

REPUBULIKA Y'UBURUNDI



UBUSHIKIRANGANJI

BW'IBIDUKIKIJE, UBURIMYI N'UBWOROZI

**ICEGERANYO CA GATATU KW'IHINDAGURIKA RY'IBIHE MU
BURUNDI (TCNCC)**



IKIGEGA CO GUKINGIRA IBIDUKIKIJE

BUJUMBURA, GITUGUTU 2019



IJAMBO RY'IBANZE

Uburundi mu ruhara gwabwo mu masezerano y'ibihugu vyunze ubumwe kw'ihindagurika ry'ibirere bwiyeje gushira mu ngiro Amasezerano Mpuzamakungu na cane cane mu ngingo zayo za 4 na 12.

Tukiraho, intumbero numukenyuro w'igihugu kw'ihindagurika ry'ibihe vyarateguwe mu 2012 inyuma y'icegeranyo ca kabiri c'Uburundi kw'ihindagurika ry'ikirere mu 2010 nimbere yuko bwinjira mu masezerano ya Paris yo mu 2015 ari naho yerekanye intererano zayo nyezina ku gwego gw'igihugu mu kugaragaza ubushake bw'ugufasha inguvu zo kw'isi zo kugabanya ivyuka bitera ubushuhe mu kirere nugushigikira kurindana n'ihindagurika ry'ibihe ku banyagihugu.

Mu mpera za 2015, Uburundi bwatunguye ishirwamungiro ry'umugambi « Icegeranyo ca gatatu Bufashijwe n'ikigega c'isi yose « FEM » ku bidukikije cifataniye na Porogarama ku bidukikije y'ibihugu vyunze ubumwe kw'isi yose « PNUE », tukaba tubashimiye caane.

Duciye kuri iki Cegeranyo duhejeje gushira kumwanya ingingo zafashwe kw'igabanywa ry'irungikwa ry'ivyuka bitera ubushuhe mu kirere ku migambi yofatwa muguhangana n'ihindagurika ry'ibihe, hamwe na vyankenerwa ku gihugu mu buhinga nyabwo.

Dutumiriyemo abafasha mu buhinga n'uburyo gushigikira iyo migambi kugira batere intege intumbero zamaze gutangura kandi zitarahera kugira bahagurukire kugwanya inzara n'ubukene, ihindagurika ry'ibihe ryatumye birenga urugero.

Turashimye inguvu zidasanzwe za Leta y'Uburundi yo yashoboye, inyuma y'inama ya 24 ihuza amakungu yabereye i « Katowice » kwerekana ubushake bwayo bwuguterera mw'igabanywa ry'irungikwa mu kirere ry'ivyuka bitera ubushuhe mu gushira mungiro umugambi « EWE BURUNDI URAMBAYE » ujanye no gutera ibiti.

Leta y'uburundi irashigikira vy'umwihariko inguvu zigiyemo hamwe mu kugwanya ihindagurika ry'ibihe kandi ziyemeza nugukurikirana inyifato ntabanduka zerekanywe mu ntererano zafashwe ku gwego gw'igihugu.

Mu ncamake, igabanywa ry'ihindagurika ry'ibihe ni ikibazo nkoramutima, nico gituma duhamagirira amashiramwe mpuzamakungu gushigikira inguvu zamaze gutangurwa mw'igabanywa ry'irungikwa ry'ivyuka bishusha ikirere, arivyo bitera ihindagurika ry'ibihe, tutibagiye ifatwa mumugongo ry'imigambi ijanye no guhangana n'ihindagurika ry'ibihe imaze gushigwa ahabona mu gihugu cacu.

Umushikiranganji w'Ibidukikije, Uburimiye n'Ubworozi

Dr. Déo-Guide RUREMA

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IMPFUNYAPFUNYO N'INYANDIKO IFINYITSE

°C	: Ingero z'igipimo c'ubushuhe
ABER	: Igisata kijejwe gukwiragiza amatara mu gihugu hagati mu Burundi
ACSA	: Umugwi w' abeneghugu mu magara y' ibikoko
AEP	: Igisata gikwiragiza amazi meza
AFAT	: Uburimyi-bworozi n'irindi koreshwa ry'amatongo
APD	: Imfashanyo y' abenegihugu mw' iterambere
BAD	: Ibanki y' iterambere rya Afrika
BAU	: Urudandazwa nkukwo rumenyere
BEI	: Ibanki y' imitahe muri Afrika
BJA	: Ikigo c' icerekezo ca Bujumbura
BM	: Ibanki y' isi yose
BPEAE	: Ibiro bijejwe uburimyi n'ubworozi mu ntara
BUCECO	: Ihinguriro ry' isima mu Burundi
CC	: Ihindagurika ry' ibihe
CCUNCC	: Amasezerano y' ibihugu bihuriye hamwe mw' ihindagurika ry' ibihe
CDC	: Komite ya komine ijejwe iterambere rya Komine
CDFC	: Ikigo c' iterambere ry'imiryango niryarusangi
CEP	: Iyegeranywa ry' amazi y'imvura
CFCIB	: Ikigo gihuza abadandaji n'banyamahinguriro mu Burundi
CH ₄	: Umwuka wa Metane
CHE	: Urugomero gw' umuyagankuba
CIRGL	: Inama mpuzamakungu ku karere k' ibiyaga binini
CKZ	: Ikigo c' icerekerezo ca Cankuzo
CN	: Imibereho y' igihugu
CNA	: Urugero rusanze gw' ubudandaji
CNE	: Akanama k' igihugu kajejwe ibidukikije
CO ₂	: Umwuka wa Karubone
COMESA	: Isoko rusangi ya Afrika y' uburengero niyubumanuko
COP	: Inama y' abo vyega
CREDSR	: Ikigo kijejwe ubushakashatsi n'ivyigwa kw'iterambere ry'amashirahamwe akiriko arasubira kwiyubaka
CSC	: Ukwegeranya n'ukubika umwuka wa karubone
CSLP	: Igisata c' umukenyuro wo kugwanya ubukene
CSLP II	: Igisata c' umukenyuro wo kugwanya ubukene igice ca kabiri
CTD	: Umuhanuzi ajejwe ubuhinga n'iterambere
CTS	: Umugwi w' ubuhinga bwo gukurikiranira ibintu hafi
DCNCC	: Icegeranyo ca kabiri kw' ihindagurika ry' ibiheigira
DGE	: Ibiro bikuru bijejwe ubworozi
DGEE	: Ibiro bikuru bijejwe amazi n'amasoko ntanganguvu
DGFE	: Ibiro bikuru bijejwe amashamba n'ibidukikije
DGGM	: Ibiro bikuru bijejwe amasoko ntanganguvu n'ubutare
DGRE	: Ibiro bikuru bijejwe amasoko y'amazi n'isuku
DSNIS	: Ibiro vy'igihugu bijejwe ubuhinga bw'amakuru y' amagara y'abantu
DSS	: Ingingo nshigikira mugambi
ECO ₂	: Ingereranyo y' umwuka wa karubone
EDS	: Ibarura ry'abenegihugu n'amagara yabo
EIE	: Ivyigwa vy' ingaruka zishingiye kubidukikije
FAO	: Ishirahamwe rijejwe infungurwa n' uburimyi
FEM	: Ikigega kijejwe ibidukikije kwisi yose

FIDA	: Ikigega mpuzamakungu kijejwe iterambere ry' uburimyi
FNECC	: Ikigenga c'igihugu kijejwe ibidukikije n'ihindagurika ry'ibihe
FVC	: Ikigega c'ugwatsi rutoto kubijanye n'ibihe
GCF	: Ikigega c'ugwatsi rutoto kubijanye n'ibihe
GES	: Imyuka ifise ubumara butosekaza igisenge
Gg	: Ingero y' urupimo gw'umwuka
GIEC	: Umugwi mpuza bihugu w'abahinga mw' iterambere ry' ibihe
GIRE	: Itunganywa rikomeye ry' amasoko y'amazi
GIZ	: Ishirahamwe ry' iteramber ry' abadagi
GSZ	: Ikigo c' icerekerezo ca Gisozi
Ha	: Ihagitara
HAE	: Imikobeko yo gukinga inkukura
IBN	: Ishirahamwe ry' isoko ry'b amazi ya Nile
IDH	: Igipimo c'iterambere ry'umunyagihugu
IEC	: Amakuru, indero n'itumatumanako
IGES	: Ibarura ry' imyuka yonona igisenge
INM	: Ikigo c' igihugu kijejwe ishiramungiro
INECN	: Ikigo c'igihugu kijejwe ibidukikije n ukuzigama amashamba
IP	: Ikena ry' ibiro
IPCC	: Inama mpuza ma Leta kwihindagurika ry' ibihe
IRAZ	: Ikigo kijejwe ubushakashatsi mu burimyi n'ubworozi bw' ibitungwa
IRRI	: Ikigo mpuzamakungu kijejwe ubushakashatsi ku giterwa c'umuceri
ISABU	: Ikigo c' ubuhinga mu burimyi mu Burundi
ISTEEBU	: Ikigo kijejwe ibiharuro n'ivyigwa vy' ubutunzi mu Burundi
JICA	: Ishirahamwe mpuzamakungu ry' ugukorerahamwe ry' Ubuyapani
KCl	: Umuvango wa potasiyumu na krore
Km ²	: Kirometero kwadarato(igipimo c' uburinganire)
KWH	: Kirowatere (igipimo c'umuyagankuba)
LDCF	: Ikigega c'iterambere ry' ibihugu bitaraterimbere
LEAP	: Long-range Energy Alternatives Planning System
MAG	: ugufungura nabi kurenze
MATTE	: ubushikiranganji bw'itunganywa ry'amatongo bw'ingenzi n'ibidukikije
MEEATU	: Ubushikiranganji bw' amazi, ibidukikije, itunganywa ry'amatongo n'ibisagara
MESRS	: Ubushikiranganji bw'inyigisho za kaminuza n'ubushakashatsi
MIILDA	: Umusegetera urimwo umuti wica imibu kandi uramba
MINAGRIE	: Ubushikiranganji bw'uburimyi n'ubworozi
MINEAGRIE	: Ubushikiranganji bw'ibidukikije, uburimyi n'ubworozi
MININTER	: Ubushikiranganji bw' intwara yo hagati
MINISANTE	: Ubushikiranganji bw'amagara y' abantu n'ukugwanya ikiza ruhonyanganda SIDA
MSP	: Ubushikiranganji bw'umutekano
MW	: Megawate (ingero y'igipimo c'umuyagankuba)
N ₂ O	: Azote
OAP	: Ishirahamwe ryo gushigikira ukwitezimbere
OBPE	: Ibiro bijejwe gukingira ibidukikije mu Burundi
OIM	: Ishirahamwe mpuzamakungu ryitaho inyambukira
OMM	: Ishirahamwe ry'ibirere, imvura n'imiyaga kwisi yose
OMS	: Ishirahamwe rijejwe amagara y' abantu kw'isi yose
ONATOUR	: Ishirahamwe riraba ibizuku mu Burundi
ONG	: Ishirahamwe ridaharanira inyungu za Politike
PAGIRE	: Integuro y' ibikorwa vy' itunganywa riboneka ry'amasoko y'amazi

PAM	: Umugambi w' isi yose wo gufungurira abantu
PANA	: Integuro y'ibikorwa vy'igihuguvyo guhangana n'ihindagurika ry'ibihe
PDDAA	: Umugambi wagutse w'iterambere ry'uburimi muri Afrika
PDNE	: Integuro nyamukuru y' igihugu mu bijanye n'amazi
PEV	: Umugambi wagutse w'urucanco
PFC	: Plateforme Communale/Urunani ku rwego rwa komine
PFN	: Plateforme Nationale/Urunani ku rwego rw'igihugu
PFP	: Plateforme Provinciale/Urunani ku rwego rwa porovenssi
PIB	: Umwimbu wo hagati mugihugu
PIUP	: Ikora ry' amahinguriro n'ikoresha ry'ivyahingwe
PK	: Igiti cerekana ibirometero kw'ibarabara
PND	: Integuro y'igihugu mw'iterambere ry'Uburundi
PNE	: Ishirahamwe ry' igihugu riraba ivyamazi
PNIA	: Integuro y'igihugu wo gushira imitahe mu burimi
PNUD	: Umugambi w'ibihugu bihuriye hamwe mw'iterambere
PNUE	: Umugambi w'ibihugu bihuriye hamwe mu bidukikije
PPP	: Ubucuti bw'igihugu n'ubwabigenga
PRG	: Ubushobozi bwo gushusha isi kugwego gw'isi yose
PSA	: Umukenyuro nyamukuru « uguhanga »
PTF	: Ubucuti bw'ubuhinga n'uburyo bw'amahera
RC	: Ukuzingama
RCP	: Ubuserukizi bw'inzira zo kwiremarema
REDD	: Igabanywa ry'irungikwa ry'ivyuka vy'ubumaba bivuye kw'itema ry'amashamba n'itituka ry'amashamba
REGIDESO	: Ishirahamwe ryo kugwiza amazi n'amata mu Burundi
RN	: Ibarabara rikuru ry'igihugu
RRC	: Igabanywa ry' impanuka z'ivyaduka
Ru-Pz01	: Igipimo c'imvura numero ubusa ca Rumonge
SAN	: Umukenyuro w'igihugu c'Uburundi mu bijanye n'uburimi
SAP	: Umugambi w'imhuri inyaruka
SAR	: Icegeranyo kigira kabiri c'isuzumwa
SETEMU	: Igisata c'ibikorwa vy'ubuhinga bwo mu bisagara
SNPACC	: Umukenyuro w'igihugu n'integuro y'ibikorwa vyerekeye ihindagurika ry'ibihe
SNPA-DB	: Umukenyuro w'igihugu n'integuro y'ibikorwa mu bijanye n'ibinyabuzima bitandukanye
SNPA-LDS	: Umukenyuro w'igihugu n'integuro y'ibikorwa vyo kugwanya ituka ry'isi
SNPGRC	: Umukenyuro w' igihugu wo gukinga n'ugutunganya impanuka n'ibiteye ubwoba
SOSUMO	: Ihinguriro c'isukari ryo mu Kumoso
SPTDD	: Amashirahamwe, ububasha, ubutaka n'iterambere rirama
t/ha/an	: Itoni kw'ihagitara imwe ku mwaka
TCNCC	: Icegeranyo ca gatatu y'igihugu kw'ihindagurika ry'ibihe
Tj	: Terajure
Tmax	: Ubushuhe bwanyuma bunini
Tmin	: Ubushuhe bwa nyuma butoyi
UE	: Ishirahamwe rya Buraya
UNESCO	: Umugambi w'ibihugu bihuriye hamwe mu ntero, ubumenyi n'imico kama
UNICEF	: Ikigega c'ibihugu bihuriye hamwe ku gateka k'umwana
US\$	: Ifaranga ry'abanyamerika
UTCATF	: Ikoresha ry'amatongo, ihindagurika ry'ikoresha ry'amatongo n'amashamba
VIH/SIDA	: Umugera wa SIDA

INDINGANIZO

I. IMIBEREHO Y'IGIHUGU

Uburundi ni igihugu kiri ku mpande zo hagati n'ubuseruko bwa Afrika. Uburinganire bwaco bungana na $\text{km}^2 27.834$ murivyo hakabamwo $\text{km}^2 25.000$ zigizwe nisi ndimwa. Buri hagati ya $^{\circ} 29,00$ na $^{\circ} 30,54$ z'ubuseruko n'imibangabangane ingana na $^{\circ} 2,20$ hamwe na $^{\circ} 4,28$ zubvumanuko. Bukikijwe, mu buraruko na Rwanda, mu bumanuko bushira ubuseruko na Republika iharanira ubwiyunge ya Tanzaniya no murengero Republika iharanira Demokarasi ya Kongo. Gitega niwo mugwamukuru wa politike, Bujumbura umugwamukuru w'ubutunzi. Uburundi buri kuri km 2100 uva ku nyanza Atlantike na km 1100 uva ku nyanza Indiyana.

Nubwo uburinganire bw'igihugu atari bunini, Uburundi burigaragaza kwitandukanya ry'imisozi n'ibiyiranga. Ukwiganzura kw'isi yo mukuzimu niyo nkomoko nyamukuru y'itandukaniro ry'akarere karimwo ikiyaga ca Tanganyika n'ibiyaya vy'Imbo (m 774 na m 1000 z'uburebure. Imihora ya Mirwa (m 1000 gushika kuri m 2000) n'urukurikirane gw'imisozi ku rundi ruhande (m 2000 hamwe na m 2670) zuburebure. Imisozi ihanamye, igize ice kinini c'igihugu iri hagati ya m 1350 na m 2200 z'uburebure. Ibimanga vyo mu buseruko, i Kumoso biri hagati ya m 1200 na m 1400 n'ikimanga kinini co muri Bugesera mu buseruko bushira uburengero gifise ubureburebure buri hagati ya m 1350 hamwe na m 1550 kikaba kibandanya gushika kugihugu kibanyi c'Urwanda. Izo ntunganyo z'ukungene bumeze birasigura ukudakomera kw'ibidukikije guterwa n'hindagurika ridasanze ry'ibihe rikibandanya.

Igaburwa ry'imirwi mikuru mikuru ry'imitumba ryerekana neza neza iry'itandukana ry'imiyaga yo mu gihugu.

Ibice vy'igihugu biragaragaza kandi itandukana ry'ubushuhe bw'igihugu. Ibice birebire vyigaragazamwo ubushuhe buri hasi ugereranije n'ibice vyo hasi mu biyaga.

