

The Republic of Rwanda

Ministry of Agriculture and Animal Resources

**THE STUDY ON
SUSTAINABLE RURAL AND AGRICULTURAL DEVELOPMENT
IN
BUGESERA DISTRICT, EASTERN PROVINCE
IN
THE REPUBLIC OF RWANDA**

FINAL REPORT

ANNEX

January 2009

**JAPAN INTERNATIONAL COOPERATION AGENCY
SANYU CONSULTANTS INC.
NIPPON KOEI CO., LTD.**

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ANNEX I BACKGROUND OF THE STUDY

Pamphlet in English Version

Pamphlet in Kinyarwanda Version

Pamphlet in French Version

Quick Project and Pilot Project

Quick Projects: QPs

QPs are implemented (1) as a part of the Study in order to formulate Draft Action Plan, (2) to obtain immediate results for diversification of income sources and improvement of living conditions, (3) as measures to derive initiatives from local population, and (4) as entry points for the Pilot Project.

Pilot Projects: PPs

The purpose of PPs is to verify the Draft Action Plan with regard to (1) the effectiveness and appropriateness of the plan, (2) methods and effectiveness of expansion of the projects contained in the Draft Action Plan. The achievements and lessons learned from the PPs will be reflected in the Action Plan. Furthermore, the PPs aim at (3) building capacity of administrative staff (District, Sectors, Cells and agricultural research/extension bodies) and local organizations.

Overall Goal of the Study

Overall Goal:

Rural and agricultural development is carried out by the initiatives of local population with the administrative support of Bugesera District.

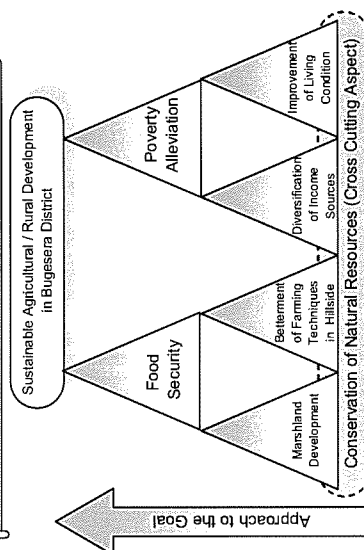
Study Purpose (1):

Sustainable food security through marshland development and betterment of farming techniques in hillside, improvement of livelihood by diversifying income sources, and improvement of living conditions for the population of Bugesera District are fulfilled, ultimately poverty is mitigated.

Study Purpose (2):

Natural environment of Bugesera District is properly maintained.

Approach to the Goal



THE STUDY ON SUSTAINABLE RURAL AND AGRICULTURAL DEVELOPMENT IN BUGESERA DISTRICT, EASTERN PROVINCE IN THE REPUBLIC OF RWANDA

Period : April 2006 - January 2009



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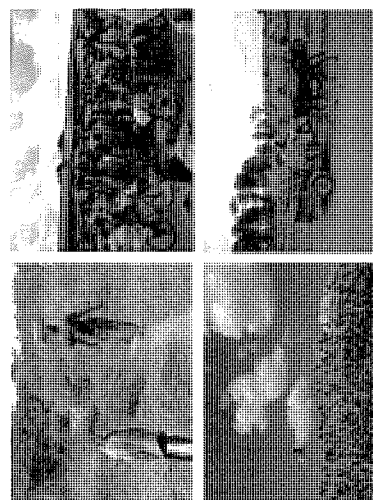
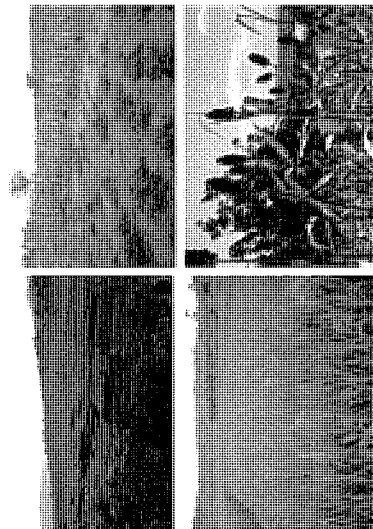
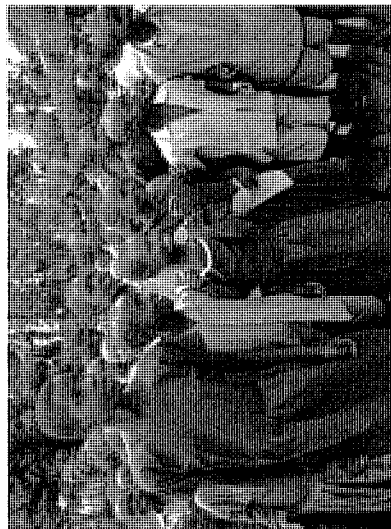
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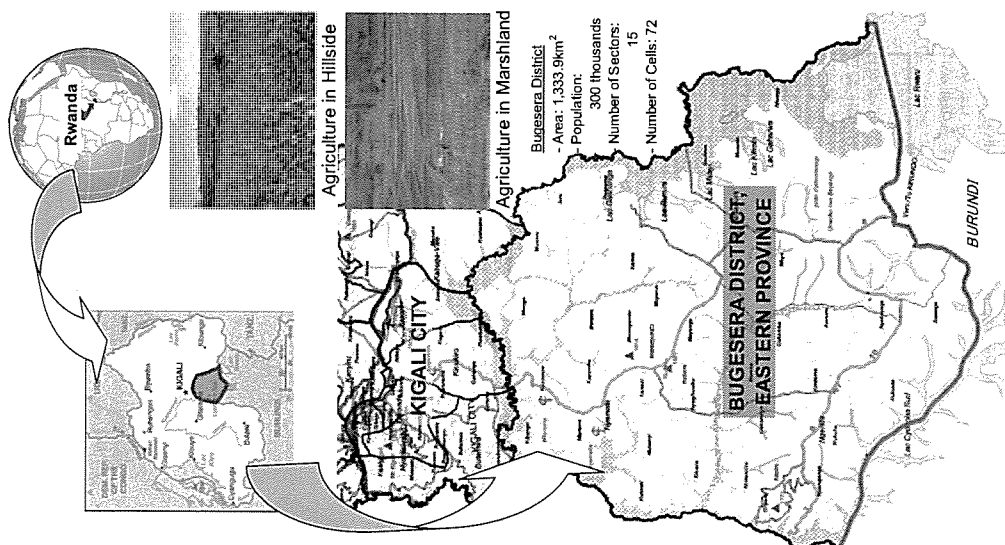


JAPAN
Japan International Cooperation Agency
(JICA)

THE STUDY ON SUSTAINABLE RURAL AND AGRICULTURAL DEVELOPMENT IN BUGESERA DISTRICT, EASTERN PROVINCE IN THE REPUBLIC OF RWANDA



The Study Area



Background of the Study

The Study Area, Bugesera District, has abundant water resources of its lakes and rivers, land resources like untapped marshlands, thus it is endowed with a high potentiality of development and available resources, though agricultural techniques remain in low level. The area has suffered from grave food shortage with a low level of food security, 52.8% in 2001, by far lower than the level of the national average 41.6%, owing to degradation of arable land by soil erosion and frequent drought in the hills.

With a view to improving such undesirable state, an action plan for agricultural and rural development has acutely been desired that envisages alleviation of poverty through the improvement of farming techniques in the hillside to harness food security in Bugesera District, as well as by means of soil conservation and exploitation of marshland and other means of improving livelihood against poverty and living conditions.

Objectives of the Study

Formulating an Action Plan for agricultural and rural development that reflects actual needs of local people and allows their own participation therein in a sustainable way.

Capacity building of the administrative staff (District, Sectors, Cells and agricultural research/extension bodies) and rural organizations is made through the implementation of a pilot project.

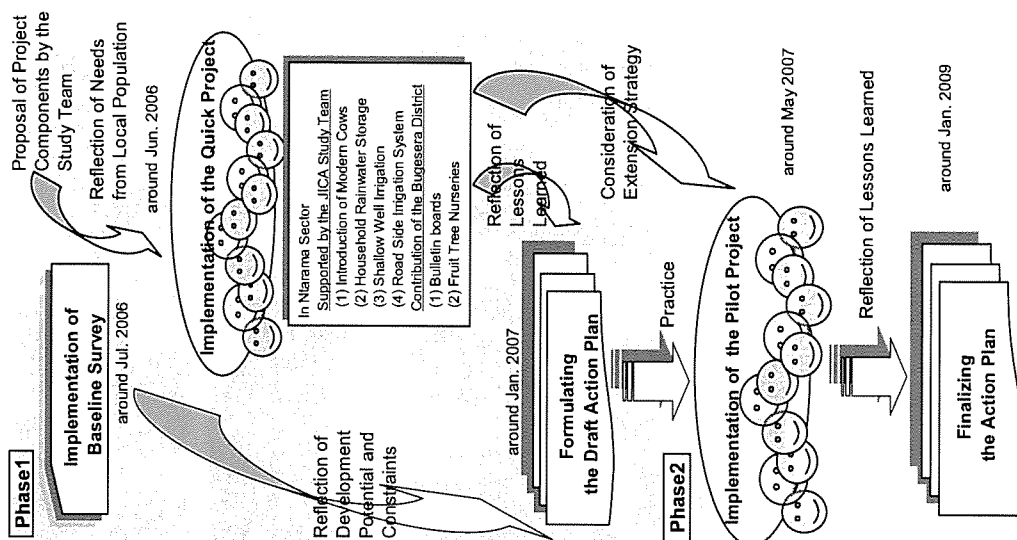
Action Plan

The Action Plan is aimed at demonstrating the activity plan (implementation bodies, purpose, schedule, etc.) necessary for urging agricultural and rural development of Bugesera District. The Action Plan is ranked as plan to heighten effectiveness of the District Development Plan under preparation. It also includes methods to carry out the projects by self-help effort of community, extension and expansion plan, and financial plan for development fund.

Schedule of the Study

Year	2006	2007	2008
Quarter	1 2 3 4	1 2 3 4	1 2 3 4
Phase 1			
Analysis of Current Situation			
Implementation of Baseline Survey			
Planning and Implementation of Quick Project			
Formulating the Draft Action Plan			
Planning the Pilot Project			
Phase 2			
Planning and Implementation of Pilot Project			
Interim Modification of the Draft Action Plan			
Finalizing the Action Plan			

Flowchart of the Study



Projet Rapide et Projet Pilote

Projet Rapide

Ce projet est exécuté (1) dans le cadre de cette étude pour formuler l'Avant-projet du Plan d'Action, (2) immédiatement pour diversifier les sources de revenus et améliorer les conditions de vie, (3) en tant que moyen de capter les initiatives de la population locale, et (4) en tant que porte d'entrée dans le Projet Pilote.

Projet Pilote

Ce projet vise à vérifier l'Avant-Projet du Plan d'Action en ce qui est (1) l'applicabilité et l'opportunité du Plan, (2) les méthodes et faisabilité de l'extension des projets formulés dans l'Avant-projet du Plan d'Action du site d'expérimentation à toute la région. Des résultats et leçons tirés du Projet Pilote sont traduits dans le Plan d'Action. En plus, le Projet vise à (3) renforcer les capacités du personnel (du District, des Secteurs, Cellules et des instituts de recherche/vulgarisation agricole) et des organisations rurales.

But Global de l'Etude

But Global:

Le développement rural et agricole passe par les initiatives de la population locale assistée par les autorités administratives du District de Bugesera.

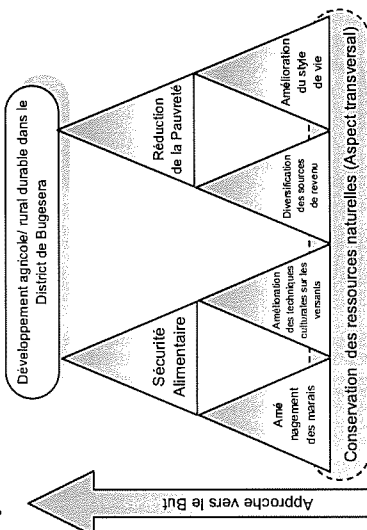
Objectif de l'Etude (1):

Parvenir à la sécurité alimentaire durable en passant par l'aménagement des marais et l'amélioration des techniques agricoles sur les versants, amélioration des moyens d'existence par la diversification des sources de revenus et l'amélioration des conditions de vie de la population du district de Bugesera, par la suite, la pauvreté est réduite.

Objectif de l'Etude (2):

L'environnement naturel du district de Bugesera est bien conservé.

Approche vers le But



ETUDE DE DEVELOPPEMENT RURAL ET AGRICOLE DURABLE DANS LE DISTRICT DE BUGESERA, PROVINCE DE L'EST, REPUBLIQUE DU RWANDA

Durée d'étude: Avril 2006 - Janvier 2009



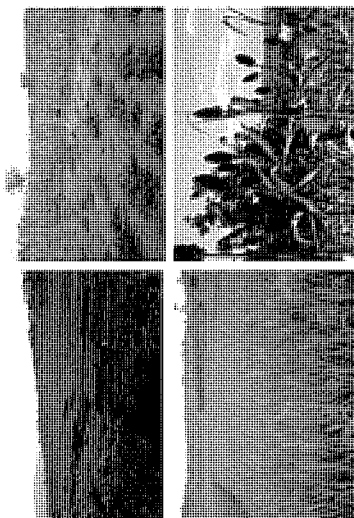
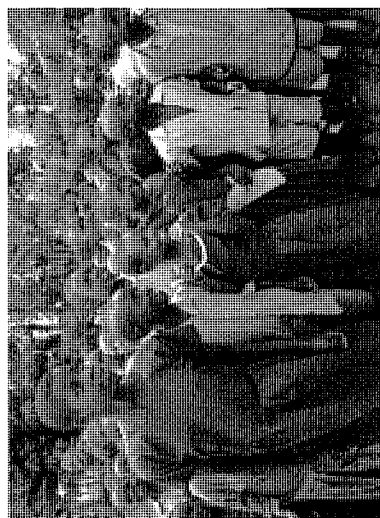
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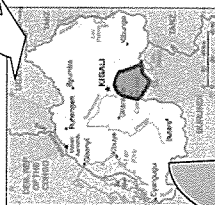
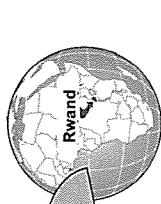
Agence Japonaise de Coopération Internationale (JICA)
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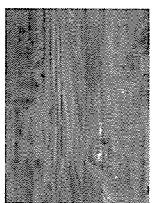
ETUDE DE DEVELOPPEMENT RURAL ET AGRICOLE DURABLE DANS LE DISTRICT DE BUGESERA, PROVINCE DE L'EST REPUBLIQUE DU RWANDA



Zone de l'Etude

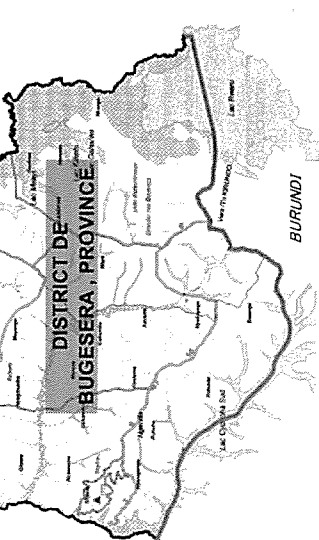


Agriculture sur les versants



Agriculture dans les marais

District de Bugesera
Superficie: 1.333,9km²
Population: 300.000
Nombre des Secteurs: 15
Nombre des Cellules: 72



Contexte de l'Etude

La zone d'étude, le District de Bugesera, regorge d'énormes ressources en eau de par ses lacs et rivières et des ressources en sol comme ses marais non encore exploités. La région présente une grande potentialité pour le développement et dispose des ressources bien que les techniques agricoles soient encore moins avancées. Étant donné la dégradation de la terre arable par l'érosion du sol et les sécheresses cycliques, la région a connu des disettes qui ont fait descendre le seuil de sécurité alimentaire jusqu'à 52,8 % en 2001, dépassant de loin la moyenne nationale de 41,6%.

Dans le cadre d'améliorer cette situation, combien indésirable, il a été fortement souhaité un Plan d'Action de Développement Rural et Agricole qui envisage la réduction de la pauvreté à travers l'amélioration des techniques agricoles sur les versants en vue de maintenir la sécurité alimentaire dans le District de Bugesera, la conservation des sols et l'exploitation des marais et d'autres moyens pouvant améliorer les conditions de vie de la population, combattre la pauvreté et améliorer les conditions de vie de la population.

Les objectifs de l'Etude

Elaboration d'un Plan d'Action de Développement Rural et Agricole qui reflète les besoins réels de la population locale et permet de manière durable leur participation dans le développement.

Le renforcement des capacités du personnel administratif (District, Secteurs, Cellules et des Instituts de recherche agricole) et des organisations rurales se fait à travers l'exécution d'un projet pilote.

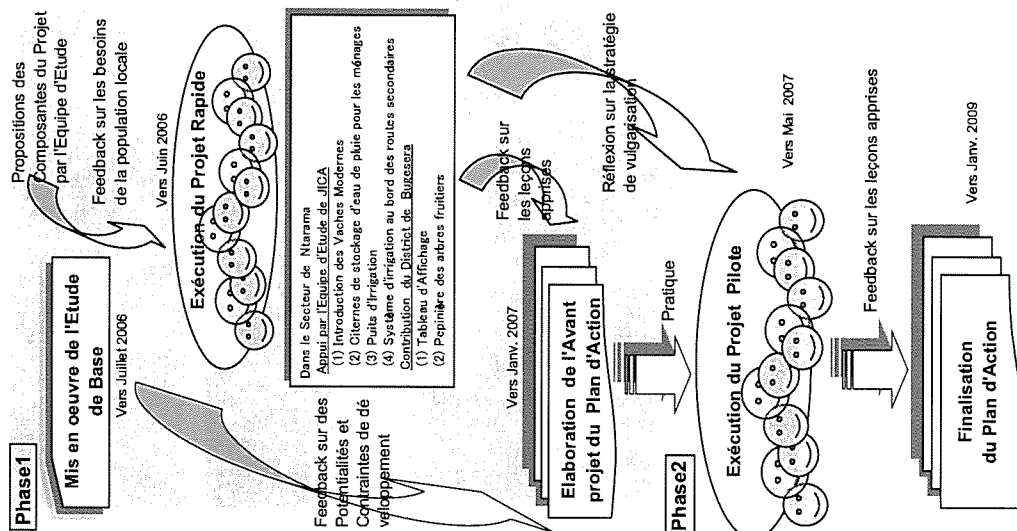
Plan d'Action

Le Plan d'Action vise à démontrer le plan des activités (Exécutants, objectifs et calendrier des activités etc.) qu'il faut pour presser le développement rural et agricole du District de Bugesera. Le Plan d'Action se veut être un Plan qui va renforcer le Plan de Développement du District de Bugesera en cours de préparation. Il comprend aussi les méthodes d'exécution des projets par la communauté elle-même, le plan de vulgarisation et d'extension, et le plan financier pour le fond de développement.

Calendrier de l'Etude

Année	2006	2007	2008
Trimestre	1 2 3 4	1 2 3 4	1 2 3 4
Phase 1			
Analyse de la Situation Actuelle			
Mis en œuvre de l'Etude de Base			
Planification et Exécution du Projet Rapide			
Elaboration de l'Avant-projet du Plan d'Action			
Planification du Projet Pilote			
Phase 2			
Planification et Exécution du Projet Pilote			
Modification provisoire de l'Avant-projet du Plan d'Action			
Finalisation du Plan d'Action			

Organigramme de l'évolution de l'étude



Umushinga Wihuse n'Umushinga w'icyitegererezo

Umushinga Wihuse

Uwo mushinga ushyirwa mu bikorwa (1) nka kimwe mu bigize inyigo hagamiye gukorwa Imbanzirizamushinga y'iteganyamibiri, (2) Kugira ngo uhitwe ufasha abaturage kubona ibintu binyuranye bibasha amafaranga kandi imibereho yabo irushaho kuba myiza, (3) ni uburyo bwo kubona ibyifuzo by'abaturage, kandi (4) utegurira Umushinga w'icyitegererezo.

Umushinga w'icyitegererezo

Ugarije gusuzuma Imbanzirizamushinga y'iteganyamibiri (1) Niba iboneye, (2) herekanwa uburyo n'ukuntu imishinga irakubiyemo izagazwa ku baturage, ibyo umushinga uzageraho n'amasomo azawuvamo bizagarazwa mu Mbanzirizamushinga y'iteganyamibiri. Byongeye kandi, uwo mushinga (3) uzongerera ubushobozi abakozi (baba abo mu karere, imirenge, utagari n'abo mu bigo by'ubushakashatsi mu by'ubuhinzi) n'imiryango ikorana n'abaturage.

