost and fertilizer dosage test • Seasonal cropping test <p><u>Seed multiplication</u></p> <ul style="list-style-type: none"> • Preservation of foundation seed • Multiplication of extension seeds and its timely supply <ul style="list-style-type: none"> - Training seed growers - Arrangement of the seed multiplication farm and storage 	<p><u>Inputs</u></p> <p><u>Ugandan Side</u></p> <p>Doho training facility NARO Tororo NAADS coordinator Tororo DEO</p> <p><u>Japanese Side</u></p> <p><u>Technical Training</u></p> <ul style="list-style-type: none"> • Irrigation Engineering <ul style="list-style-type: none"> Study team Materials Facilitators • Paddy Production <ul style="list-style-type: none"> Study team Materials Facilitators <p>Crop experimental farm Study team Materials</p> <p>Seed multiplication farm Study team Contract farmers Materials</p>	<p>All trainees complete the training programme.</p>	<p><u>Pre-conditions</u></p> <ul style="list-style-type: none"> • Part of Doho facilities can be borrowed for this training. • Good seeds can be provided by WARDA or other institutes.

AICAD: African Institute for Capacity Development

Table 1.6.2 Relationship between P/P Sites, P/P Components and PDMs

		PDM-1	PDM-2	PDM-3	PDM-4	PDM-5					PDM-6			PDM-7	
		Pallisa	Bugiri	Kumi	Sironko	Iganga	Tororo	Mayuge	Busia	Mbale	Kamuli	Soroti	Katakwi	Kabera maido	Dono Schem
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. Land and Water Resources Development															
1.1	Orientation for agreement exchange	○	○	○	○										
1.2	Topographic survey	○	○	○	○										
1.3	Construction of irrigation facilities														
1.3.1	Rehabilitation	○													
1.3.2	Improvement		○												
1.3.3	Diversification			○											
1.3.4	New development				○										
2. Production Technology Development															
2.1	Technical Training at Delta														
2.1.1	Technical training on paddy production and irrigation														○
2.1.2	Crop experiential farm														○
2.1.3	Seed multiplication farm														○
2.2	Technical Training at 4 Pilot Project Sites														
2.2.1	Construction and O&M Training	○	○	○	○										
2.2.2	Demonstration Plots	○	○	○	○										
2.2.3	Training on Paddy Rice Cultivation	○	○	○	○										
2.3	Technical Training at 6 Pilot Project Sites														
2.3.1	Demonstration Plots					○	○	○	○	○	○				
2.3.2	Training on paddy rice cult. in 2 Pilot Sites					○	○	○	○	○	○				
2.4	Technical Training for 3 Pilot Project Sites										○	○	○		
3. Organisational and Institutional Development															
3.1	Institutional Development at 13 Pilot Sites	○	○	○	○	○	○	○	○	○	○	○	○	○	
4. Environment Conservation															
4-1	Environmental Monitoring (water and soil)	○	○	○	○										
4-2	Assistance on CWMP Preparation			○	○										
4-3	Workshop on New Dev. and Wetland Conservation			○	○						○	○	○	○	

Source: Study Team

Table 1.7.1 Actual Implementation Schedule of Pilot Project (1/4)

Pilot Project/ Programme/ Activities	FY 2004												FY 2005												FY 2006											
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3							
1. Panna district: Jami/Kakoti Pilot Project																																				
1.1 Production Technology Development Programme																																				
(1) Establishment of demonstration plots																																				
(2) Preparation and provision of technical guidelines and standard cropping calendar for paddy rice cultivation																																				
(3) Demonstration of advanced farming practice and adequate farming tools in demonstration plots																																				
(4) Technical guidance and on-the-job practices for PRGA members by extension staff																																				
1.2 Organizational and Institutional Development Programme																																				
(1) Workshop and orientation on PRGA formation for farmer representatives and local gov. staff																																				
(2) Support to establish PRGA as CBO																																				
(3) Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff																																				
(4) Workshop on financial management of PRGA for farmer representatives and local gov. staff																																				
(5) Workshop on introduction of agricultural support system for farmer representatives and local gov. staff																																				
(6) Workshop on organisational management skills of PRGA for farmer representatives and local gov. staff																																				
1.3 Land and Water Resources Development Programme																																				
(1) Technical training of potential irrigation engineers																																				
(2) Orientation for agreement exchange on participatory development works																																				
(3) Construction of new water intake structures																																				
(4) Rehabilitation and restructuring of irrigation and drainage canals																																				
(5) OJT for potential irrigation engineers and farmers																																				
(6) On-farm development (levelling & bunds) by farmers																																				
(7) Support for farmers training on O&M of farm facilities and land & water management by local irrigation engineer																																				
1.4 Environmental Conservation Programme																																				
(1) Support for district to monitor environmental indices i.e. water and soil quality																																				
(2) Workshop on new development and wetland conservation for farmer representatives and local gov. staff																																				
(3) Support for district to instruct farmers on environment-friendly farming practices based on monitoring data																																				
1.5 O&M of Irrigation system by PRGA																																				
1.6 Monitoring and Evaluation																																				
(1) Monitoring																																				
(2) Mid-term evaluation																																				
(3) Final evaluation																																				
2. Bagdad District: Kasowe Pilot Project																																				
2.1 Production Technology Development																																				
(1) Establishment of demonstration plots																																				
(2) Preparation and provision of technical guidelines and standard cropping calendar for paddy rice cultivation																																				
(3) Demonstration of advanced farming practice and adequate farming tools / materials in demonstration plots																																				
(4) Technical guidance and on-the-job practices for PRGA members by extension staff																																				
2.2 Organizational and Institutional Development																																				
(1) Orientation for agreement exchange on participatory development works																																				
(2) Workshop and orientation on PRGA formation for farmer representatives and local gov. staff																																				
(3) Support to establish farmer PRGA as CBO																																				
(4) Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff																																				
(5) Workshop on financial management of PRGA for farmer representatives and local gov. staff																																				
(6) Workshop on introduction of agricultural support system for farmer representatives and local gov. staff																																				
(7) Workshop on organisational management skills of farmer PRGA for farmer representatives and local gov. staff																																				
2.3 Land and Water Resources Development																																				
(1) Technical training of potential irrigation engineers																																				
(2) Orientation for agreement exchange on participatory development works																																				
(3) Construction of new water intake structures, irrigation / drainage canals, and farm roads																																				
(4) Collector drain and on-farm development (levelling & bunds) by farmers																																				
(5) OJT for potential irrigation engineers and farmers																																				
(6) Support for farmers training on O&M of irrigation facilities and land & water management by local irrigation engineer																																				
2.4 Environmental Conservation																																				
(1) Support for district to monitor environmental indices i.e. water and soil quality																																				
(2) Workshop on new development and wetland conservation for farmer representatives and local gov. staff																																				
(3) Support for district to instruct farmers on environment-friendly farming practices based on monitoring data																																				
2.5 O&M of Irrigation system by PRGA																																				

Table 1.7.1 Actual Implementation Schedule of Pilot Project (2/4)

Pilot Project/ Programme/ Activities	FY 2004												FY 2005												FY 2006											
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3							
2.6 Monitoring and Evaluation																																				
(1) Monitoring																																				
(2) Mid-term evaluation																																				
(3) Final evaluation																																				
3. Kumi District Kajamaka Pilot Project																																				
3.1 Production Technology Development																																				
(1) Establishment of demonstration plots																																				
(2) Preparation and provision of technical guidelines and standard cropping calendar for paddy rice cultivation																																				
(3) Demonstration of advanced farming practices and adequate farming tools / materials in demonstration plots																																				
(4) Technical guidance and on-the-job practices for PRGA members by extension staff																																				
Organisational and Institutional Development																																				
(1) Orientation for agreement exchange on participatory development works																																				
(2) Workshop and orientation on PRGA formation for farmer representatives and local gov. staff																																				
(3) Support to establish farmer PRGA as CHO																																				
(4) Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff																																				
(5) Workshop on financial management of PRGA for farmer representatives and local gov. staff																																				
(6) Workshop on introduction of agricultural support system for farmer representatives and local gov. staff																																				
(7) Workshop on organisational management skills of farmer PRGA for farmer representatives and local gov. staff																																				
3.2 Land and Water Resources Development																																				
(1) Technical training of potential irrigation engineers																																				
(2) Orientation for agreement exchange on participatory development works																																				
(3) Construction of new water intake structures, irrigation / drainage canals, and farm roads																																				
(4) Collector drain and on-farm development (levelling & bunds) by farmers																																				
(5) OIT for potential irrigation engineers and farmers																																				
(6) On-farm development (levelling & bunds) by farmers																																				
(7) Support for farmers training on O&M of irrigation facilities and land & water management by local irrigation engineer																																				
3.4 Environmental Conservation																																				
(1) Support for district to monitor environmental indices i.e. water and soil quality																																				
(2) Support for district to instruct farmers on environment-friendly farming practices based on monitoring data																																				
(3) Support on Community Wetland Management Plan preparation																																				
(4) Workshop on new development and wetland conservation for farmer representatives and local gov. staff																																				
3.5 O&M of Irrigation system by PRGA																																				
3.6 Monitoring and Evaluation																																				
(1) Monitoring																																				
(2) Mid-term evaluation																																				
(3) Final evaluation																																				
4. Siromko District Muyebe Pilot Project																																				
4.1 Production Technology Development																																				
(1) Establishment of demonstration plots																																				
(2) Preparation and provision of technical guidelines and standard cropping calendar for paddy rice cultivation																																				
(3) Demonstration of advanced farming practices and adequate farming tools / materials in demonstration plots																																				
(4) Technical guidance and on-the-job practices for PRGA members by extension staff																																				
4.2 Organisational and Institutional Development																																				
(1) Orientation for agreement exchange on participatory development works																																				
(2) Workshop and orientation on PRGA formation for farmer representatives and local gov. staff																																				
(3) Support to establish PRGA as CHO registration																																				
(4) Support of PRGA as Wetland Users Association																																				
(5) Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff																																				
(6) Workshop on financial management of PRGA for farmer representatives and local gov. staff																																				
(7) Workshop on introduction of agricultural support system for farmer representatives and local gov. staff																																				
(8) Workshop on organisational management skills of PRGA for farmer representatives and local gov. staff																																				
4.3 Land and Water Resources Development																																				
(1) Topographic survey																																				
(2) Detailed Design of PP																																				
(3) Technical training of potential irrigation engineers																																				
(4) Orientation for agreement exchange on participatory development works																																				

Table 1.7.1 Actual Implementation Schedule of Pilot Project (3/4)