Muri rusangi, mu Burundi ibipimo vy'ubushuhe vyohejuru mu kwezi bigereranye biba biri hejuru mu mpera z'ikiringo c'ici (Nyakanga) aho biva kuri $^{\circ}\text{C } 25$ (mu ntara z'Imbo) bikaja kuri $^{\circ}\text{C } 15,7$ (mu ntara za Mugamba) mu gihe ibipimo vy'ubushuhe biri hasi vyo mu kwezi biba bitobito mu gihe c'ici (ukwezi kwa Mukakaro) bikava kuri $^{\circ}\text{C } 23,3$ bikaja kuri $^{\circ}\text{C } 13,9$ (mu ntara za Mugamba).

Mu bijanye n'amazi, Uburundi burafise amasoko y'amazi yikwiye. Uburundi buharurwa mu mirwi ibiri mikuru mikuru y'amazi yo muri Afrika ariyo isoko rya Nil rifise uburenganire bungana 13.800km^2 n'isoko rya Congo ripima 14.034km^2 . Mu bice vyinshi vy'igihugu c'Uburundi hariho imigende myinshi y'amazi yamaho n'ingomero zo kuvomera. Uburundi buratunze czane mu biyaga kama nk'ibiyaga vya Tanganyika, Cohoha, Rweru na Rwihinda.

Ikiyaga Tanganyika kiri kuri m 774 z'ubujakuzimu na km 677 z'uburebure ni icakabiri mu biyaga birebire (m 1470) kw'isi yose, ni naco kigenga ngirakamaro c'amazi atekanye muri Afrika ($\text{km}^3 18.880$). Ndetse ni n'ikigega c'ibinyabuzima arico gituma bagiharura mu butunzi bw'ubuzima bw'abantu. Mu bijanye n'igwirirana ry'abantu, igihugu cari kigizwe n'abantu bangana imiriyoni 11,2 mu 2016; ivyo bitigiri vy'abantu bituma Uburundi kimwe mu bihugu vya Afrika birimwo abantu benshi cane ku bitigiri vy'abantu 392 ku km^2 .

Ubutunzi bw'igihugu bwiganziwe n'igisata nkoramutima c'uburimyi gitanga hafi inusu y'umwimbu wikwiye w'igihugu (PIB) kandi kikazana hafi ibice 80 kw'ijana (80%) vy'amakori avuye mu gusohora ibidandazwa, igisata kigira kabiri (amahinguriro n'ubuhinga

kama) ntibirenga ibice 17 gushika kuri 18% vy'umwimbu wikwije wo hagati mu gihugu (PIB) mu gihe igisata kigira gatatu kitarenza icagatatu c'umwimbu wose.

Intunganyo ya none y'umwimbu, yiganziwe n'uburimi bw'ibifungurwa, ituma ubutunzi bugeramirwa kandi bwigaragaza nk'ubugoyagoya kuko buba buhanzwe n'ihindagurika ry'ibihe.

Mu gisata c'amategeko n'intwari mu bijanye n'ibidukikije, Uburundi burafise politike y'igihugu kw'ihindagurika ry'ibihe ifise ihangiro nyamukuru ari iryo gushigikira iterambere ririnda ihindagurika ry'ibihe; hamwe n'intunganyo zibutuma bwiuzuriza ivyo bwiyeje mu nteguro n'itunganywa ry'ibikorwa vyo kugarukira ibidukikije.

II. IBARURA RY'IMYUKA ITUMA IKIRERE GISHUHA KU RWEGO GW'IGIHUGU

Ibarura rigira gatatu ry'imyuka y'ubumara butosekaza igisenge rishingiye ku myaka yatowe ariyo 2005, 2010 na 2015. Ryabaye mu bisata bine arivyo:

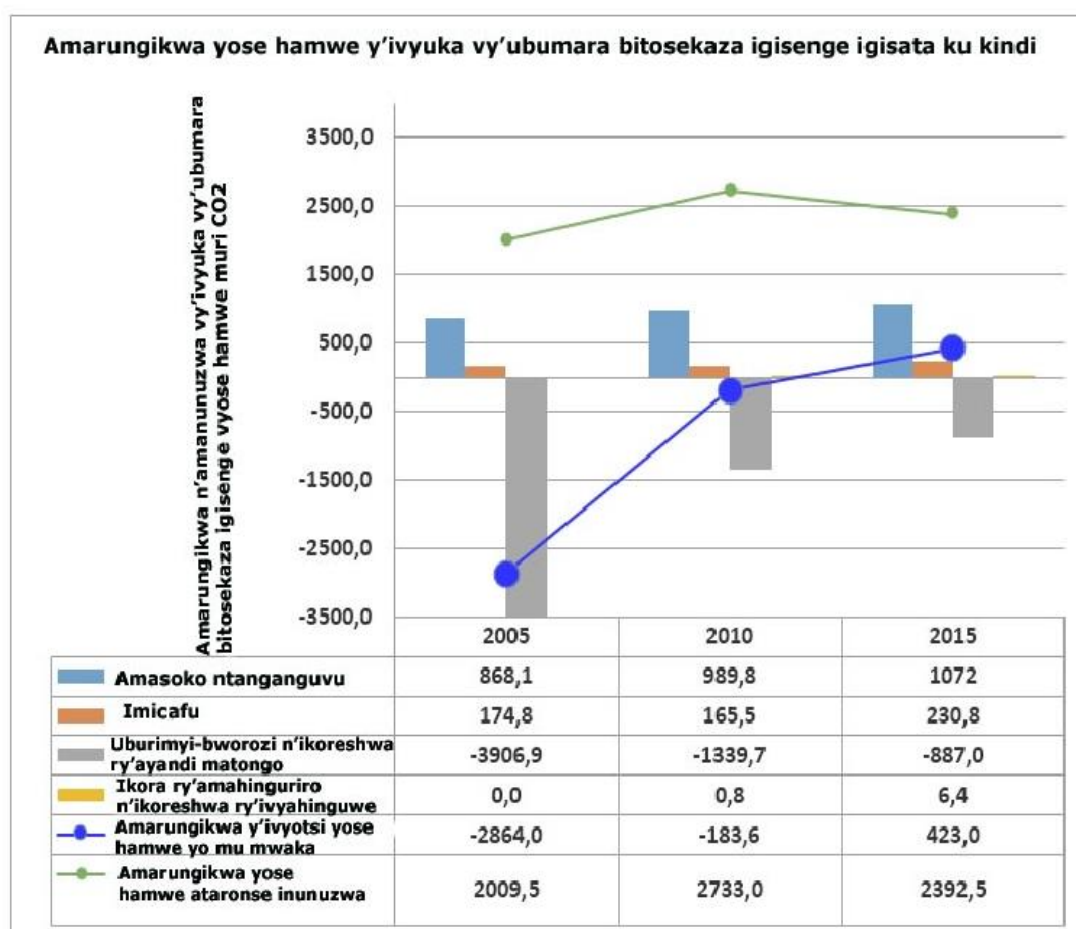
1. Amasoko ntanguvu
2. Ikora ry'amahinguriro n'ikoreshwa ry'ivyahingwe
3. Uburimi, ubworozi n'irindi korshwa ry'amatongo
4. Imicafu

Vyariyumviriweko muri iryo barura. Imyuka mikuru mikuru ni nka karubone (CO₂), metane (CH₄) na azote (N₂O).

Imyitwarire y'irungikwa ryose hamwe ry'imyuka igisata ku gisata

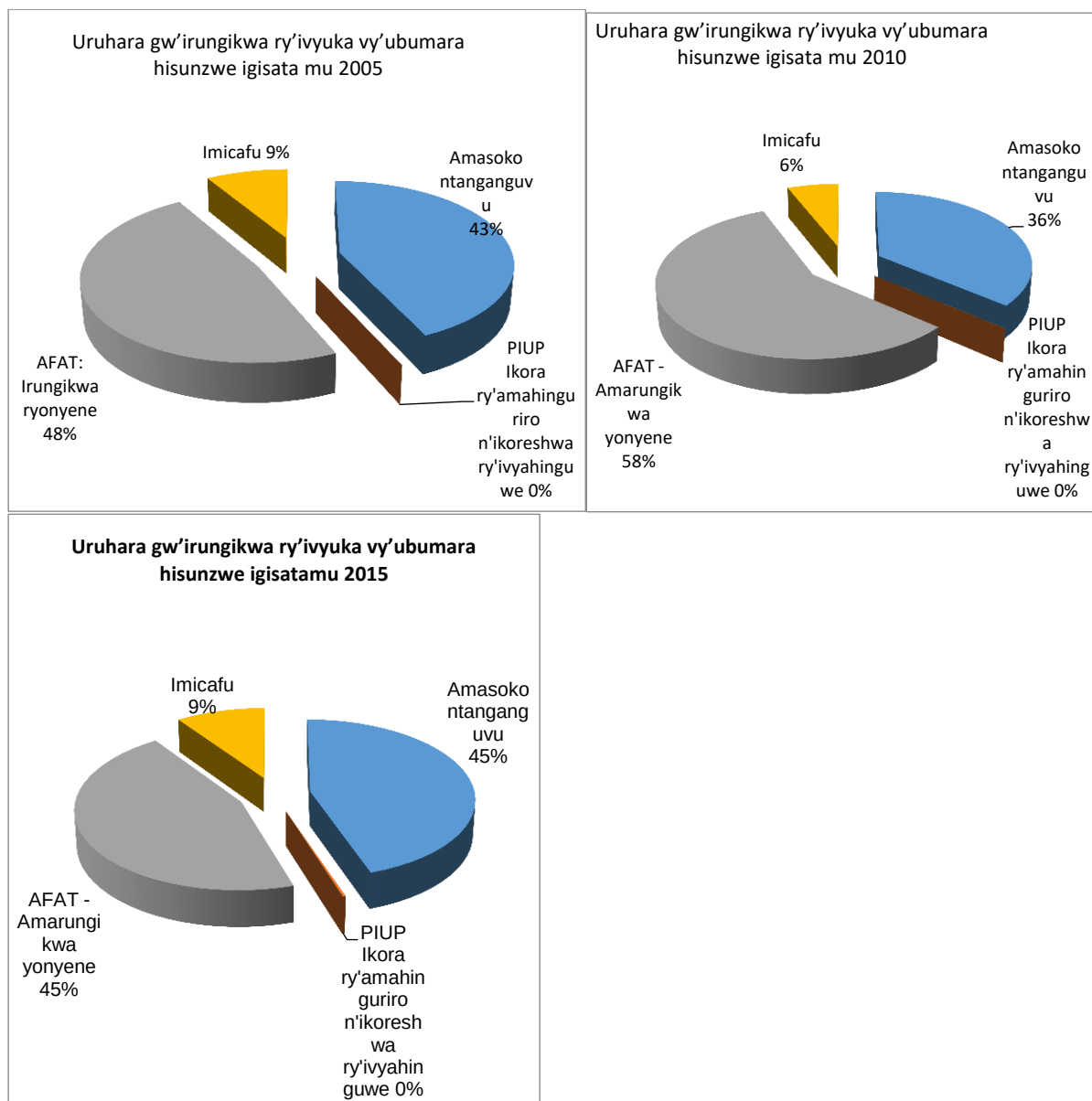
Isanamu ikurikira aha musibirekane urugero gw'amarungikwa n'amanunzwa yibonekeza mu Burundi hagati y'imyaka ya 2005 na 2015. Amarungikwa yigaraza atagira amanunzwa yari agizwe n'iduga, mu gihe ubushobozi bw'ibinogo bwagabanutse. Twokwongerako kandi ko ibiharuro birebire vy'ivyuka bitagira iyo bija vyabonywe mu 2010 ku rugero gwa Gg 2733,0 z'umwuka ECO₂.

Imvo nyamukuru y'iryo gwirirana ry'irungikwa n'iterambere ry'ubutunzi, itemwa ry'amashamba n'ihindugwa ry'amatongo arimwo amashamba n'amaragiro mu masi ndimwa vyibonekeje mu birungo vya 2005-2015. Nubwo birukwo, haribonekeje igabanuka ry'umurindi mu vy'ubutunzi mu myaka yegereye 2015 bituma habaho igabanuka ribandanya ry'ivyuka birungikwa mu kirere.



Igerageza ry'irungikwa ry'ivyuka vy'ubumara ku gisata

Mu bijanye n'irungikwa rishingiye ku gisata, uruhara gw'uburimyi, amashamba n'irima ry'amtongo atabigenewe (irungikwa ryo nyene) vyavuye ku bice 48% biza ku bice 58% mu 2010, hama bigabanuka ku bice 45% mu 2015. Uruhara gw'igisata c'amasoko ntanganguvu cavuye ku bice 43% kija ku bice 36% mu 2010, hama bishikira ibice 45% mu 2015. Uruhara gw'igisata c'imicafu ruri hagati y'ibice 6 % n'ibice 10%, mu gihe ibikorwa vy'o mumahinguriro n'ikoreshwa ry'ivyahinguwe vyerekana ibice biri musyi ya 1% y'irungikwa ryose hamwe ry'ivyuka.



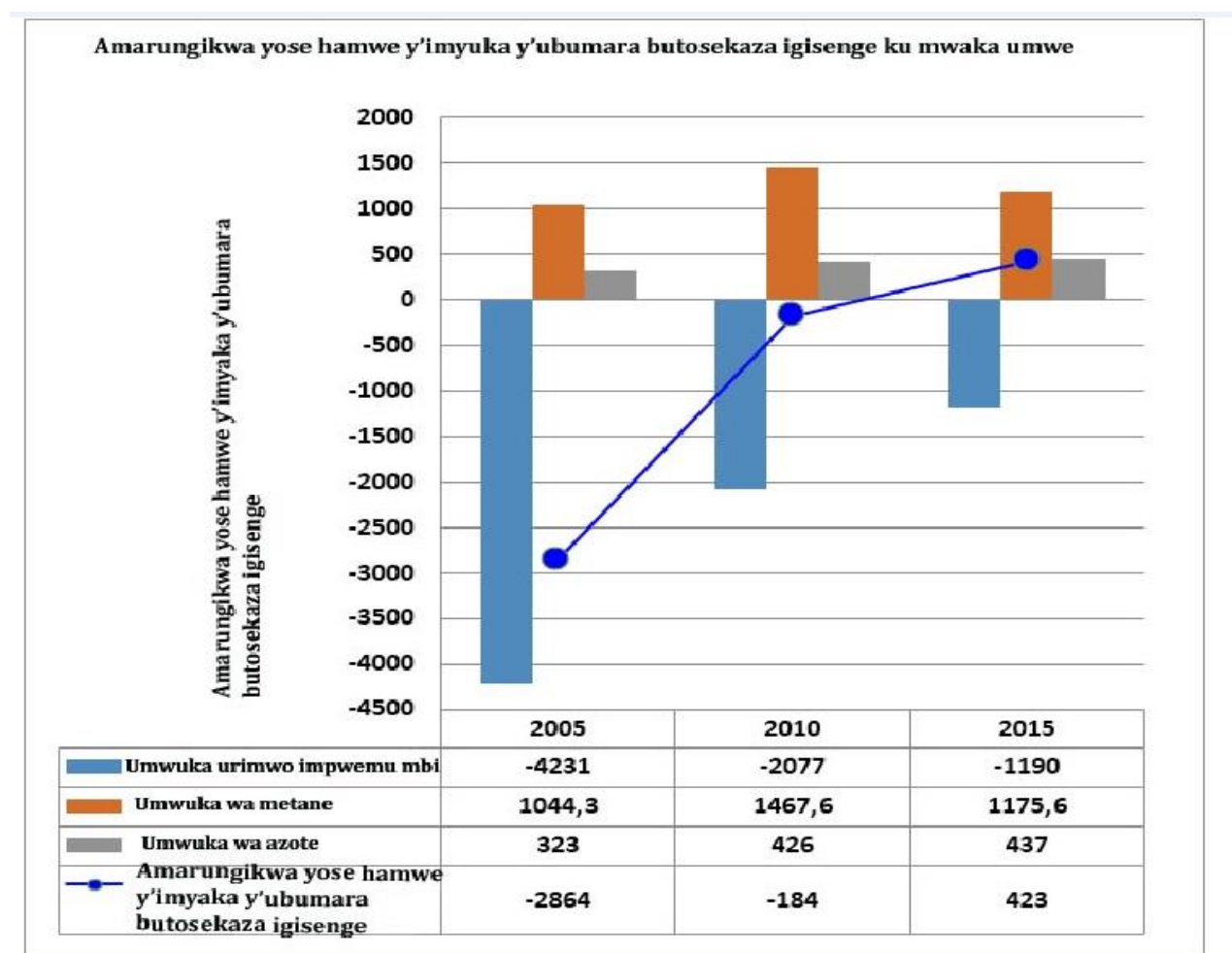
Uruhara gw'irungikwa ry'ivyuka vy'ubumara hisunzwe igisata

Imyitwarire y'irungikwa ry'ivyuka ufatiye kumwuka

Umwitwarire w'amarungikwa ufatiye ku mwuka werekana ko imwuka itera ubushuhe mu kirere uza kw'isonga ari uwa karubone (CO_2), uri hagati ya Gg-4231 za ECO_2 na Gg -1190 za ECO_2 . Intererano nyamukuru kumarungikwa akabije ya karubone (CO_2) uturuka mu gisata c'uburimy, amashamba n'irindi koreshwa ry'amatongo. Umwuka wa methane (CH_4) ni uwugira kabiri mw'irungikwa. Urupimo gwawo gwangana na Gg 1044,3 za ECO_2 mu 2010, Gg 1467,6 za ECO_2 na Gg 1178,6 za ECO_2 mu 2015. Igisata kirungika cane umwuka wa methane ni uburimy amashamba n'irindi koreshwa ry'amatongo-uburimy, amasoko ntanganguvu-ibindi bisata (ikoreshwa ry'umwuka utangwa n'imicafu). Ku nkurikizi, irungikwa nyamukuru mu Burundi rituruka ku gisata c'uburimy amashamba n'irindi koreshwa ry'amatongo, kigakurikirwa n'igisata c'amasoko ntanganguvu. Umwuka ugira gatatu muyirungikwa ni azote (N_2O) kandi intererano zawo nyamukuru zituruka ku micafu (ihingurwa n'itabwa ry'imicafu) n'amasoko ntanganguvu-ibindi bisata (uguturira imyuka ituruka ku micafu).