Intego rusange y'inyigo

Intego rusange:

Iterambere ry'icyaro n'ubuhinzi rinyuze mu bitekerezo n'byifuzo by'abaturage bahashijwe n'abayobozi b'Akarere ka Bugesera.

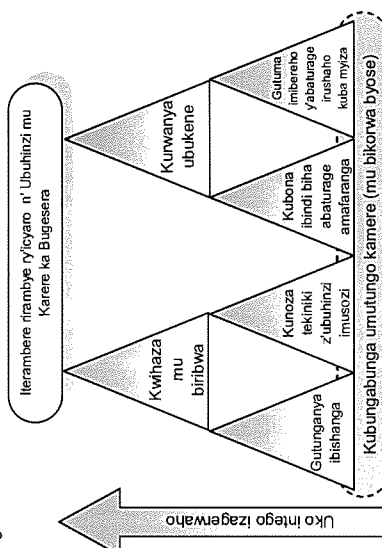
Intego yihariye (1):

Kwihaza mu biribwa habayazwa umusururo ibishanga kandi tekini z'ubuhinzi imusozi zikarusaho kunozwa, kongera ibishobora kubeshaho abaturage haboneka ibintu binyuranye biba amafaranga, no gutuma imibereho y'abaturage Akarere ka Bugesera irushaho kuba myiza, biyo ubukene buhashyirwa.

Intego yihariye (2):

Kubungabunga neza ibidukikije mu Karere ka Bugesera.

Uko intego izagerwaho

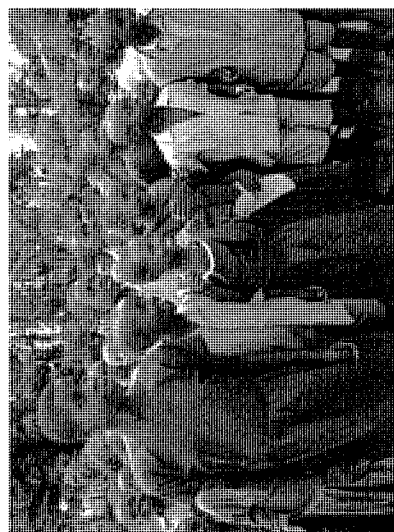


Ikigo cy'Abayapani Gishinzwe Iterambere
Muzamahanga (JICA)



Repubulika y'u Rwanda
Ministeri y'ubuhinzi
n'ubworozi
(MINAGRI)

INYIGO KU ITERAMBERE RIRAMBYE RY'ICYARO N'UBUHINZI MU KARERE KA BUGESERA, INTARA Y'UBURASIRAZUBA REPUBULIKA Y'U RWANDA



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Projet Rapide et Projet Pilote

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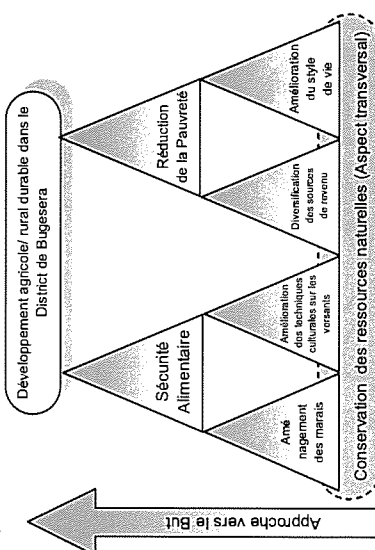
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Objectif de l'Etude (2):

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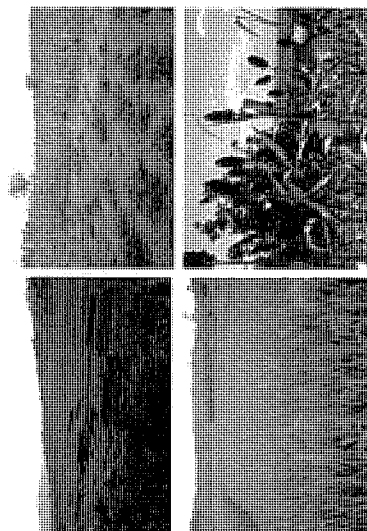
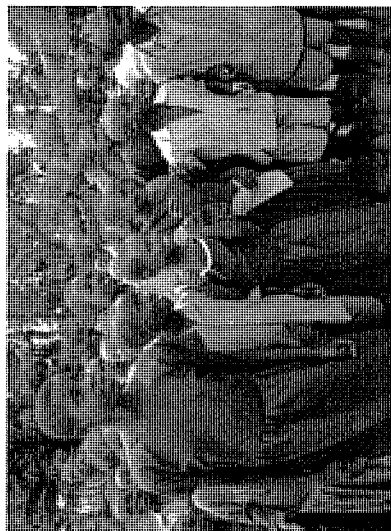
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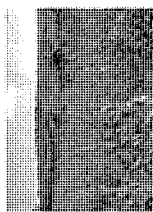
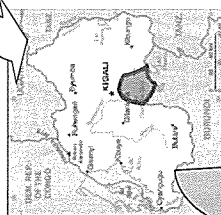
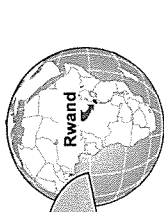
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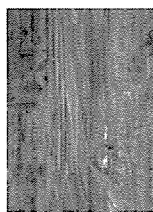
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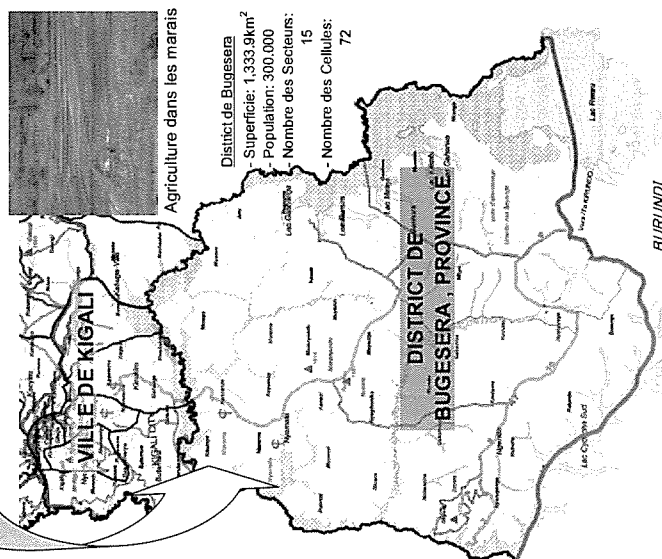
Zone de l'Etude



Agriculture sur les versants



Agriculture dans les marais



Contexte de l'Etude

La zone d'étude, le District de Bugesera, regorge d'énormes ressources en eau de par ses lacs et rivières et des ressources en sol comme ses marais non encore exploités. La région présente une grande potentialité pour le développement et dispose des ressources bien que les techniques agricoles soient encore moins avancées. Étant donné la dégradation de la terre arable par l'érosion du sol et les sécheresses cycliques, la région a connu des disettes qui ont fait descendre le seuil de sécurité alimentaire jusqu'à 52.8 % en 2001, dépassant de loin la moyenne nationale de 41.6%.

Dans le cadre d'améliorer cette situation, combien indésirable, il a été fortement souhaité un Plan d'Action de Développement Rural et Agricole qui envisage la réduction de la pauvreté à travers l'amélioration des techniques agricoles sur les versants en vue de maîtriser la sécurité alimentaire dans le District de Bugesera, la conservation des sols et l'exploitation des marais et d'autres moyens pouvant améliorer les conditions de vie de la population.

Les objectifs de l'Etude

Elaboration d'un Plan d'Action de Développement Rural et Agricole qui reflète les besoins réels de la population locale et permet de manière durable leur participation dans le développement.

Le renforcement des capacités du personnel administratif (District, Secteurs, Cellules et des Instituts de recherche agricole) et des organisations rurales se fait à travers l'exécution d'un projet pilote.

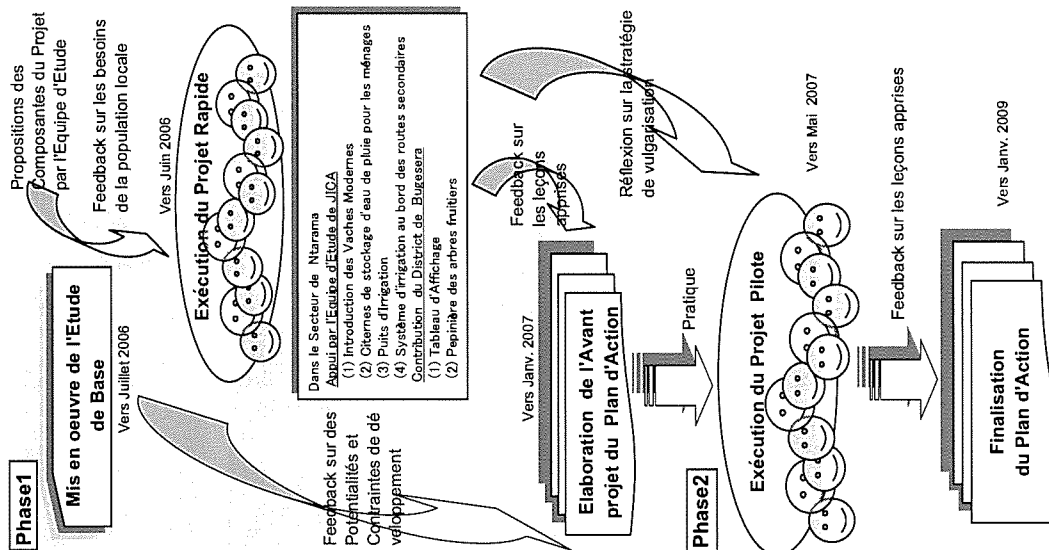
Plan d'Action

Le Plan d'Action vise à démontrer le plan des activités (Exécutants, objectifs et calendrier des activités etc.) qu'il faut pour presser le développement rural et agricole du District de Bugesera. Le Plan d'Action se veut être un Plan qui va renforcer le Plan de Développement du District de Bugesera en cours de préparation. Il comprend aussi les méthodes d'exécution des projets par la communauté elle-même, le plan de vulgarisation et d'extension, et le plan financier pour le fond de développement.

Calendrier de l'Etude

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Phase 1			
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Phase 2			
Planification et Exécution du Projet Pilote			
Modification provisoire de l'Avant-projet du Plan d'Action			
Finalisation du Plan d'Action			

Organigramme de l'évolution de l'étude



**ANNEX II AGRICULTURAL AND RURAL DEVELOPMENT SECTOR IN
RWANDA**

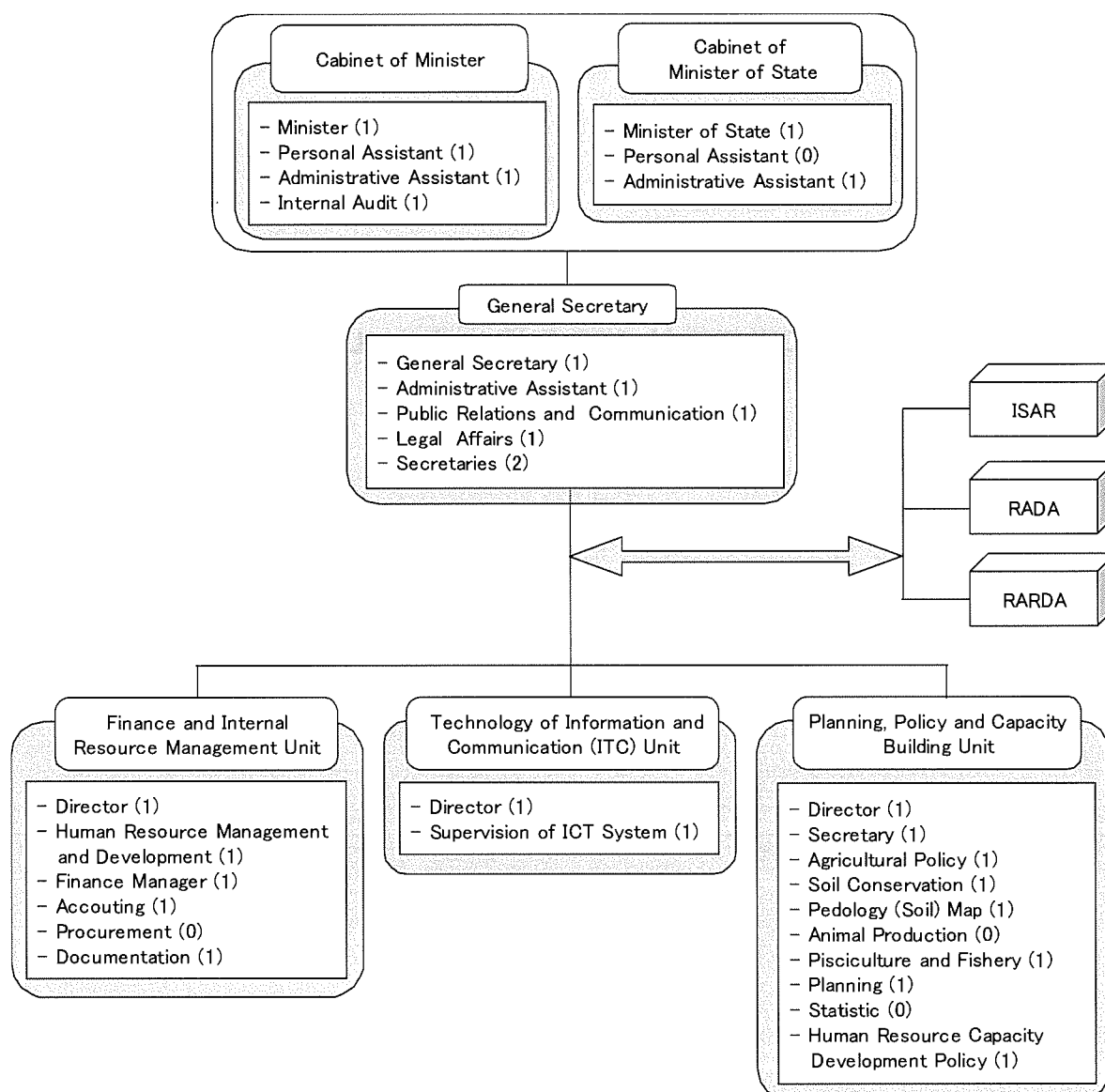
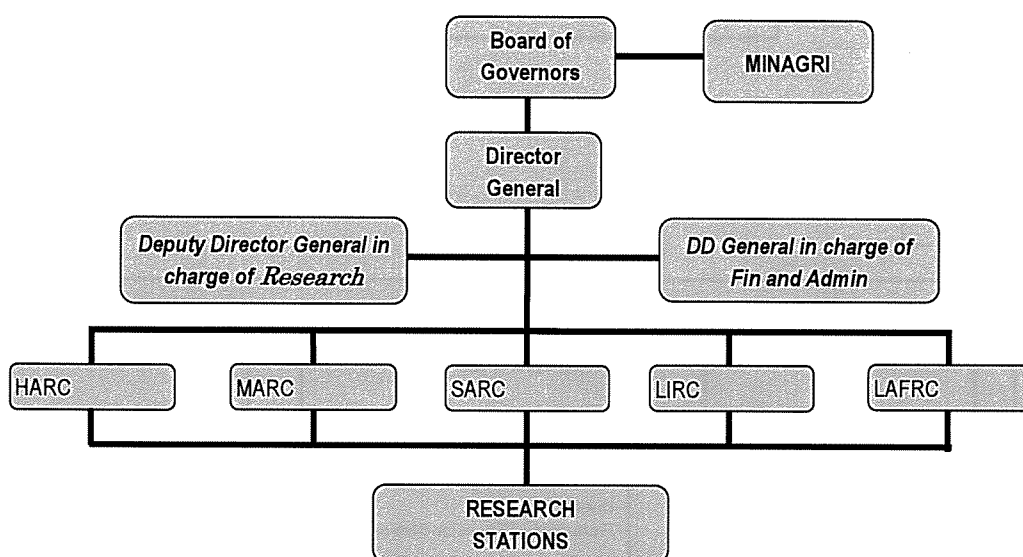


Figure 2.4.1 Organization of MINAGRI



Note: Currently there are 15 research stations countrywide.