Pilot Project/ Programme/ Activities	FY 2004												FY 2005												FY 2006											
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3							
(5) Construction of new water intake structures, irrigation / drainage canals, and farm roads																																				
(6) On- farm development (levelling & bunds) by farmers																																				
(7) OJT for potential irrigation engineers and farmers																																				
(8) Support for farmers training on O&M of irrigation facilities and land & water management by local irrigation engineer																																				
4.4 Environmental Conservation																																				
(1) Support for district to monitor environmental indices i.e. water and soil quality																																				
(2) Support on Community Wetland Management Plan preparation																																				
(3) Workshop on new development and wetland conservation for farmer representatives and local gov. staff																																				
(4) Support for district to instruct farmers on environment- friendly farming practices based on monitoring data																																				
4.5 O&M of Irrigation system by PRGA																																				
4.6 Monitoring and Evaluation																																				
(1) Monitoring																																				
(2) Mid-term evaluation																																				
(3) Final evaluation																																				
5. Pilot Projects in 6 Districts																																				
5.1 Production Technology Development																																				
(1) Establishment of demonstration plots																																				
(2) Preparation and provision of technical guidelines for rice production technology and standard cropping calendar																																				
(3) Direct instructions to PRGA members by extension staff																																				
(4) Demonstration of advanced farming practices of puddly cultivation																																				
(5) Technical training @ 2 PPP sites for farmer representatives																																				
5.2 Organisational and Institutional Development																																				
(1) Workshop and orientation on PRGA formation for farmer representatives and local gov. staff																																				
(2) Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff																																				
(3) Workshop on financial management of PRGA for farmer representatives and local gov. staff																																				
(4) Workshop on introduction of agricultural support system for farmer representatives and local gov. staff																																				
(5) Workshop on wetland use and management for farmer representatives and local gov. staff																																				
(6) Workshop on organisational management skills of PRGA for local gov. staff																																				
5.3 Land and Water Resources Development																																				
(1) OJT for potential irrigation engineers and farmers																																				
5.4 Monitoring and Evaluation																																				
(1) Monitoring																																				
(2) Mid-term evaluation																																				
(3) Final evaluation																																				
6. Pilot Projects in 3 Districts																																				
6.1 Production Technology Development Programme																																				
(1) Preparation and provision of technical guidelines and standard cropping calendar for paddy rice cultivation																																				
(2) Technical training @ 2 PPP sites for farmer representatives																																				
6.2 Organisational and Institutional Development																																				
(1) Workshop and orientation on PRGA formation for farmer representatives and local gov. staff																																				
(2) Workshop on wetland user rights, water rights and cooperative union for farmer representatives and local gov. staff																																				
(3) Workshop on financial management of PRGA for farmer representatives and local gov. staff																																				
(4) Workshop on introduction of agricultural support system for farmer representatives and local gov. staff																																				
(5) Workshop on wetland use and management for farmer representatives and local gov. staff																																				
(6) Workshop on organisational management skills of PRGA for local gov. staff																																				
6.3 Land and Water Resources Development																																				
(1) OJT for potential irrigation engineers and farmers																																				
6.4 Environmental Conservation																																				
(1) Workshop on new development and wetland conservation for farmer representatives and local gov. staff																																				
(2) Lessons of process of Community Wetland Management Plan making in Sitronko PTP site for farmer representatives and local gov. staff																																				
6.5 Monitoring and Evaluation																																				
(1) Monitoring																																				
(2) Mid-term evaluation																																				
(3) Final evaluation																																				
7. Technical Training Pilot Project																																				
7.1 Production Technology Development Programme																																				

Table 1.7.1 Actual Implementation Schedule of Pilot Project (4/4)

Pilot Project/ Programme/Activities	FY 2004					FY 2005					FY 2006					F/R			
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	1	2
(1) Technical Training at Doho																			
1) Paddy Production																			
- Preparation of group training materials																			
- Training of extension staff																			
2) Irrigation engineering																			
- Preparation of group training materials																			
- Training of irrigation engineer																			
- Observation of Doho Rice Scheme																			
(2) Paddy Experimental Farm																			
1) Adaptability test																			
2) Fertilizer dosage test																			
3) Seasonal cropping test																			
(3) Seed multiplication																			
1) Preservation of foundation seed																			
2) Multiplication of extension seeds and its timely supply																			
- Training of seed growers																			
- Arrangement of the seed multiplication farm and storage																			
7.2 Monitoring and evaluation																			
(1) Monitoring																			
(2) Mid-term evaluation																			
(3) Final evaluation																			
Memo. Item																			
(1) Rainy season in Eastern Region																			
(2) General cropping pattern of paddy																			
(3) Reporting																			

Table 1.8.1 Contents of the EIA Project Brief

EIA Procedures Documents 1

(1/1)

REQUIREMENTS FOR AN ENVIRONMENT IMPACT ASSESSMENT PROJECT BRIEF

According to Regulation 5 of the Environment Impact Assessment, 1998, the Project Brief should state:

- (i) the nature of the project in accordance with the categories identified in the Third Schedule of the Statute (refer to Attachments 3 and 4);
- (ii) the projected area of land, air and water that may be affected;
- (iii) the activities that shall be undertaken during and after the development;
- (iv) the design of the project;
- (v) the materials that the project shall use, including both construction materials and inputs;
- (vi) the possible products and by-products, including waste generation of the project;
- (vii) the number of people that the project will employ and the economic and social benefits to the local community and the nation at large;
- (viii) the environmental effects of the materials, methods, products and by-products of the project, and how they will be eliminated or mitigated; and,
- (ix) any other matter which may be required by NEMA.

According to the Guidelines for Environment Impact Assessment in Uganda of July 1997, the Project Brief should also contain the following information:

- (a) Name and Title, Address of Developer.
- (b) Name, Purpose, Objectives and Nature of project, including attributes such as size of the project, activities that shall be undertaken during and after the establishment of the project, products and inputs, sources of inputs, design, etc.;
- (c) Description of the proposed project site and its surrounding, and alternative sites, if any, where the project is to be located.
- (d) Description of how the proposed project site and its location conforms to existing laws, regulations and policies governing such project and use of site/area proposed for its location.
- (e) Description of any other alternatives which are being considered (e.g., technology, construction and operation procedures, sources of materials, handling of wastes, etc.)
- (f) Any likely environmental impacts that may arise due to implementing various phases/stages of the project and proposed mitigation measures thereto.
- (g) Any other information that may be useful in determining the level of EIA required.

Source: NEMA

Table 2.1.1 Daily Schedule for Irrigation Engineer Training Programme

Month	Date	Day	Lecture	Program	Attendants	Venue	Stay	
March	28	Mon	Opening Ceremony	Opening Ceremony at Mbale from 18:00 to 20:00	Mr.Ogwang, Mr. Kobayashi, Mr.Ishizuka, Mr.Nanakubo, Facilitators, All 14 Trainees	Mbale	Mbale	
	29	Tue	Irrigation Planning & Design	Introduction to the Training Programme	Mr.Iwadra, Mr.Kobayashi, Facilitators, All 14 Trainees	Doho	Mbale	
	30	Wed		Irrigation Planning & Design		Doho	Mbale	
	31	Thu		Irrigation Planning & Design		Doho	Mbale	
1	Fri	Field Training. Leave Mbale for Districts		Doho		Districts		
April	2	Sat	Irrigation Planning & Design	No lectures		-	Districts	
	3	Sun		Leave Districts for Mbale		-	Mbale	
	4	Mon		Drainage Planning & Engineering	Practical Layout and concepts of Small Scale Irrigation Schemes in the 4 Pilot Projects	Mr.Kobayashi, Mr. Iwadra, Facilitators, All 14 Trainees	Doho	Mbale
	5	Tue			Drainage Engineering		Doho	Mbale
	6	Wed	Field Training. Leave Mbale for Districts		Doho		Districts	
	7	Thu	No lectures		-		Districts	
	8	Fri	No lectures		-		Districts	
	9	Sat	No lectures	-	Districts			
	10	Sun	Watermanagement, O&M	Leave Districts for Mbale		-	Mbale	
	11	Mon		Practical Approaches of Participatory Works of Small scale Irrigation Scheme	Mr.Malinga, Mr. Kobayashi Facilitators, All 14 Trainees	Doho	Mbale	
	12	Tue		Water management and O&M		Doho	Mbale	
	13	Wed		Water management and O&M		Doho	Mbale	
	14	Thu		Field Training.		Doho	Mbale	
	15	Fri	Closing Ceremony	Free Discussion, Questionnors and Examination Closing Ceremony at Doho Presentation of Certificate of Attendance of the training programme Leave for Districts		Mr. Ogwang, Mr.Kobayashi, Facilitators, All 14 Trainees	Doho	Districts

Table 2.1.2 Results of Water Balance Study for P/P areas and Action Plan Areas

Name of District	unit	Pallisa	Pallisa	Bugiri	Kumi	Sironko
Name of Pilot Project Area		Jami/Kakoli	Jami/Kakoli	Kasolwe	Kajamaka	Muembe
Pilot Project Area		Pilot Project	Pilot Project	Pilot Project	Pilot Project	Pilot Project
Original River Discharge		Namatara River Case	Mnamafa River Case	Manafwa River	Sipi River	Sipi River
Irrigation Acreage	ha	16.4	16.4	11.3	9	16.4
Irrigation Efficiency		0.6	0.6	0.6	0.6	0.6
P/P Catchment area	km ²	37.37	37.37	16.19	17.47	105.69
River maintenance flow(q) *	m ³ /sec	0.056	0.056	0.024	0.026	0.056
Estimation of River Discharge		Namatara River	Mnamafa River	Manafwa River	Sipi River	Sipi River
Original River Catchment area	km ²	123.6	494.2	494.2	92.0	92.0
Water Balance Study Period	Year	1997 to 2003	1997 to 2003	1997 to 2003	1997 to 2003	1997 to 2003
Number of years for analysis	Year	6	6	6	6	6
Results of Water Balance	Month	No water deficit	No water deficit	No water deficit	1 month deficit	No water deficit
Action Plan Area		Action Plan Area	Action Plan Area	Action Plan Area	Action Plan Area	Action Plan Area
Irrigation Acreage	ha	178	178	81	45	200
Irrigation Efficiency		0.6	0.6	0.6	0.6	0.6
A/P Catchment area	km ²	37.37	37.37	16.19	17.47	37.37
River maintenance flow(q)	m ³ /sec	0.056	0.056	0.024	0.026	0.056
Estimation of River Discharge		Namatara River	Mnamafa River	Manafwa River	Sipi River	Sipi River
Original River Catchment area	km ²	123.6	494.2	494.2	92	92
Water Balance Study Period	Year	1997 to 2003	1997 to 2003	1997 to 2003	1997 to 2003	1997 to 2003
Number of years for analysis	Year	6	6	6	6	6
Results of Water Balance	Month	No water deficit	2 month deficit	2 month deficit	3 month deficit	3 month deficit

Note: * River maintenance flow has been used for water release to downstream area.

The maintenance flow has been estimated according to the monthly minimum observed discharge.

The maintenance discharge is estimated at 0.15 cu.m/sec/100sq.km.

Table 2.1.3 Modification of the Design of the Facilities, Reasons and Comparison of Costs in the Four Pilot Projects

Pilot Project	Modified Facilities	Original Plan	Modification	Reasons	Comparison of Costs
Bugiri Pallisa Kumi	Main Intake Supplementary Intake Turn Out	Brick Structure	Reinforced Concrete Structure	Qualities of bricks are not reliable hence unreliable strength of the structures.	The wall thickness of reinforced concrete structure can be reduced to enable the costs between the two to be almost the same.
Bugiri Pallisa Kumi	Check Gate	Wooden Structure	Metal Gate	Felling of trees for hard timber is limited and good quality of timber will be very difficult to obtain. Ordinary timber will not be durable.	Cost estimates of steel gate will be almost the same as wooden gate. Durability of the gate will be very much improved and guaranteed.
Kumi Kajamaka	Location of maintenance road and irrigation canals.	In order to protect leakage of irrigation water from the canal, maintenance road has been designed and located down the slope and irrigation canal located in the higher side of the slope.	Maintenance road will be located on the higher side of the slope and irrigation canal located on the lower side of the slope to facilitate the supply of irrigation water.	The slope of the land is not so steep as expected and leakage from the irrigation canal will not be so high. It will be easier to supply irrigation water to the paddy plots under this modification.	Only changing the location of irrigation canal and maintenance road, the cost of PVC pipes to be installed under the maintenance road will not be necessary and about 2.3 million UGS (US\$1,278) can be saved.
Kumi Kajamaka	Structure of connection canal and maintenance road from the intake in the buffer zone area in both right and left side for about 30 meters each.	Earth canal and normal maintenance road.	Irrigation canal will be protected by stone pitching and maintenance road will be protected by sand bags.	The buffer zone area is still wet and the irrigation canals and maintenance road in the buffer zone area should be protected by water-resistant materials.	The above mentioned PVC pipe cost saving can be diverted to cover the increment in construction cost.
Kumi Kajamaka	Protection works of spring water for domestic use. Two sites at Mukongoro and Kanyun.	Out of subject for the P/P.	Installation of about 3 meters of PVC pipe for the culverts.	It will be necessary to protect the existing spring water for domestic water use because the tail water will cross the maintenance road and irrigation canal.	The above mentioned PVC pipe cost can be diverted to cover the increment in construction cost.
Kumi Kajamaka	Installation of fence along the maintenance road.	Out of Project subject.	Installation of poles which can be obtained from the site and 2 steps of barbed wire.	In order to protect intrusion of cows and livestock to the irrigation canals and maintenance road, it will be necessary to install barbed wire.	Above mentioned PVC pipe cost can be diverted to cover the increment in construction cost.