Irungikwa ryibonekeza ry'imyuka ya karubone CO₂ ni ribi cane mu gihe cose c'ibarura, ari navyo bisigura ko Uburundi ari ikigega kuva mu mwaka w'2005 gushika mu 2015.

Ariko, ubushobozi bw'ikigega c'Uburundi bwaragabanutse ku bice bingana na 40,15% kuva mu 2005 gushika mu 2010 hama kubice 32,45 kuva mu 2010 gushika mu 2015. Mu bijanye na metane (CH₄), wariyongereye ku bice bingana na 40,5% kuva mu 2005 gushika mu 2010 hama bugabanuka kuri 19,9% mu 2015. Mu guheraheza, ku bijanye na azote (N₂O), waraduze ku rugero rungana na 32% kuva mu 2005 gushika mu 2010 hama 2,6% kuva mu 2010 gushika mu 2015. Twokwibuka yukwo igwirirana ry'irungikwa ry'imyuka izwi mu 2005 gushika mu 2010 vyibonekeza kandi mw'iduga ry'irungikwa ry'umwuka ku wundi muri ico kiringo nyene. Nkuko bisigurwa ngaha hasi, ivyo bihuza iduga ry'ubutunzi n'iryo guhonya amashamba.



Igeregeza ry'irungikwa ry'umwuka ku mwaka

IKIGABANE CA III: IDO N'IDO RY'INGINGO ZAFASHWE CANKE ZATEGEKANIJWE KUGIRA NGO AYO MASEZERANO AJE MU NGIRO

III.1. INTEGURU Y'INGINGO ZIFASHA GUHANGANA NYAKWO N'IHINDAGURIKA RY'IBIHE

Ihindagurika ry'ibihe mu Burundi n'ibisata bigeramiwe kuruta ibindi

Kw'ino saha iri hejuru, ihindagurika ry'ibihe ryaramaze kwerekana ingaruka mbi zitarinkeya k'ubuzima bw'imiereho y'abantu be n'ubutunzi aho dusanga ibisata bigeramiwe kurusha ibindi ari ivyuburimi, amasoko ntanganguvu, amasoko y'amazi, ibinyabuzima bitandukanye vyo mu mashamba, igisata c'amagara y'abantu hamwe n'igisata c'ugutwara abantu n'ibintu be n'inyubakwa. Ihindagurika ry'ibihe nk'iduga ry'ibipimo vy'igwa ry'imvura n'ivy'ubushuhe, hamwe n'ibindi bintu biteye ubwoba bituma Uburundi bugeramirwa cane gose kandi bigakora cane ku nguvu z'iterambere ry'igihugu. Bituma habaho kandi ingaruka mbi zihambaye cane zigaragarira mw'igabanuka ry'umwimbu w'uburimi n'ubworozi, impfu z'abantu, imyuzurira n'uruzuba biguma vyisubiriza, igwirirana ry'ivyaduka vy'ingwara, ihungabana ry'imfungurwa, ugufungura nabi, itosekara ry'amasoko y'amazi, ibomagurika ry'amazu y'abantu n'inyubakwa za Leta canke iz'abikorera utwabo.

Ibikorwa nyamukuru vyatowe kugira habeho ihangana ry'ihindagurika ry'ibihe rya kazoza mu bisata bitandukanye

Mu bijanye n'ihindagurika ry'ibihe abantu bose bagerageza guhangana navyo n'irondera ry'inyishu biba cane cane mw'ihindagurika ry'ibikorwa kugira habeho ukugabanya impanuka. Hisunzwe intambanyi zitandukanye z'ihindagurika ry'ibihe, ingingo z'imikenyuro yo guhangana nihindagurika ry'ibihe yarategakanijwe mu bisata bitandukanye nkukwo vyerekanwa mu giharuzo gikurikira :

Ingingo z'imikenyuro zo guhangana n'ihindagurika ry'ibihe mu bisata bitandukanye

Igisata	Umugwi	Ingingo zo guhangana n'ihindagurika ry'ibihe
Uburimi, ubworozi, n'uburovyi	Uburimi	1. Ingendo nziza yo kuziganya amazi n'amatongo mu bice bigeramiwe cane n'ibomagurika ry'imisozi be n'inkukura 2. Gutezimbere, gutera intege n'ugushikira imikenyuro rusangi yo guhangana n'ibihe 3. ugutezimbere ikoreshwa ry'amase y'ikirundi (umwavu wa nyabarega) 4. Ugutezimbere uburimi bw'ivyimburwa bikika mu bice birangwamwo igeramigwa rirengeje ry'uruzuba. 5. Ubushakashatsi ku biterwa birinda ihindagurika ry'ibihe

		6. Ukwimbura n'iboneka ry'imbuta zirobanuye mu bigo bijewe kugwiza n'ugutanga imbuta 7. Itezimbere n'uguhahana ubuhinga bugezweho ku ntambamyi z'ihindagurika ry'ibihe 8. Gutezimbere umukenyuro wotuma habaho ugutanga amazi kwamaho mu myaba na cane cane ugutera ibiti n'uguca imikobeko
	Ubworozi	1. Uguha ubumenyi aborozi n'abakozi bo murico gisata ku buhinga bw'ubworozi bw'ubahiriza ibidukikije 2. Gutezimbere ubworozi bw'ibitungwa bitobito 3. Gukwiragiza itegeko n^o1/21 ryo kuwa 4 gitugutu 2018 ririmwo "ukwororera ibitungwa mu mpongore n'ibuzwa ry'iyerera ry'ibitungwa bitobito" mu ntumbero y'ukworohereza ishigwamungiro ry'iyi ngingo; 4. Guteza imbere umugambi wo kuronka ibibanza vyo kwororeramwo mu karere 5. gushiraho ingingo zo gutera intege abanyagihugu bipfuzwa kugira ubworozi bwa kijambere 6. Gukomeza umugambi wo kugwiza ubwatsi bw'inka
	Uburovyi	1. Ugutezimbere ukurinda kw'ibinyabuzima vyo mumazi n'ivyo kw'isi intambamyi ziterwa n'ihindagurika ry'ibihe n'ubutandukane bw'ibihe 2. Ugutezimbere ubumenyi n'ibikorwa vyo kugenzura n'itunganywa ry'amakuru mu gisata c'uburovyi 3. Ugutezimbere itunganywa ry'ingene amazi y'invura n'inzuzi yisuka mu kiyaga Tanganyika yobanza gutosorwa kugira hagwanywe kugitosekaza 4. Gushikira ibikorwa vy'itunganywa rirama ry'uburovyi 5. Ugukingira n'itunganywa rikwiriye ry'ibirere bigeramiwe vyegereye ikiyaga Tanganyika n'ibindi, birimwo aho amafi ata amagi. 6. Icigwa c'ibitigiri vy'ingene ibinyabuzima vyo mu biyaga bingana kugira habeho integuro y'ingene bizoduga hinsunwe ihindagurika ry'ibihe

		7. Gukwiragiza canke gushigikira amategeko n'amabwiriza y'uburovyi n'ukuraba ko vyubahirijwe
Amasoko ntanganguvu	-	1. Gutegura ingomero nshasha z'umuyagankuba n'ugusubiramwo izihasanzwe muguswhiramwo uuryo bwo kuzikingira imyuzurira. 2. Itunguywa ry'ihingurwa ry'umuyagankuba uvuye kumicafu mu benegihugu 3. Ugutanga umuyagankuba mu bice biri kure cane hakoreshejwe imishwarara y'izuba 4. Ubushakashatsi k'ubushobozi bw'umuyaga mw'itangwa ry'umuyagankuba n'ugushikira ihingurwa ry'amakara avuye mu mwavu ubora 5. Gukwiragiza amashiga aziganya inkwi n'amakara 6. Gukomeza ubushobozi kubo biraba bose kugira habeho integuro nziza n'ikurikiranwa ry'ukurinda ihindagurika ry'ibihe
Amasoko y'amazi	Politike	Ugushira ingorane z'ibirere n'izibidukikije mu mikenyuro yo gutezimbere ibikorwa vy'amazi n'ivy'isuku
	Integuro	1. Kutirengagiza intambamyi ziva kw'ihindagurika ry'ibihe n'ibidukikije mu migambi yerekeye gutunganya ivy'amazi n'isuku 2. Gutora n'ugushiraho integuro zisuzuma impanuka zosubirwamwo n'ugutanga inzira yokurikizwa mu vyihutirwa ku bakuru b'ibikorwa, ababitunganya n'abakoresha ubufasha kuvyerekeye amazi n'isuku. 3. Gushiraho ingingo ziherekeza nko guha guha ubumenyi abarorerezi kubijanye n'imytwarire

		y'impanuka zijanye nindagurika ry'ibihe, guhimiriza ababikoresha mu gutezimbere isuku n'ukuzigama amazi
	Ibikorwa	1. Gushiraho inyigisho nkenyerwa mw'itangwa rishasha ry'amazi n'isuku ribereye hisunzwe ivyo ibihe bisaba 2. Gushiraho ingingo zitanga inguvu zigatera intege abahinga b'igisata n'amashirahamwe akora neza arondera uguhangana n'ibihe 3. Kugwizana kabiri ibikoresho vyo gusuzuma aho ibikorwa bikorerwa hakoreshejwe ibikoresho vy'agaciro kandi bigezweho bishobora kurinda ibibazo bitewe n'ihindagurika ry'ibihe
Ibinyabuzima vyo mw'ishamba n'ibipfutse imisozi	Intererano mw'iterambere ridakoresha cane umwuka mubi	1. Guha agaciro imicafu ibora igatanga umuyagankuba 2. gutezimbere ikoreshwa ryiza n'ibungabugwa ry'amasoko ntanganguvu biciye mu gukwiragiza n'itangwa ry'amashinga aziganya inkwi n'amakara 3. Gutezimbere ubuhinga bwo guhingura ibizuku kugira bishobore gukoreshwa mu mazu bisubirire inkwi n'amakara ava mu biti 4. Gushikira umugambi w'ugusubiriza ibiti usanzwe uriko urakorwa mu gukingira inzuzi n'ugutanga inkwi kubenegihugu 5. Guhindura ingendo kugira habeho ikoreshwa neza ry'umuyagankuba n'uguha agaciro keza ibinyabuzima kama nk'amashamba bibonekera mu bikorwa vyo guhangana n'ihindagurika ry'ibihe.
	Umwihwezo w'ibikorwa nyamukuru vy'umugambi w'igihugu uraba	1. Gutora n'ukumenyesha imyitwarire y'amashamba irinda ihindagurika ry'ibihe 2. Kwongera gufata n'ugutera ibiti ibice vyihagiwe n'abenegihugu bidaciye mu mategeko 3. Gutunganya imigende isesera mu kiyaga kugira habeho ukugwanya inkukura

	ivy'amashamba mu Burundi	4. Gutanga henshi ubwoko bw'ibiterwa vyo mw'ishamba birinda ihindagurika ry'ibihe 5. Gutezimbere ubushakashatsi mu mashamba/uburimi bwo mumashamba cane cane mu bujanye n'ibiterwa bikunda mu bice bitandukanye kandi birinda ihindagurikira ry'ibihe 6. Gushiraho amategeko n'ingingo ngenderwako vy'abo biraba bose kugira habeho itunganywa ryiza ry'amashamba biciye mu runani ruhurikiyemwo bose 7. Gutezimbere n'ugushira mungiro ikoreshwa ry'ibiti mu bikorwa bitandukanye kugira duhe agaciye gakwiye ibiti kandi turonke ibiti vyiza kandi bikomeye 8. Gukwiragiza ubuhinga bugezweho bwo guhingura ibiti 9. Guha agaciro ibivuye mu bita n'imicafu ivuye mu bita kugira habeho ikoreshwa ry'ibivuye mu mashamba 10. Gutezimbere ubuhinga bwo gukora amatafari n'amatigira budatwara inkwi nyinshi 11. Gukwiragiza n'ukwigisha amashiga ya kijambere aziganya inkwi namakara 12. Gutuza isesagurwa ry'ibiti nko mugusubiriza ibishoro n'ivyuma mu bwubatsi bw'amagorofa.
Amagara y'abantu	-	1. Gutezimbere integuro y'umugambi w'amagara ashingiye ku bidukikije 2. Gutegura umugambi w'ubushakashatsi mu magara y'abantu n'ibidukikije 3. Gushiraho igisata gikurikirana ibijanye n'amagara y'abantu be n'ibidukikije nko mu migambi yo mu bisata n'uburyo bwo gucunga n'ugusuzuma 4. Gushira ibice vy'amagara y'abantu n'ibidukikije mu gisata c'imikenye y'ubushakashatsi kugwanya ubukene 5. Kwerekana ibimenyetso vy'igihugu kugira habeho ikurikiranwa ry'imigambi y'amagara y'abantu n'ibidukikije;

		6. Gushiraho igisata c'amategeko azwi hagati y'amagara y'abantu n'ibidukikije nk'ugusuzuma ingaruka zishingiye kumagara y'abantu; 7. Gusubizaho icigwa c'intambamyi ku magara y'abantu hakoreshejwe ibikoresho bibikwiriye mu gisata c'ivyigwa vy'intambamyi zishingiye ku bidukikije n'imibano 8. Gukoresha abakozi babinonosoye, ibikoresho n'uburyo ibigo bijejwe gukora ubushakashatsi ku magara y'abantu n'ibidukikije; 9. Gutegekanya amahera akwiye mu gisata c'amagara y'abantu n'ibidukikije
Ugutwara abantu n'ibintu be n'inyubakwa	Ugutwara abantu n'ibintu	1. Ugukingira umuhora ushikana ku kivuko 2. Kuwubaka urukuta rukingira ikivuko amazi aturuka muruzi Ntahangwa 3. Gusukura ikivuko ca Bujumbura 4. Gukatisha uruzi Ntahangwa kugira rusubire gufata inzira rwahorana yo kwisukira mu kiyaga Tanganyika 5. Gukatisha umuringoti utwara amazi yakoreshejwe ava mw'isoko ya Buyenzi akisuka mu mazi y'ikivuko; 6. Itunganywa ry'umugambi wo kumwaka wo gusibura n'ukubungabunga amabarabara mu gisata kijejwe amabarabara; 7. Gutanga amahera akwiye mugihe habaye ivyihutirwa vyoshobora gushika mu mwaka hagati; 8. Gushiraho ingingo zigezweho zo gusubiramwo amabarabara canke ikivuko vyari bisanzweho kugira bishobore guhangana n'ihindagurika ry'ibihe
	Inyubakwa	Kongeramwo ingingo zo guhangana n'ihindagurika ry'ibihe n'izindi mpanuka mu migambi y'inyubakwa.

A. UMUGAMBI URIMWO INGINGO ZEREKEZA KUGABANYA IHINDAGURIKA RY'IBIHE

Igisata c'amasoko ntanganguvu:

i) Gutezimbere bimwe biboneka amashiga n'imbabura zizigama inkwi n'amakara;

- ii) Guhingura ibizuku kugirango bishobore gukoreshwa no mu mihana y'abantu;
- iii) gusubiriza ama furu y'inkwi ayandi akoresha umuyagankuba;
- iv) Kubaka kubwishi ingomero z'amasoko ntanganguvu;
- v) Gukwiragiza henshi ku ma barabara ibimenyetso vy'umuriro kugirango uruja n'uruza rutwara igitoro cinshi rugabanuke.

Igisata c'uburimyi:

- i. Kugabanya irungikwa c'icuka CH_4 kiboneka biciye muntabire zivuye mu vyakatsi kugira habeho itosorwa ry'imfungurwa z'ibitungwa, kw'itosorwa ry'irondoka ry'ibitungwa, kugira habeho inzira nziza y'umwimbu uvuye ku bworozi;
- ii. Kwegeranya umwuka wa CH_4 kivuye mu ntumbero y'umugambi w'imicafu (biogaz) kugira hatangwe umuyagankuba (BIOGAZ);
- iii. Ukugabanya umwuka wa CH_4 bivuye kw'ihinyanyura ry'ibikorwa vy'irima ry'umuceri uvomerwa;
- iv. Kugabanya irungikwa ry'umwuka wa N_2O bivuye kw'ikoreshwa ryiza ry'amase y'ikizungu arimwo intabire.

