RSSP3 End-line Survey Report

The Third Rural Sector Support Program (RSSP3) was implemented by the Ministry of Agriculture and Animal Resources (MINAGRI) with aim of (i) increasing the agricultural productivity of organized farmers in the marshlands and hillsides of sub-watersheds targeted for development in an environmentally sustainable manner; and (ii) Strengthening the participation of women and men beneficiaries in market-based value chains.

Within each RSSP3 site, activities have been implemented by households which are grouped into farmer self-help groups (SHGs) and cooperatives formed by the project. The end-line survey was carried out in order to provide end-line representative information to measure the overall impact of the project. Therefore, this report provides a description of the level of target achievements for the project outcome indicators as highlighted in the project's results framework.

1. Characteristics of the respondents

The end-line survey was conducted on 662 farmers, from 9 districts (Appendix 1), who cultivate plots located both in marshlands and hillsides. Table 1 indicates that 40% and 60% of the respondents were females and males respectively; and 46.7% and 53.3% of them cultivate plots that are located in marshland and hillside sites respectively.

Table 1: Distribution of respondents by location and by gender (%)

Location	Female	Male	Total
Hillside (n=309)	52.8	42.6	46.7
Marshland (n=353)	47.2	57.4	53.3
Total (n=662)	**40.0**	**60.0**	**100.0**

2. Findings for key indicators in the results framework

2.1 Adoption of Agricultural technologies

Agricultural technologies promoted by the project include conservation tillage, agro-forestry, intercropping with plant cover, grass strip, soil bund, improved bench terraces, improved narrow-cut bench terraces, strengthening terrace risers with legume and grasses, connecting drainage canals to cut-off drains, waterways, connecting cut-off drains to waterways, construction of micro-basins with tree planting, reforestation, green Manure, and mulching. Results indicated that 95.5% of women and 96.5% of men had adopted any of those technologies.

2.2 Irrigation and water fee payment

Figure 1 indicates that 90% of the sample households had plots irrigated for both 2017B and 2018A, with water coming mainly from dams, marshland irrigation, and streams (Figure 2). Every water user is supposed to pay for any fee for maintenance of the irrigation structures. Results revealed that 87.4% of those whose plots were irrigated paid water fees.

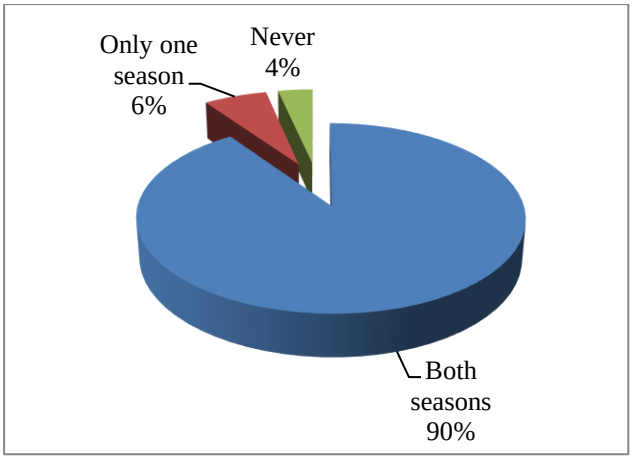

Figure 1: HHs with plots irrigated for both 2017B and 2018A

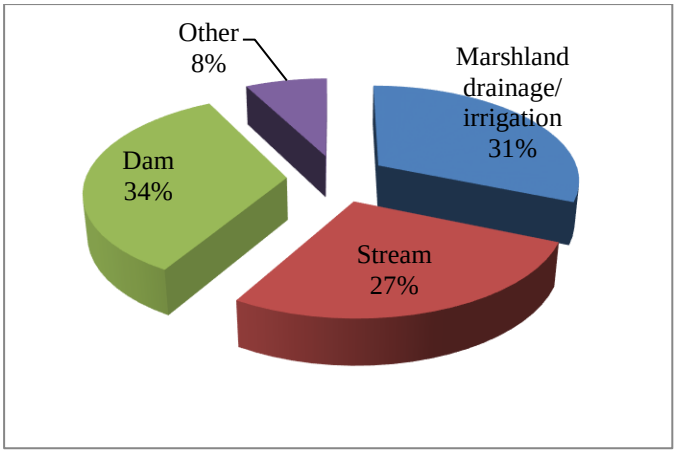

Figure 2: Sources of water for irrigation

2.3 Extension

Findings revealed that at least 98% of the respondents cultivate on developed plots both in marshlands and hillsides. Major crops that were cultivated include rice in marshlands, while maize and beans were cultivated in hillsides. On average, 95% of the farmers in marshlands and 83% on hillsides grew these crops occupying their plots at 100% (Appendix 2). This is a good indication of adoption of mono-cropping farming system mainly on hillside.