Table 2.2.1 List of Paddy Varieties and Those Essential Plant-Physiological Characters for Varieties Adaptability Test (1/2)

Test Plot No.	Sample No.	Specific Plant-physiological Characters								
		Growing Term (days)	Plant Height (cm)	Bearing Tillers (nos.)	Leaf Colour	Grain Colour	Threshing Capability	1000 Grains (gr.)	Resistibility to Blast Diseases	Yield (eqv. to ton/ha)
Prevailed Varieties in Eastern Region of Uganda at Present										
1	K-5	120	90-100	8-13	Green	Yellow	Loose	29-30	Slightly	8.9
2	K-85	125	110-115	8-13	Green	Yellow	Loose	26-27	Slightly	9.6
Varieties Recommended by NAARI, NARO (Varieties originated from WARDA)										
3	NM-5	120	110-115	15-18	Green	Yellow	Moderate	24-26	Highly Resistible	12.7
4	NM-12	125	110-115	15-18	Green	Yellow	Firm	30	Resistible	9.1
5		125	100-110	15-18	Green	Yellow	Moderate	28	Highly Resistible	9.3
6	NM-19	115	110-115	15-18	Green	Yellow	Loose	27-31	Susceptible	6.9
7	NM-20	125	110-115	15-18	Green	Yellow	Loose	28-29	Resistible	8.9
Candidate Post SUPA Variety (Varieties originated from South Asia)										
8	NS-1	120	120	15-20	Green	Yellow	Moderate	27-28	Highly Resistible	7.3
9	NS-2	120	90-100	15-20	Green	Yellow	Moderate	26-27	Resistible	7.3
10	NS-3	110	100-110	10-15	Green	Yellow	Moderate	28	Highly Resistible	7
11	NS-4	105	95-100	13-20	Green	Yellow with Violet tip	Moderate	27-28	Highly Resistible	9.3
12	NS-5	115-125	105-115	14-17	Green	Yellow	Moderate	27-28	Highly Resistible	4
13	NS-6	115-125	100-110	14-16	Green	Yellow	Moderate	28-29	Highly Resistible	6.7
14	NS-7	110-120	100-110	>25	Green	Yellow	Firm	27	Resistible	6.7
15	NS-8	120	100-110	10-15	Green	Yellow	Loose	26	Highly Resistible	10
16	NS-9	115	135-145	10-15	Green	Yellow	Firm	27	Highly Resistible	10
17	NS-10	110-120	100-110	20-25	Light Green	Yellow	Moderate	22	Resistible	8
18	NS-11	100-120	90-115	13-19	Green	Yellow	Moderate	25-26	Highly Resistible	8.5
19	NS-12	120-130	105-120	14-16	Green	Yellow	Moderate	27-30	Highly Resistible	7.5
20	NS-13	115-120	100-110	15-20	Green	Yellow	Moderate	26-27	Highly Resistible	7
Varieties from WARDA (Oliva-Graberima x IR-64)										
21	WAS-2	125	65-75	13-15	Green	Yellow	Moderate	30	Resistible	4.2
22	WAS-7	125	55-65	23-25	Slightly Brownish	Light Brown	Loose	26-28	Slightly Susceptible	5.1
23	WAS-9	125	55-65	18-23	Brownish Violet	Yellow with Violet	Loose	27-29	Slightly Susceptible	5.6
24	WAS-10	120	50-65	13-15	Brown	Light	Moderate	25-27	Highly	0.8
25	WAS-12	130	65-75	18-20	Green	Yellow	Moderate	19	Resistible	4.7
26	WAS-13	120	90-100	13-15	Green	Yellow	Loose	22	Highly Susceptible	4

Table 2.2.1 List of Paddy Varieties and Those Essential Plant-Physiological Characters for Varieties Adaptability Test (2/2)

Test Plot No.	Sample No.	Specific Plant-physiological Characters								
		Growing Term (days)	Plant Height (cm)	Bearing Tillers (nos.)	Leaf Colour	Grain Colour	Threshing Capability	1000 Grains (gr.)	Resistibility to Blast Diseases	Yield (eqv. to ton/ha)
27	WAS-21	135	65-75	13-15	Slightly Brownish	Yellow	Loose	25	Highly Susceptible	3.9
28	WAS-22	135	65-75	15-18	Green	Yellow	Moderate	31 - 34	Highly	2.9
29	WAS-31	115	100-110	10-13	Green	Yellow	Loose	22	Resistible	5.3
30	WAS-35	135	65-75	13-15	Green	Yellow	Loose	27	Slightly	4
31	WAS-40	135	65-75	18-20	Green	Yellow	Loose	25 - 27	Highly	1.6
32	WAS-41	135	65-75	18-20	Green	Yellow	Loose	25	Highly	2
33	WAS-42	130	100-110	15-18	Green	Yellow	Moderate	20	Highly	1.1
34	WAS-43	135	50-65	18-20	Green	Yellow	Loose	24	Susceptible	3.1
35	WAS-45	135	65-75	18-20	Brownish Violet	Yellow with Violet	Loose	23 - 25	Susceptible	2.7
36	WAS-48	135	65-75	18-20	Green	Yellow	Firm	24	Susceptible	3.8
37	WAS-49	125	75-90	18-20	Brownish Violet	Yellow with Violet	Loose	30	Susceptible	3.6
38	WAS-50	115	75-90	15-18	Green	Yellow	Moderate	27	Resistible	4.2
39	WAS-52	125	100-110	15-18	Green	Yellow	Moderate	22 - 24	Susceptible	2.2
40	WAS-53	125	50-65	100-13	Green	Yellow	Moderate	27 - 29	Highly	1.1
41	WAS-54	135	75-90	18-25	Brownish Violet	Yellow with Violet	Loose	24 - 26	Slightly Susceptible	4.7
42	WAS-60	125	65-75	18-23	Brownish Violet	Yellow with Violet	Loose	26 - 28	Susceptible	3.6
43	WAS-62	135	75-90	15-20	Green	Yellow	Loose	27	Resistible	2.9
44	WAS-63	130	65-75	18-20	Green	Yellow	Loose	25	Slightly	4.4
45	WAS-66	125	75-90	13-18	Green	Yellow	Moderate	30	Resistible	4
46	WAS-68	115	100-110	13-18	Green	Yellow	Firm	20	Resistible	5.1
47	WAS-69	125	65-75	15-20	Brownish Violet	Yellow with Violet	Moderate	22 - 24	Susceptible	2
48	WAS-70	130	75-90	18-23	Green	Yellow	Loose	24 - 26	Resistible	3.3
49	FKR-72	125	90-100	15-20	Green	Yellow	Moderate	30 - 32	Resistible	4.4
50	FKR-73	135	90-100	13-20	Green	Yellow	Moderate	26	Resistible	6.2
Varieties from Egypt										
Test Plot No.	Sample No.	Specific Plant-physiological Characters								
		Growing Term (days)	Plant Height (cm)	Bearing Tillers (nos.)	Leaf Colour	Grain Colour	Threshing Capability	1000 Grains (gr.)	Resistibility to Blast Diseases	Yield (eqv. to ton/ha)
51	EG-1	110	65-85	8-10	Dark	Yellow	Firm	25	Resistible	1.8
52	EG-2	110	65-85	10-13	Dark Green	Yellow with Violet tip	Firm	30	Susceptible	2
53	EG-3	115	50-65	15 - 17	Dark Green	Yellow	Loose	30	Resistible	3.6
54	EG-4	130	50-65	8-10	Green	Yellow	Firm	30	Resistible	1.5
55	EG-5	120	50-65	9-13	Green	Yellow	Moderate	31	Resistible	2.9
56	EG-6	100	35-50	5-8	Dark Green	Yellow	Moderate	29 - 31	Resistible	0.6
57	EG-7	125	60-75	8-10	Green	Yellow	Firm	20 - 23	Resistible	2.2
58	EG-8	125	60-75	10-13	Green	Yellow	Firm	27 - 29	Resistible	2.9
59	EG-9	105	50-60	13 - 18	Light Green	Yellow	Loose	32	Resistible	3.1

Table 2.2.2 Technical Training Programme for Extension Staff, Seed Growers and Farmers (1/2)

Date	Growth Stages	Essential Up-keeping Works & Growing Stage of Paddy	Technical Training of Extension Staff at Doho Irrigation Scheme	Field Guidance for Farmers at P/P Site in Bugri District	Field Guidance for Farmers at P/P Site in Pallisa District
12/1 Wed					
12/2 Thu					
12/3 Fri					
12/4 Sat					
12/5 Sun					
12/6 Mon		Mobilization of JICA Study Team			
12/7 Tue					
12/8 Wed					
12/9 Thu					
12/10 Fri					
12/11 Sat					
12/12 Sun					
12/13 Mon		Field inspection & selection of candidate farm plots for PEFP			
12/14 Tue		Set-up PEFP & start preparatory works			
12/15 Wed					
12/16 Thu		Weed slashing & first ploughing of PEFP			
12/17 Fri					
12/18 Sat					
12/19 Sun					
12/20 Mon					
12/21 Tue		Seed Preparation & Pre-germination Treatment	Communication with DAO of each respective		
12/22 Wed		Preparation of Nursery Beds	13 district and Circulation of Invitation		
12/23 Thu		Seeding to Nursery Beds	Letter to Candidate Staff (trainees)		
12/24 Fri	1				
12/25 Sat	2				
12/26 Sun	3				
12/27 Mon	4				
12/28 Tue	5				
12/29 Wed	6				
12/30 Thu	7	Weeding & Purification of Varieties			
12/31 Fri	8				
1/1 Sat	9				
1/2 Sun	10				
1/3 Mon	11	Second Ploughing in Main Farm Plots			
1/4 Tue	12				
1/5 Wed	13	Plant Protection against Rice Blast Diseases			
1/6 Thu	14				
1/7 Fri	15	Harrowing & Puddling of Main Farm Plots			
1/8 Sat	16				
1/9 Sun	17				
1/10 Mon	18				
1/11 Tue	19				
1/12 Wed	20	Up-rooting & Transplantation of Seedlings	Lecture on Paddy Rice Production Technology (overall & yielding components and up-keeping practices during vegetative growing stage) & field practices of up-rooting and regular transplanting of paddy seedlings		
1/13 Thu	21				
1/14 Fri	22		Orientation to Extension Service Staff regarding	Establishment of Demonstration Farm Plots	
1/15 Sat	23	Seedlings to be newly rooting and establishing hill positions	Field Inspection/Tour outside of Doho		
1/16 Sun	24		Group Discussion		
1/17 Mon	25				
1/18 Tue	26				
1/19 Wed	27				
1/20 Thu	28	Initiation of Tillering			
1/21 Fri	29				
1/22 Sat	30				
1/23 Sun	31				
1/24 Mon	32				
1/25 Tue	33	First Weeding	Field observation and discussion about paddy growing conditions at active tillering stage		
1/26 Wed	34	Application of Additional Fertilisers	Field practices on first weeding and application of fertilisers. Agro-chemicals are also applied if required		
1/27 Thu	35	Application of Agro-chemicals if required			
1/28 Fri	36				
1/29 Sat	37				
1/30 Sun	38				
1/31 Mon	39				
2/1 Tue	40				
2/2 Wed	41				
2/3 Thu	42				
2/4 Fri	43				
2/5 Sat	44				
2/6 Sun	45				
2/7 Mon	46				
2/8 Tue	47				
2/9 Wed	48				
2/10 Thu	49				
2/11 Fri	50	Second Weeding			
2/12 Sat	51	Second Application of Additional Fertilisers			
2/13 Sun	52				
2/14 Mon	53				
2/15 Tue	54				
2/16 Wed	55				
2/17 Thu	56				
2/18 Fri	57				
2/19 Sat	58				
2/20 Sun	59				
2/21 Mon	60				
2/22 Tue	61				
2/23 Wed	62				
2/24 Thu	63				
2/25 Fri	64				
2/26 Sat	65				