Ikoreshwa ry'amatongo be n'amashamba

- i) Ibikorwa bituma habaho igabanywa ry'irungikwa ry'imyuka ya karubone, nk'iyubahirizwa n'ikingirwa ry'amashamba;
- ii) Ibikorwa bituma habaho ibikwa ry'imyuka ya karubone, nk'ugusubiriza amashamba hamwe; n'uburimyi bw'amashamba;
- iii) Ugukomeza itunganywa ry'amashamba
 - Biciye mw'isubirizwa ry'ibiti n'ibindi bitanga umuyagankuba
 - Kwijukira ibikoreshe biteye imbere bikoreshe ibiti bike n'amakara make.

Ikora ry'amahinguriro n'ikoreshwa ry'ivyahinguwe

1. Gusubiriza ubuhinga bwa kera n'ubuhinga bugezweho budatosekaza ikirere
2. Gutezimbere ivyiyumviro vy'ubushashatsi n'ivyo gushira kumwanya mu gisata c'amahinguriro

Igisata c'imicafu:

- i. Ishigwaho ry' ibigo bijamwo imicafu biguma bikurikiranwa;
- ii. Ikoreshwa ry'umwuka CH₄ utangwa n'imicafu (Biogaz);
- iii. Ugushira imicafu ibora muri za nyabarega;
- iv. Gukoraniriza hamwe no kubanza gurtyorora imicafu y'amazi yo mu bisagara.

IV. IZINDI NKURU ZIYUMVIRIWE KO ARI NGIRAKAMARO

MW'ISHIRWAMUNGIRO RY'AMASEZERANO KWIHINDAGURIKA RY'IBIHE

A. ICIGWA MW'IDONDOGWA N'ISUZUMWA RY'IBIKENEWE MU BUHINGA KUGIRA HABEHO IHANGANA RY'IBIHE

Isuzumwa ry'ubuhinga bwerekanywe murico cegeranyo rishingiye ku bisata vyatowe nk'ibigeramiwe canke bigira ingaruka kw'ihindagurika ry'ibihe. Ivyo bisata ni: Uburimyi, amasoko ntanganguvu, amasoko y'amazi, inyubakwa (harimwo amabarabara), amagara y'abantu, amashamba hamwe n'iterwa ry'ibiti hamwe n'itunganywa ry'imicafu.

Ubuhingana bwo guhangana n'ihindagurika ry'ibihe mu gisata c'uburimyi

Kugira habeho ihangana nyaryo ry'ihindagurika ry'ibihe mu gisata c'uburimyi, urutonde gw'ibikoresho birimwo uguhindura ingendo, itunganywa hamwe n'ubuhinga, vyotegerejwe gutegurwa. Iki gice kiratanga uburorero bw'ibikoresho vy'ubuhinga bizwi vyoshobora gukoreshwa mu ntumbero y'ihangana nyaryo nka: (i).gufasha ibiterwa ngo bihangane nibihe, (ii). Kugabanya ikoreshwa n'isesagura ry'amazi mu burimyi, (iii). Gushigikira uguhangana n'imyuzurira, (iv) gukingira ubworozi ingaruka ry'ihindagurika ry'ibihe.

Ubuhingana bwo guhangana n'ihindagurika ry'ibihe mu gisata c'amasoko y'amazi

Ingaruka z'ihindagurika ry'ibihe ku gisata c'amasoko y'amazi zirashobora kugaburwa mu mirwi itatu: Amazi menshi cane gose, ibura ry'amazi akwiye, n'akanovera katitutse. Biteguwe ko ibice vy'igihugu bizobona ibihe vy'uruzuba n'ibukanye bihanitse bizotuma igihugu kigwa mubihe bitoroshe vy'imyuzurira n'uruzuba gwinshi. Ivyo bintu bibiri bizoshobora gutuma habaho umwitwarariko utewe n'amazi.

Ubuhingana bw'ihangana kugira habeho igabanywa mu gisata c'amasoko y'amazi ku ngorane z'ihindagurika ry'ibihe zarategakanijwe: (i) ukwegeranya amazi y'imvura, (ii) ugusubira kwuzuza amariba y'amazi, (iii) kwongereza ibigega kugira hagabanurwe amamininurwa (infiltration), (iv) gutera ibiti n'ivyatsi kumisozi kugira habeho ugusubira kwuzuza amariba y'amazi, (v) gushiraho urunani gwo gucungera ibipimo vy'imvura n'imiyaga, (vi) ishishirwamungiro ry'umugambi w'isuzuma rinyarutse ry'aho amazi amenere, (vii) ugukura ivyunyuyu mu mazi, (viii) itosorwa ry'amazi yakoze gushika aho akoreshwa (ix) gukinga imeneka n'icikagurika ry'impome, (x) ukugomorora imihora y'amato, (ix) kuzibura imiserege y'amazi y'invura.

Ubuhinga bwo guhangana n'ihindagurika ry'ibihe mu gisata c'amasoko ntanganguvu

Mu Burundi, ingaruka mbi nyamukuru ziturutse kw'ihindagurika ry'ibihe mu gisata c'amasoko ntanganguvu ni:

- Ihagarara ryibonekeza kenshi ry'ingomero z'imiyagankuba zariko zirakora biturutse kukurengerwa bitewe n'imvura itara canke uruzuba rukabije;
- Umwuzurira wa cane w'ingomero zimwe zimwe biturutse ku nkukura ikaze cane ivuye ku mvura irengeje bigatera ihagarara burundu ry'ingomero zimwe zimwe z'imiyagankuba;
- Ikena rikabije ry'umuyagankuba rituma habaho ingorane mu kuwutanga mu bice bitandukanye vy'ubuzima bw'igihugu;
- Ingorane yigaragaza henshi y'ubukene bw'inkwi zo gucana n'amakara ava mu biti biturutse ku kugwira kw'abantu, ubushuhe buguma buduga be n'ubkene bw'ibiti.

Rero,ubuhinga bukurikira mw'ihangana ry'ihindagurika ry'ibihe mu gisata c'amasoko ntanganguvu bwaratanze: (i) Umuyagankuba uturutse ku muyaga hagakoreshwa uburyo bw'icuma gishinze (ii)ukugwiza umuyagankuba mu bice vyose, (iii) umugambi w'umuyagankuba uturutse ku zuba ku bigo vy'abantu benshi no mungo z'abantu,(iv) ingomero ntonto z'imiyagankuba,(v)amafuru ya kijambere yo gucana amakara, (vi) amashiga ya kijambere, amakara avuye mu micafu, (vii) ikurikiranwa ku bwenge ry'ubuhinga bugezweho, (viii) amatara akoresha umuyagankuba mukeya, (ix) gushiraho ku bwenge ivyankenerwa vyo gukurikirana amatara,(x) ibikoresho bitwara umuyagankuba mukeya.

Ubuhinga bwo guhangana n'ihindagurika ry'ibihe mu gisata co gutwara abantu n'ibintu be n'inyubakwa

Impanuka zikabije (imiriro, imyuzurira, ibomagurika ry'imisozi, ivyondo, n'ibindi) n'iyi zikukumura birashobora kuzibira amabarabara n'ibiraro igihe kirekire canke gito. Inkukura n'isi ibomoka bironona indimo, inkengera z'inzu n'amabarabara, bikabomora n'amazu yareta canke y'abanyagihugu.

Ubuhinga bwo gutwara abantu n'ibintu mw'igabanywa n'ihangana ry'ihindagurika ry'ibihe bukurikira vyarategekanijwe: ivyo bubaka vyokoresha n'isima, uburyo bwo gutwara abantu n'ibintu bwizwe neza, gushiraho ubuhinga bwo kugabanya umuvuduko, gushiraho ubuhinga bwo gupima imvura n'imiyaga, gutangura ugutumatumanako bigezweho.

Ubuhinga bwo guhangana n'ihindagurika ry'ibihe mu gisata c'amagara y'abantu

Inkurikizi mbi nyamukuru z'ihindagurika ry'ibihe zigize igice kinini kandi zikabamwo n'inkurikizi zinyaruka cane. Murizo harimwo abapfa n'abakomereka biturutse ku mpanuka zikabije (nk'akarorero imyuzurira, ubushuhe bukabije kandi bumara imisi), ihindagurika ry'uburinganire n'ibihe vy'impanuka ku magara y'abantu bishingiye ku bihe (igabanuka ry'amazi meza kandi akwiye n'impwemu zidatosekaye), urukurikirane gw'ingwara zifatiye kw'isuku rike hamwe n'ukwanduzanya imigera yazo (nk'akarorero malaria na korera,...).

Ubuhinga ku magara y'abantu mw'igabanywa n'ihangana ry'ihindagurika ry'ibihe ni nka: (i) iriba ry'amazi meza mu gihe c'imyuzurira, (ii) utuzu twasugwumwe tudakomwakomwa n'imyuzurira, (iii) uburyo bwo gukurikirana hafi ingwara,

iv) utuzu twa sugumwe karuhariwe turinda umwuzurira (v) imisegetera irimwo imiti iramba yica imibu, (vi) uburyo bwo gukurikiranira hafi ingwara n'ubwo gupima bunyaruka.

Ubuhinga bwo guhangana n'ihindagurika ry'ibihe mu gisata c'amashamba

Ihindagurika ry'ibihe riragaraza amabi menshi ku mashamba n' abenegihugu. Ihangana n'igabanywa nizo nyishu zibiri nyamukuru zo kwihindagurika ry'ibihe, igabanywa rikaba rirondera kugwanya inkomoko ihangana naryo rikaba rishingiye kw'igabanywa ry'inkurikizi. Mu gisata c'amashamba:

- Imikenyuro y'igabanywa yerekeye i) imyuka iturutse kw'ihonywa ry'amashamba; ii) imyuka iturutse kw'itituka ry'amashamba; iii) gukomeza uruhara rw'amashamba rwo kubika umwuka wa karubone; iv) isubirizwa ry'ibindi bicanwa nk'ibitoro hagakoreshwa ibiti, v) ikoreshwa c'ibihinguwe mu giti mu kibanza c'ibikoresho bituma ihingurwa ryavyo ryotera irungikwa ryinshi ry'imyuka mu kirere.
- Ihangana rigizwe n'ibikorwa bituma hagabanywa kugeramirwa n'ihindagurika ry'ibihe ku mashamba n'abenegihugu bayakenera.

Muri rusangi, intambanyi z'ihindagurika ry'ibihe ku mwimbu uvuye mu biti n'ibinyabuzima biratandukanye bivanye n'ubwoko buhari, ibidukikije, inyishu zitangwa mu bijanye n'uburyo bwo guhangana n'ihindagurika ry'ibihe.

Aho rero kugira habeho igabanuka ry'izo ngorane, ubuhinga bukurikira bwariyumviriweko:

- i) Ukureka amashamba kama akimeza, ii) gushiramwo uruhara ngo ibiti kama bivuye iii) gukomeza gukora amakara mu myavu ibora kugira bisubirire amakara yo mu biti n'inkwi, iv) ugishiraho ububiko bw'imbuta z'ibiti vyo mwishamba, v) ugutera ibiti ku mirongo ku mabarabara, vi) ugutera ivyatsi bibungabunga isi, vii) Guhonyorera ibiti, viii) Guca imiciro ikingira ibitara iimiriro ya nyakanga.

Ubuhinga bwo guhangana n'ihindagurika ry'ibihe mu gisata c'itunganywa ry'imicafu

Mu Burundi, abantu ntibakoresha uburyo bwo kwegeranya no gutandukanya imicafu iva mu mazu kandi n'igikorwa kitamaho naho kiri. Ikigo co guhingura imicafu ca Buterere ntikigikora neza. Hariho kandi irungikwa ry'imyuka y'ubumara ituruka mw'itunganywa ry'imicafu ikaze nko kwa muganga kuko kenshi bituririrwa mu mafuru yabigenewe.

Kugira habeho ihangana nizo ngorane, inyishu zimwe zimwe zaratanze nka:

- i) Ugutunganya ibigo biteguye neza bijamwo imicafu mu bisagara n'ukwegeranya umwuka wa metane;
- ii) Uguhingura neza imicafu itabara;
- iii) Ukwegeranya n'ugutosora amazi y'ubucafu mu ma besani "lagune";
- iv) Ukwegeranya imicafu biva mu vyatsi n'ibiti kugira bikorwemwo amakara yo gucana.

B. UMUGAMBI WO GUHIMIRIZA, INDERO N'UGUHA UBUMENYI ABENEGIHUGU KUBIJANYE N'IHINDAGURIKA RY'IBIHE MU BURUNDI

Uno mugambi werekeye abarundi bose, atakuvangura kugira bose bashobore kuronka amakuru kandi bamenye ko ibijanye n'ihindagurika ry'ibihe ari ukuri kandi bitera ingorane kw'isi, muri Afrika, no mu Burundi muri make, ariko ko itunganywa ry'ingaruka mbi zavyo ritegerezwa kuba umwitwarariko wa misi yose

Ukwo ihimirizwa ry'abenegihugu kw'ihindagurika ry'ibihe ryifashe

Hisunzwe amatohoza yakozwe kubenegihugu, ivyavuyemwo vyarerekanye ko muri rusangi, abantu bose bafise umwitwarariko w'ihindagurika ry'ibihe n'inkurikizi zavyo. Abantu barabona ikena be n'igwirirana ry'imvura hamwe n'inkurikizi zavyo zibonekeza ku nyubakwa. Baranavuga kandi ko bahagaritswe umutima n'ivyo bibazo, ko ihindagurika ry'ibihe ryotegerejwe kuba nkora mutima mu migambi ya Leta.

Ariko kandi, ayo matohoza yaratumye dutahura ko ubumenyi bw'abenegihugu butandukanye. Muri rusangi, abenegihugu ntibatahura ko imvo, ibimenyetso n'uburyo bwo guhangana n'ihindagurika ry'ibihe bishoboka.

Imigwi nyamukuru yohimirizwa

Icoza ubwa mbere n'uko hokorwa amategeko agenga ihindagurika ry'ibihe n'ishigwa mungiro ryayo. Hama haribonekeje ugukenerwa guhimirizwa abafata ingingo mu bushikiranganji bwegwa n'ivyo bibazo, abashingamateka, abakenguzamateka hamwe n'abajejwe intwari ku nzego zose (ugw'igihugu, ugw'intara n'amakomine), igisata c'abikorera utwabo, amahinguriro, amashirahamwe adaharanira inyungu za politike, amadini n'amashengero atandukanye. Nabamenyeshamakuru barakwiye guhabwa ubumenyi muri ivyo vyigwa kugira habeho ukubita hura be n'ukubimenyesha mu mihingo yose baciye ku nsamirizwa no mubinyamakuru.

Birakenewe ko hojaho ama komite ku gwego gw'imitumba kuburyo vyofasha mu guhimiriza abenegihugu bafise ico bahuriramwo.

Ubuhinga bwo gutumatumanako amakuru n'uguhimiriza

Uguhimiriza ku gwego gwo hejuru gwa Leta kwotegerejwe guca mu manama yamaho y'abafata ingingo za politike n'abashikiranganji baturuka mu bisata bitandukanye bigeramiwe n'ihindagurika ry'ibihe, abashingamateka n'abakenguzamateka kugira bashiremwemo inguvu za politike zihambaye muri ivyo bibazo kandi ndetse n'ukugira habeho ukwegeranya abanyamitahe n'ubuhinga bo mu gihugu hagati be n'abo hanze y'igihugu mubijanye no guhangana n'ihindagurika ry'ibihe.

Abakozi bo mu bushikiranganji butandukanye n'abatware ku nzego zitandukanye botegerejwe guhimirizwa tutibagiye n'amakaminuza, amashirahamwe adaharanira inyungu za politike kw'iterambere ry'ubushakashatsi n'ubuhinga bwo kugwego gwo hejuru kugira habeho ihyanishwa ry'ivyavuyemwo, hakoreshejwe ivyigwa n'imyihwezo y'uburyo bwo kwuzuzanya n'ugukorerahamwe kw'ibisata.

Kugira dukore ku mugwi munini w'abenegihugu, amaradiyo aguma ari ibikoresho nyavyo mu Burundi. Ni menshi kandi arumvirizwa cane gose. Amakuru arashobora guca kandi kumbuga ngurukanabumenyibukoreshe na benshi.

Umugambi wo guhimiriza abenegihugu ku ngorane z'ihindagurika ry'ibihe

Ihangiro nyamukuru ni iryo guterera mw'igabanywa ry'irungikwa mu kirere ry'imyuka itera ihindagurika ry'ibihe be n'ihangana ry'ihindagurika ry'ibihe mu Burundi hatibagiwe igabanuka ry'amabi be n'uruhombo bitewe n'ibihe bibi bikaze; biciye mu makuru, inyigisho, n'itumatumanako amakuru riteye imbere kandi ryunvirizwa cane.

Ibikorwa nyamukuru vy'iyi migambi bizoba biri muri iyi migwi ine ikurikira:

- i) Uguhimiriza n'inyigisho kw'igabanywa ry'irungikwa ry'imyuka iera ihindagurika ry'ibihe hamwe n'ihangana n'ihindagurika ry'ibihe rifise ibikorwa nyamukuru vyo gutegura inganda zo guhana ubumenyi, zo guhimiriza be n'izogutanga amakuru z'abakozi bo mu bushikiranganji hamwe n'abatware ku nzego zose, gutegura inganda zo guhimiriza abenegihugu, ugutegura inganda z'inyigisho z'abamenyeshamakuru kugira batahure kandi batange ubutumwa nyabwo biciye mu binyamakuru bitandukanye.
- ii) Gutezimbere imigwi ihambaye ya politike, iyizwi n'amategeko kandi n'inzego kugira hatezwe imbere inama zamaho z'uguhana ubumenyi n'izo gumiriza abafata ingingo muri politike, abashingamakeka, abakenguzamateka, n'abashikiranganji b'ibisata bigeramiwe n'ihindagurika ry'ibihe kugira bamenye ko ihindagurika ry'ibihe ari ingorane ya bose kandi iguma ikwira hose. Ugutegura umukenyuro w'iterambere rihangana n'ihindagurika ry'ibihe kandi ridakoreshwa umwuka mwinshi wa karubone.
- iii) Guterintege ubushobozi bw'ubushikiranganji bw'indero kugira bushire ivyerekeye ihindagurika ry'ibihe ku rutonde rw'inyigisho.
- iv) Gushigikira abo vyega mu gushiraho umukenyuro wo kwegeranya uburyo bwo gukoreshwa mu migambi y'ibikorwa itegekanijwe.