DD: Deputy Director

HARC: High Land Agricultural Research Centre based in RUHENGIRI

MARC: Midland Agricultural Research Centre based in RUBONA

SARC: Semi Arid Agricultural Research Centre based in KARAMA

LIRC: Livestock Research Centre, based in NYAGATARE

LAFRC: Land and Forestry Research Centre based in RUHANDE

Figure 2.4.2 Organization of ISAR

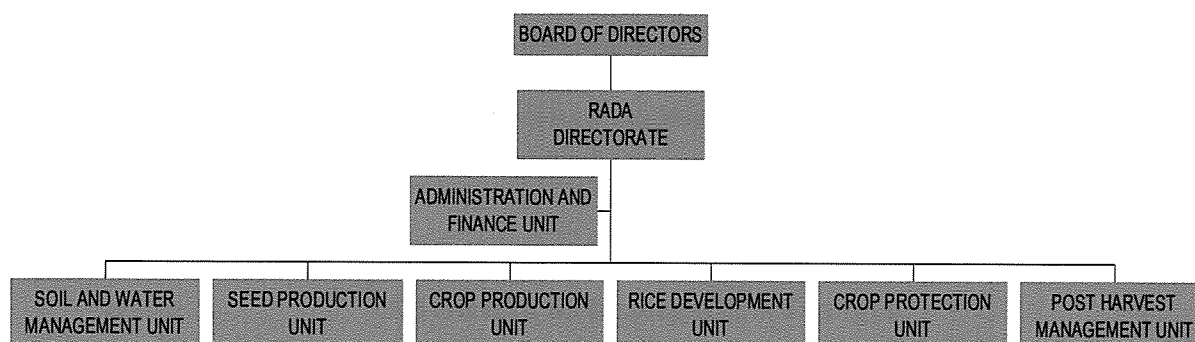


Figure 2.4.3 Organization of RADA

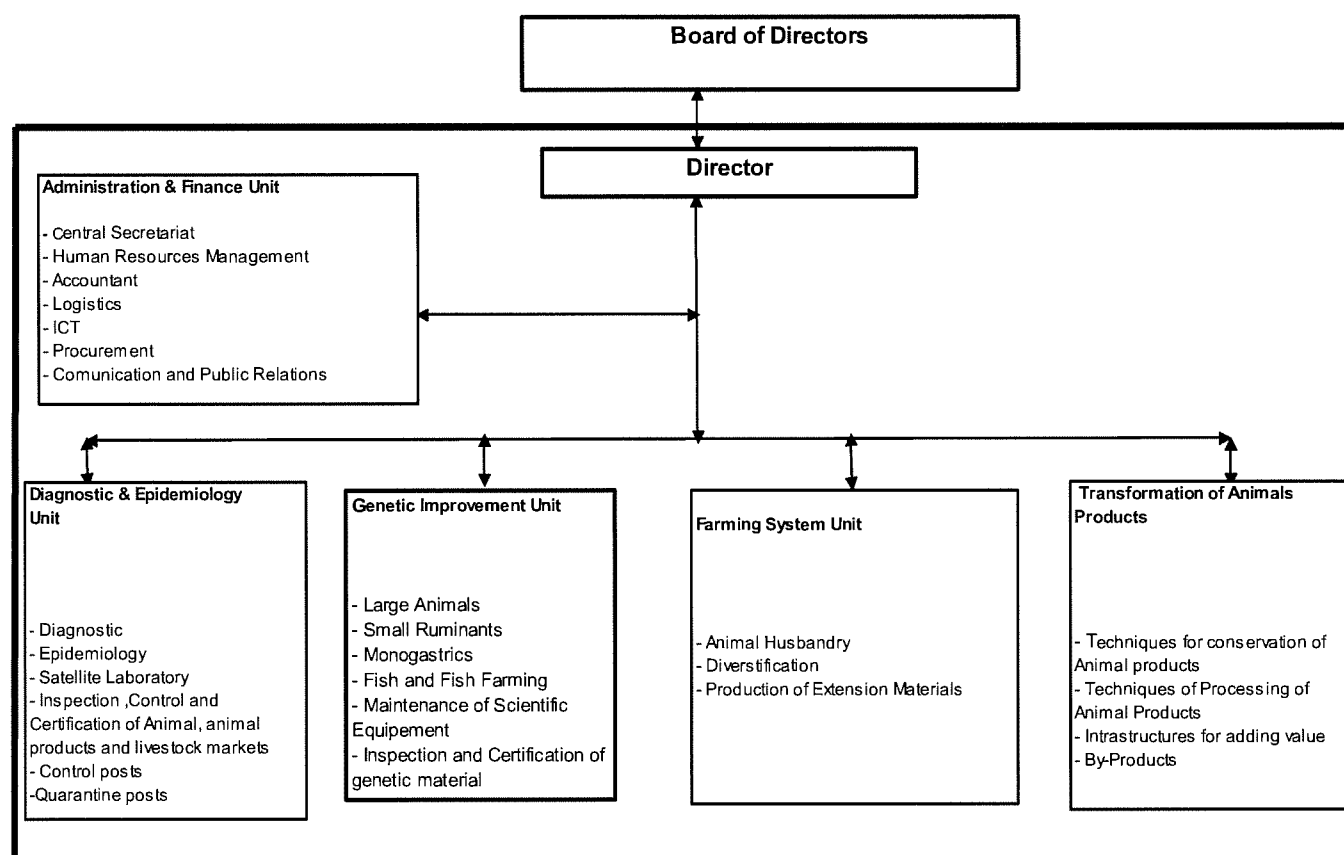


Figure 2.4.4 Organization of RARDA

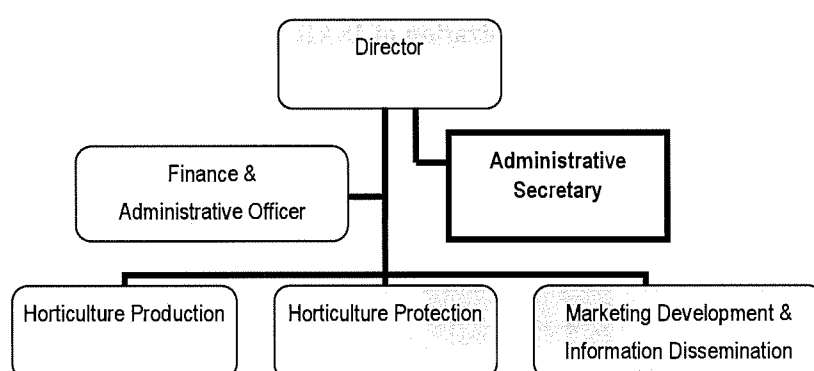
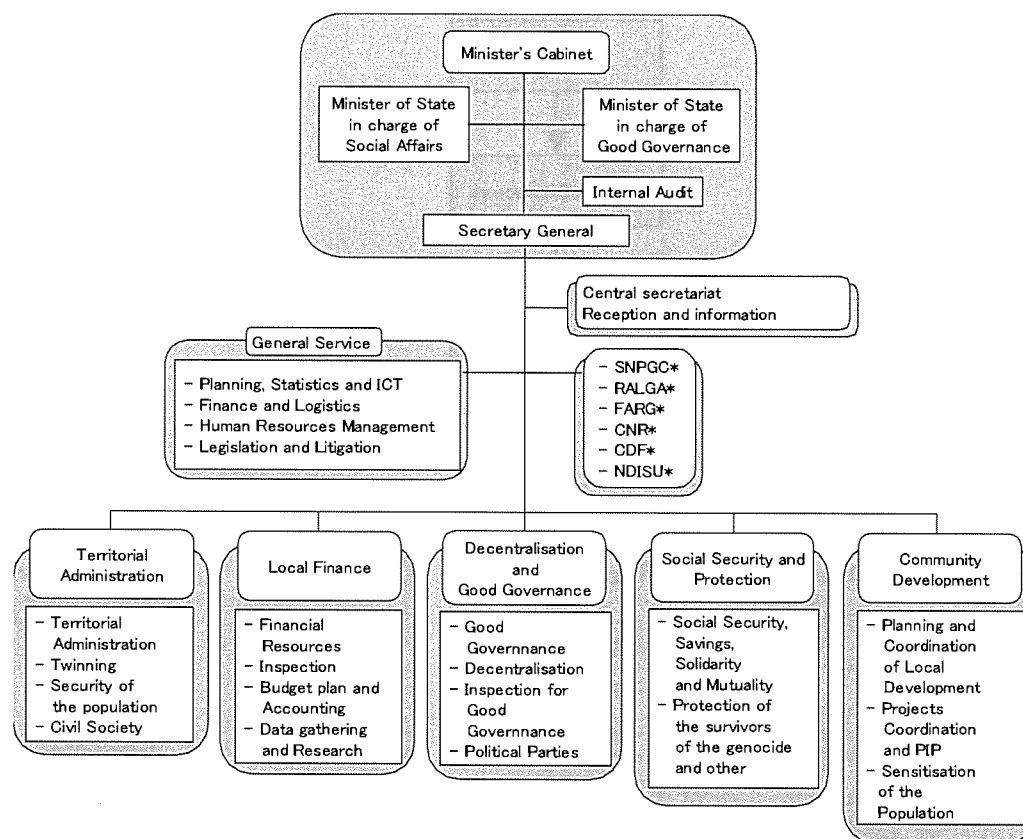


Figure 2.4.5 Organization of RHODA

Source: RHODA Business Plan 2006-2010



*SNPGC = Secrétariat National pour la Prévention et la Gestion des Catastrophes

*RALGA = Rwanda Association of Local Government Authority

*FARG = Fond d'Assistance aux Rescapés du Génocide

*CNR = Conseil National des Réfugiés

*CDF = Common Development Fund

*NDISU = National Decentralisation Implementation Support Unity

Source: MINALOC Home page

Figure 2.4.6 Organization of MINALOC

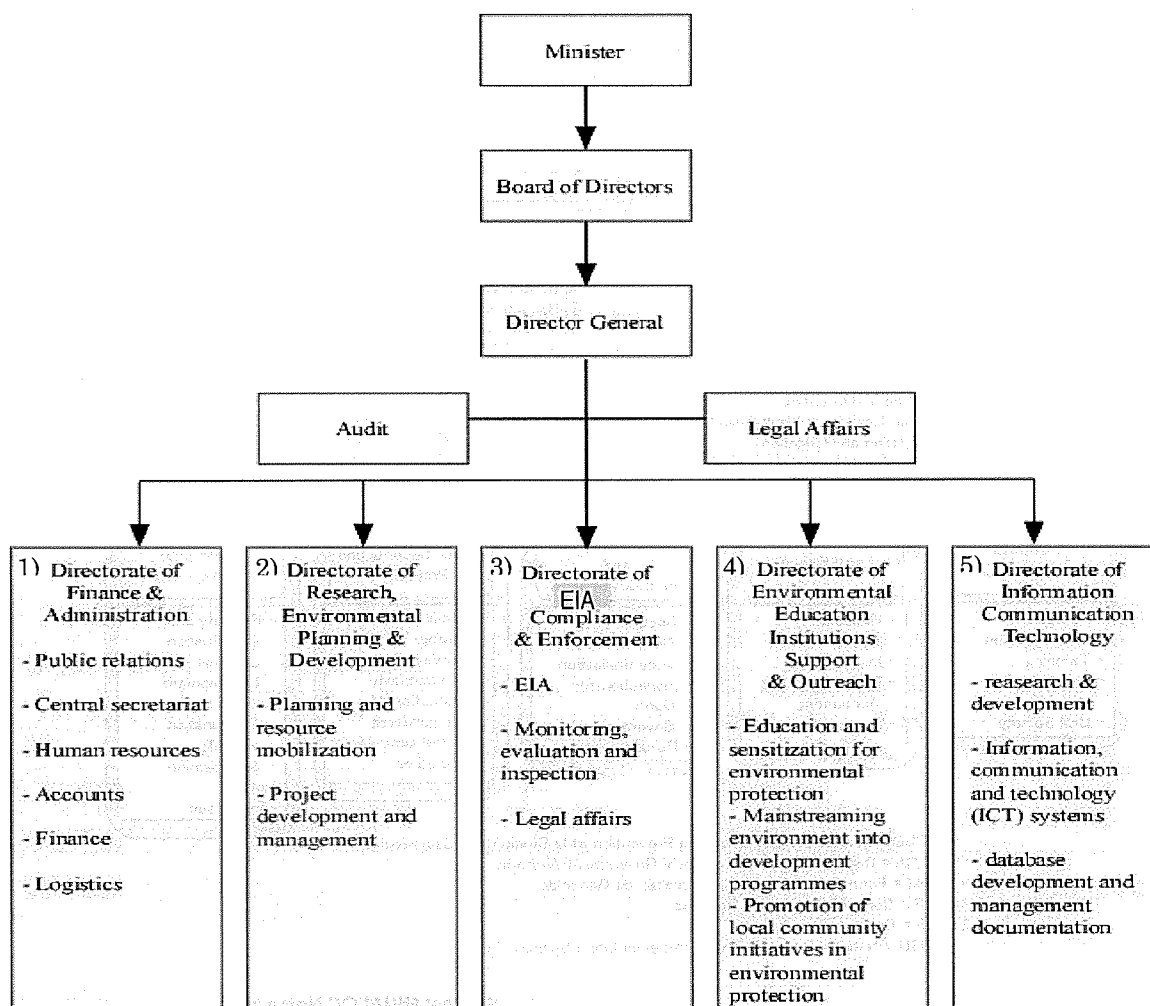


Figure 2.4.7 Organization of REMA

ANNEX III PRESENT CONDITION IN BUGESREA DISTRICT

Table 3.1.1 Annual Discharge of Akagera River at Kanzenze (Year: 1971-1988) unit MCM

Period/Year	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	Average
Jan.1-10	0.00	0.00	87.76	95.00	76.74	90.31	81.88	143.65	125.38	110.08	131.58	110.36	161.45	119.40	104.94	124.94	85.40	86.38	108.45
Jan.11-20	0.00	84.53	95.54	86.52	91.92	92.16	71.46	124.39	110.97	95.59	109.33	105.70	124.38	126.82	88.83	124.37	72.34	92.76	99.86
Jan.21-31	0.00	79.58	96.03	87.09	84.02	74.91	96.45	145.68	126.96	118.80	117.37	120.30	108.09	134.51	94.90	128.80	107.20	95.40	106.83
Feb.1-10	0.00	81.28	75.32	85.50	75.84	80.62	104.14	103.66	150.85	111.31	97.90	106.93	93.09	127.47	118.33	131.98	82.45	103.91	101.80
Feb.11-20	0.00	90.18	88.74	77.87	83.43	88.13	89.49	105.53	158.19	121.75	107.13	110.49	111.21	114.31	114.11	120.49	119.78	125.85	107.45
Feb.21-28	0.00	111.54	75.07	59.00	52.71	72.11	73.24	107.33	132.50	105.74	87.53	78.67	92.94	98.27	84.81	69.64	95.05	93.57	87.63
Mar.1-10	59.62	138.96	80.67	76.71	72.56	81.23	85.88	159.65	141.77	121.36	100.78	92.63	97.98	113.97	108.48	120.46	91.89	110.24	103.05
Mar.11-20	62.90	119.78	78.78	72.41	86.20	72.61	89.79	175.26	126.73	114.13	113.00	88.61	98.45	126.93	86.05	125.37	129.02	130.27	105.35
Mar.21-31	73.34	131.60	98.88	104.51	92.63	88.05	96.41	202.03	167.22	116.13	148.13	100.70	130.69	140.83	124.89	112.75	140.65	161.71	123.95
Apr.1-10	81.70	98.39	98.24	153.04	94.63	104.63	103.72	180.61	135.56	114.68	146.60	110.26	138.14	142.61	124.79	130.16	110.84	145.77	123.02
Apr.11-20	0.00	137.26	113.44	170.27	115.71	107.36	144.37	178.87	170.70	132.17	169.46	121.99	129.74	143.82	164.49	195.72	127.76	184.22	147.49
Apr.21-30	0.00	152.32	162.06	181.14	163.44	110.59	148.32	187.62	164.97	149.79	211.91	176.70	173.34	137.94	215.32	203.09	131.69	217.83	169.89
May.1-10	185.79	135.59	175.87	174.12	131.52	108.25	158.15	203.32	176.88	154.47	182.91	180.40	212.28	144.05	204.90	205.44	130.00	229.95	171.88
May.11-20	182.29	132.86	185.72	169.40	108.00	97.44	178.84	212.96	250.93	179.06	183.52	188.37	184.29	115.15	183.19	187.57	0.00	226.93	174.50
May.21-31	209.79	165.53	204.73	177.20	144.79	141.00	166.56	199.46	218.12	204.36	188.57	201.94	181.89	108.44	175.94	201.15	0.00	193.00	181.32
Jun.1-10	172.03	133.96	172.36	166.16	116.27	125.28	132.22	0.00	187.16	184.20	156.82	178.64	142.18	91.29	123.07	169.83	0.00	123.51	148.44
Jun.11-20	138.67	117.80	152.15	142.29	79.11	93.64	135.87	0.00	174.18	149.51	135.68	162.93	108.72	85.34	100.13	144.93	0.00	95.36	126.02
Jun.21-30	108.49	115.05	119.88	124.03	66.12	75.45	105.09	0.00	146.85	112.06	100.21	134.55	104.15	83.76	93.55	118.57	115.66	82.84	106.25
Jul.1-10	90.58	97.84	95.45	141.91	60.22	62.27	94.09	0.00	130.46	97.60	98.71	114.42	94.35	86.02	85.16	67.70	74.76	78.32	92.34
Jul.11-20	79.48	82.14	73.90	151.44	57.04	61.32	87.46	0.00	105.20	92.65	100.69	95.67	88.06	73.73	62.34	59.88	63.09	73.88	82.82
Jul.21-31	80.17	71.40	70.92	115.48	74.64	60.45	90.21	0.00	106.07	93.93	102.31	93.75	95.86	102.91	46.13	62.46	61.83	85.17	83.16
Aug.1-10	60.42	56.95	63.17	78.18	58.99	51.56	82.72	105.19	100.88	80.32	81.48	80.12	91.10	78.66	37.32	55.23	52.43	74.09	71.60
Aug.11-20	53.98	52.97	62.49	68.96	52.68	60.87	79.61	99.82	97.46	80.84	106.17	71.24	95.40	63.90	35.48	51.95	53.70	80.85	70.46
Aug.21-31	77.27	61.37	61.78	70.80	56.68	70.43	95.32	100.23	106.18	89.70	118.81	56.18	100.38	83.46	0.00	54.28	56.68	106.61	80.36
Sep.1-10	68.56	62.42	79.06	69.79	59.61	64.13	95.19	87.81	92.46	85.02	115.74	39.18	89.60	94.85	40.12	50.31	48.50	98.13	74.47
Sep.11-20	63.60	60.79	85.06	83.43	66.21	62.20	86.27	90.75	91.24	91.58	103.77	45.38	95.60	72.35	50.82	50.59	53.70	73.12	73.69
Sep.21-30	58.52	58.75	90.91	78.15	76.15	68.68	98.32	94.02	84.75	98.18	103.31	81.57	91.88	45.19	0.00	43.88	66.93	99.95	78.77
Oct.1-10	72.40	67.79	108.96	63.49	71.50	75.55	85.51	107.77	84.23	112.22	112.32	109.06	105.76	63.25	66.03	45.00	92.74	140.69	88.02
Oct.11-20	57.22	62.93	85.10	63.43	94.88	63.04	82.33	100.41	94.69	106.37	92.27	121.65	133.31	110.40	55.64	63.05	66.64	148.59	89.00
Oct.21-31	67.44	93.46	95.74	68.93	134.75	64.47	110.40	104.79	105.09	118.60	112.04	133.34	135.34	104.04	69.41	65.85	96.10	114.39	99.68
Nov.1-10	76.70	77.76	96.55	72.65	91.40	54.56	116.13	103.45	99.91	108.02	108.37	119.99	123.02	93.91	94.66	96.43	84.37	107.62	95.86
Nov.11-20	91.28	107.43	133.09	84.41	79.04	68.09	129.35	101.68	123.58	113.86	112.04	130.76	145.36	113.05	105.24	88.09	175.11	128.85	112.80
Nov.21-30	82.24	120.63	144.22	101.30	80.54	76.50	174.40	115.63	137.27	123.42	117.64	150.02	153.53	125.41	125.80	82.15	179.37	145.21	124.18
Dec.1-10	86.27	100.17	111.56	89.16	91.36	75.46	156.01	114.69	121.32	134.02	103.21	174.22	125.13	125.27	114.85	73.87	168.12	121.22	115.88
Dec.11-20	67.06	96.42	96.34	89.75	118.54	58.76	138.77	127.19	108.89	141.90	103.97	172.46	117.26	125.48	106.45	95.12	139.23	99.13	111.26
Dec.21-31	91.16	101.91	111.58	80.95	106.64	68.68	167.07	145.32	131.18	158.07	123.20	196.89	138.87	130.99	112.33	101.71	112.07	110.14	121.60
Total Disc.	2,598.95	3,459.34	3,739.39	3,679.48	3,089.78	2,780.47	3,949.14	3,885.10	4,661.43	4,211.42	4,272.90	4,245.69	4,251.40	3,728.37	3,413.55	3,697.89	3,099.72	4,299.08	3,959.15

Table 3.2.1 Number of Staff of Each Sector of Bugesera District

Sector of Bugesera District	KAMABUYE	RUHUHA	YVARUGENGE	MUSENYI	MAREBA	SHYARA	NGERUKA	GASHORA
(a) Executive Secretary	1	1	1	1	1	1	1	1
(b) Secretary Accountant	1	1	1	1	1	1	1	Staff (a) also holds this role
(c) Civil Records and Population Inquires	1	1	1	1	1	1	1	1
(d) Agriculture, Animal Husbandry,	1	1	1	1	1	1	1	1
(e) Socila Affairs, Family Promotion	1	1	1	1	1	1	1	1
(f) Land management, Housing, Infrastructure, Environment	Staff (d) also holds this role	Staff (d) also holds this role	Staff (d) also holds this role	Staff (d) also holds this role	Staff (d) also holds this role	-	Staff (d) also holds this role	Staff (d) also holds this role
(g) Development Planning, Tax collection, Statistics	Staff (d) also holds this role	Staff (d) also holds this role	-	-	Staff (d) also holds this role	-	Staff (d) also holds this role	-
Total	5	5	5	5	5	5	5	4
Sector of Bugesera District	MAYANGE	NYAMATA	RILIMA	JURU	MWOGO	RWERU	NTARAMA	Plan*
(a) Executive Secretary	1	1	1	1	1	1	1	1
(b) Secretary Accountant	1	1	1	1	1	1	1	1
(c) Civil Records and Population Inquires	1	1	1	1	1	1	1	1
(d) Agriculture, Animal Husbandry,	1	1	1	1	1	1	1	2
(e) Socila Affairs, Family Promotion	1	1	1	1	1	1	1	2
(f) Land management, Housing, Infrastructure, Environment	Staff (d) also holds this role	Staff (d) also holds this role	Staff (d) also holds this role	Staff (d) also holds this role	Staff (d) also holds this role	Staff (d) also holds this role	-	1
(g) Development Planning, Tax collection, Statistics	Staff (d) also holds this role	Staff (d) also holds this role	Staff (d) also holds this role	Staff (e) also holds this role	Staff (d) also holds this role	Staff (d) also holds this role	-	1
Total	5	5	5	5	5	5	5	9

Source: JICA Study Team Field Survey on May 2006

*According to MINALOC

Table 3.2.2 Some School Data in the Former Nyamata District

Name of school	Enrollment			No. of those proceeding to secondary school			No. of trained teaching staff	No. of pupils per teacher
	M	F	Total	M	F	Total		
Cyugaro	280	283	563	5	3	8	9	62.6
Gicaca	508	576	1,084	14	14	28	17	63.8
Giktagata	352	350	702	7	7	14	7	100.3
Gitwe	160	169	329	3	2	5	6	54.8
Kagasa	739	867	1,606	20	17	37	18	89.2
Kagerero	387	523	910	8	8	16	11	82.7
Kanazi	355	381	736	2	1	3	7	105.1
Karambi	124	156	280	2	1	3	6	46.7
Kibungo	419	544	963	10	9	19	14	68.8
Kigusa	370	467	837				13	64.4
Maranyundo	363	391	754	5	3	8	14	53.9
Mayange A	851	1,018	1,869	16	16	32	24	77.9
Mayange B	253	261	514				7	73.4
Murama	392	587	979	6	6	12	11	89.0
Musenyi	653	739	1,392	13	10	23	19	73.3
Muyenzi	692	814	1,506	8	7	15	20	75.3
Nyagihunika	385	344	729	5	4	9	11	66.3
Nyamata	766	885	1,651	23	20	43	29	56.9
Nyiralukobwa	232	371	603	2	1	3	8	75.4
Rulindo	409	535	944	4	4	8	14	67.4
Nyamata High	79	80	159	2	2	4	7	22.7
Total	8,769	10,341	19,110	155	135	290	272	70.3

Source: "BASELINE SURVEY REPORT FOR NYAMATA AREA DEVELOPMENT PROGRAM CONDUCTED IN JULY-AUGUST 2005", World Vision

Table 3.2.3 Decision Making System in three Cells in Ntarama

Cell	CYUGARO	KANZENZE	KIBUNGO
Information dissemination system	The people receive the information through the Nyumbakumi system. There are 33 Nyumbakumi at present. In June 2006, they will have election for the Umudugudu system (a unit of 100-150 households).	The information is disseminated through Umudugudu system (8 Umudugudu comprising 100-150 households as compared to 50 Nyumbakumi in the past).	The information is disseminated through Umudugudu system (7 Umudugudu comprising 70-150 households as compared to 48 Nyumbakumi in the past), which was organized in the end of May. Churches and school kids are also utilized.
Decision making system	Firstly, executive committee of the Cell (Cell council meeting), composed of 10 elected members, discusses the issues. Secondly, general assembly is held to discuss the results of the committee meeting and the final decision is made there. Average attendant rate is about 50%. This year, they had 4 general meetings.	For the final decision making, general assembly is held. If the issues are related to large number of population, Cell council meeting is held before the general assembly. Average attendant rate is about 60%. Basically once a month general assembly is held. One term of council member is 5 years. Executive secretary is appointed by MINALOC.	In the meeting with local people in general assembly, everyone has a chance to speak out and many kinds of ideas are there. After the assembly, council member meeting (12 members) makes the final decision in accordance with the discussion of the assembly.
Umudugudu	There are 6 sites of Umudugudu. People are mixture of returnees and former residents. The former residents use the land which they cultivated previously. New comers are allocated 2 ha of land from the government, hence, there are no problems between them.	There are 8 sites of Umudugudu with 930 households. People are mixture of returnees and former residents. Recent returnees don't have land and they have to rent land from others. In Umudugudu area, security is much easily maintained, erosion control is much easier and living conditions are better compared to conventional scattered houses. However, farming is not easy because transportation of farm produce and manure is difficult.	There are 7 sites of Umudugudu (size: 138 households, 72, 136, 148, 93 and two around 100). People are mixture of exiles in 1954, before 1994 and after 1994. Among them, there are no problems. In principle, the exiles after 1994 can claim their properties which they had in the past, while the exiles in 1954 cannot them.