Table 2.2.2 Technical Training Programme for Extension Staff, Seed Growers and Farmers (2/2)

Date	Growth Stages	Essential Up-keeping Works & Growing Stage of Paddy	Technical Training of Extension Staff at Doho Irrigation Scheme	Field Guidance for Farmers at P/P Site in Bugiri District	Field Guidance for Farmers at P/P Site in Pallisa District	
2/27 Sun 67	Generative Growth Stage					
2/28 Mon 68						
3/1 Tue 69		Particle Progeny Stage			Fourth Session	Fourth Session
3/2 Wed 70					Practice of First Weeding	Practice of First Weeding
3/3 Thu 71					Seedling care against pest/diseases	Seedling care against pest/diseases
3/4 Fri 72					Irrigation water management	Irrigation water management
3/5 Sat 73						
3/6 Sun 74						
3/7 Mon 75						
3/8 Tue 76						
3/9 Wed 77						
3/10 Thu 78						
3/11 Fri 79		Heading & Flowering Stage				
3/12 Sat 80						
3/13 Sun 81			<i>Initiation of Heading/Flowering</i>	Fifth Session		
3/14 Mon 82				Lecture on Paddy Rice Cultivation Technology especially on Generative Growing Stage, field observation and discussion about paddy growing conditions at full heading stage, and On-field practices on additional fertilizer application by top-dressing method		
3/15 Tue 83						
3/16 Wed 84						
3/17 Thu 85			<i>Attaining over to Full Heading Stage</i>			
3/18 Fri 86						
3/19 Sat 87						
3/20 Sun 88						
3/21 Mon 89		Milk Ripening Stage			Fifth Session	Fifth Session
3/22 Tue 90					Guidance on Intermediate Plant Care	Guidance on Intermediate Plant Care
3/23 Wed 91			Fourth Weeding (picking of wild millets)		Practice of First Weeding	Practice of First Weeding
3/24 Thu 92			Fourth Application of Additional Fertilisers		Seedling care against pest/diseases	Seedling care against pest/diseases
3/25 Fri 93					Irrigation water management	Irrigation water management
3/26 Sat 94						
3/27 Sun 95						
3/28 Mon 96						
3/29 Tue 97	<i>Most Active Ripening Stage</i>					
3/30 Wed 98						
3/31 Thu 99						
4/1 Fri 100	Dough Ripening Stage					
4/2 Sat 101						
4/3 Sun 102						
4/4 Mon 103						
4/5 Tue 104						
4/6 Wed 105						
4/7 Thu 106						
4/8 Fri 107						
4/9 Sat 108						
4/10 Sun 109						
4/11 Mon 110	Yellow Ripening Stage	<i>Initiation of Yellow Ripening</i>		Sixth Session	Sixth Session	
4/12 Tue 111				Guidance on plant care at panicle formation stage	Guidance on plant care at panicle formation stage	
4/13 Wed 112				Third weeding	Third weeding	
4/14 Thu 113				Irrigation water management	Irrigation water management	
4/15 Fri 114						
4/16 Sat 115						
4/17 Sun 116						
4/18 Mon 117						
4/19 Tue 118			Field observation and discussion about paddy growing conditions at ripening stage, and On-field guidance how to determine the best timing of paddy harvest and field practices on harvesting and threshing works			
4/20 Wed 119						
4/21 Thu 120	Harvesting Stage	<i>Maturation of Paddy for Harvesting</i>		Seventh Session	Seventh Session	
4/22 Fri 121		Harvesting & Pre-drying of Paddy		Guidance on plant care at full heading stage	Guidance on plant care at full heading stage	
4/23 Sat 122		Harvesting & Pre-drying of Paddy		Weeding/Picking up of wild millets	Weeding/Picking up of wild millets	
4/24 Sun 123		Harvesting & Pre-drying of Paddy		Irrigation water management	Irrigation water management	
4/25 Mon 124		Threshing and Drying of Paddy				
4/26 Tue 125		Threshing and Drying of Paddy				
4/27 Wed 126						
4/28 Thu 127						

Table 2.2.3 Basic Curriculum for Technical Training for Extension Service Staff and Seed Growers

Sessional Programmes		Essential Objectives	Major Schedule
First Session			
1	Lecture on Paddy Rice Production Technology	For awareness on plant physiological features of paddy rice, and essential four plant physiological components for determination of paddy yield	①Plant physiological features of paddy rice, ②Specific productive function of paddy fields,
2			③Rice production increase technology, ④Cropping calendar and day by day farming practices
3			⑤When and how paddy yield is determined
4			①Seed Preparation and Treatment for pre-germination;
5	On-field Guidance & On-the Job-Practices	Technical skill on up-keeping work of nursery, and adequate soil preparation as well as regular transplanting method	②Field layout & preparation of testing plots, and labeling on testing plots
6			③Soil preparation in the main paddy field
7			④Up-rooting of seedlings; and Transplanting into testing plots
Second Session			
1	On-field Guidance & On-the Job-Practices (Active Tillering Stage)	Awareness of tillering mechanism, and skill on crop fertilisation practices	Inspection and discussion based on the paddy rice growing conditions observed
2			①First weeding using Rotary Weeder; ②Inspection and identification of Pest & diseases
3			③Application of additional fertilizers;
4			④Application of agro-chemicals as required
Third Session			
1	On-field Guidance & On-the Job-Practices (Maximum Tillering to Neck-node Differentiation Stage)	Awareness on how effective tillers are determined, and skill on rice yield increase practices at maximum tillering stage	Inspection and discussion based on the paddy rice growing conditions observed
2			①2nd weeding using Rotary Weeder; ②Inspection and identification of Pest & diseases
3			③Application of 2nd additional fertilizers;
4			④Application of agro-chemicals as required
Fourth Session			
1	On-field Guidance & On-the Job-Practices (Reduction Division Stage)	Awareness on young panicle formation mechanism, and skill on rice yield increase practices at panicle formation stage	Inspection and discussion based on the paddy rice growing conditions observed
2			①3rd weeding using Rotary Weeder as required;
3			②Inspection and identification of Pest & diseases
4			③Application of 3rd additional fertilizers; ④Application of agro-chemicals as required
Fifth Session			
1	On-field Guidance & On-the Job-Practices (Full Heading Stage)	Awareness on crop yield determination factors, and those up-keeping practices	Inspection and discussion based on the paddy rice growing conditions observed
2			①4th weeding (picking of wild millets);
3			②Inspection and identification of Pest & diseases
4			③Application of 4th additional fertilizers;
5			④Application of agro-chemicals as required
Sixth Session			
1	On-field Guidance & On-the Job-Practices (Yellow Ripening Stage)	Awareness and technical skill on measurement/assessment of crop yield on field.	Inspection and discussion based on the paddy rice growing conditions observed
2			①Inspection and identification of adequate timing for harvesting
3			②On-field inspection and assessment of yielding
4			③Panicle harvesting for seed preparation for forthcoming cropping
5			④Operation practice of Pedal Thresher and Winnower

(1) The programme on the technical training and on-the-job practices is scheduled on to carry out using a part of the farm plots as well as structural function of the DOHO Irrigation Scheme

(2) The technical guidance and on-the job-practices are scheduled on the paddy growing stage and stage with reference to the specific growing stage of "medium growing term varieties of paddy" to be applied to this programme

(3) Days of guidance schedule are counted before and after sowing of seeds to the nursery beds

(4) Attendants to this programme are scheduled to be the agricultural officers from each district agricultural office (13 persons), extension officers from each sub-county office related to operation of the Pilot Project (13 persons), and the agricultural staff of the respective NGO (10 persons), and few farmers selected within the Doho scheme as the candidate seed growers (four persons).

(5) The programme will cover the crop experimental work on "Varieties Adaptability Test", "Fertilizers Dosage Test", and a part of the "Seasonal Cropping Test".

Table 2.2.4 Impacts of Technical Improvement in Paddy Cultivation Practices (1/4)

Essential Works or Practices	Necessity or Adequate Action for Improvement of Existing Practices	Capital Investment to be required for Improvement	Improvement to be possible without Capital Investment	Impacts to be arisen out of Technical Improvement	Improvement of Working Efficiency or Reduction of Inputs	Production Increase	Quality Improvement
1. Consolidation Works on Farm Plots							
Paddy field is being extensively reclaimed. Only limited farm plots are developed with provision of farm ridges and traditional irrigation system. No terrace formation and then land leveling is not completed in most plots. Thus, rain-water is drained out freely as surface run-off.	1 Provision of Farm Ridge	⊙		Creating water harvesting function (increase water retaining capacity of farm plots, and then, improve irrigation efficiency even under rain-fed conditions)		⊙	
	2 Land Leveling	⊙		Improvement not only working conditions and irrigation water management but also working efficiency. Growing conditions of paddy rice are also improved to a large extent.	⊙	⊙	
	3 Irrigation & Drainage System a. Structural Improvement of Facilities b. Capacity Building both of Water Users' Association and its Member Farmers	⊙	⊙		Improvement of Irrigation efficiency as well as making possible to manage irrigation water control much easier. Materialization of Self Reliance in Communal-based-O & M Services System	⊙	⊙
2. Soil Preparation Work							
Ploughing by use of blade hoes is predominant. Oxen-ploughing is still limited to smaller extent. No precise puddling is practiced so far. Thus, it made difficult to manage irrigation as well as weeding works.	1 Introduction of Oxen-Ploughing more extensively	⊙		Improvement of soil preparation efficiency, i.e. ploughing depth, turn-over of plough-soils, ploughing of organic manures into deep soil layer, etc.	⊙	⊙	
	2 and Leveling Practices in Farm Plots	⊙		Structural improvement of plough-soils, and hence, generating good-cum-smooth rooting of paddy seedlings, making easiness of weeding using rotary-weeders as well as irrigation water management. Ploughing of azolla into soil also become easy.	⊙	⊙	
3. Nursery Work							
Small nursery beds is prepared patchy in the paddy field. Due to seeds are being densely sown in a bed, seedlings are all so slender and weak for transplantation. Nursery period is also as long as 30 day or more (overgrowing/maturation to transplantation). Accordingly, rooting after transplantation is always delayed and poor growth at an active tillering stage.	1 Precise Preparation of Nursery Beds	⊙			⊙	⊙	
	2 Practice of Good Seeds and Pre-Germination Treatment		⊙	Maintaining successful germination/seedling establishment ratio	⊙	⊙	⊙
	3 Control of Sowing Density		⊙	Possible to reduce seed requirement	⊙	⊙	
	4 Shortening of Nursery Period to 20 days		⊙	Possible to reduce farm inputs	⊙	⊙	
	5 Precise Up-rooting for Transplantation		⊙	Maintain successful establishment (rooting) of seedling and generation of an active tillering immediately after rooting	⊙	⊙	⊙
			⊙	No physical damage to seedlings, and hence, smooth rooting immediately after transplantation	⊙	⊙	

Table 2.2.4 Impacts of Technical Improvement in Paddy Cultivation Practices (2/4)