Regarding the application of fertilizers, results in Table 2 (and Appendix 3) indicate that organic fertilizers (compost and animal manure) were highly applied on hillsides than in marshlands. However, inorganic fertilizers (NPK, DAP, UREA) were highly applied in marshlands than on hillsides. Furthermore, 88% and 93.8% of the sample farmers applied any type of fertilizers (either organic or inorganic) on hillsides during 2017B and 2018A respectively; whereas, 94.1% and 85.8% of them applied any type of fertilizers in marshlands hillsides during 2017B and 2018A respectively. It is worthy to mention that at least 90% of the project beneficiaries apply fertilizers in their farming activities.

Table 2: Application of fertilizers among sample farmers (%)

	2017B	2018A
Use of organic fertilizer		
• Hillside	78.6	74.1
• Marshland	18.1	19.3
• Total	46.4	44.9
Use of inorganic fertilizer		
• Hillside	65.7	68.0
• Marshland	93.8	92.6
• Total	80.7	81.1
Use of any type of fertilizer		
• Hillside	88.0	93.8
• Marshland	94.1	85.8
• Total	91.2	90.0

2.4 Livestock and asset ownership

Survey findings indicates that 87.2% of the households own any type of livestock with 49% of them owning cows, 57.2% for goats, 24.2% for pigs, and 12.4% for rabbits. Also, 89.4% the HHs own at least a radio (67.8% of the HHs own at least one radio), or a mobile phone (81% of them own at least one mobile phone), and 35.1% of them own bicycles.

2.5 Rural finance

RSSP3 promoted financial inclusion in its intervention areas. Results in Table 3 indicate that farmers with plots in marshlands outscored their counterparts in hillsides with respect to owning individual accounts in formal financial institutions (mainly in SACCOs), saving money and using mobile money in making financial transactions.

Table 3: Use of financial services among project beneficiaries (%)

	Hillside	Marshland
Saving money in any source (%)	91.9	99.2
Use of Mobile Money (%)	39.3	48.4
Individual account in a formal FI	80.3	87.5

2.6 Crop production, productivity and commercialization

The project built capacity and empowers farmers to use improved and economically viable practices for sustainable soil, water and pest management with a view of increasing agricultural productivity and profitability. The average land allocated to crop production was 2,563 m^2 in hillsides and 2,245 m^2 in marshlands (Appendix 4). Table 4 indicates that average productivity for maize was 3.3 tons per ha, 2 tons per ha for beans and 6.3 tons per ha for rice in 2017B; while it was 2.8 tons per ha for maize, 2.8 tons per ha for beans and 8.1 tons per ha for rice in 2018A. Generally, farmers who were used to grow maize, beans and other crops in marshlands before their development, are benefiting from high productivity of rice in developed or rehabilitated marshlands by the project.

Table 4: Crop productivity of targeted areas

	2017B			2018A		
	Productivity (Kg/ha)	**Productivity (FRW/ha)**	**Productivity ($/ha)[1]**	**Productivity (Kg/ha)**	**Productivity (FRW/ha)**	**Productivity ($/ha)[2]**
Hillside		755,193	909.6		842,653	991
• Maize	3,327.8	831,950	1,002.1	2,855.7	713,925	840
• Beans	1,995.4	678,436	817.2	2,857	971,380	1,143
Marshland						
• Rice	6,448.7	1,870,123	2,252.6	8,143.8	2,426,852	2,855

With respect to crop commercialization, RSSP3 built capacity of farmers for value chain development through enhancing their understanding of agribusiness principles; that is building

[1] Average exchange rate: FRW 830.221761/$1 on 30 June 2017
[2] Average exchange rate: FRW 850.006713/$1 on 28 February 2018

the capacity of farmers for market oriented farming at producer, cooperative and the agribusiness centre levels including half-bulk markets. Table 5 indicates that share of commercialization is higher for farmers in marshlands than those in hillsides. Further, the share of commercialization was higher for men than for women (Table 6).

Table 5: Average quantity harvested and commercialized

Crop	2017B			2018A		
	Harvested (Kg)	Sold (Kg)	% sold	Harvested (Kg)	Sold (Kg)	% sold
Rice	990.9	947.3	92.8	985	946.4	93.3
Beans	150.2	59	29.2	143	58.6	28.6
Maize	222.7	122.6	42.8	256.7	144.4	35.2
HHs sold any crop (%)						
• Hillside			36.9			35.8
• Marshland			91.0			90.5
• Overall			65.7			65.3

Table 6: Share of crop commercialization by gender and plot location

Plot location	2017B		2018A	
	Men	Women	Men	Women
Hillside	40.2	32.8	40.7	29.6
Marshland	91.5	90.1	92.0	88.0

2.7 Food security among sample households

The project indirectly intended to improve food security status of its beneficiaries. Survey results indicate that 68.3% of the sample households fall into acceptable food consumption category (Table 7).

Table 7: Food consumption profiles of the sample beneficiaries (%)

	Hillside	Marshland	All
Poor	11.3	7.9	9.5
Borderline	22.7	21.8	22.2
Acceptable	66.0	70.3	68.3

3. Impact of RSSP3 for its beneficiaries

The project intended to increase the agricultural productivity of organized farmers in the marshlands and hillsides and to strengthen the participation of women and men beneficiaries in market-based value chains, Table 8 shows that the project's achievement was 207.6% and 95.5% in increasing productivity in marshlands and hillsides respectively. Similarly, the participation of women and men beneficiaries in market-based value chains was higher in marshlands than in hillsides.