Table 3.2.4 Community Activities in three Cells in Ntarama

Cell	CYUGARO	KANZENZE	KIBUNGO
Umuganda	It is a monthly communal work (last Saturday of the month). Executive committee of the Cell takes initiatives to implement Umuganda. For example, they did erosion control works, small path repairing and tree nursery preparation, recently. (The nursery is near swamp and managed by the Cell.) The information is disseminated through the Nyumbakumi system.	There are 2 types of Umuganda. Monthly Umuganda: Participants discuss and decide on the Umuganda day for the next month activity. In May, they cut bushes to clear the roads. Weekly Umuganda: Chief of Umudugudu decides the activity together with local people. Recently, they constructed drainage at field to conserve soils. Emergency Umuganda: It is initiated by Cell Council if it is necessary. (e.g. Erosion site rehabilitation)	Cell coordinator decides what kind of activities is done. In May, all the people in Kibungo Cell prepared tree nursery for the monthly Umuganda. For weekly Umuganda done on Tuesday, road repairing and cleaning Cell office are often done. Next week, they will do on-field drainage making. Someone who doesn't participate the Umuganda, will be fined Rwf 500 per person. However, if the cause of absence is reasonable, it is not applied.
Umusanzu	This is a kind of contribution for public benefits. Both financial donation and labor provision are possible in various occasions such as wedding reception and the repair of the Sector Office.	This is a small amount of fund raising for mutual help. Collected money will be used for disease cases, latrine construction and so forth. No money will be paid back.	People donate small amount of money for public benefits such as repairing office facilities and schools. This year, they raised money but not yet decided how to use it because of local administrative restructuring.
Kugurizanya	This is a kind of mutual loan system, hence, repayment is necessary.	This is a kind of mutual loan system among the participants without interests.	This is a kind of mutual loan system by 7-10 people. Beneficiary rotates among them.
Ubudehe	A poverty reduction scheme with a collective work at Cell level. The fund comes from the EU project through District and MINALOC. An ad hoc committee at Cell level controls the fund distributed in the Cell within the project framework. For instance, a group of people (70 members) buys food crops at harvesting season to store and then sells them during off-season to earn money. The Cell committee basically supervises these activities.	This is a kind of community work to create something good for better development of the Cell. As for the goat provision they did recently with Ubdehe fund, goats are distributed to each household and then either the new born goat or the equivalent money of one goat price would be returned later for the continuation of the activity. The fund is controlled by the Cell in a bank account and there have been no problems so far.	The system was made by the government 2 years ago. For instance, they had a goat distribution project with Ubdehe fund. Recipient farmers needed to return the new-born goat or repay the equivalent amount of goat after getting money to continue the activity.

Table 3.2.5 Outlines of Some Interviewed Associations in Bugesera

Name:	BENISHYAKA (in English, courageous people group)	DUHOZANYE (don't worry)	TWITEZIMBERE (Let's go forward)	TURENGERE ABAGENZI (assistance for people)
Place:	Nyamata, Ntarama and Mayange (Nationwide org.)	Ruhuha	Nyamata	Mbvo, Mayange
No. of members:	195 (Nyamata: 133, Ntarama: 30, Mayange: 32)	69 women (not only Ruhuha)	200 (men, women, orphans in several sectors)	25 members (both male and female)
Established in:	1995 (Nyamata)	May 2003	2001 (since 2005, more active)	2005
Executive members:	President, Vice-president, Secretary, Treasurer, 2 advisors (6 members in each office)	President, Vice president, 2 Secretaries, Treasurer (5 executive members)	President, Vice president, Secretaries, Treasurer, 4 Advisors (8 executive members)	President, Vice president, Secretary, Treasurer (4 members)
Objectives:	1. Help widows and orphans who are victims of the 1994 genocide by improving poverty situation 2. Mobilize widows and orphans to participate small works to fight poverty 3. Mobilize all the Rwandans in the reconciliation process (try to unite people together) 4. Fight against AIDS and help AIDS people	1. Poverty eradication among the members who survived the 1994 genocide 2. Bring back happiness (Due to the war in 1994, many people got suffered and traumatized.) 3. Have a plan to introduce modern cultivation (tomato, pineapple) and cow keeping.	1. Assist orphans and people living with AIDS 2. Bring back the mental health (Recover from traumatization of genocide)	1. Provision of transport labors if someone gets sick (human and bicycle ambulance).
Activities:	1. Farming (cultivation of soybean and maize, seed distribution and technical training, 4 ha of land will be given soon.) 2. Operation of 2 grain mills at its office building 3. Sponsor orphan students (tuition, school requirements such as pen, uniform, books, etc.) 4. Renting building space 5. Assisting 14 people living with AIDS (Collect money from members, Rwf 100 per 3-month) (Since March 2006, receive assistance from Scottish International Agency Fund)	1. Collect money from the members (Rwf 800/person for registration and Rwf 100/month) and help the members if they need money (e.g. repairing house and going to hospital). 2. Assist members if they have troubles 3. Help to identify the suspect who raped during the war time by giving transportation fee 4. Give assistance for the implementation of trial	1. Goat distribution to members with assistance from RWAF (NGO) and distribute babies to other members. 2. Together with RAP (NGO, Rwandans and Americans Partnership), mobilize people and train them. 3. Handicraft making (luncheon mat, milk bin, etc.) 4. Will start school of tailoring for 40 people soon. (At first, its activity was small with Rwf 5,000/month membership fee, and gradually expanded with getting assistance from RWAF and RAP and handicraft sales. Presently, no membership fee is collected.)	1. Buying crops and distribute them to members. 2. Members can repay later. (Membership fee: Rwf 5,000/week/member)
Advantages:	1. Orphans can go to school. 2. Modern farming is extended through their agronomist. 3. Members can receive training. 4. Knowledge dissemination on AIDS	1. Poverty can be eradicated. (Before some could not buy soap, but now can buy.) 2. Credit is available among members. 3. Traumatized people are cured. 4. Those who have diseases by raping can receive assistance.	1. Quick assistance (credit) is available in case of emergency. 2. Vulnerable people like people living with AIDS are encouraged. 3. Vocational training will be provided to young people. 4. School uniform can be made by themselves.	1. Can bring sick people to hospital in Nyamata and/or rural clinic in Mayange (30 minutes by bicycle).
Problems:	1. About half of members don't have houses. 2. Assistance for people living with AIDS is not enough. 3. Cannot assist all the orphans.	1. Lack of finance 2. Lack of people who assist the association 3. They have no office spaces.	1. Members live in different places, hence cannot give information immediately. 2. Don't have adequate office equipments like computers.	1. Bad road conditions 2. Lack of bicycles 3. Lack of money to buy neither crops nor a motor bike
Type of Activity	Women			
	Orphans	X		
	HIV/AIDS people	X	X	
	Farming	X	X	
	Post harvesting	X		
	Credit	X		
	Reconciliation	X	X	
	Handicraft		X	
	Food			X
	Transport			X

Table 3.2.5 Outlines of Some Interviewed Associations in Bugesera (continued)

Name:	KAUM (youth)	COVIKABU (Coop. Vision Kamabuye Bugesera)	DUFATANYE (Let's collaborate)	URAMULLI (light) Nyatungenge
Place:	Murama, Nyamata	Kamabuye	Ngenuka	Nyatungenge
No. of members:	17 members (both males and females)	20 at present (40 near future) (both male and female)	50 members (both male and female)	4,913 members (Cooperative of 81 groups)
Established in:	1984	15 Jun 2006	1995	Apr. 2006 (Coop. approved, but since 2004 been
Executive members:	President, Vice president, Secretary, Treasurer, 2 Inspectors (6 members)	President, Vice president, Secretary, Treasurer, Inspector, Advisor, Cashier (7 members)	President, Vice president, Secretary, Treasurer, Inspector, Cashier (6 members)	President, Vice president, Secretary, Treasurer, 3 Inspectors, 3 Advisors (10 members)
Objectives:	1. Alleviation of poverty 2. Schooling children 3. Keeping money for future use	1. To help the population in Kamabuye through development	1. To help each other 2. To have storage of agricultural produce against hunger	1. Multiplication of maize seeds 2. Fight against hunger 3. Income generation
Activities:	1. Keeping goats (After the 1994 genocide, less people keep them.) 2. Growing crops (sorghum, beans, cassava, maize, coffee) 3. Some of the members sell their farm produce collectively, but others sell individually (sell in Nyamata). (Membership fee: Rwf 1,500/person after selling their produce)	1. Buying crops (beans, soya bean, sorghum and maize) from farmers (inc. non-members) and store them. 2. Resale them to marchants who have business in Kamabuye. (They sell crops with Rwf 10/kg margin.) 3. Resale them to people directly at low price when hunger occurs. 4. For the purchase of grains, borrow Rwf 5million from local authority. (Repayment: Rwf 1.2 mil/year) 5. In near future, the cooperative want to expand its activities. (agriculture, livestock and commercial). (Membership fee: Rwf 50,000 for registration, monthly fee Rwf 6,250)	1. Work together for agricultural production. (cassava, sweat potato on association land in marshland, Chohoha North) 2. Store a part of harvest and sell them at low price in case of hunger. 3. Goat keeping and distribute new born babies among members. (Membership fee: Rwf 3,000 for registration)	1. Cultivation of maize and beans (some work together but some work individually.) 2. Try to find good market and if good buyer is found, sell the harvest together. 3. If good buyer is not found, sell the harvest individually. 4. Provision of credit to members in case of emergency (2 % interest per month) (Membership fee: Rwf 1,000 per year)
Advantages:	1. Can send their children to schools. 2. Can get credit in case of emergencies. 3. Can provide assistance to sick people. 4. Can buy cloths.	1. Development of unity against hunger Crops Sorghum Rwf 100 / kg Beans Rwf 150 / kg Maize Rwf 150 / kg Soya Rwf 150 / kg Resale price Sorghum Rwf 110 / kg Beans Rwf 160 / kg Maize Rwf 160 / kg Soya Rwf 160 / kg 1. Because many farmers came to sell their crops, their available cash is not enough. (May use micro-finance)	1. Members can survive if hunger occurs. 2. Members can earn money from their harvest (e.g. if they harvest 10 tons of beans, 6 tons are for self consumption and 4 tons are for sale. They share the sale amount among the members.) 3. Members can get credit in case of emergency. 1. Some of their maize field was planted with trees by the HIMO project. 2. Sometimes drought occurs.	1. Coop. can procure chemicals at low price. 2. Coop. can procure better seeds from RADA. 3. Coop. can find buyers for grains at better price. 4. Members can share the annual benefit at the end of fiscal year.
Problems:	1. Lack of assistance (e.g. chemical fertilizer) 2. 3. Shortage of rainfall			1. Flood often occurs on marshland along Akanyau. 2. Tax rate often changes. (large amount of tax) 3. No roads around marshland 4. No proper place/way to store harvest individually 5. Training/study tour is necessary to learn new technology.
Women				
Orphans				
HIV/AIDS people				
Farming	X		X	X
Post harvesting		X	X	X
Credit	X		X	X
Reconciliation				
Handicraft				
Food		X	X	
Transport				

Table 3.2.5 Outlines of Some Interviewed Associations in Bugesera (continued)

Name:	GIRABUMWE (have union)	HAGURAKA (Stand up)
Place:	Shayara	Mareba
No. of members:	420 members (Cooperative of 12 assoc./groups)	28 members (male only)
Established in:	May 2006	2002
Executive members:	President, Vice president, Secretary, Treasurer, 3 Inspectors, 3 Advisors (10 members)	President, Vice president, Secretary, Treasurer, 2 Inspectors, 2 Advisors (8 members)
Objectives:	1. Fight against poverty and hunger 2. Promote rice cultivation 3. Income generation	1. To improve lives of members 2. Develop country through tax paid
Activities:	1. Cultivation of beans, soya, peanuts and maize (Farmland is located on marshland owned by government along Akanyaru River in Ruvubu and Kibumba and individually cultivated.) 2. Sell the harvest collectively 3. Buy rice from members and resale them 4. Provision of credit to members (interest for economic activities: 10 % per month, for schooling: 3 % per month) (Membership fee: After harvest, Rwf 500 per person)	1. Transport people and goods by bicycle (Bicycles are either owned or rented. Rent fee is Rwf 2,500/month.) 2. They open at AM500 and close at PM 600. 3. They have a plan to open a bicycle repair shop. 4. Provision of credit to members: For any activities, 5 % per month
Advantages:	Since the coop. is quite new, there are no tangible advantages so far.	1. Can get income. (Rwf 700-1,500 per day) 2. Can save money for future. 3. Can rent farmland to cultivate crops.
Problems:	1. Disease of crops 2. Not enough fertilizer nor chemicals 3. Not sufficient water	1. Robbery sometimes happens (once a year).
Type of Activity	Wemen	
	Orphans	
	HIV/AIDS people	
	Farming	X
	Post harvesting	X
	Credit	X
	Reconciliation	
	Handicraft	
	Food	
	Transport	X

Table 3.3.1 Farming Practice on Rice Cultivation in Ngenda Area

	Operation	Details of Farming Practice																								
1	Cropping Pattern	1 st : September (transplanting) – December (Harvesting) 2 nd :January(Transplanting) -April (Harvesting) Nursery : Sowing seeds on the nursery bed one month before transplanting Plot size: Each plot size is demarcated to 5 are (1 block)																								
2	Nursery	-Establishment of nursery bed in the edge of paddy field by making rectangle shape Size: width = around 1.0 m Seed: Pre-germinated seed (24 hours soaked to water for pre-germination treatment) Seed rate: 5 kg of paddy for 4 blocks (measured by balance)																								
4	Land preparation	-Plowing is done by manpower with hoe, and then irrigation is made. -Leveling (puddling)is done by using rake Whole operation (plowing and puddling) is done by manpower with hoe and rake only.																								
5	Transplanting	- 3 seedlings (30 days seedlings) are transplanted in square of finger span spacing.																								
6	Fertilizer	-Chemical fertilizer (type is unknown: because FH purchased 1 kg bag without any label). -1 st : 1 kg of NPK (17-17-17) is applied to one block at transplanting time. -2 nd : 1 kg of Urea is applied at 4 weeks after transplanting.																								
7	Water management	-After transplanting, no additional water applied for a week and keep water depth around of 5 cm. -Water is applied every 2 week up to ripening stage when irrigation is ceased.																								
8	Weeding	-1 st practice: one month after transplanting -2 nd practice: two month after transplanting																								
9	Harvesting	-Cutting at bottom of rice plant by sickle and bring them to their homestead. -Sun-drying of rice bundle for 1 day in homestead after reaping. -Time to harvest is decided based on changing of panicle color into brown without green portion -5 months duration from nursery to harvest																								
10	Post harvesting	-Threshing: Beating rice heads by stick -Winnowing: done by using “ <i>Urutaro</i> ” ,a traditional plate.																								
11	Yield	-Around of 350 kg per 4 blocks. -If one block is 5 are (= 500 m2), this yield is equivalent to 1,750 kg/ha, which is very low yield level.																								
12	Harvest Sharing	-A member of the rice association has to pay a 10 % of his/her harvest either in kind or member in free hand could manage cash to the rice association, and the remaining. -Most of the members manage their harvest as self-consumption.																								
13	Pest& disease control	1. <i>Cyumya</i> (disease): Leaves are dried up at growth stage from one to two months after transplanting. 2. <i>Isazi</i> (Pest): Spiklet (milky stage) is sucked by insect and become empty grain. Symptom of damage seems to be caused by sting bug FH sprays Benlet (Fungicide) and Simikombe (Pesticide) by mixing them, which are purchased in the association shop. 3. Bird damage: Scaring birds by making noise via beating tin and throwing stones to bird flight during the ripening stage.																								
13	Prevailing rice varieties	Six rice cultivars are prevailing in Ngenda wetlands as follows: <table><tr><th>No</th><th>Cultivar</th><th>Popularity of rice variety by area basis</th><th>Sale price at farm gate</th></tr><tr><td>1</td><td>Shinwa (Chinese)</td><td>80 %</td><td>200 Rwf/kg</td></tr><tr><td>2</td><td>Umutara</td><td>15 %</td><td>180 Rwf/kg</td></tr><tr><td>3</td><td>Kigoli</td><td rowspan="3">5 %</td><td rowspan="3">150 Rwf/kg</td></tr><tr><td>4</td><td>Yuni</td></tr><tr><td>5</td><td>Madagascar</td></tr><tr><td>6</td><td>Markasi</td><td></td><td></td></tr></table> <p>Most of the rice cultivars mature around of 5 months and not different each other.</p>	No	Cultivar	Popularity of rice variety by area basis	Sale price at farm gate	1	Shinwa (Chinese)	80 %	200 Rwf/kg	2	Umutara	15 %	180 Rwf/kg	3	Kigoli	5 %	150 Rwf/kg	4	Yuni	5	Madagascar	6	Markasi		
No	Cultivar	Popularity of rice variety by area basis	Sale price at farm gate																							
1	Shinwa (Chinese)	80 %	200 Rwf/kg																							
2	Umutara	15 %	180 Rwf/kg																							
3	Kigoli	5 %	150 Rwf/kg																							
4	Yuni																									
5	Madagascar																									
6	Markasi																									

Source: Interview results by JICA Study Team, June/2006

Table 3.3.2 Working Conditions and Task work

	Staff	Working Situation
1	Agronomist/ District	<p>1.Task work</p> <ul style="list-style-type: none"> -Monitoring work of whole District and considering countermeasures in case of problems arisen (outbreak of pest and disease, etc) -Formulation of development plan -Formulation of agricultural project -Collection of agricultural data -Sensitization of farmers to form agricultural association -Public tender work for procurement -Reporting (quarterly, annual) <p>2. Weekly Schedule</p> <ul style="list-style-type: none"> -Generally, three days in office work and two days in field work -Field work is mainly confined to holding a gathering of disseminating farming information, distribution of seeds, monitoring of crop growth and progress of agricultural policy implementation in the command area. <p>3. Transportation mean</p> <ul style="list-style-type: none"> -No special bike or vehicle allocation, thus site visiting is severely limited in his filed work to cover whole District. <p>4. Assigned to District Office</p> <ul style="list-style-type: none"> - April, 2006 from the ex-Ngenda district
2	Vet-technician/District (RARDA)	<p>1. Task work</p> <ul style="list-style-type: none"> -Monitoring on the occurrence of disease in Bugesera -Surveillance of animal health treatment -Check of animal movement (Control post is located at the bridge of Akanyaru River in Kigali-Nyamata road) -Check of animal disease -Reporting to RARDA on any sign of animal disease outbreak <p>2. Transportation mean</p> <ul style="list-style-type: none"> -His special motorbike is allocated by PADEBEL (motorbike) and RARDA (fuel).
3	Agricultural Cooperatives/District	<p>1. Task work</p> <ul style="list-style-type: none"> -Strengthening of marketing issue including tourism for commercialization via sensitization to the private sector - Mobilization of population to be members of cooperatives and associations -Sensitization of investor to invest Bugesera District <p>2. Transportation</p> <ul style="list-style-type: none"> -No special motor bike or bicycle allocated <p>3. Assigned to District Office</p> <ul style="list-style-type: none"> -February, 2006 from private sector
4	Coffee Specialist (OCIR)	<p>1.Task work</p> <ul style="list-style-type: none"> - Strengthening of coffee production in the District Details of his task work are studied in the next field survey. <p>2. Transportation</p> <ul style="list-style-type: none"> -OCIR lends motorcycle for his task work <p>3. Assigned to District Office</p> <ul style="list-style-type: none"> -June, 2006
5	Agronomist/ Sector (Ntarama Sector)	<p>1.Task work</p> <ul style="list-style-type: none"> -Dissemination of farming information to the 3 Cells by holding a gathering by Cell, instructed by the District Office -Wednesday is office work to receive visitors (farmers) for giving advices about cattle management, fishing, beekeeping, and improved grain storage method and so on. Other working days are used of dissemination of farming information instructed by the District Office -Environmental Conservation <p>2. Transportation mean</p> <ul style="list-style-type: none"> -No special motorbike or bicycle allocated, thus field work is severely restricted.