Essential Works or Practices	Necessity or Adequate Action for Improvement of Existing Practices	Capital Investment to be required for Improvement	Improvement to be possible without Capital Investment	Impacts to be arisen out of Technical Improvement	Improvement of Working Efficiency or Reduction of Inputs	Production Increase	Quality Improvement
4. Plantation Work							
Direct seeding (broadcasting method) and random transplanting method are predominant in the Study Area, at present. Regular transplanting method is so far prevailed in a very small extent.	Introduction of Regular Transplanting Method		⊙	Labour intensive, but effective for controlling plant spacing, weeding work, pest and diseases, and elimination of foreign varieties of paddy as well as properly managing azolla growing, etc.	⊙	⊙	⊙
	Control/Optimisation of planting density		⊙	Plant spacing should be adjusted taking into account the soil texture and inherent fertility, and quantity of fertilisers/compost to be applied	⊙	⊙	
	Planting the seedlings as shallow depth as possible		⊙	The seedlings should be transplanted shallowly in the surface soil so that rooting as well as tiller development would be proceeded smoothly and favourably.		⊙	
5. Crop/Soil Fertilization Practices							
At present, almost all farmers apply either compost nor chemical fertilizers. azolla is growing so vigorously, but not used effectively due to densely populated paddy hills.	Use of Paddy Straws as Organic Manure (Compost) for both Upland and Paddy Fields		⊙	Maintaining basic soil fertility and land productivity. In case of upland field, structural improvement of plough-soils is highly effective for enlargement of moisture holding capacity	⊙	⊙	⊙
	Effective Use of "azolla" as Green Manure		⊙	It is highly useful as a "Nitrogen Resource" if precisely ploughed into soils.	⊙	⊙	
	Precise Management of Irrigation Water Depth, Paddy Growing Stage and Stage		⊙	For paddy rice growing, it is practically not necessary to fill water into farm plots. A just saturated soil moisture condition is the best for normal growing of paddy rice. However, deep water irrigation is highly effective for controlling ineffective tillering, and germination of weed seeds.		⊙	⊙
	Use of Chemical Fertilizers for Further Production Increase	⊙		Application of chemical fertilizers are surely effective for increase paddy rice production. Application dosage should be reasonable level, technically, economically and also environmentally secure level to the natural vegetation in and around the farm plots.		⊙	⊙

Table 2.2.4 Impacts of Technical Improvement in Paddy Cultivation Practices (3/4)

Essential Works or Practices	Necessity or Adequate Action for Improvement of Existing Practices	Capital Investment to be required for Improvement	Improvement to be possible without Capital Investment	Impacts to be arisen out of Technical Improvement	Improvement of Working Efficiency or Reduction of Inputs	Production Increase	Quality Improvement
6. Plant Protection Practices against Pest and Diseases							
<p>No farmers use agro-chemicals even though "rice blast" is seriously influenced in a plots. Influence of the "Yellow-Mottle Disease (virus)" is also becoming serious in certain plots due to continuous use of own-seeds.</p>	1 Introduction of Resistant Varieties to Pest and Diseases	⊙		For introduction of the said varieties, a small but reasonable capital investment will be required for variety adaptability test as well as seed multiplication. But the varieties are surely effective for reduction of a demand of grow-chemicals, and accordingly, for environmental conservation services.	⊙	⊙	⊙
	2 Replacement of Privately Owned Seeds and Introduce Purified-cum-Disease Free Seeds	⊙		Replacement of seeds is essential and crucially needed in the Eastern Region. Capital investment is also small only for purchasing of the said seeds, but highly effective for reduction of farm inputs as well as serious influence of diseases. Working efficiency as well as quality of rice also be improved to a significant extent.		⊙	⊙
	3 Physically eliminating (cutting-out and burning-out) infected tillers (straws) or hills by stem-borers, yellow-mottle diseases, etc.		⊙		This practice is essential and crucially needed so as to protect against further influence and/or expansion of the damages.	⊙	⊙
	4 Use of Agro-chemicals as Emergency Measure	⊙		Application of agro-chemicals are surely effective for plant protection against pest and diseases influence. However, application dosage should be reasonable level, technically, economically and also environmentally secure level to the natural inhabits in and around the farm plots.		⊙	⊙
7. Weeding and Varieties Purification Works							
<p>Hand weeding twice a season is predominant practice. No farmers eliminate foreign varieties of paddy. Thus, variety contamination become serious, and it directly causes poor rice quality. It also made difficult to harvest paddy timely and efficiently.</p>	Weeding by Introduction of "Rotary Weeder"	⊙		Rotary weeder is a new farming equipment in Uganda. Thus for introduction of the said equipment, the capital investment is required but at reasonable amount. Rotary weeder is highly effective not only for weeding efficiency but also reduction of labour requirement for weeding work. Rotary weeder is also indispensable for inter-tillage of azolla into soils.	⊙	⊙	⊙
	Elimination of foreign varieties of paddy varieties		⊙	This practice is essential and crucially needed so as to maintain pure variety of paddy rice and hence quality of rice production.		⊙	⊙

Table 2.2.4 Impacts of Technical Improvement in Paddy Cultivation Practices (4/4)

Essential Works or Practices	Necessity or Adequate Action for Improvement of Existing Practices	Capital Investment to be required for Improvement	Improvement to be possible without Capital Investment	Impacts to be arisen out of Technical Improvement	Improvement of Working Efficiency or Reduction of Inputs	Production Increase	Quality Improvement	
F Mitigation of Field Operation Losses in Paddy/Rice								
<p>At present, variety contamination (mixed varieties) is serious due to continuous use of own seeds. Variety contamination causes difficulty to catch timely harvesting due to irregular maturation, variety and variety. Over matured paddy rice grains are easily to fall-down from the panicles even with small shock, accordingly, field losses become large during the harvesting time. The traditional threshing by means of beating method is also one of the serious causes on the field losses of the paddy grains. The field losses are also attributed to such field works as gathering of harvested paddy, threshing, drying, winnowing works, etc, that are being done extensively without use of ground-sheets (tarpaulin, mats, etc.)</p>	1 Introduction of Resistant Varieties to Shattering Hazard	⊙		A capital investment is required for introduction (adaptability test and seed multiplication) of the subjected varieties, but it will be small at reasonable amount. A shattering hazard is one of the most serious problems in rice production work. Introduction of resistant varieties is surely effective for reduction of field operation losses of production.	⊙	⊙		
	2 Management of Best-Timing of Harvesting		⊙	Timely harvesting (at just grains 70 % maturation in panicle) is essential and crucial so as to reduce grain shattering losses. To this end, it should control uniform heading/flowering in each ploy through variety purification practices.		⊙	⊙	
	3 Use Sharpe Sickles (saw-edged sickles) for Harvesting of Paddy		⊙		At present, a crescent-saw-edged sickle is prevailed in a part. However, this type of sickles is not adequate for paddy harvesting. In stead of the said sickle, a shape saw-edged sickle be used so as to reduce field operation losses of grains.	⊙		
	4 Use Tarpaulin, Straw-mat, etc. for Gathering, Threshing and Drying Works		⊙		Majority of farmers does not use any sheets, tarpaulin, mats, etc. for doing the subjected works. Accordingly, the field operation losses of grains are becoming as large as 10% or more. Contamination with sand and gravels also cause a low quality of milled rice.	⊙		⊙
	5 Use Adequate Threshing Machine and Winnowing, etc.		⊙		Threshing and cleaning of paddy rice are still primitive practices at present. To maintain working efficiency and improve quality of product, "pedal-thresher" and "winnower" are recommended to introduce at the initiation stage of modernization programme.	⊙		⊙

Table 2.2.5 Progress of Each Session in Technical Training of Farmers in Two P/P Sites (1/2)

Date	Particular Activities	
	P/P in Bugiri District	P/P in Pallisa District
Training Pre-session (preparatory work on Technical demonstration farm plots)		
17th December '04	-	Confirmation survey on the demo. Plots
18th December '04	Confirmation survey on Demo. Plots	-
21st December '04	-	Discussion with pilot farmers regarding demo. Farm plots
27th December '04	Seed supply, and guidance on nursery bed preparation	-
28th December '05	-	Seed supply, and guidance on nursery bed preparation
29th December '04	Guidance on pre-germination treatment technology and completion of nursery bed preparation	-
30th December '04	-	Guidance on pre-germination treatment technology and completion of nursery bed preparation
31st December '04	Guidance on sowing practices on nursery beds	Guidance on sowing practices on nursery beds
First Session		
18th January '05	Guidance and exercise on soil and land preparation practices, including land levelling technology	Lecture on advanced paddy cultivation technology including how to increase unit yield of paddy rice
19th January '05	Lecture on how to prepare nursery; seed treatment exercise	Lecture on how to prepare nursery; seed treatment exercise
20th January '05	Lecture on advanced paddy cultivation technology including how to increase unit yield of paddy rice	Exercise of nursery up-rooting and regular transplanting of single seedlings with different planting spaces
Second Session		
3rd February '05	Technical guidance and exercise of nursery up-rooting and regular transplanting with different planting spaces	Lecture on maintenance technology on paddy during the active tillering stage
4th February '05	Technical guidance and exercise of nursery up-rooting and regular transplanting with different planting spaces	Lecture on plant physiological features and characteristics of paddy rice
Third Session		
14th February '05	Lecture on maintenance technology on paddy during the active tillering stage	Technical guidance and exercise on repair and maintenance of irrigation facilities
15th February '05	Technical guidance and exercise on repair and maintenance of irrigation facilities	Lecture on maintenance technology on paddy during the most active tillering stage
16th February '05	Lecture on plant physiological features and characteristics of paddy rice	Lecture on plant protection measure against pest and diseases infection
Fourth Session		
1st March '05	Lecture on maintenance technology on paddy during the most active tillering stage	Guidance and exercise on the second weeding practices using rotary weeder
2nd March '05	Guidance and exercise on weeding practices	Lecture on small scale mechanisation and related technology
3rd March '05	Lecture on plant protection measure against pest and diseases infection	Field guidance for identification of pest and diseases and those protection measure

Table 2.2.5 Progress of Each Session in Technical Training of Farmers in Two P/P Sites (2/2)

Date	Particular Activities	
	P/P in Bugiri District	P/P in Pallisa District
Fifth Session		
22nd March '05	Guidance and exercise on the second weeding practices using rotary weeder	Guidance and exercise on the third weeding practices using rotary weeder
23rd March '05	Lecture on small scale mechanisation and related technology	Lecture on water harvesting technology for irrigation as well as soil conservation in the hilly area
24th March '05	Field guidance for identification of pest and diseases and those protection measure	Guidance on up-keeping technology on paddy rice during the panicle formation to booting stage
Sixth Session		
12th April '05	Lecture on up-keeping practices to be required at the heading/flowering to milky ripening stages	Guidance and field exercise on final weeding as well as purification of varieties
13th April '05	Guidance and field exercise on final weeding as well as purification of varieties	Lecture on up-keeping practices to be required at the heading/flowering to milky ripening stages
14th April '05	Practices on variety purification work	Practices on variety purification work
Seventh Session		
25th April '05	Lecture on the ripening process, and identification technology on the best timing of paddy rice harvest	Field guidance and exercise in paddy rice harvesting practices using saw-edged sickle
26th April '05	Field guidance and exercise in paddy rice harvesting practices using saw-edged sickle and pedal thresher	Lecture on the ripening process, and identification technology on the best timing of paddy rice harvest
27th April '05	Field guidance and exercise in paddy rice harvesting practices using saw-edged sickle	Field guidance and exercise in paddy rice harvesting practices using saw-edged sickle and pedal thresher

Source: Study Team, January to April 2005

Table 2.2.6 Number of Farmers and Officers Interviewed in Monitoring of Each PTDP Activities

(1) Number of Farmers and Officers Interviewed in the First Monitoring

	Pallisa	Bugiri	Kumi	Sironko	Iganga	Tororo	Mayuge	Busia	Mbale	Kamuli	Soroti	Katakwi	Kabe'do
No. of farmers interviewed													
- Male	4	5	6	6	6	5	5	6	5	6	4	4	3
- Female	2	1	0	0	0	1	1	0	1	0	2	2	3
Total	6	6	6	6	6	6	6	6	6	6	6	6	6
Of which trained farmers													
- Male	0	3	0	0	2	3	1	2	2	4	1	1	1
- Female	0	1	0	0	0	1	1	1	0	0	1	1	1
Total	0	4	0	0	2	4	2	3	2	4	2	2	2
AOs or AAOs interviewed	1	1	1	1	1	1	1	1	1	1	1	1	1

Source: 1st monitoring in September 2005, Study Team

(2) Number of Farmers and Officers Interviewed in the Second Monitoring

	Pallisa	Bugiri	Kumi	Sironko	Namut'ba (Iganga)	Butaleja (Tororo)	Mayuge	Busia	Manafa (Mbale)	Kaliro (Kamuli)	Soroti	Amuria (Katakwi)	Kabe'do	Total
No. of farmers interviewed														
- Male	5	4	2	2	4	5	6	5	5	5	5	5	4	57
- Female	1	2	4	4	2	1	0	1	1	1	1	1	2	21
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	78
Of which trained farmers														
- Male	2	2	1	1	2	3	2	3	2	2	2	2	4	28
- Female	1	0	2	2	0	1	0	0	0	1	0	0	2	9
Total	3	2	3	3	2	4	2	3	2	3	2	2	6	37
AOs or AAOs interviewed														
	1	1	1	1	1	1	1	1	1	1	1	1	1	13

Source: 2nd monitoring in January 2006, Study Team

(3) Number of Farmers and Officers Interviewed in the Third Monitoring

	Pallisa	Bugiri	Kumi	Sironko	Namut'ba (Iganga)	Butaleja (Tororo)	Mayuge	Busia	Manafa (Mbale)	Kaliro (Kamuli)	Soroti	Amuria (Katakwi)	Kabe'do	Total
No. of farmers interviewed														
- Male	5	4	2	2	4	5	6	5	5	5	5	5	4	57
- Female	1	2	4	4	2	1	0	1	1	1	1	1	2	21
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	78
Of which trained farmers														
- Male	2	2	1	1	2	3	2	3	2	2	2	2	4	28
- Female	1	0	2	2	0	1	0	0	0	1	0	0	2	9
Total	3	2	3	3	2	4	2	3	2	3	2	2	6	37
AOs or AAOs interviewed														
	1	1	1	1	1	1	1	1	1	1	1	1	1	13

Source: 2nd monitoring in January 2006, Study Team

In case of Doho Rice Scheme, the monitoring was all the time made with the production manager and potential seed growers, both were trained in the training workshop.