V. IVYAGORANYE BE N'IBIBAZO VYEREKANYWE BE N'IYO UBURYO BWAVA, UBUHINGA N'UBUSHOBOZI BUKENEWE KUGIRA BABIGWANYE

Ivyabuze n'ingorane vyo mu buryo bw'ubuhinga, intwari, amafaranga, inyigisho biribonekeza mu bisata bitandukanye arivyo uburimiye, ibihe be n'imiyaga, amasoko ntanganguvu, ugutwara abantu n'ibintu n'inyubakwa, amasoko y'amazi, itunganywa ry'imicafu, amagara y'abantu be n'amashamba. Ingingo n'inyishu vyaratowe n'abahinga b'ivyobisata turazisanga muriki cegeranyo.

INTANGAMARARA

Inama y'i « Rio y'i Janerio » mu 1992, yararekuriye amashirahamwe mpuzamakungu, yamaze kubona uburemere budasanzwe bw'ibikorwa n'abantu bitera ihindagurika ry'ibihe vyibonekeza kwisi yose, gutumirira ibihugu vyose n'ama Leta gushirako umukono amasezerano mpuzamakungu kw'ihindagurika ry'ibihe ryari rifise intumbero nyamukuru yo guhagarika igwirirana ry'ivyuka bitera ubushuhe mu kirere. Uburundi nk'igihugu cateye umokono kuri ayo masezerano, caratanguje kuyashira mu mungiro.

Uburundi kuva buteye igikumu burundi kuri ayo masezerano mukwezi kwa kane 1997, waciye butangra kuyashira mungiro. Ni muriyo ntumbero bukora ivyegeranyo ku migambi bukora niyo buzokora mukurwanya imyuka itera ubushuhe ikirere n'imigambi yerekeye guhangana n'ihindagurika ry'ibihe.

Hagati y'icegeranyo ca mbere be nica kabiri, Uburundi bwarongeye gutunganya integuro y'ibikorwa vya Leta mu ntumbero yo gushigikira ibihugu bikiri inyuma mw'iterambere. Iyo nteguro y'ibikorwa ariyo « PANA » yatangujwe mu 2005 irangizwa mu 2007 irerekana idondorwa ry'ibikorwa nyamukuru vyo guhangana n'ihindagurika ry'ibihe vyokwisungwa kandi ishirwamungiro ryayo ryarakurikijwe gushika uyu musu, nubwo amikoro y'uburyo bw'igihugu yagumye adakwiye kugira barangure imigambi yose irimwo.

Uburundi bwararonse kandi amahirwe y'ugutegura icegeranyo ca gatatu c'igihugu kw'ihindagurika ry'ibihe. Yerekana tugereranije niyaheruka iterambere ridasanzwe haba kuvyo yiga canke ibisata yerekeye canke ku bikoresho mfashanyigisho vyakoreshejwe hamwe n'ibisata vyakozwemwo ivyigwa.

Twisunze ivyoye amakungu yahurijeko 17/CP.8 ishingiyeye kwitunganywa ry'ivyegeranyo kw'ihindagurika ry'ibihe mu bihugu biri munzira y'amajambere vyashize urukumu ku masezerano mpuzamakungu, iki cegeranyo cerekeye ivyigwa bikurikira: **I)** Uko igihugu cifashe kubiraba ihindagurika ry'ibihe; **II)** ingereranyo y'ivyuka bishusha ikirere; **III)** idondora ry'ingingo zafashwe canke zitegurwa mu gushira mungiro amasezerano mpuzamakungu CCNUCC; **IV)** Ibindi bimenyeshwa **V))** ingorane n'ibibura, amikoro ajanye nivyamafaranga n'ubuhinga n'ubushobozi nkenerwa.

Iki cegeranyo kiratanga amakuru agezweho ikanerekana ingendo nshasha kugira hakomezwe igabanywa ry'irungikwa ry'ivyuka bishusha ikirere be ni'zuguhangana n'ihindagurika ry'ibihe.

IKIGABANE CA I : IMIBEREHO Y'IGIHUGU CACU

I.1. Intangamarara

Mu Burundi ihindagurika ry'ibihe riragaragara. Inkurikizi ryayo kubantu, ibintu n'ibidukikije vyariyongereye cane mu myaka 10 iheze. Intara nyinshi zarahuye ningorane zigabanuka ry'imvura rigaragarira mu kwibonekeza kw'ubugaragwa bukabije, igabanuka rya gose ry'ibice bikanye, ndetse n'ikama ry'inzuzi n'ibiyaga. Ikindi imvura y'isegeye, ubushuhe bukabije, ibihuhusi, urubura, navyo nyene ni ibimenyetso vy'ibihe vyerekana vy'ubugoyigoyi biguma vyiyongera ku gihugu cacu.

Igwirirana ridasanze ry'impfu, igabanuka ry'imyumbu, ugufungura nabi, igwirirana ry'indwara, guhona kw'ibinyabuzima navyonyene ni inkurikizi zibonekeza mu Burundi ziturutse kwihungabana ry'ibihe.

Imibereho y'igihugu cacu kuvyerekeye ihindagurika ry'ibihe iratumwa n'uko igihugu gisanze gisikuye « indondagihugu », ibirangagihe, amasoko ntanganguvu, uruhara ntunganyamategeko, uruhara rw'ibidukikije, rw'imibereho y'abantu n'ubutunzi vyose bikaba navyo bishobora gukorwako n'ihindagurika ry'ibihe. Kino kigabane niwo mushinge w'ivyigwa bitandukanye bigizwe n'indondoro y'ivyuka bishusha ikirere, ivyigwa vy'ubugoyigoyi n'uguhangana, ndetse n'ivyukugabanya iiyo myuka nk'ukwo bitegekanijwe mu masezerano "CCNUCC" yerekeye ihindagurika ry'ibihe.

I.2. Indondagihugu

Uburundi ni igihugu kiri ku mpande zo hagati n'ubuseruko bwa Afrika. Uburinganire bwaco bungana na km^2 27.834 murivyo hakabamwo km^2 25.000 zigizwe nisi ndimwa. Buri hagati ya 0 29,00 na 0 30,54 z'ubuseruko n'imibangabangane ingana na 0 2,20 hamwe na 0 4,28 zubumanuko. Bukikijwe, mu buraruko n'Urwanda, mu bumanuko bushira ubuseruko na Republika iharanira ubwiyunge ya Tanzaniya no murengero Republika iharanira Demokarasi ya Kongo. Gitega niwo mugwamukuru wa politike, Bujumbura umugwamukuru w'ubutunzi. Uburundi buri kuri km 2100 uva kw'ibahari Atlantike na km 1100 uva kw'ibahari Indiyana.

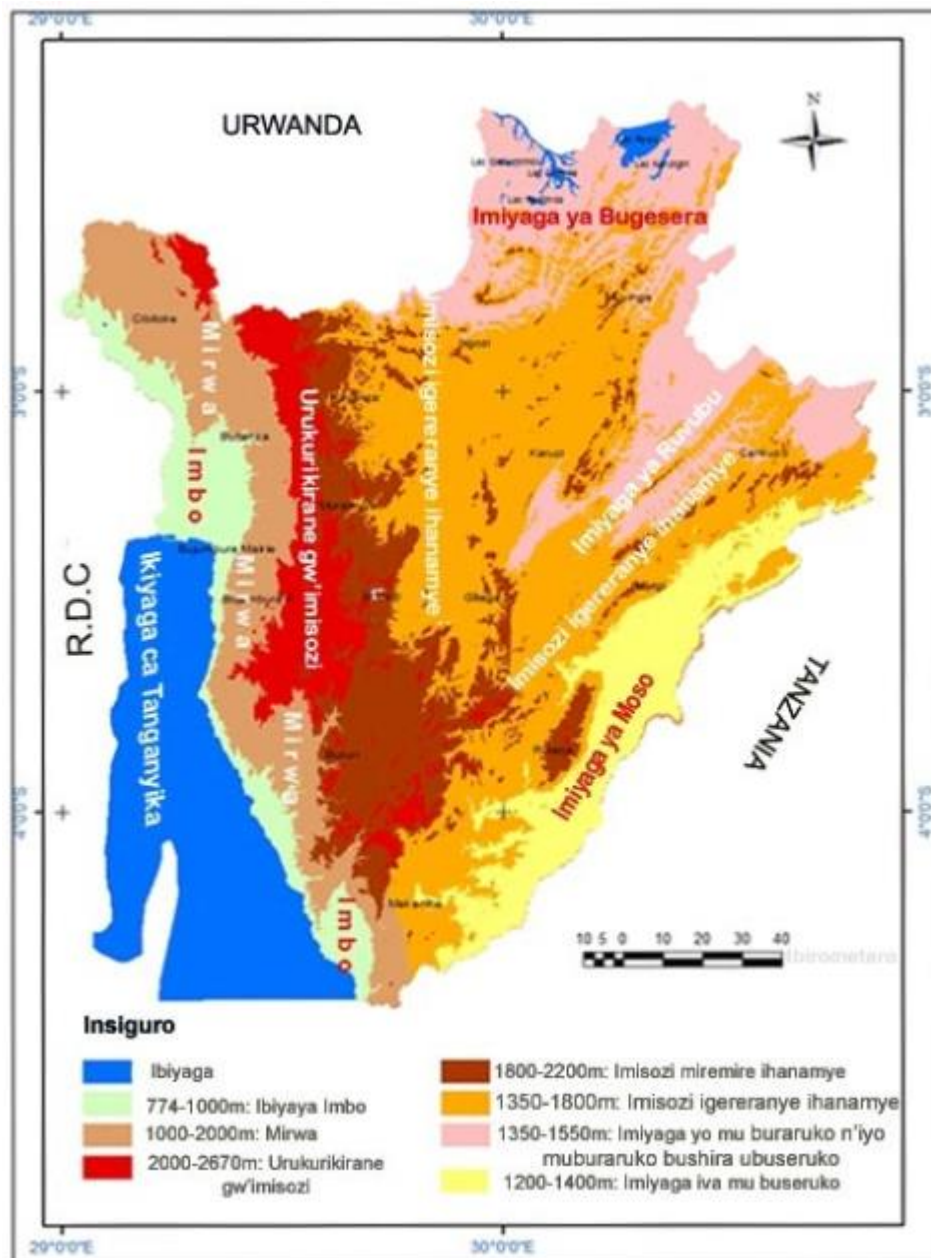
BURUNDI



Igicapo ca 1: Ikarata y' intwari mu Burundi

I.3 Imisozi: ubutobuto n'itandukana ry'intara

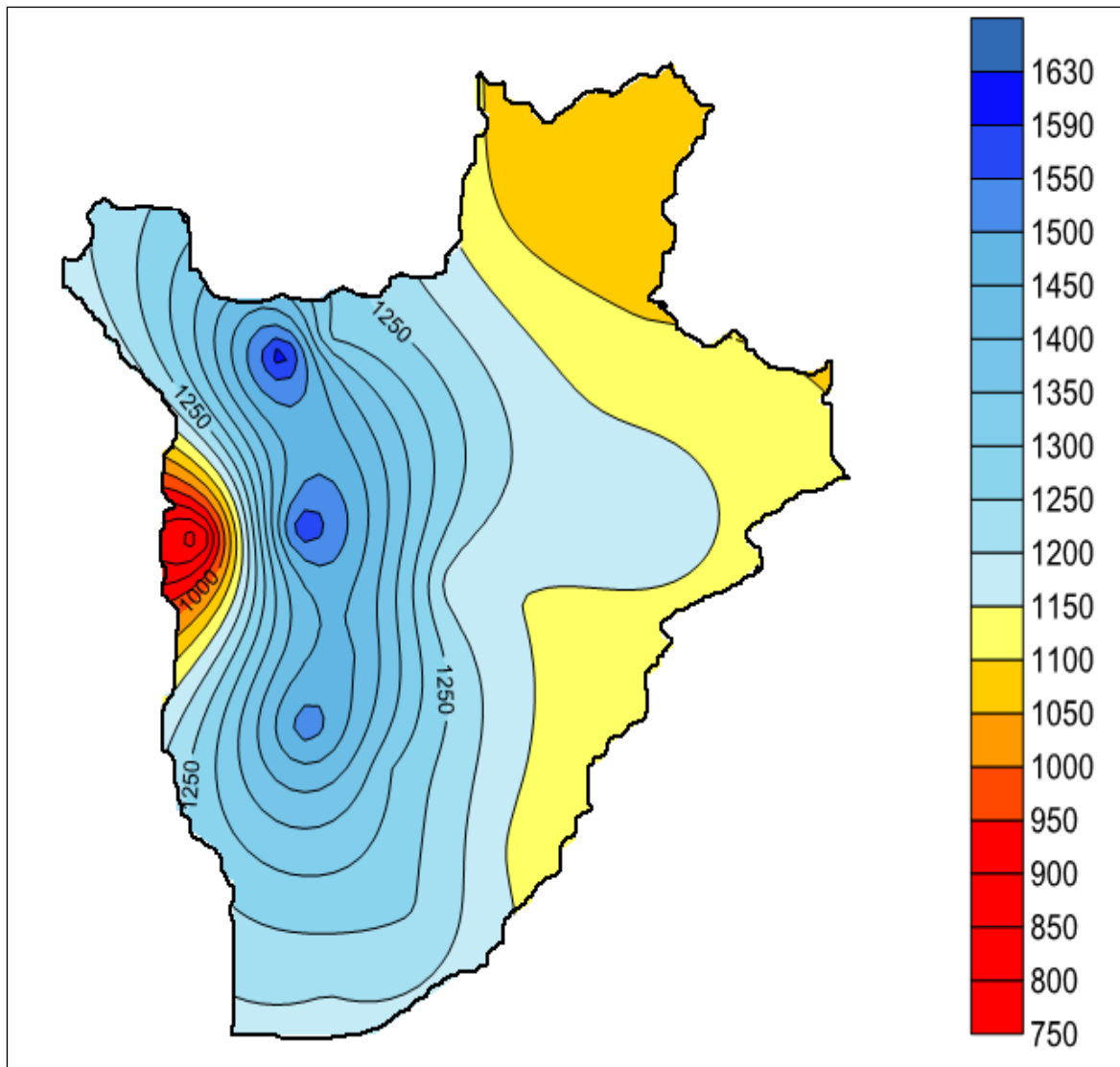
Nubwo uburinganire bw'igihugu atari bunini, Uburundi burigaragaza kwitandukanya ry'imisozi n'ibiyiranga. Ukwiganzura kw'isi yo mukuzimu niyo nkomoko nyamukuru y'itandukaniro ry'akarere karimwo ikiyaga ca Tanganyika n'ibiyaga vy'Imbo (m 774 na m 1000 z'uburebure. Imihora ya Mirwa (m 1000 gushika kuri m 2000) n'urukurikirane rw'imisozi ku rundi ruhande (m 2000 hamwe na m 2670) zuburebure. Imisozi ihanamye, igize igice kinini c'igihugu iri hagati ya m 1350 na m 2200 z'uburebure. Ibimanga vyo mu buseruko, mu Kumoso biri hagati ya m 1200 na m 1400 n'ikimanga kinini co muri Bugesera mu buseruko bushira uburengero gifise uburebure buri hagati ya m 1350 hamwe na m 1550 kikaba kibandanya gushika kugihugu kibanyi c'Urwanda. Izo ntunganyo z'ukungene bumeze birasigura uguhungabana kw'ibidukikije guterwa n'ihindagurika ridasanze ry'ibihe rikibandanya.



Igicapo ca 2: IKARATA Y'INZUZI N'AMAZI

I.4 Itandukaniro ry'ibihe

Igaburwa ry'imirwi mikuru mikuru ry'imitumba rigenda ribangabanganye ningene ubukanye n'umushuhe vyifashe mu gihugu.



Igicapo ca 3: Ikarata y' igabanganwa ry' imvura muri mm

Iyi karata iremeza ko igabanganwa ry'imvura ritangana mu gihugu cose nubwo atabusumbasumbane bukabije bwibonekeza mu gihugu. Urugezo gw'imvura ruri hagati ya mm 1628,7 na mm 768,5. Mu bisanzwe, ibipimo vy'imvura vyiyongera bivanye nuburebure bw'imisozi. Ibikiwiye vyibonekeza mu bice vy'imitumba miremire (nko mu ntara kama ya Mugamba) bikagenda biragabanuka uva muriyo ntara utereza mu Buseruko, Uburengero, n'Ubumanuko. Ibiri hejuru (bisanzwe 1981-2010) vyatowe mu ntara kama ya mugamba mu kigo kibijewe ca Rwegura, ibiri hasi navyo biboneka mu ntara kama y'Imbo mu kigo kibijewe co kukibuga c'indege ca Bujumbura.