Table 8: Impact of RSSP3

No	PDO Result Indicators	UoM	Baseline	Target values end Project	Actual (2018A)	% achieved vis-à-vis targets
1	Productivity of targeted irrigated marshland	($/Ha)	662	1,375	2,855	207.6
	Productivity of targeted non-irrigated hillside areas	($/Ha)	470	1,038	991	95.5
2	Share of commercialized agricultural products from target marshland areas disaggregated by gender	(%)	Women 43.1% Men 44.7%	Women 90% Men 90%	Women 88% Men 92%	Women 97.8 Men 102.2
	Share of commercialized agricultural products from target hillside areas disaggregated by gender	(%)	Women 43.1% Men 44.7%	Women 60% Men 60%	Women 29.6% Men 40.7%	Women 49.3 Men 67.8

4. Conclusion

The end-line survey found out an increased agricultural productivity for farmer beneficiaries both in marshlands and hillsides. Also, participation of women and men beneficiaries in market-based value chains was more improved in marshlands than in hillsides. Thus, more efforts are needed to strengthen their participation in hillside sites.

APPENDICES

Appendix 1: Distribution of respondents by district, location and gender

District	n (%)	Marshland sites			Hillside sites			Combined		
		Female	Male	Total	Female	Male	Total	Female	Male	Total
Gatsibo	n	36	60	96	6	23	29	42	83	125
	%	*28.8*	*26.3*	*27.2*	*4.3*	*13.6*	*9.4*	*15.9*	*20.9*	*18.9*
Gisagara	n	9	23	32	12	17	29	21	40	61
	%	*7.2*	*10.1*	*9.1*	*8.6*	*10.1*	*9.4*	*7.9*	*10.1*	*9.2*
Huye	n	4	2	6	16	9	25	20	11	31
	%	*3.2*	*0.9*	*1.7*	*11.4*	*5.3*	*8.1*	*7.6*	*2.8*	*4.7*
Kayonza	n	22	36	58	44	51	95	66	87	153
	%	*17.6*	*15.8*	*16.4*	*31.4*	*30.2*	*30.7*	*24.9*	*21.9*	*23.1*
Ngoma	n				11	6	17	11	6	17
	%				*7.9*	*3.6*	*5.5*	*4.2*	*1.5*	*2.6*
Nyagatare	n	5	27	32				5	27	32
	%	*4.0*	*11.8*	*9.1*				*1.9*	*6.8*	*4.8*
Nyamasheke	n	41	48	89	51	63	114	92	111	203
	%	*32.8*	*21.1*	*25.2*	*36.4*	*37.3*	*36.9*	*34.7*	*28.0*	*30.7*
Nyanza	n	0	2	2				0	2	2
	%	*0.0*	*0.9*	*0.6*				*0.0*	*0.5*	*0.3*
Rusizi	n	8	30	38				8	30	38
	%	*6.4*	*13.2*	*10.8*				*3.0*	*7.6*	*5.7*
Total	**n**	**125**	**228**	**353**	**140**	**169**	**309**	**265**	**397**	**662**
	%	***35.4***	***64.6***	***100.0***	***45.3***	***54.7***	***100.0***	***40.0***	***60.0***	***100.0***

Appendix 2: Farming practice among project beneficiaries

	Location	2017B	2018A
Cultivation on developed plot	Marshland	98.0	98.0
	Hillside	98.7	98.4
Major crops cultivated	Marshland		
	• *Rice*	94.7	94.1
	• *Beans*	1.5	1.8
	• *Maize*	2.0	2.1
	Hillside		
	• *Beans*	52.8	30.0
	• *Maize*	34.0	57.3
Proportion of HHs that grew crops on their plots at 100%.	Marshland	94.7	98.0
	Hillside	83.4	84.0

Appendix 3: Fertilizer application by type of fertilizers (% HHs)

Location and type of fertilizers	2017B	2018A
Marshland		
• *Compost*	9.6	10.0
• *Animal Manure*	10.9	11.6
• *NPK*	92.3	89.3
• *Urea*	94.4	94.1
• *DAP*	8.1	10.6
• *Lime*	1.5	0.9
• *Pesticides*	41.9	42.4
Hillside		
• *Compost*	45.4	40.3
• *Animal Manure*	45.7	44.8
• *NPK*	16.0	12.8
• *Urea*	39.3	54.2
• *DAP*	52.0	56.4
• *Lime*	8.0	7.1
• *Pesticides*	9.3	13.5

Appendix 4: Average area (m^2) cultivated by plot location

Location	Mean	Std. Dev	min	Max
Hillside	2,563	4,628	15	40,000
Marshland	2,245	2,705	42	20,000
Total	**2,393**	**3,724**	**15**	**40,000**