Table 2.2.7 Growing Conditions of Paddy at Essential Growing Stages under Fertilizer Dosage Test

	Plant Height (cm)					Number of Tillers (nos.)					Number of Leaves (nos.)				
	2nd	3rd	4th	5th		2nd	3rd	4th	5th		2nd	3rd	4th	5th	
NPK-7t	R1	31.0	45.6	57.0	66.9	4.2	22.2	28.3	23.3		12.4	63.3	97.1	74.1	
	R2	33.5	42.1	58.1	74.5	5.5	11.8	32.7	24.8		10.3	30.5	130.2	99.2	
	R3	35.4	40.8	59.9	76.1	3.5	13.4	29.2	21.7		16.2	37.2	85.2	84.4	
	Ave	33.3	42.8	58.3	72.5	4.4	15.8	30.1	23.3		13.0	43.7	104.2	85.9	
NPK-H	R1	30.9	43.3	54.7	71.1	6.7	23.9	26.5	24.5		16.7	74.5	106.9	146.9	
	R2	34.5	41.0	63.2	75.6	4.6	17.5	29.0	22.0		14.4	54.8	87.0	91.7	
	R3	32.0	41.1	49.8	74.0	4.5	18.7	29.1	20.5		15.6	76.1	120.4	82.0	
	Ave	32.5	41.8	55.9	73.6	5.3	20.0	28.2	22.3		15.6	68.5	104.8	106.9	
NPK-4t	R1	28.4	35.2	50.7	66.7	5.1	13.4	21.3	16.2		11.5	44.3	82.3	57.2	
	R2	32.0	41.1	53.9	70.1	3.7	10.9	20.8	23.7		17.9	36.2	71.0	85.8	
	R3	31.1	40.1	51.6	69.6	3.6	14.7	21.0	17.4		12.5	48.4	63.0	72.0	
	Ave	30.5	38.8	52.1	68.8	4.1	13.0	21.0	19.1		14.0	43.0	72.1	71.7	
NPK-L	R1	23.5	34.9	53.0	76.2	2.7	13.2	25.3	26.6		10.2	42.4	105.2	118.1	
	R2	26.0	43.2	56.0	73.5	3.0	15.6	25.3	19.9		11.9	55.6	98.6	79.6	
	R3	34.1	38.7	49.8	76.3	6.1	17.7	27.5	17.8		15.4	42.5	76.4	71.0	
	Ave	27.9	38.9	52.9	75.3	3.9	15.5	26.0	21.4		12.5	46.8	93.4	89.6	
Rice Bran	R1	29.5	36.2	51.8	68.0	2.9	8.7	16.4	18.8		8.8	24.0	61.5	75.2	
	R2	22.2	43.6	38.6	68.0	4.0	15.5	28.5	18.4		9.0	47.8	106.5	78.1	
	R3	27.7	32.8	37.4	69.6	4.5	7.5	16.6	17.4		12.5	29.1	53.3	69.6	
	Ave	26.5	37.5	42.6	68.5	3.8	10.6	20.5	18.2		10.1	33.6	73.8	74.3	
Neutral	R1	33.6	40.0	49.2	53.6	4.3	16.2	22.2	20.8		11.5	51.4	76.2	79.2	
	R2	27.0	40.8	45.5	63.3	4.6	19.0	16.2	16.6		15.4	53.4	56.2	67.0	
	R3	31.1	39.2	43.9	65.8	3.6	9.3	19.4	17.8		11.4	31.4	61.1	76.3	
	Ave	30.6	40.0	46.2	60.9	4.2	14.8	19.3	18.4		12.8	45.4	64.5	74.2	

Remarks:

- 2nd Measurement: Active Tillering Stage 7 days of transplantation
- 3rd Measurement: Most Active Tillering Stage after 15 days of transplantation
- 4th Measurement: Maximum Tillering Stage after 31 days from transplantation
- 5th Measurement: Booting Stage after 45 days of transplantation

Table 2.2.8 Yield of Paddy in Fertilizer Dosage Test

		Field Observation (kg/4.5 m ²) in fresh matters			Dried Grains Actually Measured	Converted Grain Yield		
		Total Weight	Straw Weight	Grain Weight		(kg/m ²)	(kg/acre)	(tons/ha.)
NPK - 7t	R1	16.0	11.6	4.4	3.60	0.80	3200	8.00
	R2	13.2	9.4	3.8	3.20	0.71	2844	7.11
	R3	13.0	9.2	3.8	3.00	0.67	2667	6.67
		14.1	10.1	4.0	3.27	0.73	2904	7.56
NPK-H	R1	15.5	10.4	4.6	3.30	0.73	2933	7.33
	R2	15.0	10.3	4.0	3.00	0.67	2667	6.67
	R3	14.8	12.0	3.8	3.20	0.71	2844	7.11
		15.1	10.9	4.1	3.17	0.70	2815	7.22
NPK-4t	R1	14.0	11.4	3.6	2.90	0.64	2578	6.44
	R2	11.0	8.9	3.1	2.90	0.64	2578	6.44
	R3	9.6	6.8	3.8	2.60	0.58	2311	5.78
		11.5	9.0	3.0	2.80	0.62	2489	6.44
NPK-L	R1	8.2	5.9	2.7	2.00	0.44	1778	4.44
	R2	9.6	6.8	2.8	2.30	0.51	2044	5.11
	R3	10.6	7.5	3.1	2.50	0.56	2222	5.56
		9.5	6.7	2.9	2.27	0.50	2015	5.33
RB	R1	9.8	6.3	3.0	2.20	0.49	1956	4.89
	R2	9.5	8.3	1.2	1.00	0.22	889	2.22
	R3	8.8	6.0	2.8	1.80	0.40	1600	4.00
		9.4	6.9	2.3	1.67	0.37	1481	4.44
Neutral	R1	8.2	5.6	1.2	0.70	0.16	622	1.56
	R2	9.6	7.6	2.0	1.30	0.29	1156	2.89
	R3	7.4	5.0	2.4	1.50	0.33	1333	3.33
		8.4	6.1	1.9	1.17	0.26	1037	2.22

Remarks: The above paddy rice yield are presented in Terms of the sun-dried//unhusked Grains.

Table 2.2.9 Incremental Effect in Paddy Production, TDFP in Each P/P Area

District	Group	P/P Site (Area)	Paddy Yield (kg/ha)							
			Previous Yield without Project				2006			
			1st Crop	2nd Crop	3rd Crop*	4th Crop	1st Crop	2nd Crop	3rd Crop	4th Crop
TDFP in Core P/P Sites Selected from A/P Areas with Area-specific Constraints										
1. Pallisa	G-1	Jami/Kakoli P/P	1,500	3,370	*1	5,670	141.8			
2. Bugiri	G-2	Kasolwe P/P (10.9ha)	2,000	4,670	*1	4,080	102.0			
3. Kumi	G-3	Kajamaka P/P (6.8ha)	1,750	5,000	*1	5,760	144.0			
4. Sironko	as G-4	Muyembe P/P (15.0ha)	2,500	3,750	*1	4,350	108.8			
FPDFP in P/P Sites Selected from A/P Area with Overall Constraints										
1. Namutumba (Iganga)	G-1	Nambugwa P/P (9ha)	3,250	4,330	2450*2	4,200	105.0			
2. Butaleja (Tororo)	G-1	Mwenge P/P (27ha)	2,000	4,500	3200*2	4,600	115.0			
3. Mayuge	G-2	Nawankoko P/P (10ha)	2,000	2,530	*1	*3	-			
4. Busia	G-2	Sibimba P/P (10ha)	1,500	2,500	3000*2	*4	75.0			
5. Manafa (Mbale)	G-2	Tembelela P/P (9ha)	2,000	4,500	4,250	4,500	112.5	106.25	112.5	175.5
6. Kairo (Kamuli)	G-2	Igombe P/P (17ha)	1,500	2,200	*1	6,710	167.8			
7. Soroti	G-4	Gweri P/P (8.8ha)	1,500	3,250	*1	4,350	108.8			
8. Amuria (Katakwi)	G-4	Wera P/P (1.5ha)	2,500	-	*1	5,020	125.5			
9. Kaberamaido	G-4	Kalaki P/P (5.5ha)	1,500	3,400	3,500	4,800	120.0	87.5	87.5	120.0
Seed Multiplication Farm Plots										
5 Potential Seed Growers		Doho RIS (0.5 ha)	2,500	3,620	4,270	5,140	106.8	106.8	106.8	128.5

Note: *1: Cropping was suspended due to a long drought spell in later half of the year.

*2: Crop yield was lower than that of the 1st crop due to drought damages.

The 2nd crop in Manafa, Kaberamaido P/P and Doho Seed Farm Plots was grown successfully under favorable irrigated conditions.

*3: The 3rd cropping is being suspended due to an institutional trouble within the farmers group.

*4: The 3rd cropping is being suspended due to trouble in land tenure system on the demonstration farm plots.

*5: The 3rd cropping in all P/P area is being much delayed due to unfavourable rain-distribution and shortage of irrigation water for paddy plantation. The crop performance stages are as at the end of May 2006.