Source: Interview results to Bugesera District and Ntarama Sector Offices by JICA Study Team, 2006

Table 3.3.3 The Results of Market Survey in Nyamata Center Weekly Market

	Crops	Variety	Retail Price		Purchased Price		From		Remark
			Unit	FRW	Unit	Frw	Sector	Cell	
Fruit Vegetables	Tomato		Heap (16 pc)	50	Basket	1500	Around of Nyamata		
	Pepper (hot)		Heap (46 g)	20	kg	150	Within Bugesera		
	Egg plant	Green	Heap (230 g)	50	Bag (25 kg)	2000	Within Nyamata area		
	Green pepper	Small	pc	20	Bag (15 kg)	2000	marshland or lowland area		
	Green pepper	Large	pc (70 -100 g)	50	pc	30	Via middlemen		
	Egg plant	Black	3pc (560 g)	50	25 kg bag	1000	via local Farmer		
Leafy Veg	Cabbage	Golden Aker	pc (500 g)	50	pc	30	Within Bugesera via Farmer		
	Cabbage	(round type leaf)	bunch	50	bunch	30	via Lowland cultivation		
	Coriander		bunch	50	bunch	30	Within Bugesera via Farmer		
Root & Tuber Crops	Sweet Potato	Magereza	Basket(2.3 kg)	350	Big bag	7000	Kibungo province via middleman		
		Magande							
	Taro	Bwayisi	Heap(7pc)	400		7000	Musenyi via middleman		
	Onion (purple shallot?)		bunch	200			Gitarama		
	Irish Potato		kg	100	kg	95	Ruhengeri Prov.,		
	Onion (purple bulb onion)		kg	500	kg	350	via Kigali Market		
	Carrot		kg	300	kg	180	Gisenyi Prov		
	Cassava		heap(6 tubers)	400	Heap	300	via local Farmer		
Fruits	Pineapple		pc	150	pc	120	Kibungo Province		
	Avocado small)		pc	20	pc	15	Middleman brought here		
	Avocado Big)		pc (380 -430 g)	50					
	Banana (small) yellow colour		Bunch	100	bunch	80	From Kibungo via Middlemen		
	Big bunch yellow colour		Bunch	130	bunch	100	From Kibungo via Middlemen		
	Orange		pc	20	pc	15	From Gitarama via Middleman		
	Lemon		3pc	100	1pc	20	From Gitarama via Middleman		
	Guava		pc	10	pc	5	Farmer around of Nyamata		
	Banana(Cooking) green bunch		bunch(15 kg	2000	bunch	1500	Within Bugesera		
Legume	Harico(grain)		kg	150	kg	140	Within Bugesera		
	Soya bean		kg	200	kg	150	Within Bugesera		
	Harico(grain)	Korota	kg	180	kg	160	within Bugesera		
Grains	Green Maize		PC	25	pc	20	around Nyamata area		
	Sorghum grain		kg (Basket)	160	kg (basket)	150	ditto		
	Maize grain		kg	160	kg	150	ditto		
Others	Maize powder	White	kg	280-300	50kg bag	13000	Uganda	From Kigali via middlemen	
	Maize power	rather brown	kg	200	50kg bag	10000			

Date : June 10, 2006 - June 15, 2006, Source: JICA Study Tea, 2006.

Table 3.4.1 Other Donar's Activities in Bugesera District

Project Name	Luxembourg	IFAD	AfDB	FAO	RSP (WB)	Others
	Development of the Rural Economy in Bugesera	1) Support Project for the strategic plan for the transformation of agriculture (PSTA) 2) Smallholder cash and export development project 3) Rural small and micro enterprise Project II	Muwesa Valley Development Project	1) Emergency Marshland Development in 2000 2) Emergency Pump Irrigation Project 3) Cassava Mosaic resistant variety multiplication Project	1) TS for ISANGANO Nyamala 2) TS for IZMGM Ngenda 3) Emergency support to the maize intensification project in Ngenda 4) -ditto- in Nyamala 5) Intensification of maize growing in Ngenda 6) -ditto-, in Nyamala 7) Nkanga Market site upgrading study (2 phase) 8) Intensification of maize growing in Nyamala marshlands 9) -ditto- in Ngenda marshlands 10) Training for O&M of Irrigation Facilities	1) Mayuge Millennium Village 2) Rainwater Harvesting Project by MINITERE 3) Expansion of improved cooking stove by Military 4) Participatory Watershed Development Project at Murama
Date of Interview	2006/4/24	2006/5/14	2006/4/27	2006/5/15	2006/5/24	---
Representative	Philippe le BUSSY Counsellor Technique Principal	Rwabidadi Eric Country Liaison Officer, Eastern and Southern African Division	Mohamed EL AZIZ Country Operation Officer	Laurent GASHUGI Assistant Representative	MINAGRI/Rural Sector Support Project Jean Damascene MANIRAGUHA, Senior Agronomist	---
Budget	some portion of 8.5 M EURO	1) 8.2MUS\$ and grant for 0.2MUS\$, 2) 16MUS \$ 3) 5.4MUS\$	10MUS\$ by AfDB, 2.4MUS\$ by Rwanda	unclear	1) 3.52 MRwf, 2) 3.46MRwf 3) 4.61 MRwf, 4) 5.87 MRwf 5) 8.26 MRwf, 6) 13.83 MRwf 7) 1.13 MRwf, 8) 5.88MRwf 9) 4.95MRwf, 10) 27.53MRwf	1) UN, 70,000US\$ in 2006 2) MINITERE unclear 3) Military unclear 4) ISAR about 16,000US\$ 5) WB, PSSP, unclear
Project Period	Planning 2003-2007, 5 years but actually started in 11/2005	1) 5/2006-2012 2) 2003-2011 3) 1998-2004	5 years	1) 2000 2) 2001 3) 09/2006 will be started	1) 1/4/04 - 1/4/05, 2) 1/4/04 - 1/3/05 3) 1/9/04 - 1/1/05, 4) 1/9/04 - 1/1/05 5) 25/2/04 - 1/1/05 6) 25/2/04 - 1/1/05 7) 7 - 4/3/05 8) 16/6/05 - 31/12/05 9) 16/6/05-31/12/05 10) 19/05-30/10/06	1) Feb. 2006 to 5 years 2) be started in 2007 3) On going 4) 2004-2005
Summary of the Project	Irrigation of 240ha around the lake, Rehabilitation of rural road, (Gahembe to Kindana 20km), Construction of 2 markets (Rilima and Nyamata), and Introducing Micro-Finance	1) Demand-Driven type, Soil conservation of fully area, introducing modern cow, and strengthening of agricultural study and extension systems 2) Supporting the coffee and tea small scale farmers 3) Supporting microfinance system for small scale farmers	Irrigation Planning in wetland area	1) To secure drought damages in 1999, urgent supporting projects were executed. (reclamation of marshland for 1,400ha, provision of treadle pumps (500 Nos), in cooperation with UNDP & WFP 2) Irrigation system at hilly area 3) Provision of mosaic virus disease resistant cassava stems 1 million	1) 1) Training for existing association groups 2) 2) Intensification of the maize grower organizations in hilly site 3) 3) Feasibility study for suitable market at Nkanga, Rweru Sector 4) 4) Intensification of the maize grower organizations in marshlands 5) 5) Training of O & M of irrigation facilities to the beneficiaries in Kiruhura, Rawabikwano, Rububu marshlands	1) Distribution of chemical fertilizers and improved seeds, Water Harvesting, improvement of farming 2) Rainwater Storage 3) Expansion of improved cooking stove 4) Construction of small scale check dams and ponds and contour bands for soil conservati

Table 3.4.2 Other Donor's Activities in Bugesera District (continued)

	Luxembourg	IFAD	AfDB	FAO	RSP (WB)	Others
Target area	Nyamata area Ngenda area Rilima area, etc.	-Ngenda area, one zone out of 6 pilot project zones	Irrigation of Muvesa Valley of 650 ha along the Nyabarango river	1) Marshland between Gashora & Kibungo 2) Hilly area around Gashora 3) Covers Bugesera district, 1,200 farmers are targeted and breeding to 24 million stems	10) Total irrigation area are 270 ha in Kiruhura & Kawabikwano, and 100 ha in Rububu marshlands	1) MAYANGE Sector 2) MWAGO Sector, etc. 3) Not yet confirmed 4) NYAMATA Sector
Objective	Food security and Poverty reduction	same in the left	Through development of the wet lands, to enhance ownership of beneficiaries and to secure food (rice, maize, banana, and seeds distribution)	1),2) To secure drought damages and food shortage 3) Food security distributed by mosaic virus disease resistant cassava	1) - 6), 8), 9) Training the capacity building for maize grower at hilly side and marshland 7) Improvement for marketing system in Rweru Sector 10) Capacity development for farmers of irrigation	1) Soil conservation, food security 2) Improvement of life style 3) Improvement of life style and environmental conservation 4) Soil conservation, food security
Problems, others	Implementation schedule of the project was delayed and proposed market site was changed due to reform of administrative boundary		Budget (about 2MUS\$) for detail design has not been allocated			

Table 3.5.1 Economic Development Component in Contract in 2007 in Bugesera District

Service	Target	Implementation place	Baseline (2006)	Indicator	Needed resources	Source of funds
EROSION CONTROL	Digging up erosion control ditches all over the agricultural land and planting fixative plants	All sectors	The dug erosion control ditches cover 40 896.5 ha	Erosion control ditches dug and fixative plants are planted	250,000,000	CBAs, CDF, Millennium Project, World Vision, WFP
	Digging 150 Valley dams (Farm Pond Construction)	All sectors	There are 52 valley dams	Valley dams dug	300,000,000	CBAs, Millennium Project, WFP, MINAGRI/RADA
VALLEY AND MARSHLAND MANAGEMENT	Managing 1500 ha of the Akagera shore valley (Biryogo, Kanyonyomba) and Mwesa	Gashora, Nyamata, Mwogo, Mayange and Rilima Sectors	424 ha are managed throughout the District	1500 ha will be managed	720,000,000	PRODEV BUGESERA, WFP MINAGRI, BAD
MULTIPLICATION OF IMPROVED SEEDS	450 ha of cassava multiplication fields	All sectors	There are 215 ha cassava multiplication fields	Available seed multiplication fields	35,000,000	FAO, PASAB, Ruhuha Catholic Parish, DISTRICT
	300 Ha of Soyabean seed multiplication fields	Umurago marshland	No soyabean seed multiplication fields	Soyabean seed multiplication fields available	6,000,000	MINAGRI/RADA, MINIMEX
	500 ha of bean seed multiplication fields	Inkuka Marshland	No bean seed multiplication fields	Bean seed multiplication fields available	6,000,000	MINAGRI/RADA, DISTRICT
	500 ha of corn seed multiplication fields	Akanyaru Marshland	No corn seed multiplication fields	Corn seed multiplication fields available	6,000,000	MINAGRI/RADA, MINIMEX
INCREASING THE NUMBER OF FRUIT TREES	2 500 000 Moringa trees	All the agricultural fields	There are only 10,000 Moringa trees	Moringa trees within the other crops	2,000,000	Moringa Growers Cooperative, MINITERE, PAEOR
	Adding 60 ha to the already pineapple cultivated area	All sectors	Pineapples are grown in 50 ha of lands	Added pineapple cultivated area	50,000,000	PASAB/ CARITAS, DISTRICT
	Planting at least 10 mango trees per family (60 0260)	All sectors	No data available	Planted mango trees	30,000,000	CNLS, MINITERE, PAFOR
	Planting at least 5 avocado trees per family (30 0130)	All sectors	No data available	Planted avocado trees	15,000,000	CNLS, MINITERE, PAFOR
INCREASING THE NUMBER OF COFFEE TREES	Planting 4 000 000 coffee trees	Ntarama, Musenyi, Nyamata, Mareba, Shyara, Nyarugenge and Ruhuha	There are 2,532,962 coffee trees	Number of planted coffee trees	58,700,000	OCIR/MINICOM, District, Private Sector
INCREASING CROP PRODUCTION	Increasing coffee production from 785 tons to 1000 tons	Throughout the District	785 tons	Tons of Coffee produced	6,000,000	OCIR/MINICOM, District, Private Sector
	Growing cassava on 445 ha	All sectors	70 tons on 14 ha	Reaching 2225 tons of cassava production from 445 ha	45,000,000	DISTRICT, FAO, PASAB, BAD, RADA/MINAGRI, District, JICA, Private Sector
	Growing rice on 718 ha	Rwabikwano, Ruwiza, Kibaza, Rwintare, and Mwesa Marshlands	There are 418 ha yielding 1 881 tons	Reaching 3,150 tons of rice produce on 718 ha	300,000,000	PRODEV BUGESERA, MINAGRI/RADA, DISTRICT, Population's cooperatives
	Growing maize on 2 650 ha	Akagera Shore Valley (1650), Umurago (Ha 800), Rwabusoro (150),	There are 2000 cultivated ha yielding 6000 tons in 2006	Reaching 10 400 tons of maize crop produce on 2650 ha	724,000,000	

Table 3.5.1 Economic Development Component in Contract in 2007 in Bugesera District

CROP STORAGE	Purchasing 15 Cacoons storage devices of 50 tons each Constructing 9 stores storing 200 tons each Storing 2000 tons of food crops in 2007	One in each sector Nyamata, Juru, Mayange, Mwogo, Mareba, Nyarugenge, Ntarama, Musenvi and Ruhuha District and sectors	25 Cacoons storage devices No stores 932,915 tons of beans, sorghum and maize were stored There are 803 modern cows	Cacoons storage devices 9 are constructed 2000 tons are stored in stores	45,000,000 110,000,000 2,000,000	District, CDF PASAB/ CARITAS PASAB, Sector and District cooperatives, Private Sector
LIVESTOCK	Increasing the number of modern cows by 500 30 ha of fodder crop multiplication fields Plotting model pasturelands on 500 ha Each family raises a rabbit Each school should own a rabbit shed and a modern cow Each Health Centre should own a cow, a rabbit shed Setting up 15 bee keepers' cooperatives with modern hives	All sectors All sectors Kamabuye, Ngenuka, Gashora, Juru, Nyamata, Musenvi and Rweru All sectors Each school Each health centre All sectors	No fodder crop multiplication fields No plotted pasturelands No data available No data available No breeding animal at the Health Centres No cooperative	1303 cows Fodder crop seeds are multiplied on 30 ha 500 pasturelands are plotted Each family has a rabbit Each school has a cow, rabbit shed Each Health Centre owns a cow, a rabbit shed 15 cooperatives are there	200,000,000 10,000,000 3,000,000 1,000,000 1,000,000 1,000,000 4,500,000 1,000,000	MINAGRI/RARDA, PAPSTA, SEND COW, JICA, PASAB, Private Sector MINAGRI, ISAR, Private Sector, Population MINAGRI/RARDA, District Population Schools Health centres Private Sector, RARDA, District, SERUKA PAIGELAC, Private cooperatives
FISH FARMING	Increasing the production of fish to 50 tons a year Setting up Bugesera Investment Group (BIG) Cooperatives will get the legal status Increasing the revenues from taxes from 113,314,708 to 204,000,000 RwF a year	9 District lakes At District Office District District	14 tons There are private associations 6 Cooperatives have a legal status The revenues for 2006 were 113,314,708 RwF	Sold fish report Bugesera Investment Group is operational 55 Cooperatives have the legal status The total revenues will increase from 113 314 708 up to 204,000,000	1,000,000 4,500,000 1,200,000 120,000,000	PAIGELAC, Private cooperatives MINICOM, FRSP, District District, MINICOM District
PROMOTING THE PRIVATE SECTOR	Setting up Bugesera Investment Group (BIG) Cooperatives will get the legal status Increasing the revenues from taxes from 113,314,708 to 204,000,000 RwF a year	At District Office District District	There are private associations 6 Cooperatives have a legal status The revenues for 2006 were 113,314,708 RwF	Bugesera Investment Group is operational 55 Cooperatives have the legal status The total revenues will increase from 113 314 708 up to 204,000,000	4,500,000 1,200,000 120,000,000	MINICOM, FRSP, District District, MINICOM District
PROMOTING COOPERATIVES	Setting up a small pineapple processing industry Building 2 coffee processing industries	Ruhuha Nyarugenge and Musenvi	50 Ha of pineapple There is one coffee processing industry	The industry is operational Three industries are operational	6,000,000 120,000,000	RDO/TROCAIRE, District Private Sector, OCIR Café
SMALL AGRICULTURAL AND ANIMAL HUSBANDRY	Setting up a Basket weaving cooperative	District	No weaving cooperatives	A Basket weaving cooperative is set up	6,000,000	MINICOM, RIEPA, DISTRICT

Table 3.5.1 Economic Development Component in Contract in 2007 in Bugesera District

ROADS	Rehabilitating 85 kms of roads	Nyamata, Musenyi, Mareba, Ruhuha, Ntarama, Mwogo. All villages	124 Km of roads are damaged There are 338 community water stands	85 Km of roads are rehabilitated this year 579 water stands are constructed	2,500,000,000	CBAs, PAM, BAD, PDB and CDF
SUPPLYING DRINKING WATER TO POPULATION	Each village has a public water standpipe					SOGEA/MINITERE, District
ECONOMICAL USE OF WATER	Building 63 rainwater tanks	At all the schools	There are 15 rain water tanks	The rain water constructed at schools have moved from 15 to 78	126,000,000	UNICEF, Millenium, NBI, PDB
ENERGY	Constructing 11 km of electricity line	The electricity line will go from 64 km to 75 km	There is an electricity line of 64 km	The 11 km electricity line is set up	492,000,000	CDF
SETTLEMENT	Constructing 520 houses in villages	All sectors	275 houses were constructed in 2006	The number of houses constructed moves from 275 to 795	520,000,000	FARG, TIG WORLD VISION, CBAs
	Plotting and setting boundaries of plots in 221 sites for villages	All sectors	Plots are not measured	Plots are measured in all sites of villages	3,000,000	DISTRICT
IRRIGATED AGRICULTURE	Installing irrigation facilities covering 500 ha	Mwogo, Nyamata, Mayange, Rilima, Gashora	10 ha were irrigated	Irrigation facilities are set up at 500ha	1,072,916,250	BAD, PDB, PRODEV BUGESERA, MINAGRI/RADA
MARKETS	Constructing 2 modern markets	Rilima and Nkanga	There is only one modern market	Modern markets move from 1 to 3	495,000,000	District, RSSP, PDB
LAND	Managing 100ha of radical terraces	Mwogo and Kamabuye	There are 100 ha in Ngeruka Sector	100 Ha of land with radical terraces are used for cultivation	100,000,000	District, MINAGRI, MINITERE
PROTECTING ENVIRONNEMENT AND INCREASING FORESTRY	Protecting the District lakes to bring back their wetness	All the 9 lakes	Lakes are damaged by people's actions or ill-doers	Trees and bamboo's are planted on shores	510,000,000	PAFOR, PAIGELAC, NBI, MINITERE, District, Private Sector, RSSP
PRODUCTION	Planting 7 000 000 trees	All sectors	345 000 trees in 2006	The number of trees planted during the "Tree Week"	150,000,000	HIMO, PAFOR, MINITERE, CNLS, Private Sector
	Setting up Environment Clubs in each sector and primary	All sectors, all schools	There are 8 Environment Clubs	83 Environment Clubs 83 are put in place	9,000,000	MINITERE, NBI, District
Total					9,167,816,250	