Twisunze ibiharuro vy'iyikwiye duhabwa n'ikigo IGEBU, ni mu kwezi kwa Nyakanga hibonekeje imisi myinshi y'imvura (14 gushika 22) i Bugarama mu karere ka Mugamba. Imisi mikeya y'imvura yibonekeje mu kigo kibijewe ca Kinyinya mu karere ka Kumoso. Ibigo bibiri vya Gisozi nico ku kibuga c'indege ca Bujumbura vyafashwe nk'urugezo gw'intara zigizwe n'imisozi miremire ku murgwi wa mbere (Station gisozi) n'intara z'imisozi migufi ku murwi wa kabiri.

Kubw'ikigo IGEBU ibiharuro bigezweho vyatumye hashobora kuboneka inyifato y'iduga ry'imvura mu gisagara ca Bujumbura mu myaka ya 1931- 2015. Haribonekeza ibihe

bibomvye mu kiringo c'imyaka cumi cumi : 1936-1945 ; 1946-1955 ; 1956-1965 ; na 1966-1975.

Iyo myaka yakurikiwe nimyaka y'umwumira (1976-1985 ; 1986-1995 na 1996-2005) bigizwe n'igabanuka ry'ibipimo vy'imvura bingana na mm 113 (ibipimo bigereranye vyaburi myaka cumi) mu ca cumi ca 1996-2005. Umwihwezo w'ibiharuro bikwiriye vy'urupimo gw'imvura birerekana ikurikirana ry'igihe gikanye kwiya myaka ikurikirana : 1931-1960 ; 1941-1970 ; 1951-1980 ; 1961-1990 bibonekera kukwiyongera kw'ibipimo vy'imvura mu 1951-1980 bikurikirwa n'ibihe bisanzwe 1961-1990. Ivyo biringo bibomvye vyakurikiwe n'ibihe vyumye (bigereranye 1971-2000, 1981-2000 na 1996-2015).

Akarere k'ikigererezo ca Gisozi cerekana kandi ko ibiharuro bigezweho vy'ibipimo vy'imvura bifasha mu gutahura iduga ry'ibipimo vy'imvura mu kiringo c'imyaka ya 1931-2015. Turabona ibiringo bitatu bibomvye vyo mu myaka y'ivyicumi : 1966-1975 ; 1976-1985 ; 1986-1995 na 1996-2005 n'ibiringo bitanu vy'umwumira (1946-1955 ; 1966-1975 ; 1976-1985 ; 1986-1995 na 1996-2005) hamwe n'igabanuka ry'ibipimo vy'imvura mu myaka wa 1986-1995. Umwihwezo w'ibipimo vy'imvura bigereranye urerekana iduga ry'ibipimo mu kiringo c'imyaka ya 1961-1990, n'igabanuka mu myaka 1971-2000.

Nubwo Uburundi bufise uburinganire buto, burafise ihindagurika ry'ubushuhe ufatiye kuntara zibugize. Intara ziri ahataramutse cane zirakanye kurusha iziri ahadataramutse. Umwihwezo w'iduga ry'ubushuhe bugereranye bwohejuru n'ubwo hasi hagati y'imyaka cumi cumi urerekana ko ugushuha kwatanguranye n'imyaka ya 1986-1995, ibitigiri vy'ubushuhe vyibonekeje bikurikirana mu myaka ya 2006-2015 bikurikirwa n'ikiringo c'imyaka cumi kiva 1996-2005. Ibitigiri bisanzwe vy'ubushuhe buri hejuru vyabonetse mu kiringo c'imyaka cumi 1996-2005, ibitigiri bigereranye vyibonekeje mu kiringo ca 2006-2015. Iyo myihwezo yose y'ubushuhe (Umwihwezo w'iduga ry'ubushuhe bwo hagati mu mwaka, bwo kumyaka cumi n'ubushuhe butarenze) vyerekana ko ubushuhe bwagiye buratorwa mu kigo ca Bujumbura bushaka kuduga.

Mu karere ka Gisozi, umwihwezo w'iduga ry'ubushuhe rirekena ko iduga ry'ubushuhe rirerire ryatanguye mu 1994 haheze umwaka ugereranije n'ikigo ca Bujumbura. Ibitigiri vy'iduga ry'ubushuhe bugereranye ryibonekeje mu kiringo c'imyaka cumi 1996-2005 bikurikirwa n'ikiringo ca 2006-2015. Ibitigiri vy'ubushuhe bugereranye bwo mu mwaka vyatondetswe bahereye kuri kinyi uja kuri gitoya mu myaka 1998, 2010 na 2015. Ibitigiri vy'ubushuhe bihanitse vyo mu mwaka vyatondetswe bahereye kuri kinini baja kuri gitoya mu 2015 bikurikiwe n'imyaka itatu yatwaye ikibanza ca kabiri (1998, 2005, 2010). Mugihe umwihwezo w'iduga ry'ubushuhe bugereranye bwo ku myaka cumi cumi werekana ko ibitigiri vy'ubushuhe vyabonetse mu kiringo c'imyaka cumi 1996-2005 bikurikiwe n'ibipimo mu 2006-2015. Imyihwezo yose y'ubushuhe (umwihwezo w'iduga ry'ubushuhe bwo mu mwaka, mu myaka cumi cumi n'ubusanzwe) yerekana ko ubushuhe bwegeranijwe mu kigo ca Gisozi butera buduga.

Ubushuhe bugereranye bw'ikirere buduga igihe cose ububure bugabanutse. Ubushuhe bugereranye ububure bwo mu mwaka bungana na ⁰ 25 (ubugereranye 1981-2010 z'ukwezi kwa Nyakanga) bwegeranijwe mu karere ka Bujumbura mu kiyaga c'Imbo mugihe uburi hasi nabwo bugana ⁰ 13,9 (ibisanzwe 1981-2010 z'ukwezi kwa mukakaro vyegeranijwe mu karere ka Mpotsa-Tora mu Ntara kama ya Mugamba. Muri rusangi mu Burundi ibitigiri mu kwezi biri hagati vy'ubushuhe ububure biraduga cane mu mpera z'igihe c'ici (ntwarante) biva kuri ⁰ 25 (akarere k'Imbo) na ⁰ 15,7 (akarere ka Mugamba). Ariko ibitigiri vy'ubushuhe budakabije mu kwezi ni bitoya mu gihe c'ici (ukwezi kwa Mukakaro) bija hagati ya ⁰ 23,3 (muntara kama ya Imbo) na ⁰ 13,9 (Mugamba).

Igiharuzo ca mbere kirerekana ibitigiri bivunaguye vyegeranijwe n'ikigo gikuru IGEBU ku bipimo vy'ikirere vyegeranijwe mu turere tuzwi mu ntara zigihugu. Umwihwezo w'iduga ry'u ubushuhe werekana ko mu Burundi mu ntara y'Imbo, iduga rikabije ry'ubushuhe ryatanguye mu kiringo ca 1990-2015. Iduga rirengeje ry'ubushuhe ryabonetse mu kiringo ca 2005-2010. Ico kiringo caranzwe n'imyaka ishushe cane uherye ku wushushe cane uja kuwushushe buhorobuhoro 2010, 2005, 2009, 2007 ariko imyaka yaranzwe n'ugukanya itondetse uku gukurikira 1971; 1967, 1975 na 1974. Muri iyo ntara, iduga ry'imisi y'ubushuhe bwa mbere buri hejuru (≥ 25 , ubushuhe ≥ 30 , ubushuhe ≥ 32 , ubushuhe ≥ 35) bwaragaragaye mu kiringo ca 2006-2015.

Igiharuzo ca 1: Ibitigiri bigereranye vy'ikirere ku biringo bitandukanye vyo mu burere vy'icerekezo vya Bujumbura (BJA), Gisozi (GSZ) Cankuzo (CKZ) (shira hejuru yiyo tableau iryo ryungane)

	1936-1945			1946-1955			1956-1965			Ibigereranye 1966-1975			Ibigereranye 1976-1985			1986-1995			1996-2005			2006-2015			2015		
	BJA	GSZ	CKZ	BJA	GSZ	CKZ	BJA	GSZ	CKZ	BJA	GSZ	CKZ	BJA	GSZ	CKZ	BJA	GSZ	CKZ	BJA	GSZ	CKZ	BJA	GSZ	CKZ	BJA	GSZ	CKZ
Ubushuhe bwo hagati bwo mu mwaka										23.6			24	16.4	19.8	24.3	16.5	19.7	24.6	16.5	19.1	24.7	16.6	19.8	24.4	17.1	21.1
Ubushuhe bwo hejuru bwo hagati bwo mu mwaka										29.1			29.5	21.9	24.9	29.7	22.0	25.1	30.2	22.2	25.8	30.1	22.2	25.9	30	22.8	26.1
Ubushuhe bwo hasi bwo hagati bwo mu mwaka										18			18.6	10.9	14.8	18.8	11	14.5	19.1	11.3	12.4	19.4	11.1	13.8	18.8	11.4	16.2
Ibipimo vy'imvura vyose hamwe vyo mu mwaka(muri mm)	837.3	1495		850.4	1554.5		880.1	148.07		851.9	1463.4		795.5	1428	1240.6	767.7	1434.5	1253.8	692	1632.3	1090.8	883.8	1490.8	1185.0	778.7	1789.3	1083.5
Igitigiri o'imisi i'imvura mu mwaka	123	165		145	196		148	202		158	180		145	175	143	143	169	140	109	182	131	131	179	135	130	178	127
Imisi y'ubushuhe burengeje mu mwaka ≥ 25														109	173.6		121	192.4		168	239.9		124	248.2		26	262
Igitigiri'imisi y'ubushuhe burengeje co mu mwaka ≥ 30										103.1			117.0	0	5	136.0		19	136.0	0	54	195.0	0	47	60	0	11
Igitigiri'imisi y'ubushuhe burengeje co mu mwaka ≥ 32										86			146	0	0	197	0		315	0	0	509.0	0	0	29	0	0
Igitigiri'imisi y'ubushuhe burengeje co mu mwaka ($>$) 35										1			1	0	0	0	0	0	3	0	0	4	0	0	0	0	0

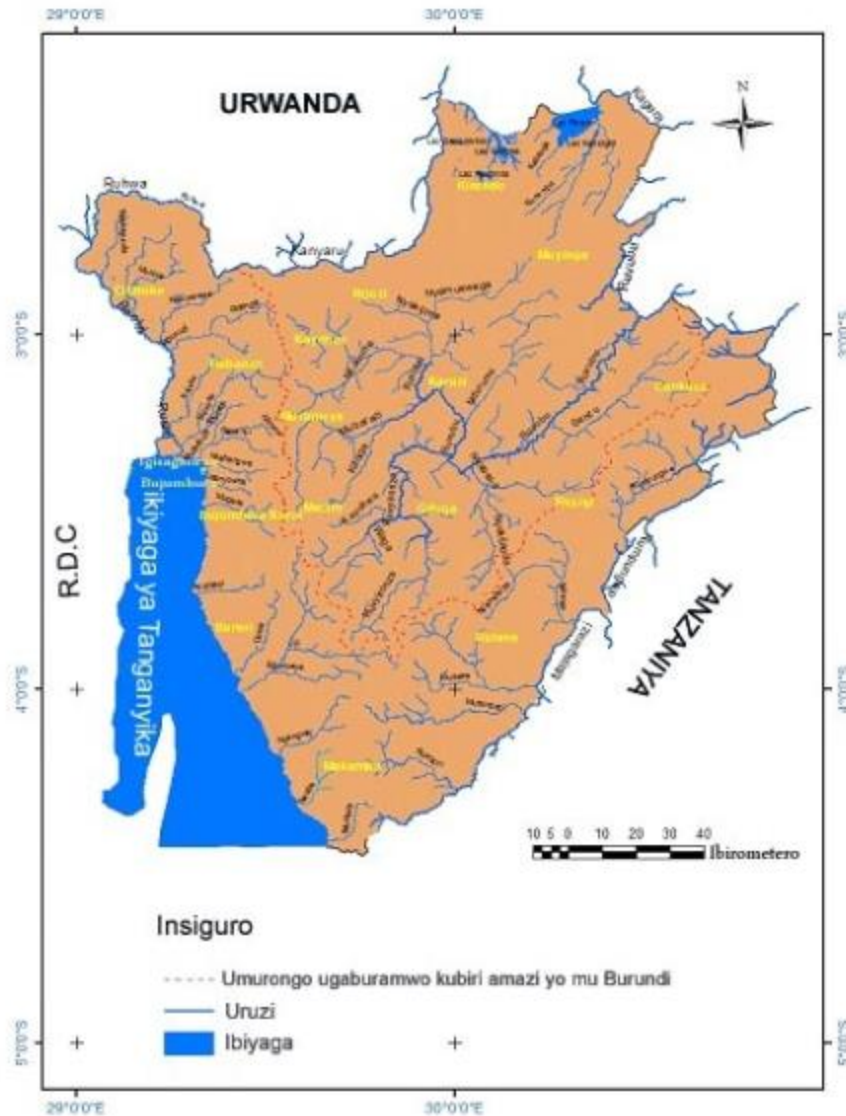
I.5. Imigende y'amazi

Uburundi burafise amasoko y'amazi akwiye (isanamu ya 4).Buharurwa mu mirwi ibiri mikuru mikuru y'amazi yo muri Afrika ariyo isoko ry'Uruzi Nil rifise uburenganire bungana 13.800km^2 n'isoko ry'Uruzi Congo ripima 14.034km^2 . Mu bice vyinshi vy'igihugu c'Uburundi hariho imigende myinshi y'amazi yamaho n'ingomero zo kuvomera.

Birahambaye kumenyesha ko umurongo ugabura amazi y'amasoko ya Congo na Nil bitokwitiranywa na n'isonga Congo-Nil rigarukira kw'isonga rya Mukike. Uwo muhora ugabura amazi urabandanya gushika mu misozi ya Bututsi yo hagati ifise igice ciza giteze ugaca ubandanya mu misozi miremire ya Buyogoma.

Mu Bumanuko bushira uburengero bw'Uburundi, amasoko y'amazi makurumakuru ava mu Mugamba w'epfo na Bututsi yo mu Buseruko. Araheza akajabuka urukurikirane rw'imisozi agaca mu bihomoka agahereza kwisuka mu kiyaga Tanganyika. Mu ruhande rw'ihindagurika ry'ibihe amasoko y'amazi yo mu Burundi arageramiwe bivanye n'ingene Uburundi busanzwe busikuye (imisozi ihanamye...) kuruhande rumwe, nnibikorwa vy'abantu kurundi ruhande. Ivyo bikorwa ni navyo bihindukira bigatitura isi ndimwa, bigahonya n'amashamba n'ibibara.

Mu biyaya no mitumba ibayabaye imyuzurira n'inyerera ry'imisozi vyama vyabaye ndanse igihe cose uruvura gwinshi ruguye mu burere bumwe bumwe bw'igihugu. Imvura nyinshi yisuka mu Mirwa itera ikibazo gihoraho camaho. Ikena ry'amazi y'imvura mu dukono twagenewe kuyegeranya rituma haba igabanuka rikabije ry'amasoko y'amazi bigatuma ibikorwa vy'uburimi, amasoko ntanganguvu n'amagara bihungabana. Uburundi burikwiye mu biyaga kama nka Tanganyika, Cohoha, Rweru na Rwihinda. Ikiyaga Tanganyika kiri kuri m 774 z'ubujakuzimu na km 677 z'uburebure ; ni icakabiri mu biyaga vyibenga rinini (m 1470) kw'isi yose, ni naco kigega ngirakamaro c'amazi atagira ivyunyuyu muri Afrika (km^3 18.880). Ndetse ni n'ikigega c'ibinyabuzima arico gituma bagiharura mu butunzi bw'ubuzima bw'abantu. Ikibabaje kirageramiwe n'ibiconona bitandukanye bitegwa n'umuntu hamwe n'ihindagurika ry'ibihe.



Igicapo ca 4: Ikarata y'imigende y'amazi mu Burundi

I.6. Uruhara gw'amategako, Intwaro na Politike mw'ihindagurika ry'ibihe

I.6.1. Uruhara gwa Politike

Uburundi burafise politike y'igihugu kw'ihindagurika ry'ibihe ifise intumbero nyamukuru yo gukomeza iterambere mukugwanya ihindagurika ry'ibihe. Izo ntumbero nyamukuru nizo zizi:

- Kugira uruhara mu kugwanya ihindagurika ry'ibihe mu mice yose y'ubuzima n'iterambere vy'igihugu;
- Gushigikira uruhara rw'ubutungane n'intwaro mw'itunganywa ribereye n'ishigwaho ry'ibikorwa bitunganye mu gihe c'ihindagurika ry'ibihe ndetse n'ukurigwanya;
- Gutezimbere ubuhinga bwokoreshwa mu gihe c'ihindagurika ry'ibihe;

- iv. Gutezimbere n'ugushigikira ingingo n'imigambi vyo bitazana umwuka karubone;
- v. Guterintege ibikorwa vyo guhangana n'ihindagurika ry'ibihe, nivyukugabanya imyuka itera ubushuhe mu kirere, uguhagurukira ugukorera hamwe, gukora mu runani ku migwi yose irabwa n'iki kibazo.