Table 2.2.10 Yield in Commercial Paddy Production and Its Achievement to Target in Individual Farm of Both Farmers in P/P Area and Paddy Growers Outside of P/P Area

District	P/P Site (Area)	Previous Yield without Project		2005		2006	Achievement of Crop Yield to Target (%)	
				1st Crop	2nd Crop	3rd Crop	2nd Crop	3rd Crop
P/P Sites Selected from A/P Areas with Area-specific Constraints								
1. Pallisa	Jami/Kakoli P/P (17.9ha)	1,500	(1)	-	5,500	5,530	137.5	138.3
			(2)	-	-	4,710	-	117.8
2. Bugiri	Kasolwe P/P (10.9ha)	1,750	(1)	-	drought damage	-	-	-
			(2)	-	3,950	4,100	98.8	102.5
3. Kumi	Kajamaka P/P (6.8ha)	1,500	(1)	-	3,500	6,850	87.5	171.3
			(2)	-	drought damage	5,710	-	142.8
4. Sironko	Muyembe P/P (15.0ha)	2,500	(1)	-	-	7,130	-	178.3
			(2)	-	4,250	5,150	106.3	128.8
P/P Sites Selected from A/P Area with Overall Constraints								
1. Namutumba (Iganga)	Nambigwa P/P (9ha)	3,250	(1)	-	4,750	5,100	118.8	127.5
			(2)	-	-	4,200	-	105.0
2. Butaleja (Tororo)	Mwenge P/P (27ha)	2,000	(1)	-	4,500	5,330	112.5	133.3
			(2)	-	-	5,000	-	125.0
3. Mayuge	Nawankoko P/P (10ha)	2,000	(1)	-	drought damage	5,000	-	-
			(2)	-	-	-	-	-
4. Busia	Sibimba P/P (10ha)	1,500	(1)	-	4,000	6,000	100.0	150.0
			(2)	-	-	5,150	-	128.8
5. Manafa (Mbale)	Tembelela P/P (9ha)	2,000	(1)	4,500	4,500	7,230	112.5	180.8
			(2)	-	-	5,960	-	149.0
6. Kaliro (Kamuli)	Igombe P/P (17ha)	1,500	(1)	-	2,500	4,000	62.5	100.0
			(2)	-	-	5,230	-	130.8
7. Soroti	Gweri P/P (8.8ha)	1,500	(1)	-	3,500	5,000	87.5	125.0
			(2)	-	-	4,850	-	121.3
8. Amuria (Katakwi)	Wera P/P (1.5ha)	2,500	(1)	-	-	4,330	-	108.3
			(2)	-	-	3,900	-	97.5
9. Kaberamaido	Kalaki P/P (5.5ha)	1,500	(1)	-	2,700	4,800	67.5	120.0
			(2)	-	-	4,500	-	112.5
	Average	1,923	(1)	-	3,968	5,372	99.2	134.3
			(2)	-	-	4,872	-	121.8

Note: Columns in the figure (1) line indicates paddy yielding conditions being made by the member farmers within the P/P area. Columns in the figure (2) line indicates paddy yielding conditions being obtainable outside of the P/P area. Paddy in Kaliro P/P area was being affected by drought, while paddy was grown well under irrigated conditions in case of the outside of P/P area.

Table 2.2.11 Comparative Study on Improvement Effect of Paddy Cultivation Practices in 1st and 3rd Cropping Stages (1/4)

Major Farming Practices or Works	Labour Requirement under Present Conditions	Labour Requirement under Advanced Conditions	Field Exercise in 1st Crop Trial		Field Exercise in 3rd Crop Trial	
	(man-day/ha)	(man-day/ha)	Averaged Labour Requirement with Farm Guidance	Achievement to Advanced Conditions	Averaged Labour Requirement with Farm Guidance	Achievement to Advanced Conditions
			(man-day/ha)	(%)	(man-day/ha)	(%)
1 Preparation of "Nursery Beds"	0.5	0.5	0.5	100.0	0.5	100.0
2 Seed preparation & pre-germination treatment	0.3	0.2	0.3	10.0	0.2	100.0
3 Pre-irrigation & application of fertilizers to nursery beds	0.5	0.3	0.3	100.0	0.3	100.0
4 Sowing to nursery beds	0.5	0.3	0.4	50.0	0.3	100.0
5 Weeding, pest and diseases control	0.3	0.2	0.2	100.0	0.2	100.0
6 Irrigation water management	1.0	1.0	1.0	100.0	1.0	100.0
Sub-total	3.1	2.5	2.7	68.3	2.5	100.0
7 Bush and weed clearing in paddy field (plots)	28.0	5.0	27.0	4.3	8.0	87.0
8 Application of compost	-	6.0				
9 Ploughing and harrowing	27.0	25.0	26.8	10.0	25.0	100
10 Pre-irrigation ("Puddling Water") to paddy field (plots)	-	0.5	1.0	50.0	1.0	50.0
11 Puddling and leveling of soil surface in paddy plots	25.0	23.0	24.4	30.0	23.0	100.0
12 Draining-out an excessive water after precipitation of clay sediments	2.0	0.5	1.1	60.0	0.5	100.0
13 Application of basic fertilizers by "top dressing method"	-	1.0				
Sub-total	82.0	61.0	80.3	8.1	57.5	87.5
14 Up-rooting of seedlings	6.0	5.0	5.6	40.0	5.0	100.0
15 Plantation of seedlings	35.0	25.0	27.0	80.0	25.0	100.0
Sub-total	41.0	30.0	32.6	76.4	30	100.0
16 First weeding at initial tillering stage)	28.0	10.0	17.0	61.1	15.0	72.2
17 First application of additional fertilizers for boosting tillering	-					
18 First application of pesticides, fungicides, etc. as required	-	1.0				
19 Irrigation and water management during young nursery stage	1.0	1.0	1.0	100.0	1.0	100.0
20 Second weeding at active tillering stage	20.0	5.0	10.0	66.7	8.0	80.0
21 Second application of pesticides, fungicides, etc. as required	-	1.0				
22 Irrigation and water management during active tillering stage	1.0	1.0	1.0	100.0	1.0	100.0
23 Third weeding at the maximum tillering stage	6.0	5.0	5.0	100.0	6.5	70.0
24 Second application of additional fertilizers for panicle formation	-					
25 Irrigation and water management during maximum tillering stage	1.0	1.0	1.0	100.0	1.0	100.0
26 Third application of additional fertilizers for vigorous heading	-					
27 Third application of pesticides, fungicides, etc.	-					
28 Irrigation and water management during heading stage	1.0	1.0	1.0	100.0	1.0	100.0
29 Fourth weeding & cut-off stalks affected by stem-borers		3.0				
30 Fourth application of additional fertilizers for effective ripening		0.3				
31 Irrigation and water management during ripening stage	1.0	1.0	1.0		1.0	100.0
32 Bird-scaring	30.0	10.0	12.2	89.0	10.0	100.0
33 Full-stop of irrigation	1.0	1.0	1.0		1.0	100.0
Sub-total	90.0	41.3	50.2	81.7	45.5	91.4
34 Harvesting and pre-drying of panicles	25.0	13.0	15.1	82.5	15.1	82.5
35 Threshing	20.0	8.0	8.6	95.0	15.0	41.7
36 Transportation of paddy from field to house yard	7.0	3.0	6.6	10.0	5.0	50.0
37 Drying and cleaning of paddy grains	3.0	2.0	2.5	50.0	2.5	50.0
Sub-total	55.0	26.0	32.8	76.6	37.6	60.0
Total	271.1	160.8	198.6	65.7	173.1	88.8

Not 1) Labour requirement under the present conditions is an average figure obtained through farm survey in the Study Area
2) Labour requirement under advanced conditions is the average figure that is being widely accepted in the Southeast Asia.
3) Labour intensity in advanced conditions is as small as 41% of the present conditions of Eastern Uganda.

Table 2.2.11 Improvement Effect of Paddy Cultivation Practices in Terms of Labour Intensity in Each Field Practice (the 3rd Cropping Stage) (2/4)

Major Farming Practices or Works	Jam/Kakoi P/P, Pallisa		Kasowe P/P, Bugin		Kajamaka P/P, Kumi		Muyembe P/P, Siriniko	
	Labour Requirement under Present Conditions (man-day/ha)	Labour Requirement under Advanced Conditions (man-day/ha)	Achievement to Advanced Conditions (%)	Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)	Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)	Averaged Labour Requirement with Farm Guidance (man-day/ha)
1 Preparation of "Nursery Beds"	0.54	0.5	100.0	0.5	100.0	0.5	100.0	0.5
2 Seed preparation & pre-germination treatment	0.3	0.2	100.0	0.2	100.0	0.2	100.0	0.2
3 Pre-irrigation & application of fertilizers to nursery beds	0.5	0.3	100.0	0.3	100.0	0.3	100.0	0.3
4 Sowing to nursery beds	0.3	0.3	100.0	0.3	100.0	0.3	100.0	0.3
5 Weeding, pest and diseases control	0.3	0.2	100.0	0.2	100.0	0.2	100.0	0.2
6 Irrigation water management	1.0	1.0	100.0	1.0	100.0	1.0	100.0	1.0
Sub-total	3.14	2.5	100.0	2.5	100.0	2.5	100.0	2.5
7 Bush and weed cleaning in paddy field (plots)	28.0	5.0	78.3	8.0	87.0	7.0	91.3	65.2
8 Application of compost	-	6.0	-	-	-	-	-	-
9 Ploughing and harrowing	30.0	23.0	85.7	23.0	100.0	23.0	71.4	42.9
10 Pre-irrigation ("Pudding Water") to paddy field (plots)	-	0.5	50.0	1.0	50.0	1.0	50.0	1.0
11 Puddling and leveling of soil surface in paddy plots	25.0	23.0	100.0	23.0	100.0	23.0	100.0	23.0
12 Draining-out an excessive water after precipitation of clay sediment	2.0	0.5	66.7	0.6	93.3	0.5	100.0	66.7
13 Application of basic fertilizers by "top dressing method"	-	1.0	-	-	-	-	-	-
Sub-total	85.0	59.0	100.0	56.6	109.2	58.0	48.2	33.0
14 Upr-ooting of seedlings	6.0	5.0	100.0	5.0	100.0	5.0	100.0	5.0
15 Plantation of seedlings	35.0	25.0	100.0	25.0	100.0	25.0	100.0	25.0
Sub-total	41.0	30.0	100.0	30.0	100.0	30.0	100.0	30.0
16 First weeding at initial tillering stage	28.0	10.0	72.2	15.0	72.2	16.0	66.7	20.0
17 First application of additional fertilizers for boosting tillering	-	1.0	-	-	-	-	-	-
18 First application of pesticides, fungicides, etc. as required	-	1.0	-	-	-	-	-	-
19 Irrigation and water management during young nursery stage	2.0	1.0	100.0	1.0	100.0	1.0	100.0	1.0
20 Second weeding at active tillering stage	20.0	5.0	46.7	10.0	66.7	10.0	66.7	13.0
21 Second application of pesticides, fungicides, etc. as required	-	1.0	-	-	-	-	-	-
22 Irrigation and water management during active tillering stage	1.5	1.0	100.0	1.0	100.0	1.0	100.0	1.0
23 Third weeding at the maximum tillering stage	10.0	5.0	40.0	8.0	40.0	5.0	100.0	8.0
24 Second application of additional fertilizers for panicle formation	-	-	-	-	-	-	-	-
25 Irrigation and water management during maximum tillering stage	1.5	1.0	100.0	1.0	100.0	1.0	100.0	1.0
26 Third application of additional fertilizers for vigorous heading	-	-	-	-	-	-	-	-
27 Third application of pesticides, fungicides, etc.	-	-	-	-	-	-	-	-
28 Irrigation and water management during heading stage	1.2	0.8	50.0	1.0	50.0	1.0	50.0	1.0
29 Fourth weeding & cut-off stalks affected by stem-borers	-	3.0	-	3.0	100.0	3.0	100.0	3.0
30 Fourth application of additional fertilizers for effective ripening	1.0	0.8	60.0	1.0	60.0	1.0	60.0	1.0
31 Irrigation and water management during ripening stage	30.0	10.0	18.0	18.0	60.0	20.0	50.0	20.0
32 Bird-scaring	1.0	0.5	1.0	1.0	0.0	1.0	0.0	0.0
33 Full-stop of irrigation	96.2	40.1	63.0	60.0	64.5	60.0	64.5	70.0
Sub-total	25.0	13.0	83.3	18.0	58.3	18.0	58.3	20.0
34 Harvesting and pre-drying of panicles	20.0	8.0	58.3	13.0	58.3	15.0	41.7	15.0
35 Threshing	7.0	3.0	100.0	3.0	100.0	3.0	100.0	3.0
36 Transportation of paddy from field to house yard	3.0	2.0	100.0	2.0	100.0	2.0	100.0	2.0
37 Drying and cleaning of paddy grains	55.0	26.0	69.0	37.0	62.1	38.0	58.6	43.0
Sub-total	280.34	157.6	74.0	186.1	76.8	188.5	74.8	52.7
Total	280.34	157.6	74.0	186.1	76.8	188.5	74.8	52.7

Note: 1) Labour requirement under the present conditions is an average figure obtained through farm survey in the Study Area
 2) Labour requirement under advanced conditions is the average figure that is being widely accepted in the Southeast Asia.
 3) Labour intensity in advanced conditions is as small as 41% of the present conditions of Eastern Uganda.