Govermnet	District	GDF	Donors	Total
1,064,500,000	124,200,000	3,287,000,000	4,692,116,250	9,167,816,250

Table 3.5.2 Road Map to formulate Bugesera District Development Plan

Required Steps	Time
I. Phase-1 Preparatory Work	
Feedback from stakeholders on guidelines and proposed timetable	October 30 th 2006
Establishment of TOR for format and contents of DDPs	November 15 th 2006
Identification of study and demand for support to elaborate DDPs	-ditto-
Finalization of training material	November 30 th 2006
II. Phase-2 Review of 2006	
Review of imihigo (achievements during 2006), agreement on new sector Key performance indicators (KPIs)	November –January 15 th 2007
Recruitment of consultants to assist District in preparation of DDP	December 24 th 2006
III. Elaboration of DDP	January 15 th –April 15 th 2007
PRA workshop at Cell levels	Middle of February 2007
Review of PRA results	Middle of March 2007
Elaboration of DDP	End of May 2007

Table 3.6.1 The Original Time Schedule on the Baseline Survey

	Schedule	Survey Activity
1	August 2	Distribution of Questionnaires to all Sector and Cell Offices
2	August 4	Small workshop is held in each Sector so as to brief the baseline survey
3	August 5	Numbering of the Households for survey
4	August 7-21	Start data collection by interviewing
5	August 21-September 4	Start data input to PC and completion
6	September 4 – 15	Data analysis
7	September 15-30	Reporting
8	End of September	Completion of Report for the result of Baseline Survey

Source: Discussion result between JICA Study Team and GTZ, 2006

Table 3.6.2 Marshlands and Cultivated Crops

Sector	Name	Area (ha)	Cultivated crops
Nyarugenge	Kadogori	18	Rice
	Tubumba	4	Rice
Nyarugenge, Shyara	Ruvubu*	113	Rice
Nyarugenge	Rwabusoro	350	Maize
	Nyakariba	6	Rice
	Naga	4	Rice
	Kabakemba	10	Rice
	Nyaburiba	26	Rice
Nyamata, Rilima, Mwogo	Mwesa	1,350	Vegetable, Bean, Sorghum, Soybean
Nyamata	Kamatana	90	Maize, Bean, Soybean, Sorghum
	Muzi	227	Bean, Maize
	Kirera	10	Sweet potato, Bean
	Rwakibirizi	8	Soybean, Maize, Sweet potato, Vegetable
	Kagirazina	16	Maize, Bean, Sweet potato, Soybean
Mareba, Ruhuha	Rwabikwano*	104	Rice
	Rwabikwano	41	Ricen, Maize
	Gatare*	43	Rice
Mareba, Musenyi, Shyara	Murago	1,200	Rice(403ha), Bean, Maize, Soybean, Tomato
Shyara	Musasa	12	Bean, Rice Groundnut
Shyara	Kibumba	45	Bean, Groundnut, Rice
Mwogo	Mwogo	120	Maize, Bean, Sorghum
	Rubumba	45	Maize, Bean, Sorghum
	Muramba	120	Maize, Sorghum, Tomato
	Rurenge	35	Not cultivated
Ruhuha, Mareba	Gatare*	43	Rice
Ruhuha, Ngeruka	Kibaza*	30	Rice
Ruhuha, Nyarugenge	Nyaburiba*	52	Rice
Ruhuha	Nyagafunzo	3	Bean, Maize
	Mpimbiguye	3	Bean, Maize
	Rwanzunga	4	Bean, Maize
Ngeruka	Ikizanye	23	Rice
Shyara, Mareba, Nyarugenge	Rwintare*	72	Rice
Rweru	Nzangwa	150	Not cultivated
	Kirundo	210	Sorghum, Maize, Bean, Soybean, Tomato
	Mazane	60	Sorghum, Maize, Bean, Soybean, Tomato
	Kiborera	80	Sorghum, Maize, Bean, Soybean, Tomato
	Rweru	350	Sorghum, Maize, Bean, Soybean, Tomato
	Kinkondo	85	Sorghum, Maize, Bean, Soybean, Tomato
Juru, Gashora, Rilima	Akagera	3,120	Maize
Juru	Rwansoro	1,230	Maize, Sorghum, Sweet potato, Not cultivated (1100ha)
	Nyamigende	20	Maize, Bean, Tomato
	Rurambi	104	Maize, Bean, Sorghum, Not cultivated (45 ha)
Ngeruka	Fantinkanda	6	Sorghum, Bean
	Gahigiri	6	Maize, Bean, Sorghum
	Ranch	58	Maize Sorghum
	Nyakayenzi	23	Rice
Juru	Katarara	150	Bean, Sorghum, Maize, Grazing
Mayange	Kibugabuga	200	Grazing
Gashora Rweru	Mbuganziza	200	Grazing
Total area (ha)		10,279	
Total reclaimed area (ha)		457	

Source: Planning, Economic Development and Employment unit, Bugesera district, *: Reclaimed marshlands.

Table 3.6.3 Staple Crop Production (Unit: kg/year)

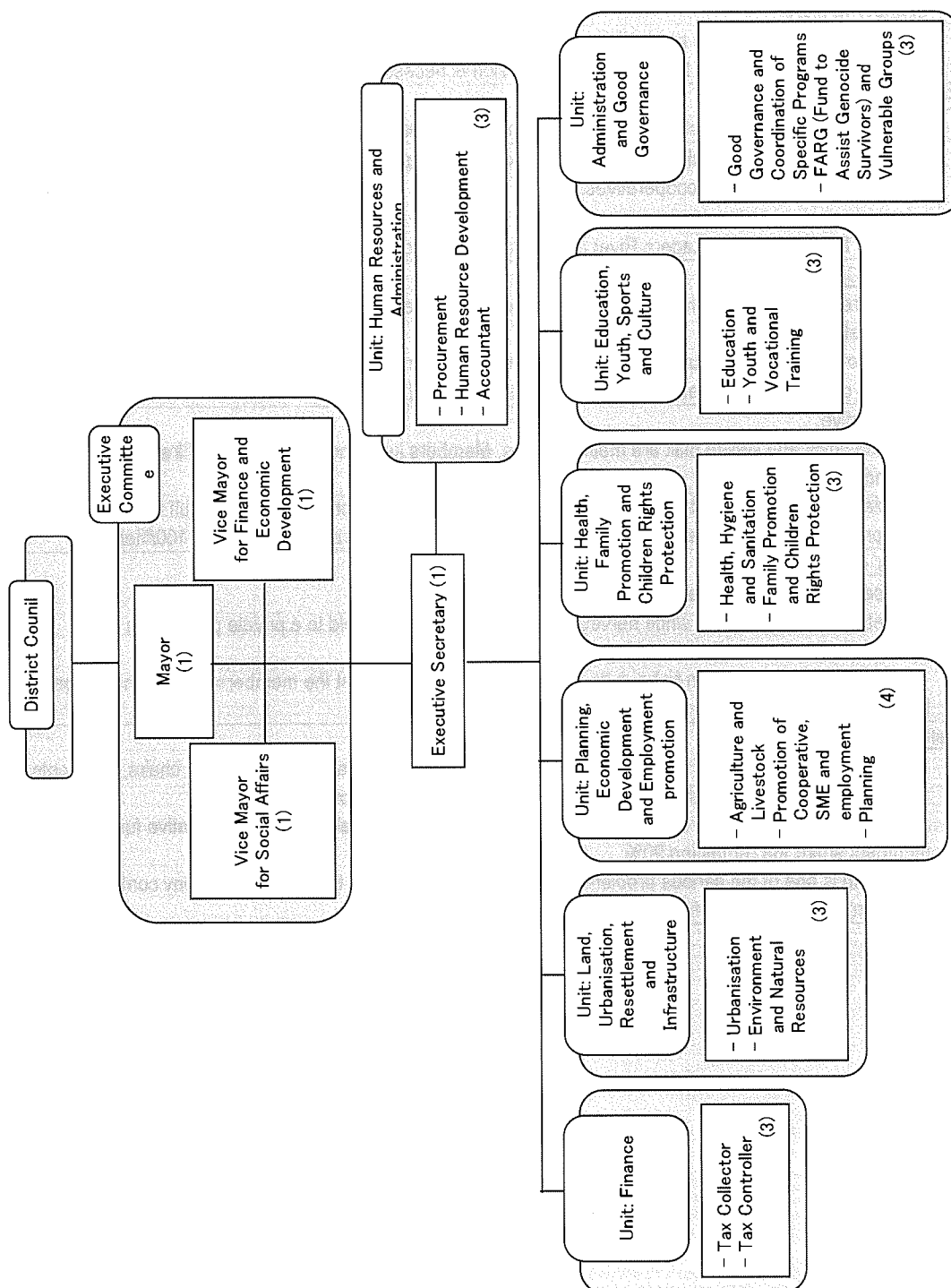
	Maize		Sweet potato		Beans		Cassava		Sorghum	
Sector	Production	%	Production	%	Production	%	Production	%	Production	%
GASHORA	551,141	15.7	343,368	4.8	916,090	4.6	35,093	1.6	186,005	2.5
JURU	93,567	2.7	961,840	13.6	1,000,966	5.0	14,055	0.6	425,032	5.8
KAMABUYE	337,277	9.6	38,163	0.5	975,611	4.9	4,372	0.2	83,615	1.1
MAREBA	545,894	15.6	92,579	1.3	2,786,406	13.9	12,604	0.6	1,152,048	15.6
MAYANGE	374,493	10.7	76,624	1.1	1,627,865	8.1	25,785	1.2	419,456	5.7
MUSENYI	201,002	5.7	2,067,668	29.1	1,951,114	9.7	1,611,164	73.0	1,987,977	26.9
MWOGO	42,837	1.2	260,896	3.7	734,657	3.7	25,572	1.2	279,308	3.8
NGERUKA	127,159	3.6	203,507	2.9	1,756,320	8.8	78,377	3.6	416,944	5.6
NTARAMA	131,135	3.7	549,211	7.7	869,230	4.3	179,355	8.1	535,020	7.2
NYAMATA	92,422	2.6	80,643	1.1	2,641,392	13.2	64,812	2.9	703,261	9.5
NYARUGENGE	69,500	2.0	287,495	4.1	548,308	2.7	61,193	2.8	104,352	1.4
RILIMA	183,155	5.2	37,970	0.5	1,496,445	7.5	3,637	0.2	89,885	1.2
RUHUHA	29,641	0.8	509,026	7.2	776,573	3.9	41,639	1.9	151,920	2.1
RWERU	398,301	11.4	1,370,909	19.3	1,674,055	8.4	38,167	1.7	794,014	10.8
SHYARA	329,585	9.4	215,187	3	265,265	1.3	11,329	0.5	52,232	0.7
Total	3,507,109	100	7,095,086	100	20,020,297	100	2,207,154	100	7,381,069	100

Source: GTZ-JICA Baseline Survey, 2006.

Table 3.6.4 Major characteristics of Cooperatives

Fishing Cooperative:	
♦	Around the lakes in the former Gashora District, there have been many fishing associations and those associations have recently merged into one cooperative by lake in accordance with the instruction from the District.
♦	In general, the cooperative members individually catch fish (mainly <i>Tilapia</i> , <i>Mamba</i> , and <i>Inkuba</i>), sell collectively after measuring the weight. (Selling prices vary from Rwf 140 – 350/kg depending on place and fish kinds.).
♦	The cooperatives deduct margin (Rwf 10–50/kg) and deposit it as cooperative fund. The fund is used as loan to members, mainly for development and improvement of their livelihoods, and construction of cooperativeshop/office.
♦	<i>Mamba</i> fish, which has sharp teeth and jaw, comes into lakes in Bugesera through flood water of the Akagera River and aggressively eats fingerlings of other fishes. Consequently, the number of other fishes decreases. It particularly decreased population of <i>Tilapia</i> is notable.
♦	Due to the governmental policy of banning tree cutting, it is difficult for fishermen to renew their canoes.
♦	Generally, most cooperative members regard fishing as an income generation activity having their own fields for farming in order to produce staple food.
Agricultural Cooperative:	
♦	One cooperative in Rweru is receiving supports (e.g. provision of textbooks on improved farming technology) from ISAR Karama Station.
♦	Cooperative members either work, sell their farm produce and share the harvest collectively, or work individually and sell farm produce collectively.
♦	Some cooperatives are relatively large with 1,000 members, resulting from the merger of many small associations.
Rice Farmers' Cooperative:	
♦	Paddy rice is usually cultivated individually on marshland/valley, but the harvested paddy is sold

collectively after measuring each member's yield.	
♦	In general, rice is a cash crop to earn income even though small portion of the harvest is consumed by member farmers.
♦	In order to have stable rice production, good management of marshland and surrounding areas as well as irrigation/drainage facilities for stable water provision is necessary.
<u>Maize Farmers' Cooperative:</u>	
♦	Maize is cultivated on marshland or on lowland along the Akagera River.
♦	There are two modes of cultivation: individual work and collective one. After harvesting, collective sales of maize is usually done by cooperatives.
♦	In 2006, flood along the Akagera River caused low production.
<u>Loan and Saving Cooperative:</u>	
♦	There are two modes of raising fund: collection of fee from each member and selling cultivated crops collectively.
♦	In case of emergency (natural calamity, death of family members, etc.), loan is available without interest.
♦	In some cases, cooperatives pay public medical insurance (Mutuelle de Sante) fee for members.
<u>Livestock Cooperative:</u>	
♦	Keeping cows and selling milk are main activities. Members keep their own cows and transport and sell milk individually.
♦	Artificial insemination is not introduced and natural mating with a borrowed Friesian bull is conducted.
♦	Sale price of milk sometimes sharply drops, particularly during the rainy season (Rwf 100/liter).
<u>Coffee Farmers' Cooperative:</u>	
♦	Members jointly work to prepare nursery and provide seedlings.
♦	Marketing is not a problem since harvested coffee beans can be sold to a private processing plant operated in the Sector (Rwf 60-70/kg).
♦	The Cooperative has a plan to have its own processing plant so that the members can sell the coffee beans to the Cooperative.
<u>Handicraft Cooperative:</u>	
♦	The Cooperative produces hats, baskets for shopping, hand bags, slippers, dust bins, chairs, baby cots, and pencil stands by using banana and palm leaves and water hyacinth.
♦	After selling their products, the Cooperative receives 10 % of the sales as the Cooperative fund and members share the remaining 90%.
♦	Marketing is one of the serious problems for the Cooperative since they do not have any contracts with shops/firms. They need to find buyers by themselves.



*The parentheses means the number of staff
Source: Bugesera District

Figure 3.2.1 Organization Chart of Bugesera District

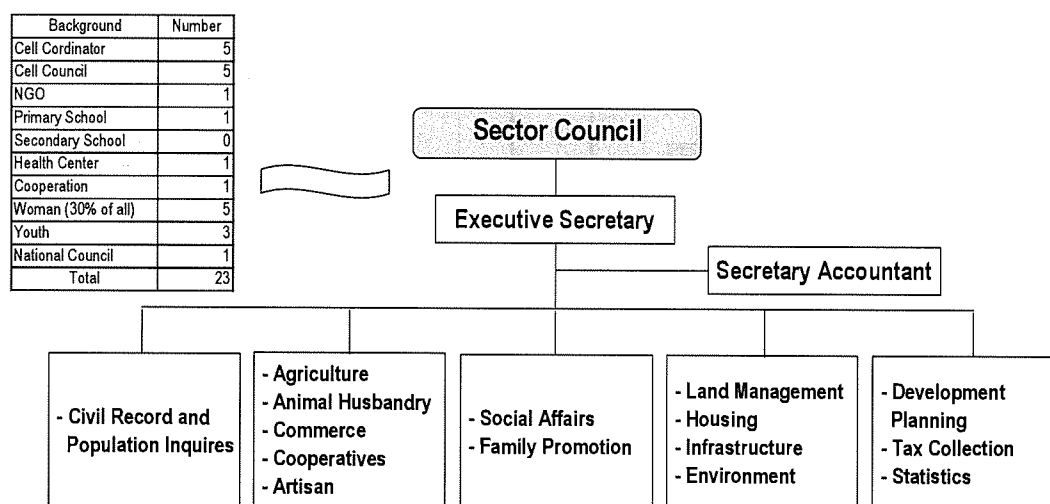
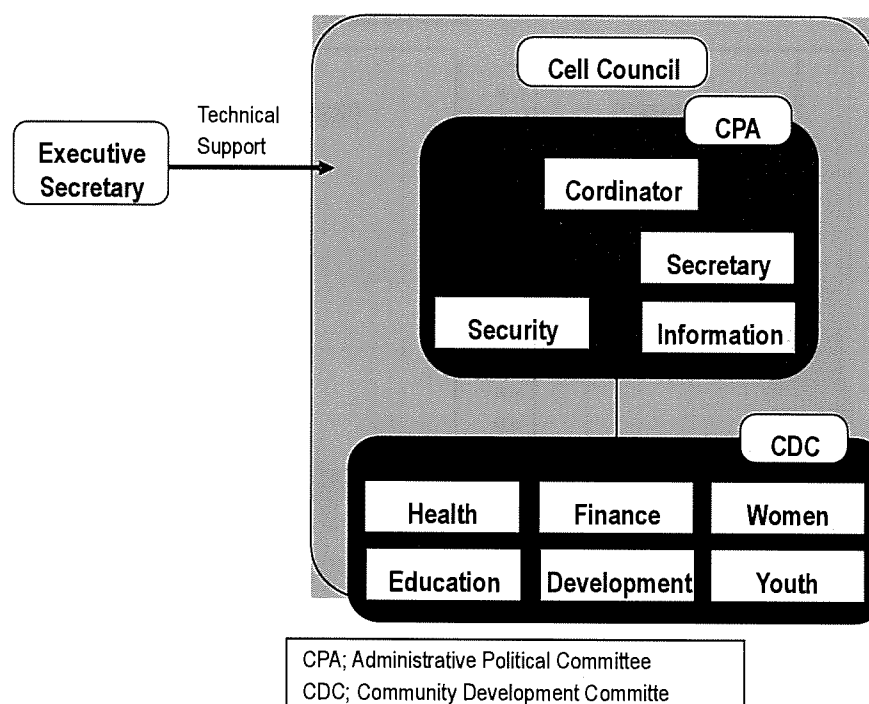


Figure 3.2.2 Organization Chart of Sector

Source: Organization chart: MINALOC

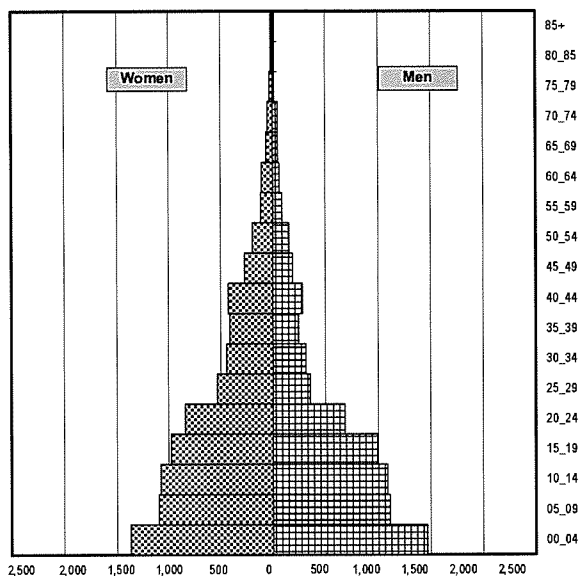
Background and number of Sector council member: Kamabuye Sector