Umukenyuro w'igihugu, n'integuro y'ivyokorwa kw'ihindagurika ry'ibihe biza kugaragaza intumbero y'igihugu hamwe n'ukwuzura porogarama zitandukanye n'ibikorwa bifise intumbero zitandukanye n'imikeniyuro yo muduce dutandukanye ishingiye ku bisata vy'uburimi. Amashamba, amasoko ntanganguvu, amagara y'abantu, amasoko y'amazi, n'bindi bidukikije.

Intumbero y'umukenyuro kw'ihindagurika ry'ibihe niyo gutsimbataza ubushobozi n'ubukomezi bw'Uburundi kugira buhangane n'ihindagurika ry'ibihe. Kugira bushikire iyo ntumbero, umukenyuro ushingiyeye ku ngingo ndwi za politike y'igihugu kw'ihindagurika ry'ibihe arizo zizi:

- i. Ukumenyera n'ugutunganya ingaruka z'ibihe ;
- ii. Igabanywa ry'irungikwa ry'ivyuka bitera ubushuhe mukirere n'ugushigikira iterambere rirwanya umwuka wa karubone ;
- iii. Ugushigikira ubushakashatsi buteyimbere n'iyinjizwa mu buhinga bugezweho ;
- iv. Ugukomeza ubushobozi ;
- v. Ukubungabung ubumenyi n'itumatumanako ;
- vi. Ugukorana n'ibitsina vyose, urwaruka n'imigwi igeramiwe;
- vii. Ukurondera mafaranga yo gukora imigambi.

Nubwo birukwo, imikeniyuro igihugu gifise kiyihabwa n'urutonde gw'iterambere ry'igihugu (2018-2027), intumbero y'igihugu ya 2025, umukenyuro-hangiro ry'ubushikiranganji bw'ibidukikije, umukenyuro w'igihugu n'urutonde gw'ibikorwa mu bijanye n'ibinyabuzima bitandukanye, umwitwarariko w'igihugu kubijanye n'amazi, umukenyuro wo gukinga impanuka n'ivyaduka, umukenyuro w'igihugu wo kugwanya ubugaragwa. Inkurikizi mbi z'ihindagurika ry'ibihe zitera ziyongera naho uburundi burekura imyuka itera ubushuhe mu kirere muke cane. Rero, uguhanagana n'ingaruka z'ihindagurika ry'ibihe n'ivyagaciro ntangere kandi vyoshigwa imbere mu migambi y'igihugu cacu.

I.6.2. Uruhara gw'intwari

Ubushikiranganji bw'ibidukikije ni bwo bujewe gukurikiranira hafi ibikorwa vy'ishirwa mungiro vya politique y'igihugu, umukenyuro n'urutonde gw'ibikorwa bijanye n'ihindagurika ry'ibihe. Icongeweko, kuva mu 1980, Uburundi bwaronkejwe ikigo kijejwe kwegeranya ibiharuro bijanye n'ibirere. Ni ikigo IGEBU, kikaba ari naco giserukira Uburundi mu nama y'ibihugu bihuriye hamwe kw'ihindagurika ry'ibihe. Ubushikiranganji bw'ibidukikije, bwabayeho mu mwaka wa 1988, bwagiye buraronswa ubushobozi buburekurira gutegura n'ugukurikirana ibikorwa vy'ukugarukira ibidukikije. Igisata gishizweho mu 2014 ni OBPE (ibiro bijewe gukingira ibidukikije mu Burundi).

Intumbero nyamukuru z'ico gisata :

- Gukurikiranira hafi ibisabwa bishingiye ku masezerano mpuzamakungu afitaniye isano n'ibidukikije Uburundi bwacu burimwo ;
- Kuraba n'ugusuzuma imigambi y'iterambere kugira bamenye ukwubahirizwa amategeko y'ibidukikije mu gutegura n'ugushira mungiro y'imigambi yose y'iterambere yoshobora kugira inkurikizi mbi kubidukikije n'ibihe ;
- Gushiraho ingingo zo kugabanya n'izuguhangana n'ihindagurika ry'ibihe.

Ikigo OBPE kirafise ibisata bibiri. Kimwe kijanye n'umugambi wo gutera ibiti hamwe n'ikurikirana ishirwa mungiro ry'ihangirorya Leta riraba ivy'amashamba. N'ikindi kijejewe ibidukikije n'ihindagurika ry'ibihe. Ico gisata ca nyuma nico gitwara imigambi yo gutegura uguhana amakuru kubijanye n'ihindagurika ry'ibihe. Kandi gihamagariwe:

- gusuzuma ishigwa mu ngirory'amasezerano na porogarama mpuzamakungu zigenga ibidukikije Uburundi bwashizeko urukumu;
- gukurikirana ama porogarama y'iterambere kugira barabe kw'amategeko agenga ibidukikij yubahirizwa,
- Gushiraho imigabo n'imigambi yogabanurairihindagurika ry'ibihe n'uguhangana navyo
- gusuzuma intererano zose mu gisata c'ihindagurika ry'ibihe.
- Gukurikirana buri musi ishirwa mungiro ry'ihangiro rya leta ry'imikenyuro n'urutonde gw'ibikorwa bijanye n'ihindagurika ry'ibihe bivuye kubashigikizi batandukanye
- Gutsimbataza ubushakashatsi -terambere mw'ihindagurika ry'ibihe.

Iruhande y'ubushikiranganji bujewe ibidukikije, hariho ubundi bushikiranganji burabwa n'ibibazo bijanye n'ihindagurika ry'ibihe. Ubwo nabwo ni:

- Ubushikiranije bw'amazi, bw'amasoko ntanganguvu, ubutare n'agataka, burafasha mu cegeranyo kijanye n'ihindagurika ry'ibihe kuko nibwo bufise ibiharuro vyose vy'amasoko ntanganguvu ku gataka k'uburundi kose;
- Ubushikiranganji bw'amagara y'abantu n'ugukinga ikiza ruhonyanganda sida muvyo bujewe bishingiye kw'isuku, n'amategeko kubijanye n'amazi yo kunywa;
- Ubushikiranganji w'ubudandaji, amahinguriro n'igisata c'ingenzi muvyo bujewe birimwo integuro z'amahinguriro n'ihimiriza ry'abaserukira ayo mahinguriro gucunga n'ukugwanya irungikwa ry'imyuka ishusha ikirere;
- Ubushikiranganji bw'amabaraba, ibikorwa vya Leta, ibikoresho n'itunganya ry'isi bufise mu vyo bujewe ibitigiri vy'amamodoka ukwo zikora n'ingene zihungabanya ikirere;
- Ubushikiranganji bw'imigenderanire n'ibindi bihugu bwo bujewe gukurikiza ivyavuye mu masezerano mpuzamakungu atandukanye mu bijanye n'ihindagurika ry'ibihe;
- Ubushikiranganji bujewe ikigega ca Leta n'iterambere mu butunzi nabwo bujewe guterera imigambi yo kurindana n'ukugabanya ihindagurika ry'ibihe ndetse itanga n'uburyo bwa Leta mw'ishigwamungiro ry'amasezerano y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe;

- Ubushikiranganji bw'umutekano n'ugukinga impanuka bwo bujejwe gukinga impanuka zose harimwo izitumwa n'ihindagurika ry'ibihe;
- Ubushikiranganji bw'intwaro yo hagati, ugukundisha igihugu n'iterambere ryo mugihugu.

I.6.3. Uruhara rw'amategeko

Birakwiriye kumenyesha ko kuva ubushikiranganji bw'ibidukikije bubayeho mu 1988, Leta y'Uburundi yaciye itanguza urugamba gwo gutunganya amategeko ajanye n'ugukingira ibidukikije n'amasoko ntanguvu. Ayo nayo ni aya:

- Itegeko ry'ibidukikije ryemejwe n'ingingo n°1/010 zo kuwa 30 Ruhesi 2000
- Itegeko nshikiranganji n° 100/241 zo kuwa 30 Kigarama 1992 ryaraba itunganywa ry'amazi acafuye mu bisagara;
- Itegeko nshikiranganji n°100/292 zo kuwa 16 Gitugutu 2007 ryaraba ishigwaho, intumbero, ibigize, itunganywa n'ikoreshwa ry'umugambi w'igihugu wo gukinga impanuka;
- Itegeko n°1/17 ryo kuwa 15 Mukakaro 2016 ryerekana isubirwamwo ry'itegeko ry'amashamba ritunganya ikoreshwa ry'amatongo ya Leta canke y'amakomine.

Nubwo ayo mategeko yemejwe, ntaco yashitseko mu gisata c'ihindagurika ry'ibihe bivuye kw'ibura ry'izindi ngingo ziyaherekeza yo kuyashira mungiro mu ruhande rumwe, n'ukuba atashoboye kumenyeshwa abayarenga aho bari hose ku rundi ruhande. Mu mategeko mpanavyaha igihugu coshobora kwisunga kugira kigwanye ihindagurika ry'ibihe twoshiramwo amasezerano mpuzamakungu uburundi bwemeje. Ayo nayo ni : amasezerano y'ibihugu bihuriye hamwe kubw'ihindagurika ry'ibihe; amasezerano yo kugwanya ubugaragwa; amasezerano y'ibinyabuzima bitandukanye; amasezerano y'I Vienne yo gukingira igisenge namasezerano y'I RAMSAR ku bice vy'igihugu bibomvye.

I.7. Igwirirana ry'abantu n'ihindagurika ry'ibidukikije

Hariho isano hagati y'igwirirana ry'abantu, ubukene budahera bwo mu mitumba n'ihindagurika ry'ibihe, ivyo birasigura intererano ya Leta mu bijanye n'igwirirana ry'abantu. Hagati aho, intunganyo y'igwirirana ry'abantu irafise amategeko ngendegwako, haba mu vy'ubutunzi, ivy'intwaro, imibano, akaranga n'ibidukikije yemezwa n'ubutegetsu. Ishingiro nyamukuru niryo guhamagarira abarundi kumenyera guhindura imibereho yerekeza uguhinyanyura canke kugumizaho umurindi w'irondoka, ugupfa, ukwabirana canke ukwimuka kugira ngo ivyerekana igwirirana ry'abantu rishobora guterera canke kworohereza amahangiro yo kugabanya ubukene hisunzwe ukugwanya ihindagurika ry'ibihe.

Igwirirana ry'abantu mu Burundi ribonekera mw'irondoka rikabije riri ku rugero gwa 2,4% ku mwaka muri rusangi, inkurikizi z'irondoka riri ku murindi wo hejuru. Iryo gwirirana rirateye ibibazo bikomeye mu bijanye n'uburimi, ibidukikije, amagara y'abantu, indero, akazi, uburaro n'ibindi.

Ibarura ry'abantu n'ingo ryo 2008 n'amatohoza y'abantu n'amagara yabo vyo 2010 vyarekanye ingorane z'igwirirana ry'abantu Uburundi burimwo.

Izo ngorane nazo ni : umurindi munini w'abantu, uburemere bunini bw'abakiri bato, irondoka n'impfu biri ku gwego gwo hejuru n'umurindi w'igwirirana ry'abantu.

Nubwo uburundi ari buto (km² 27.834) n'imisozi yabwo ihanamye, bwari bugizwe nabantu bangana imiriyoni 11,2 mu 2016; ivyo bitigiri vy'abantu bituma Uburundi buba mu bihugu vya Afrika birimwo abantu benshi cane ku bitigiri vy'abantu 392 ku km².

Ivyo bitigiri birateye ubwoba aho usanga abantu 9/10 baba mu mitumba. Ibitigiri birengeje biratera ingorane nyinshi ku bidukikije n'amasoko ntanganguvu atuma haba ukutikwiza tw'uduce kama ku bijanye n'ihindagurika ry'ibihe n'imibereho y'ubuzima bwa kera ku bidukikije itacubahirizwa.

Inkurikizi mbi nyamukuru ziva kwiryo gwirirana ry'abantu zongeweko intambamyi ziva kw'ihindagurika ry'ibihe nizo zikurikira:

- Inyeniyagurwa ry'amatongo ndimwa ritera itituka ry'isi ndimwa bivuye ku murindi w'abantu canke ibibazo bishingiye kwikenwa ry'imvura. Uburinganire bw'isi ndimwa ku muryango bwavuye kuri ha 1,04 mu mwaka wa 1973 buja musu ya ha 0,5 mu 2009 ;
- Ugukoresha amatongo atabigenewe bituma twisanga mu nkurikizi zikabije z'inkukura bitewe n'ihindagurika ry'ibihe mu Burundi ;
- Igwirirana ry'indyanze z'amatongo rishingiye kw'igaburwa n'uburengere bifatiye ku mvura nyinshi itwara ikanateranya imirima y'abantu ;
- Itituka ry'ibidukikije, ibinyabuzima, n'inkurikizi zavuye ku kirere c'Uburundi ;
- Iyononwa ry'inyubakwa z'abantu canke rusangi nkurikizi y'ihindagurika ry'ibihe;
- Ugukingira n'ugusubiriza ibidukikije birabangamiwe n'itunganywa ry'amatongo, ihindagurika ry'ibihe n'ayandi mabi y'inzeduka.

Kurubwo, turatahura ko twisunze ugukingira ibidukikije, n'ikoreshe ritunganije neza ry'amatongo muguhangana n'igwirirana ry'abantu, bikiri ikibazo gikomeye kuri Leta n'intwari zo hasi. Nimwiye ntumbero hashizweho itegeko rigenga amatongo mu 2011.

I.8. Imigabane ituma habaho ihindagurika ry'ibihe

Twisunze ivyegeranyo bibiri vy'igihugu vya mbere kw'ihindagurika ry'ibihe niki ca gatatu uburimiye n'amasoko ntanganguvu niyo migabane nyamukuru y'imyuka ija gushusha ikirere mugihe igisata c'amashamba gifise uruhara rukomeye mu kugwanya iyo myuka. Ivyigwa vyagiye biratunganywa muriyo ntumbero vyarerekanye inzira zitari nke zotuma habaho igabanuka ry'iryo rungikwa ry'iryo myuka nuko hoba guhangana nihindagurika ry'ibihe, ariko nyinshi murizo ntizirashirwa mungiro.

I.8.1. Uburimyi n'ubworozi.

Uburimyi ni kimwe mu bisata bigeramiwe n'amabi aturuka kw'ihindagurika ry'ibihe kuko bushingiye kubihe vy'imvura. Twomenyesha politike y'igihugu mu vy'uburimyi yubu iterera mw'ishigwamungiro ry'imigambi yofasha mw'igabanuka ry'irungikwa ry'imyuka ishusha ikirere yico gisata hamwe n'ingingo z'uguhangana n'ihindagurika ry'ibihe biri mu vyegeeranyo kw'ihindagurika ry'ibihe bimaze gukorwa. Niyo ikurikira :

- Ugutezimbere ibigize imfungurwa z'ibitungwa n'ingene zikoresheha;
- Uguterintege itunganywa ry'umwavu n'ugukoresheha za nyabarega;
- Ukugwanya uguturira ivyatsi bivuyemwo ivyimbura ;
- Itanguzwa ry'uburimyi bw'ibitegwa bimara ikiringo gitoya nk'imboga, ubwoko bumwe bumwe bw'umuceri, ibiraya, ibitoke, ibizinu, n'ibindi ;
- Kuvomera imirima.

I.8.2. Igisata c'amasoko ntanganguvu

Uruhara gw'amasoko ntanganguvu mu Burundi rurerekana Igicapo y'urugezo gw'iterambere mu butunzi n'ubuhinga n'ikenya ry'ugushikira ibitungwa nayo masoko ntanganguvu na cane cane umuyagankuba.

Ukuronka amasoko ntanganguvu akwiye birakenewe kugira twitunganye mubijanye:

- i. N'ugutezimbere uburimyi n'ugushingura imyumbu;
- ii. N'ugucukura n'uguhingura ubutare;
- iii. N'iterambere n'igwizwa ry'ibikorwa ry'ubutunzi;
- iv. N'ikirere ciza c'ibikorwa vy' abikorera utwabo;
- v. N'iterambere y'amagara y'abantu hamwe n'indero y'ugwaruka

Mu Burundi, ishigwa mungiro ry'ayo mahangiro rirahanzwe n'ikenya ry'umuyagankuba. Ingingo z'igabanywa ry'imyuka zimaze gutangurwa gushigwa mungiro nizo zikurikira:

- Ikoreshwa ry'amashiga kijambere n'imbabura biziganya inkwi n'amakara;
- Itanguzwa ry'umuyagankuba utangwa n'izuba n'igwizwa ry'ingomero z'imiyagankuba.

I.8.3. Igaburwa ry'amatongo, ihindugwa ry'igaburwa ry'amatongo n'amashamba.

Uburundi burafise amashamba apima ha 172.000, agize ibice 7% vy'igihugu cose, murivyo bice, harimwo ha 103.000 zigizwe n'amashamba cimeza na ha 69.000 y'amashamba yatewe. Igitiri ca burimwaka c'ihungabanywa ry'amashamba kigera kubice 9%. Imvo ni cane cane ugutema ibiti vyo mwishamba babikoreshe nk'inkwi hamwe nukurondera isi ndimwa zishasha. Imiriro ya nyakanga nayo nyene irabica bigacika mu gihugu aho iturira buri mwaka ibice bitari bito vy'ibiti.