Table 2.2.11 Improvement Effect of Paddy Cultivation Practices in Terms of Labour Intensity in Each Field Practice (the 3rd Cropping Stage) (3/4)

Major Farming Practices or Works	Labour Requirement under Present Conditions (man-day/ha)	Labour Requirement under Advanced Conditions (man-day/ha)	Nambigwa P/P, Nantambwa		Mwenge P/P, Butaleje		Igembe P/P, Kaliro		Wera P/P, Amuria		Tembala P/P, Masina		Kolaki P/P, Kaberamaido	
			Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)	Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)	Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)	Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)	Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)	Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)
1. Preparation of "Nursery Beds"	0.54	0.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2. Seed preparation & pre-germination treatment	0.3	0.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3. Pre-irrigation & application of fertilizers to nursery beds	0.5	0.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
4. Sowing to nursery beds	0.5	0.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5. Weeding, pest and diseases control	0.3	0.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6. Irrigation water management	1.0	1.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sub-total	3.14	2.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
7. Bush and weed clearing in paddy field (plots)	28.0	5.0	43.5	18.0	65.2	13.0	65.2	78.3	15.0	56.5	8.0	87.0	10.0	78.3
8. Application of compost	6.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-
9. Ploughing and harrowing	30.0	23.0	24.0	85.7	23.5	78.0	26.8	45.7	27.0	42.9	25.0	71.4	25.0	71.4
10. Pre-irrigation ("Puddling Water") to paddy field (plots)	0.5	0.5	1.0	50.0	1.0	50.0	1.0	50.0	1.0	50.0	1.0	50.0	1.0	50.0
11. Puddling and leveling of soil surface in paddy plots	23.0	23.0	23.5	75.0	23.5	75.0	24.4	30.0	23.7	65.0	23.0	100.0	23.5	75.0
12. Draining-out an excessive water after precipitation of clay sediment	2.0	0.5	0.7	86.7	0.7	86.7	-	-	1.0	66.7	0.5	100.0	0.5	100.0
13. Application of basic fertilizers by "top dressing method"	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total	85.0	59.0	67.2	53.9	61.7	70.6	61.2	70.0	67.7	52.4	57.5	83.3	60.0	75.8
14. Up-rotting of seedlings	6.0	5.0	5.2	80.0	5.1	90.0	5.2	80.0	5.5	50.0	5.0	100.0	5.2	80.0
15. Plantation of seedlings	35.0	25.0	26.0	90.0	25.5	95.0	27.0	80.0	28.0	70.0	25.0	100.0	25.0	100.0
Sub-total	41.0	30.0	31.2	89.1	30.6	94.5	32.2	80.0	33.5	68.2	30	100.0	30.2	98.2
16. First weeding at initial tillering stage	28.0	10.0	15.0	72.2	13.0	83.3	17.0	61.1	17.5	58.3	15.0	72.2	16.5	63.9
17. First application of additional fertilizers for boosting tillering	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-
18. First application of pesticides, fungicides, etc. as required	2.0	2.0	1.3	70.0	1.0	100.0	1.2	80.0	1.5	30.0	1.0	100.0	1.0	100.0
19. Irrigation and water management during young nursery stage	20.0	5.0	10.0	66.7	9.0	73.3	10.0	66.7	15.0	33.3	8.0	80.0	9.0	73.3
20. Second weeding at active tillering stage	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21. Second application of pesticides, fungicides, etc. as required	1.5	1.0	1.2	60.0	1.1	80.0	1.1	80.0	1.0	100.0	1.0	100.0	1.0	100.0
22. Irrigation and water management during active tillering stage	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23. Third weeding at the maximum tillering stage	10.0	5.0	7.0	60.0	6.5	70.0	6.0	80.0	8.0	40.0	6.5	70.0	7.0	60.0
24. Second application of additional fertilizers for panicle formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25. Irrigation and water management during maximum tillering stage	1.5	1.0	1.2	60.0	1.1	80.0	1.1	80.0	1.0	100.0	1.0	100.0	1.0	100.0
26. Third application of additional fertilizers for vigorous heading	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27. Third application of pesticides, fungicides, etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28. Irrigation and water management during heading stage	1.2	0.8	1.0	50.0	1.0	50.0	1.0	50.0	1.0	50.0	1.0	50.0	1.0	50.0
29. Fourth weeding & cut-off stalks affected by stem-borers	3.0	3.0	-	-	-	-	-	-	-	-	-	-	-	-
30. Fourth application of additional fertilizers for effective ripening	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31. Irrigation and water management during ripening stage	1.0	0.8	1.0	25.0	1.0	25.0	1.0	25.0	1.0	10.0	1.0	25.0	1.0	25.0
32. Bird-scaring	30.0	10.0	25.0	25.0	15.0	75.0	15.0	75.0	25.0	25.0	10.0	100.0	10.0	100.0
33. Full-stop of irrigation	1.0	0.5	1.0	0.0	0.0	0.0	0.5	100.0	1.0	0.0	1.0	0.0	1.0	0.0
Sub-total	96.2	40.1	63.7	58.0	49.7	83.0	53.9	75.5	72.0	43.1	45.5	90.5	48.5	85.1
34. Harvesting and pre-drying of panicles	25.0	13.0	20.0	41.7	20.0	41.7	15.0	83.3	20.0	41.7	15.1	82.5	15.1	82.5
35. Threshing	20.0	8.0	15.0	41.7	15.0	41.7	15.0	41.7	15.0	41.7	15.0	41.7	13.0	58.3
36. Transportation of paddy from field to house yard	7.0	3.0	7.0	0.0	5.0	50.0	4.0	75.0	5.0	50.0	3.0	50.0	6.0	25.0
37. Drying and cleaning of paddy grains	3.0	2.0	3.0	3.0	2.0	100.0	2.0	100.0	2.0	3.0	2.5	50.0	3.0	50.0
Sub-total	55.0	26.0	45.0	34.5	42.0	44.8	36.0	65.5	43.0	41.4	37.6	60.0	36.6	63.4
Total	280.34	157.6	209.55	57.7	186.45	76.5	185.77	77.0	218.77	50.2	173.1	87.4	177.8	83.6

Note 1) Labour requirement under the present conditions is an average figure obtained through farm survey in the Study Area
 2) Labour requirement under advanced conditions is the average figure that is being widely accepted in the Southeast Asia.
 3) Labour intensity in advanced conditions is as small as 41% of the present conditions of Eastern Uganda.

Table 2.2.11 Improvement Effect of Paddy Cultivation Practices in Terms of Labour Intensity in Each Field Practice (the 3rd Cropping Stage) (4/4)

	Major Farming Practices or Works	Labour Requirement under Present Conditions (man-day/ha)	Labour Requirement under Advanced Conditions (man-day/ha)	Nawankoko P/P, Mayuge		Sibimba P/P, Busia		Gweri P/P, Soroti	
				Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)	Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)	Averaged Labour Requirement with Farm Guidance (man-day/ha)	Achievement to Advanced Conditions (%)
1	Preparation of "Nursery Beds"	0.54	0.5	0.5	100.0	0.5	100.0	0.5	25.0
2	Seed preparation & pre-germination treatment	0.3	0.2	0.2	100.0	0.2	100.0	0.2	100.0
3	Pre-irrigation & application of fertilizers to nursery beds	0.5	0.3	0.3	100.0	0.3	100.0	0.4	75.0
4	Sowing to nursery beds	0.5	0.3	0.3	100.0	0.3	100.0	0.3	100.0
5	Weeding, pest and diseases control	0.3	0.2	0.2	100.0	0.2	100.0	0.3	50.0
6	Irrigation water management	1.0	1.0	1.0	100.0	1.0	100.0	1.0	100.0
	Sub-total	3.15	2.5	2.5	100.0	2.5	100.0	2.6	80.0
7	Bush and weed clearing in paddy field (plots)	28.0	5.0	10.0	78.3	15.0	56.5	15.0	56.5
8	Application of compost	-	6.0	-	-	-	-	-	-
9	Ploughing and harrowing	30.0	23.0	25.0	71.4	23.0	100.0	24.0	85.7
10	Pre-irrigation ("Puddling Water") to paddy field (plots)	-	0.5	-	-	-	-	-	-
11	Puddling and leveling of soil surface in paddy plots	25.0	23.0	24.0	50.0	23.0	100.0	25.0	0.0
12	Draining-out an excessive water after precipitation of clay sediment	2.0	0.5	1.0	66.7	1.0	66.7	1.0	-
13	Application of basic fertilizers by "top dressing method"	-	1.0	-	-	-	-	-	-
	Sub-total	85.0	59.0	60.0	96.2	62.0	88.5	65	58.8
14	Up-rooting of seedlings	6.0	5.0	5.0	100.0	5.0	100.0	5.2	80.0
15	Plantation of seedlings	35.0	25.0	25.0	100.0	25.0	100.0	27.0	80.0
	Sub-total	41.0	30.0	30.0	100.0	30.0	100.0	32.2	80.0
16	First weeding at initial tillering stage)	28.0	10.0	15.0	72.2	18.0	55.6	20.0	44.4
17	First application of additional fertilizers for boosting tillering	-	-	-	-	-	-	-	-
18	First application of pesticides, fungicides, etc. as required	-	1.0	-	-	-	-	-	-
19	Irrigation and water management during young nursery stage	2.0	1.0	1.0	100.0	1.0	100.0	1.0	100.0
20	Second weeding at active tillering stage	20.0	5.0	10.0	66.7	13.0	46.7	15.0	33.3
21	Second application of pesticides, fungicides, etc. as required	-	1.0	-	-	-	-	-	-
22	Irrigation and water management during active tillering stage	1.5	1.0	1.0	100.0	1.0	100.0	1.0	100.0
23	Third weeding at the maximum tillering stage	10.0	5.0	7.0	60.0	8.0	40.0	8.0	40.0
24	Second application of additional fertilizers for panicle formation	-	-	-	-	-	-	-	-
25	Irrigation and water management during maximum tillering stage	1.5	1.0	1.0	100.0	1.0	100.0	1.0	100.0
26	Third application of additional fertilizers for vigorous heading	-	-	-	-	-	-	-	-
27	Third application of pesticides, fungicides, etc.	-	-	-	-	-	-	-	-
28	Irrigation and water management during heading stage	1.2	0.8	1.0	50.0	1.0	50.0	1.0	50.0
29	Fourth weeding & cut-off stalks affected by stem-borers	-	3.0	3.0	100.0	3.0	100.0	3.0	100.0
30	Fourth application of additional fertilizers for effective ripening	-	-	-	-	-	-	-	-
31	Irrigation and water management during ripening stage	1.0	0.8	1.0	0.0	1.0	0.0	1.0	0.0
32	Bird-scaring	30.0	10.0	20.0	50.0	18.0	60.0	20.0	50.0
33	Full-stop of irrigation	1.0	0.5	1.0	0.0	1.0	0.0	1.0	0.0
	Sub-total	96.2	40.1	61.0	62.7	66.0	53.8	72.0	43.1
34	Harvesting and pre-drying of panicles	25.0	13.0	18.0	58.3	18.0	58.3	15.0	83.3
35	Threshing	20.0	8.0	15.0	41.7	15.0	41.7	15.0	41.7
36	Transportation of paddy from field to house yard	7.0	3.0	5.0	50.0	5.0	50.0	5.0	50.0
37	Drying and cleaning of paddy grains	3.0	2.0	2.0	100.0	2.0	100.0	2.0	100.0
	Sub-total	55.0	26.0	40.0	51.7	40.0	51.7	37.0	62.1
	Total	280.35	157.6	193.5	70.8	200.5	65.1	208.83	58.3

Note 1) Labour requirement under the present conditions is an average figure obtained through farm survey in the Study Area
2) Labour requirement under advanced conditions is the average figure that is being widely accepted in the Southeast
3) Labour intensity in advanced conditions is as small as 41% of the present conditions of Eastern Uganda.