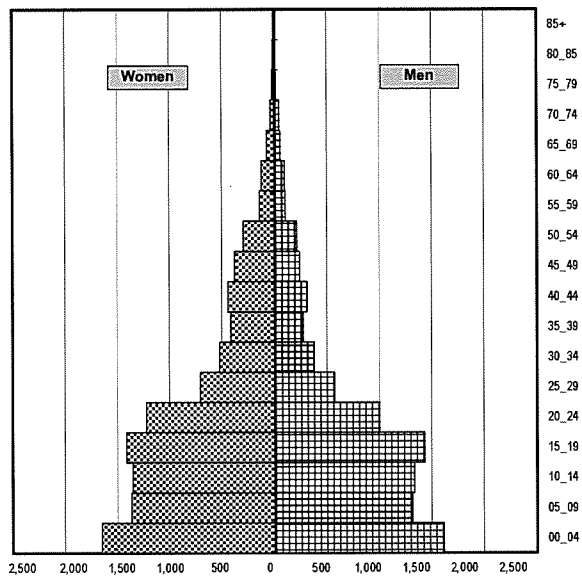
Source: Study from each Sector Office on May 2006 and *MINALOC

Figure 3.2.3 Organization Chart of Cell

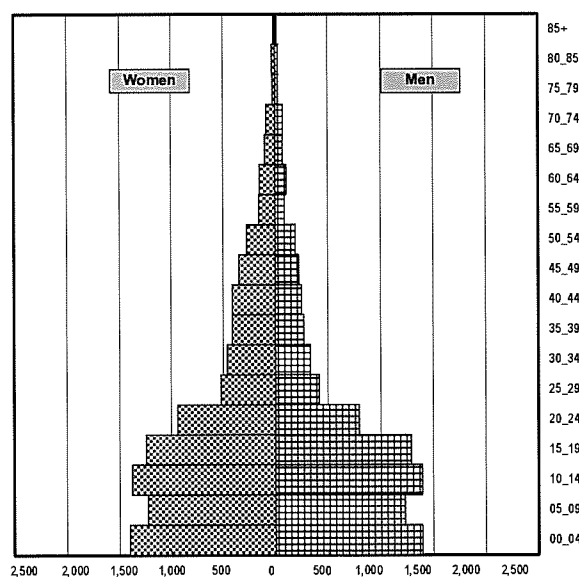
01 Gashora Sector



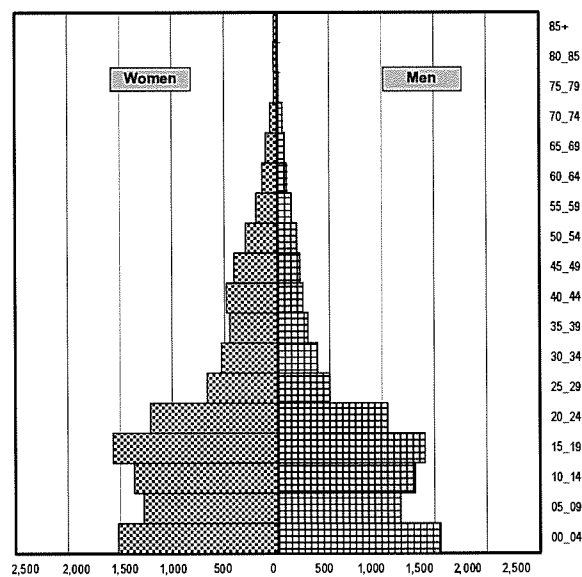
02 Juru Sector



03 Kamabuye Sector

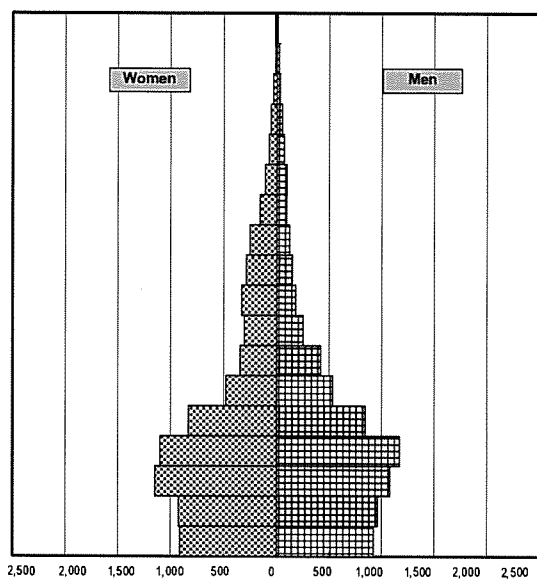


04 Mareba Sector

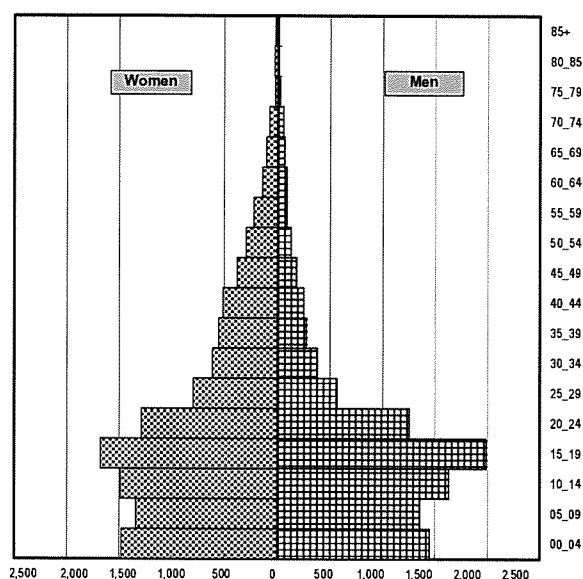
**Figure.3.2.4 Population Pyramids by Sector**

Source: "National Census of the Population and Settlement (August 2002), Final Statistics: Sector Level, Volume 1: City of Kigali, Kigali Rural, Gitarama, Butare", MINECOFIN 2005

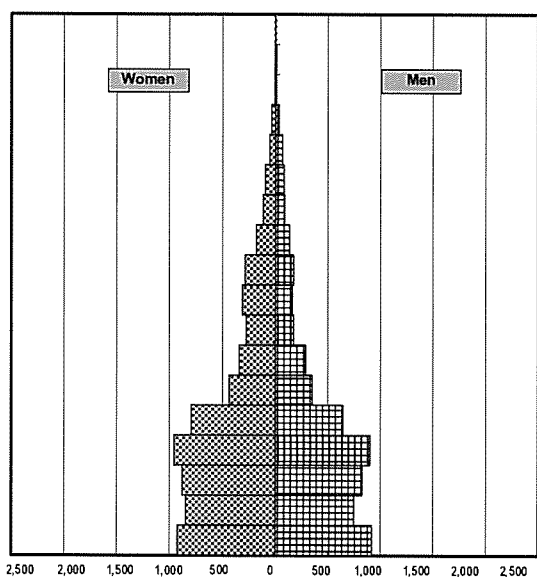
05 Mayange Sector



06 Musenyi Sector



07 Mwogo Sector



08 Ngeruka Sector

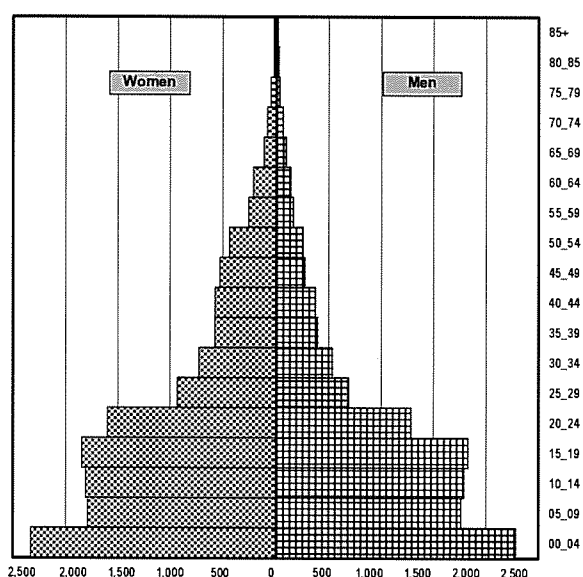
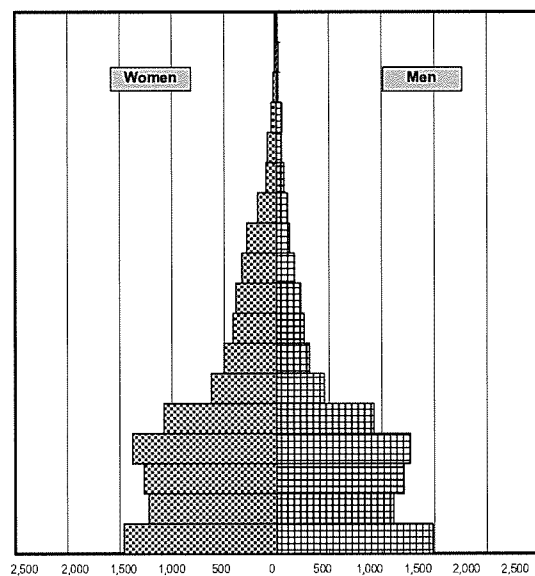
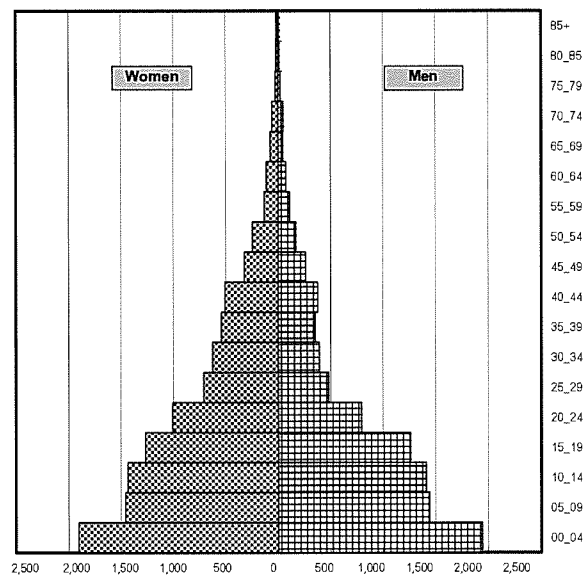


Figure 3.2.5 Population Pyramids by Sector (continued)

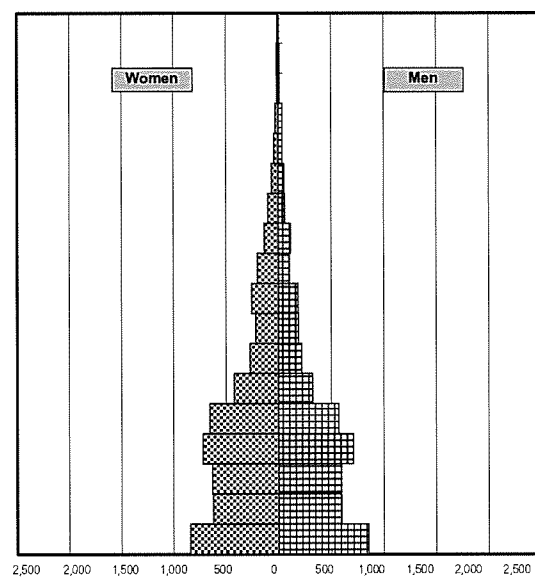
13 Ruhuha Sector



14 Rweru Sector



15 Shyara Sector



Bugesera District

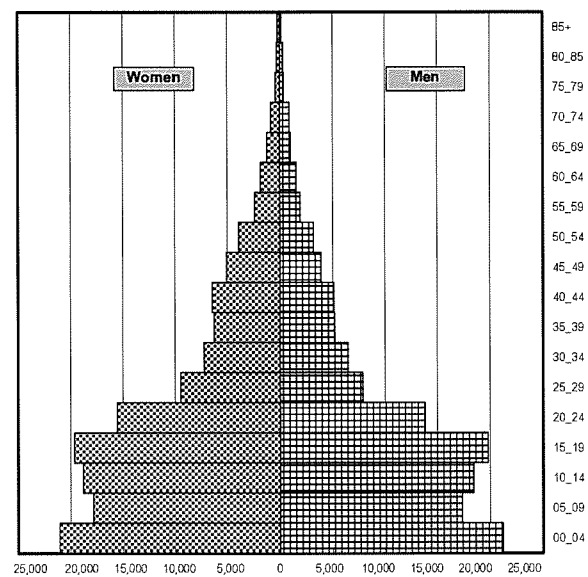
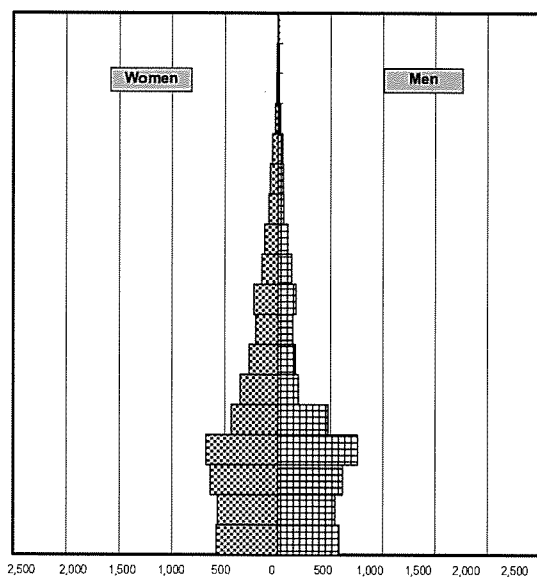
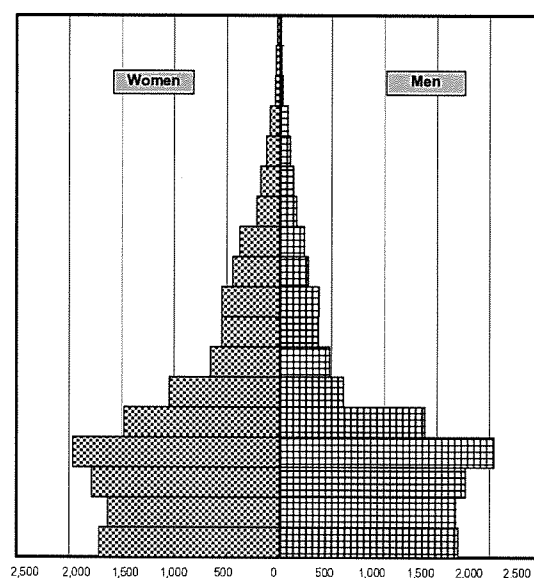


Figure 3.2.6 Population Pyramids by Sector (continued)

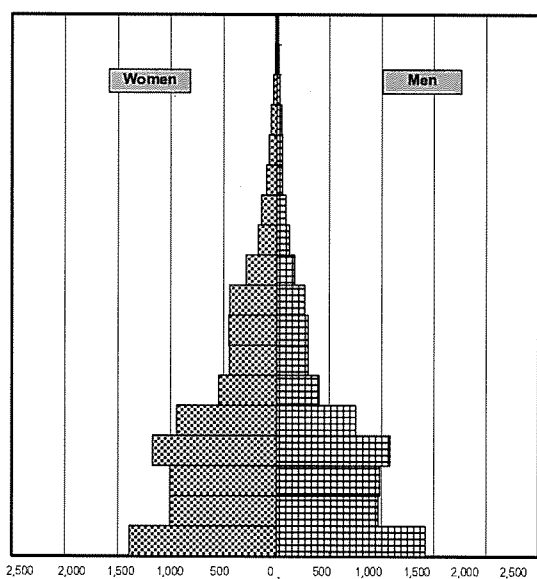
09 Ntarama Sector



10 Nyamata Sector



11 Nyarugenge Sector



12 Rilima Sector

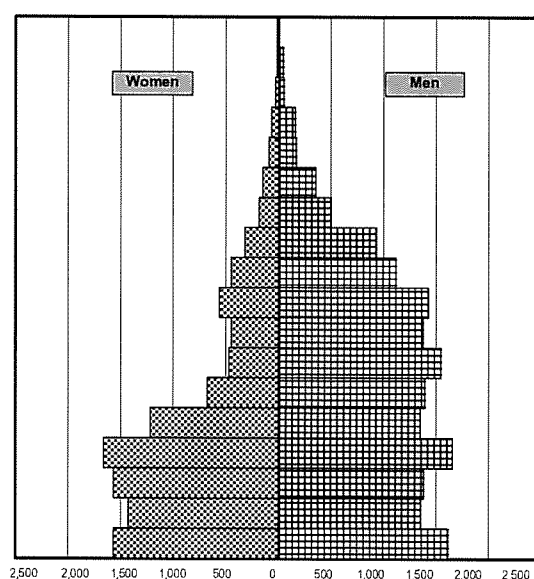


Figure 3.2.7 Population Pyramids by Sector (continued)

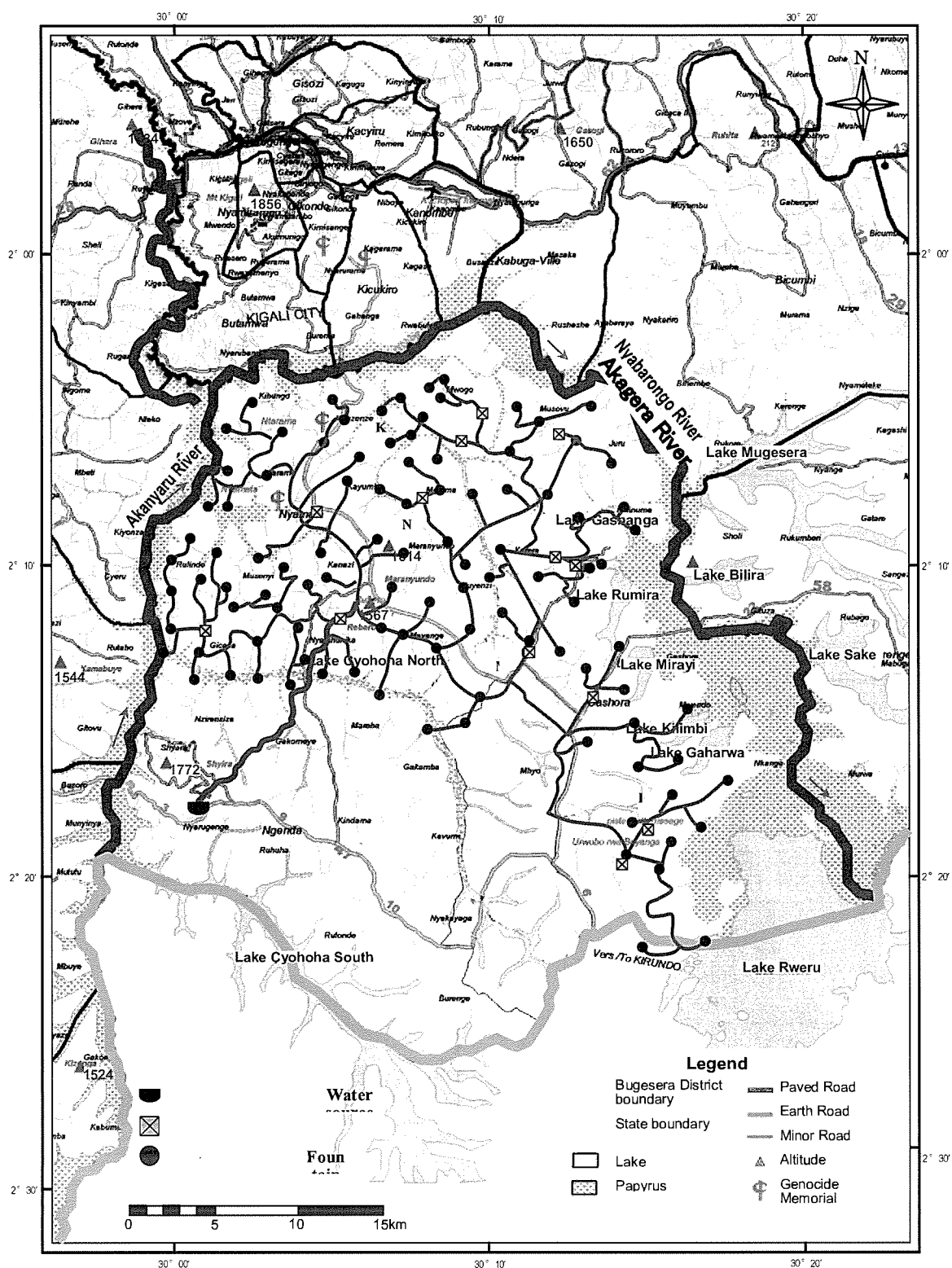


Figure 3.2.8 Network of Water Supply System

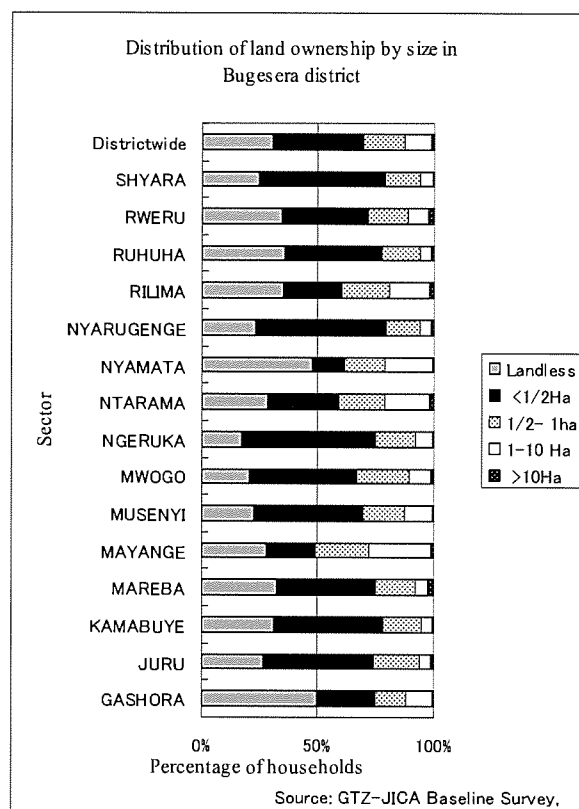


Figure 3.6.1 Distribution of Land Ownership by Size

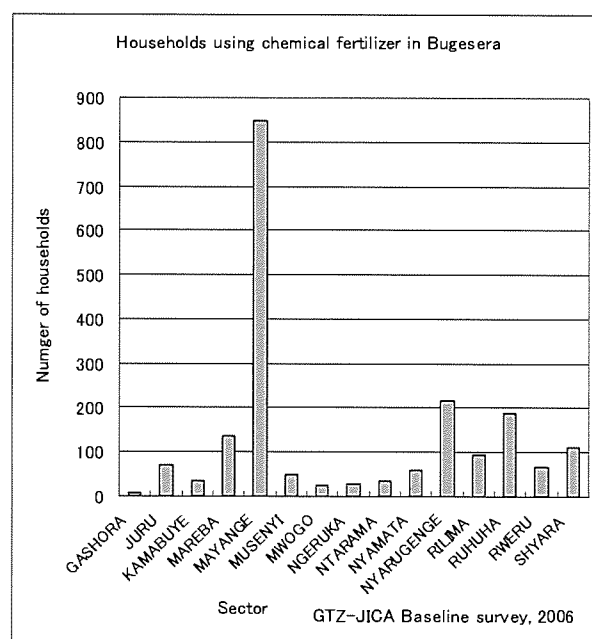


Figure 3.6.2 Number of HHs using Chemical Fertilizer

ANNEX IV ENVIRONMENTAL CONSIDERATION

Table 4.1.1 International Conventions on Environmental Protection signed by the Government of Rwanda

Name	Signed in	Approved by
International Convention on Biodiversity and its Habitat	Rio de Janeiro (1992)	P.O.* No. 017/01 of 18 March 1995
United Nations Framework Convention on Climate Change	Rio de Janeiro (1992)	P.O. No. 021/01 of 30 May 1995
Stockholm Convention on Persistent Organic Pollutants	Stockholm (2001)	P.O. No. 78/01 of 8 July 2002
Rotterdam International Convention on the Establishment of International Procedures agreed by States on Commercial Transactions of Agricultural Pesticides and Other Poisonous products	Rotterdam (1998), New York 1998 ~ 1999)	P.O. No. 28/01 of 24 August 2003
Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal	Basel (1989)	P.O. No. 29/01 of 24 August 2003
Montreal International Convention on Substances that Deplete the Ozone Layer	London (1990) etc.	P.O. No. 30/01 of 24 August 2003
Cartagena Protocol on Biosafety to the Convention of Biodiversity	Nairobi (2000), New York (2000 ~ 2001)	Law No. 38/2003 (2003)
Kyoto Protocol to the Framework Convention on Climate Change	Kyoto (1998)	Law No. 36/2003 (2003)
Ramsar International Convention on Wetlands of International Importance, especially Waterfowl habitats	Ramsar (1971)	Law No. 37/2003 (2003)
Bonn Convention on Conservation of Migratory Species of Wild Animals	Bonn (1979)	Law No. 35/2003 (2003)
Washington Agreement on International Trade in endangered Species of Wild Flora and Fauna	Washington (1973)	P.O. No. 211 (1980)

*: P.O.; Presidential Order

Table 4.5.1 Species, Potentially Grown in Bugesera District

Scientific Name	Local Name	Scientific Name	Local Name
<i>Podocarpus usambarensis</i>	Umufu	<i>Dichrostachye cinerea</i>	Umuyebe, Umunkamba
<i>Podocarpus milanjanus</i>	Umuhulizi	<i>Mimosa pigra</i>	Umugeyo
<i>Phoenix reclinata</i>	Umukindo	<i>Albizia adianthifolia</i>	Umusebeya
<i>Trema orientalis</i>	Umubori, Umundondori, Umugwamporo, Umurangar	<i>Albizia amara</i>	Umunaniranzovu
<i>Ficus sycomorus</i> var. <i>gnaphalocarpa</i>	Umuvumu, Umukuyu	<i>Albizia antunesiana</i>	Gatsi
<i>Ficus Thonningii</i>	Umuvumu, Igitoma	<i>Albizia gummifera</i>	Umusebeya
<i>Ficus vallis-chudae</i>	Umurehe, Ikodobori	<i>Albizia petersiana</i>	Umumeyu
<i>Ficus sur</i>	Umukuyu, Umukumu, Umuhungutu	<i>Albizia versicolor</i>	Umububa
<i>Ficus cyathistipula</i>	-	<i>Entada abyssinica</i>	Umusange, Umusangasange
<i>Ficus trichopoda</i>	-	<i>Dalbergia nitidula</i>	Umuhogo, Umuyigi
<i>Ficus asperifolia</i>	Umusene	<i>Erythrina abyssinica</i>	Umuko, Umurinzi, Inanasi
<i>Ficus vernuculosa</i>	-	<i>Ormocarpum trichocarpum</i>	Umukamba
<i>Ficus ovata</i>	Umuhere	<i>Sesbania sesban</i>	Umunyegenyeye
<i>Ficus glumosa</i>	Umugwampore	<i>Cassia didymobotrya</i>	Umucyuro
<i>Ficus ingens</i>	Umutaba	<i>Cassia singueana</i>	Uruhogo, Ruhogo
<i>Ficus burkei</i>	Umurengarutare	<i>Parinari curatellifolia</i>	Umunazi

<i>Ficus brachypoda</i>	-	<i>Combretum molle</i>	Umurama
<i>Ficus kitubalu</i>	Umurengarutare	<i>Bridelia micrantha</i>	Umugimbo, Umushashi
<i>Acanthus pubescens</i>	Umutovu, Igitovu	<i>Croton dichogamus</i>	Umuhuhe
<i>Lannea shimperi</i>	Umumuna	<i>Croton macrostachyus</i>	Umurangara, Umubonobono
<i>Lannea fulva</i>	Umuzinzigwa	<i>Sapium ellipticum</i>	Umusasa
<i>Lannea humilis</i>	Umushiranyota	<i>Strychnos innocua</i>	-
<i>Lannea stuhlmannii</i>	Umushiranyota	<i>Strychnos spinosa</i>	-
<i>Ozoroa reticulata</i>	Umukerenke	<i>Strychnos usambarensis</i>	-
<i>Phus natalensis</i>	Umusagara	<i>Strychnos lucens</i>	-
<i>Phus vulgaris</i>	Umusagara mabunda, Umusagara	<i>Euclea shimperi</i>	Umushikiri
<i>Annona senegalensis</i>	Umushirashira, Ikiryohera	<i>Ximenia caffra</i>	Umusasa, Umusekera
<i>Acokanthera shimperi</i>	Umusagwe, Umushewe	<i>Olea europaea</i>	Umumuri, Umuzenzenzi, Umunzenze, Umuhongoramugita
<i>Carissa edulis</i>	Umushubi, Umunyonza	<i>Securidaca longepedunculata</i>	Umunyagasozi
<i>Ancylobotrys amoena</i>	Inkamire, Umukamire	<i>Ziziphus mucronata</i>	Umuganzacyaro
<i>Vernonia amygdalina</i>	Umubilizi, Umugaragara	<i>Teclea nobilis</i>	Umuzo
<i>Kigeria africana</i>	Ikivungovongo, Umuremere, Umuvumgavungo, Umuvungovungo	<i>Toddalia asiatica</i>	Umugasa
<i>Markhamia lutea</i>	Umusave	<i>Fagara chalybea</i>	Intare, Y'irungu
<i>Markhamia obtusifolia</i>	Umukoli, Umukundambazo, Umunyagakoli	<i>Clausena</i>	Umuno
<i>Cordia africana</i>	Umuvugangoma	<i>Haplocoelum gallaense</i>	Umushami
<i>Commiphora africana</i>	Umudahwera	<i>Blighia unijugata</i>	Umuturamugina
<i>Acacia brevispica</i>	Umugeyo	<i>Pappea capensis</i>	Umumena, Umuremampango
<i>Acacia gerrardii</i>	Umugunga	<i>Hamsonia abyssinica</i>	Umufatangwe, Umuganzacyaro
<i>Acacia hockii</i>	Umugenge	<i>Dombeya bagshawei</i>	Umukongwa, Umukwa
<i>Acacia kirkii</i>	-	<i>Dombeya burgessiae</i>	Umukore
<i>Acacia polyacantha</i>	Umugo, Umugu	<i>Dombeya rotundifolia</i>	Umukore
<i>Acacia senegal</i>	Umukonji	<i>Dombeya kirkii</i>	Umukore, Igitubabugama
<i>Acacia sieberana</i> var. <i>vermoesenii</i>	Umunyinya	<i>Pterygota mildbraedii</i>	Humuhumuro, Umugurika
<i>Acacia sieberana</i> var. <i>kagerensis</i>	Umunyarugera	<i>Grewia trichocarpa</i>	Umukoma, Umukomagabo, Umukomagore

Source: Arbres et Arbustes des Regions de l'Est du Rwanda

Table 4.5.2 Bird Count Survey Results at Lake Rweru

Scientific Name	Time		Remarks	Scientific Name	Time		Remarks
	1966	2003			1966	2003	
<i>Phalacrocorax carbo</i>	x	x		<i>Macrodipteryx vexillarius</i>	x		
<i>Ardea cinerea</i>	x			<i>Alcedo cristata</i>	x	x	
<i>Ardea melanocephala</i>	x	x		<i>Halcyon leucocephala</i>	x		
<i>Mesophoyx intermedia</i>	x			<i>Halcyon senegalensis</i>	x	x	
<i>Bubulcus ibis</i>		x	CITES	<i>Ceryle rudis</i>	x	x	
<i>Ardeola ralloides</i>	x			<i>Merops oreobates</i>		x	
<i>Ixobrychus sturmii</i>	x			<i>Merops persicus</i>	x		
<i>Scopus umbretta</i>		x		<i>Merops apiaster</i>		x	
<i>Plegadis falcinellus</i>		x		<i>Coracias caudata</i>	x		
<i>Bostrychia hagedash</i>	x		CITES	<i>Upupa africana</i>	x		
<i>Arias erythrorhyncha</i>		x		<i>Rhinopomastus cyanomelas</i>	x		
<i>Haliaeetus vocifer</i>		x		<i>Indicator indicator</i>	x		

<i>Fringilla monticola</i>	x			<i>Caprimulgus fossii</i>	x		
<i>Numida meleagris</i>	x			<i>Campethera cailliautii</i>	x		
<i>Sarothrura elegans</i>		x		<i>Dendropicos fuscescens</i>	x		
<i>Fulica cristata</i>		x		<i>Lanius excubitoroides</i>	x		
<i>Balearica regulorum</i>		x		<i>Lanius cabanisi</i>		x	
<i>Charadrius pecuarius</i>	x			<i>Lanius collaris</i>	x		
<i>Vanellus spinosus</i>		x		<i>Oriolus larvatus</i>	x		
<i>Vanellus coronatus</i>	x			<i>Oriolus percivali</i>	x		
<i>Vanellus superciliosus</i>	x			<i>Laniarius erythrogaster</i>	x		
<i>Glareola pratincola</i>		x		<i>Laniarius mufumbiri</i>		x	IUCN
<i>Streptopelia senegalensis</i>	x			<i>Telophorus dohertyi</i>		x	
<i>Streptopelia capicola</i>	x			<i>Brodornis pallidus</i>	x		
<i>Turtur chalcospilos</i>	x			<i>Cossypha heuglini</i>	x		
<i>Turtur afer</i>	x			<i>Lamprolaima chalybaeus</i>	x		
<i>Colinus striatus</i>	x			<i>Creophora cinerea</i>	x		
<i>Urocolius macrourus</i>	x			<i>Pycnonotus barbatus</i>	x	x	
<i>Musophaga rossae</i>	x			<i>Bradypterus baboecala</i>		x	
<i>Corythaixoides personata</i>	x			<i>Nectarinia olivacea</i>		x	
<i>Crinifer zonurus</i>	x			<i>Ploceus xanthops</i>		x	
<i>Oxyphaps levallantii</i>	x			<i>Ploceus cucullatus</i>		x	CITES
<i>Tyto capensis</i>	x			<i>Euplectes axillaris</i>		x	
<i>Caprimulgus fossii</i>	x			<i>Serinus atrogularis</i>		x	

Source: Etudes Relatives à la Protection Intégrée et Conservation des Ressources Naturelles des Zones Humides Critiques du Rwanda, MINITERE

Table 4.5.3 Water Quality Analysis

Parameter	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	Drinking water sta.	
											Not Treated	Treated
Former District	Gashora	Gashora	Gashora	Gashora	Nyamata	Ngenda	Nyamata	Nyamata	Gashora	Gashora		
Former Sector	Nkanga	Rweru	Rweru	Rweru	Kanazi	Kindama	Maranyundo		Rweru	Mwendo		
Former Cell	Kigina	Maburane	Kintambwe	Gasenyi	Nyamata I	Gatare	Gatare II	Gatare I	Mugina	Kayovu		
Point of Water	Manual pump	Manual pump	Manual pump	Manual pump	Rwakibirizi	Gatare II	Gahomboro	Tap (Rwakibirizi)	Manual pump	Manual pump		
Sampling date	11/01	11/01	11/01	11/01	11/01	12/01	12/01	12/01	12/01	12/01		
Colour (Pt Co)	252	196	17	66	17	45	91	0	0	9	15	0-5
Odor	Moderate	Rot	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Taste	Innocuous	Bitter	Innocuous	Innocuous	Innocuous	Innocuous	Innocuous	Innocuous	Innocuous	Salty	Innocuous	Innocuous
Turbidity a) Visual	Trouble	Opaque	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
b) FTU	54	33	5	14	4	10	15	0	0	3	4-9	6.5-8.5
pH	8.0	5.0	8.5	8.0	5.5	5.5	5.5	6.0	8.0	6.0		
CO ₂ (mg/l)	82	530	150	100	94	106	76	30	40	169		
Conductivity (ms/cm)	506	541	1759	890	54.0	86.0	54.7	62.2	367	785	1000	100-200
TDS (mg/l)	342	350	1458	584	35.1	56.4	35.4	39.4	338	523		
Alkalinity (TAC) (mg/l)	456	220	980	760	68	56	52	60	284	464		
Hardness (TH) (mg/l CaCO ₃)	722.4	309.6	1238.4	619.2	28	36	32	40	309.6	516	-	100-200
Total Calcium (mg/l Ca ²⁺)	258	154.8	309.6	258	24	28	24	28	158.8	309.6		
Total Magnesium (mg/l Mg ²⁺)	464.4	154.8	928.8	361.2	4	8	8	12	150.8	206.4		
Ammonium (NH ₄ ⁺) (mg/l)	1.5609	7.224	0.9159	1.806	0.0903	0.2064	0.2193	0.1161	11.8035	0.1548	2.5	0.5
Nitrite (NO ₂ ⁻) (mg/l)	0.0891	0.0132	0.1221	0.0429	0.0198	0.0264	0.0297	0.0198	0.0097	0.0297	1.0	0.5

ANNEX IV

Nitrate (NO ₃ -) (mg/l)	0	15.84	6.6	6.72	14.96	24.2	7.48	15.84	7.48	7.92	80	50
Fluoride (F) (mg/l)	0.59	0.19	1.19	0.96	0.25	0.10	0.27	0.19	1.18	0.84	1.5	1.5
Phosphate (PO ₄ -) (mg/l)	0.71	0.56	0.84	0.6	2.12	0.65	0.66	0.65	0.27	0.64	-	5
Sulfate (SO ₄ -) (mg/l)	27	375	<u>450</u>	68	0	0	7	0	8	140	-	400
Chloride (Cl-) (mg/l)	13.9	7.7	<u>97</u>	16.2	0.7	0.4	1.1	1.4	17.7	<u>22.9</u>	-	5-20
Iron(Fe) (mg/l)	<u>1.69</u>	<u>1.90</u>	0.30	<u>0.49</u>	0.00	0.00	0.06	0.00	0.28	0.20	-	0.3
Zinc (Zn) (mg/l)	0.02	0.00	0.13	0.10	0.25	0.34	0.31	0.99	0.00	0.07	-	5

Source: ZOA

Legend: bold and underlined Number is not satisfied with treated water standard, underlined number is not satisfied with no treated water standard.

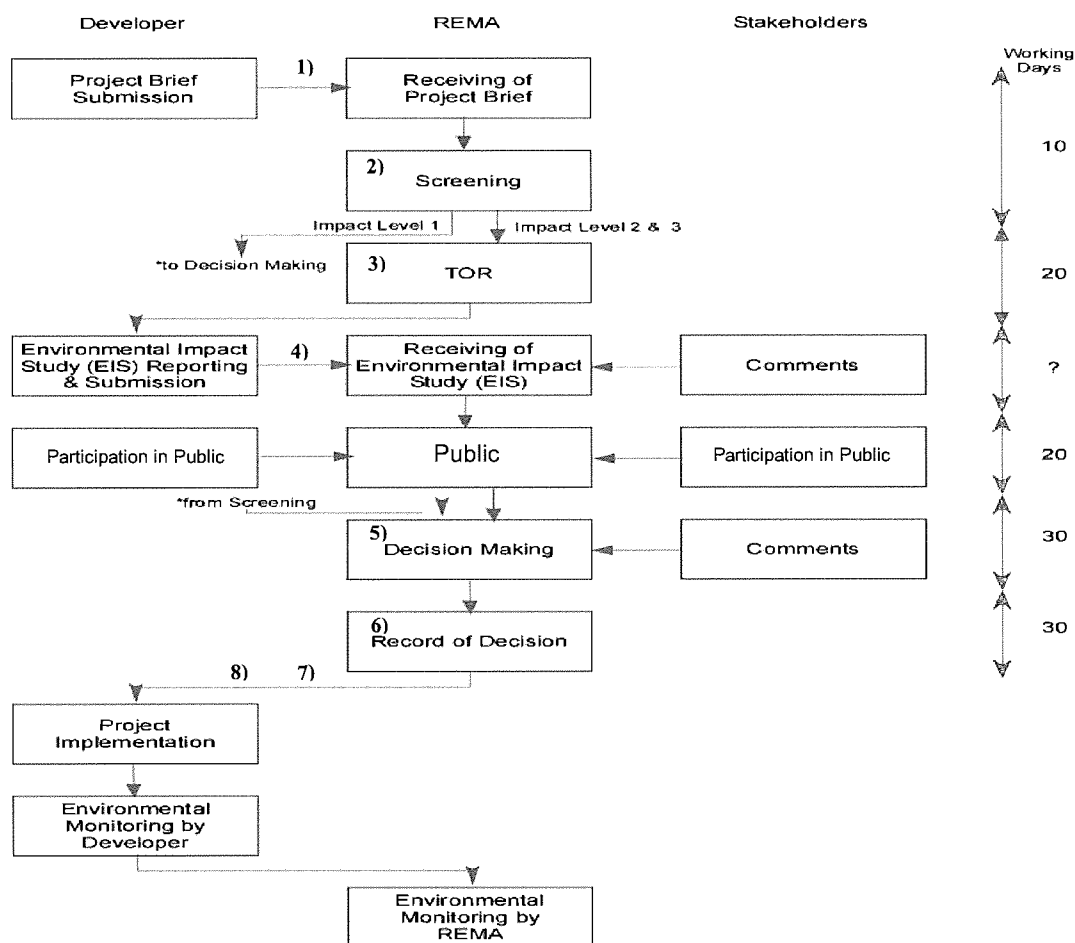


Figure 4.4.1 Procedure of EIA (Draft)