Ingingo z'igabanywa zibonekeje mu cegeranyo kigira kabiri kubidukikije kandi ziriko zirakurikizwa ni:

- Ukugwiza ibiterwa mbumbarugo n'itezimbere ry'ibiterwa bikingira isi;
- Ukugwanya inkukura;
- Ukwororera ibitungwa mu mazu;
- Ugukwiragiza amashiga n'imbabura biziganya amakara;

Icigwa gishingiye ku butunzi n'ihindagurika ry'ibiciro hashizwe mungiro ry'imigambi igabanya imyuka niyo guhangana n'ihindagurika ry'ibihe kirakenewe cabne kugira abarundi bose bahindure ingendo.

I.9. Ibisata bigeramiwe gose n'ihindagurika ry'ibihe

Ihindagurika ry'ingene imvura igwa n'igwirirana ry'ubushuhe birafise ingaruka mbi kukubaho kw'abantu mu Burundi. Ibisata bimaze kugaragara ko bigeramiwe cane ni:

- i. Uburimyi n'ubworozi,
- ii. Amagara y'abantu,
- iii. Amasoko ntanguvu,
- iv. Amasoko y'amazi, Inyubakwa, ugutwara abantu n'ibintu,
- v. ibinyabuzima bitandukanye (harimwo amashamba n'ibindi binyabuzima).

I.9.1. Igisata c'uburimyi

Mu gisata c'uburimyi, ingaruka mbi z'ihindagurika ry'ibihe zibonekeza mu nzira nyamukuru zibiri. Mu myaka cumi iheze, turabona igabanuka ry'umwimbu bivuye kw'iyononwa rya gose ry'imirima bivuye kw'invura nyinshi canke gukena kw'ayo, urubura hamwe n'imiyaga y'ibihuhusi myinshi. Mu mwanya wa mbere, hibonekeza uruzuba rurenze urugero mu ntara za Kirundo, Cibitoke, Bubanza, Makamba na Bujumbura. Kumwanya wa kabiri, imvura y'umurengera iratuma habaho izo nkurikizi mbi nkizo nyene zishingiye kw'iyononwa ry'imirima mu biyaya vy'Imbo canke mu misozi iciriritse yo hagati. Uruvura gw'umurengera, imiyaga ikaze hamwe n'urubura ntivyonona imirima gusa ariko iratuma isi itituka. Izo ngorane zishingiye kw'ihindagurika ry'ibihe zifise ingaruka mbi zo kugumizaho inzara idahera mu miryango myinshi n'ugufungura nabi guhinduka bukebuke ingorane y'ibonekeza ku magara y'abantu mu Burundi.

I.9.2. Igisata c'amagara y'abantu n'ugufungura

Igwirirana rikabije ry'ubushuhe, ikena ry'imvura canke imvura y'umurengera vyagumye bitera ingwara nyinshi z'ivyaduka zitegwa n'imigera canke ibindi. Imyuzurira idatorewe umuti n'ikama ry'amazi n'inkomoko y'ingwara ziturutse kw'isuku rike. Ingwara zifatiye kw'ihindagurika ry'ibihe ziba kandi ziri mu mugwi w'ingaruka z'ukutaronka amazi meza n'ukugwanya imigera kudakwiye.

I.9.3. Igisata c'amasoko ntanganguvu

Inkurikizi z'ihindagurika ry'ibihe mu gisata c'amasoko ntanganguvu zirakorwako ivyirwa kubera ingaruka zazo mbi kandi zirahungabanya ubutunzi bw'igihugu no kubidukikije, tutiriwe turavuga inkurikizi mbi zitandukanye ku buzima bw'imiryango yo mu bisagara. Izo nkurikizi zibonekeza cane cane Imukugabanuka kw'imvura ariyo ituma haba amasoko y'inzuzi, ingomero z'imiyagankuba zo mu Rwegura, ku Mugere, iMarangara, i Kayenzi, n'i Buhiga.

Kubera igwirirana rinyaruka ry'ibisagara mu Burundi ritaherekejwe n'amasoko ntanganguvu mashasha, ikoresha rirenze ry'ingomero z'umuyagankuba riyongereye ku nkurikizi mbi z'ihindagurika ry'ibihe n'ihonywa ry'amashamba vyacye bitera igabanuka y'i m 10 ry'urugezo gw'amazi yisuka mu rugomero mu 2008 aho dusanga vyegereye aho amazi ava, nukuvuga aho urugomero rureka gukora.

Aya masanamu ari musu yerekana igabanuka ry'urugezo rw'amazi yo mu RWEGURA n'ibirukikije ugereraniye n'udukono twagenewe kwakira amazi y'imvura.

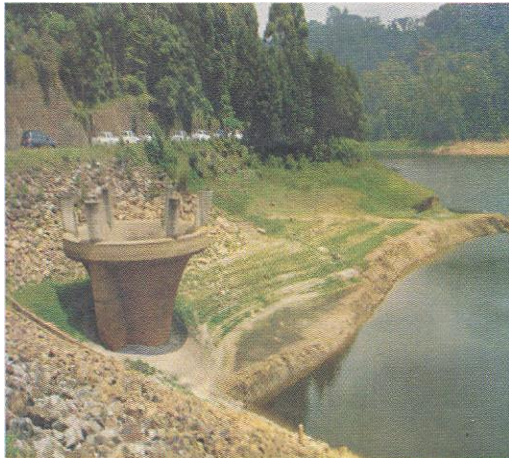
Isanamu ya 1: Urugero gw'urugomero gw'umuyagankuba gwo mu Rwegura mu 2004



Isanamu ya 2: Urugero gw'urugomero gw'umuyagankuba gwo mu Rwegura mu 2007



Isanamu ya 3: Urugero gw'urugomero gw'umuyagankuba gwo mu Rwegura mu 2008



Isanamu ya 4: Ugukama kw'ikiyaga cakira amazi y'urugomero gwa Rwegura mu 2008



Nico kimwe nuko urwo rugomero rwari rumeze muri Ruhuhuma mu 2017.

1.9.4. Igisata c'inyubakwa

Inkurikizi mbi z'ihindagurika ry'ibihe zirakora kandi ku nyubakwa bivuye ku mvura nyinshi cane ituma habaho imyuzurira, imiyaga y'ibihuhusi n'ukubomagarika kw'imisozi kandi rero ukubisubiriza bikaba bisaba uburyo bwinshi kubutunzi bw'igihugu. Aho rero, ububi n'igarukagaruka ry'amarushwa yiyadukana biguma vyiyongera mu Burundi kuva muri bino biringo bibiri vy'imyaka cumi cumi bivuye kw'ihindagurika ry'ibihe ryiyongera kw'itunganya ry'ibisagara ritateguwe neza, igwirirana ry'abantu ku mashamba n'itituka ryibonekeza ry'isi bitewe n'icukura ribi ry'ubutare n'agataka.

Ngaha twovuga ibomagarika ry'imisozi, imyuzurira ivuye ku nzuzi za Gikoma, Gasenyi/Gatunguru, Kijejete, Rutunga, na Nyaruhongoka mu myaka yikurikiranya ya 2014 na 2015 vyahitanye ubuzima bw'abantu barenga 100, tutiriwe turavuga imiryango yateshejwe

izabo. Amabarabara, amasoko, imiringoti itwara amazi canke intsinga n'ibiti vy' amatara, amashure namasengero vyarabomotse. Mu gisagara ca Bujumbura no mumicungararo yaho, imyuzurira n'ibomagurika ry' imisozi birabandanya n'ubu nyene kandi bikanatera ibomoka ry' amazu menshi abamwo abantu.

Isanamu ya 5: akarorero k'inyubakwa zigeze ahatemba mu gice ca kigobe



I.9.5. Igisata c'amasoko kama

Itunganywa ry' ibidukikije mu Burundi ririko rirahura n' ibibazo bikomeye nk' igwirirana ry' abantu riri kugwego ruhanitse rifatanye n' ubukene bw'urutavanako bwo mu mitumba muri rusangi; iyononwa ry' ibiti n' ivyatsi vyo mu mashamba; inkukura; uguhindura imyaba mu masi ndimwa nkayo kumitumba; ukwonona ibinyabuzima vyo mumazi; gucukura ubutare n'ama kariyeri bituma habaho ibihomoka; hamwe n' ihindagurika ry' ibihe rigaragazwa n' imyuzurira, ibomoka ry' imisozi, ubugaragwa burenze, n' ibiza vya malaria, mugiga n' izindi ngwara zandukira. Aho rero, mukwerekana ibigize isi y' Uburundi, dushima kugarukira kuri ibi bitatu nyamukuru:

a. Ugutema amashamba n' inkurikizi zavyo

Biramaze kugaragara ko ibidukikije mu Burundi bigeramiwe kuko amashamba yahora azwi uno musu ariko agirirwa ihungabanywa rikomeye cane. Nico gituma uguhonye amashamba cimeza nka Kibira n' ishamba cimeza rya Ruvubu nayandi, bisaba ukugaba kurenze kuko ihonywa ryayo riherekezwa n' inkurikizi kubidukikije zidasubirizwa zigatuma zisubiza inyuma iterambere rirama ry' igihugu.

Nk' akarorero uburinganire bwa Kibira, ishamba cimeza ngirakamaro bwahora bugereranywa na ha 50.000 mu gihe hashigwaho amategeko arikingira mu mwaka wa 1934. Aho haziye ishiramwe INECN mu 1982 ubwo uburinganire bwari bumaze kugabanuka bujya kuri ha 40.000. Ubu naho, uburinganire bw' ishamba cimeza rya Kibira ntibuzwi neza. Hagati naho hagereranywa uburinganire bungana na ha 10.000 gushika ku 12.000 zatakaye muriyi myaka cumi irangiye.

Kuriryo shamba gusa ishigwaho ry'ihinguriro ry'icayi ry'i Teza mu 1963 niyagurwa ryaryo ryabandaniye gushika mu 1977 ryagabanije ishamba ryimeza rya Kibira uburinganire bungana na ha 600. Ariko birazwi uno musu ko ishamba cimeza rya kibira ryerekana ubutunzi kama ngira kamaro ku Burundi kandi rigize ikigega nyacyo c'amazi kumigwi y'amasoko abiri ngirakamaro yo mu Burundi. Nukuvuga isoko rya Congo mu burengeru n'isoko rya Nil mu buseruko. Mugihe iryo tema ry' ikibira ryobandanya ku murindi waryo ukabije, amazi y'imvura temba yoba menshi cane ku mazi aya mukuzimu kandi vyogabanura cane gose igisenge co mukuzimu cegeranya amazi kikanagaburira amasoko menshi y'amazi mu burengeru n'ubuseruko bw' umurongo ugabura amazi yo mu Burundi Congo-Nil.

b. Itituka ry' isi ndimwa

Guhera mu myaka birongoye ibiri iheze, itituka ry'isi ryarafashe umurindi munini uteye ubwoba ku ruhande gw' urugomero gwishe gwa Nil mu Burundi. Bugize kandi umurindi uteye ubwoba ku bidukikije vy' Burundi twisunze umurindi w' inkukura mu matungo.

Umurindi w'igwirirana ry'abantu wibonekeje mu bice vyose vy'igihugu niyo n'inkomoko nyamukuru y'itakaza ry'amatungo cane cane uburyohe bw'isi. Turonka ingereranyo uno musu za t 400 kuri ha gushika kuri t700 kuri ha ku mwaka z' amasi yatwawe mu mitumba ihanamye. Nukuvuga ko birenga t1000 kuri ha mu misozi miremire. Ni nimwe mu mpamvu nkuru nkuru z'ubugaragwa mu Burundi. Itemwa ry'ibiti rishingiye kukurondera isi ndimwa ndetse n'ukurondera inkwi n'amakara vyo gucana mu mazu ntibihengeshanya kwongera ikibi mu kindi. Ugukoresha ibiti vyo gucana ku bantu biragabanyaga cane, mu buryo budasubirizwa ibiti n'amashamba ngirakamaro mu gukingira isi n'ugutanga akayagakeza. Imitumba ihanamye, ububi bw' ibihe na cane cane ibiterwa bidafuka isi biza bisonga isibye. 70% y'amatungo yo mu misozi ihanamye ntakingiye.

Umukenyenzi wo muhugu hagati nk' uwutunganya amatungo kama ku rwego rwa mbere yategerejwe kugira uruhara rubonekeza kandi gutanga mw' iryo tunganywa, ukubungabunga n'ugutunganya neza ibidukikije. Ariko ivyo bisaba ubumenyi n'inyigisho bikwiraye kugira ashobore kuba mubafata ingingo.

Ingorane iracariho mu bice bimwe bimwe vy'igihugu aho dusanga isi iguma irimwa ntiyigere irazwa.

c. Itituka ry' ibirere bibombye, ibiri kw' isi n'ivyo mu mazi

Itituka ry' ivyo birere bitandukanye bigize uwundi mwitwarariko ukomeye ku bidukikije mu Burundi.

Mu 1979, Uburundi bwari bufise imyamba ingana na ha 120.000 muriyo harimwo ibice 35% yariko irarimwa muri icyo gihe. Mu 1990 uburinganire bw' imyamba yarimwa bwagera ku bice 40%.

Mu mwaka wa 2000, imyaba yahinduwe amasi ndimwa yangana n'ibice hafi 70% vy'uburinganire bwose hamwe bw' imyaba. Nubundi, abarimyi bugarijwe n'inzara ntibahengeshanya kwihagira amatongo ya Leta bidaciye mu mategeko.

Ukuragira mu myaba mu gihe c'ici bituma isi itituka ivyatsi bigahona burundu. Amatongo y' akamaro abomvye yarononywe bivuye kugucukura ama carriyeri na cane cane ibumba ryo gukora amatafari, amatigura canke mu guhingura ibindi bikoresho vyo munzu nk'inkono. Inkurikizi z' iryo koreshwa ridatunganijwe ry' imyaba zirageramiye ibidukikije cane cane ukwuma kwiyo myaba gushingiye kw' ikena ry' amazi mu bibanza bimwe bimwe, ihungabanywa ry' ibinyabuzima bitandukanye hamwe n'itituka ry' isi bitera igabanuka ry'imyumbu.

Muri Bugesera ibinyabuzima nyamukuru bigizwe n'ibiyaga Cohoha, Rwihinda, Kanzigiri, Rweru na Gacamirindi.

Itegeko no 100/282 ry'uwa 14 Munyonyo 2011niryo rikingira ivyo biyaga aho ryasubiriye itegeko no 100/007 ryo ku wa 25 Nzero 2000 bishirahoikigo gikingiwe ca Leta n'amatunga kama ane. Ikiyaga rwihinda cagenderwa n'ingenzi nyinshi babanyamahanga n'abarundi baje kwihweza inyoni zinyimukira (migrateurs). Aho ziba harabangamiwe n'uburimyi impande y'ikiyaga n'ibura ry'invura mu myaka cumi iheze.

Ingorane zifatiye kw' ihindagurika ry' ibihe zaratumye habaho igabanuka ry' imyumbu y' uburovyi bivuye kwihindagurika ry' ingene ivyo binyabuzima bibayeho muri ibi biyaga bitumwe no kuduga kw' ubushuhe no gutosekara vy'amazi bitumwe n'inkukura, amase ya kijambere, n'ibindi bikoresha mu burimyi hamwe n'imicafu iva mu mahinguriro.

Inkurikizi zibabaje z'ikoresha ridatunganije ry'ivyo birere bibomvye, ivyo kwisi n'ivyo mu mazi, rishobora kuba umwumira w' imyonga n'ibiyaga, hamwe n'itakaza ntansubirizwa ry' amasi aryoshe, ry' ibinyabuzima n'ivyatsi.

I.10. Inkurikizi z' ihindagurika ry' ibihe ku butunzi w' igihugu

Ihindagurika ry' ibihe rirateye isibe ku butunzi bw'igihugu kubera bisubizinyuma bimwe biteye ubwoba inguvu z' ukwitezimbere mu mu bisata vyose bigize ubuzima bw' igihugu. Igihugu kiguma gihangana na vya nkenerwa vyinshi ku butunzi kandi vyihuta kugira bisubirize ibidukikije n'inyubakwa z'imibano n'ubutunzi zononywe n'ihindagurika ry'ibihe na cane cane kigira buhangane n'ibibazo vy' inzara n'ibiza bifata cane cane abantu batishoboye.

Kuva muri Nyakanga 2015, abantu barenga 4.000.000 batewe n'imvura y' isengenya, ikena ry' imvura, ibihuhusi biteye ubwoba, imyuzurira n'ibomagurika ry' isi. Izo ngorane z' ibihe zarononye ha 30.000 z' ibiterwa n'inyubakwa 500.000. Zarononye kandi inyubakwa z' amashure zirenga 300 n'ibiraro birenga 50.

Ibisata vyose ngirakamaro vy' igihugu c'Uburundi birakorwako n'amabi y' ihindagurika ry' ibihe. Rero, uguhangana n'ihindagurika ry' ibihe ryari rikwiye kuba nyamukuru ku gihugu kugira habeho ikingirwa ry' abantu. Hariho ubwambere umwumira ugumugaruka wamaze gutera igice kinini c'uburaruko bw' Uburundi. Mu buraruko bw' igihugu, mu mpera za 2005 n'intango ya 2006 umwumira waratangajwe ko ari ingorane ku gihugu cose kandi watwaye amahera

menshi cane angana na fbu 71.000.000.000 (n'ukuvuga hafi y'amafaranga y'amadorare y'abanyamerika angana 45.800.000) avuye mutwigoro tw'abanyagihugu.

Abateshejwe izabo kubwinshi bagiye mu Rwanda na Tanzaniya kugira barokore ubuzima ariko vyabaye inkurikizi y' ivyaduka mu Burundi.Imyuzurira n'ibomagurika ry' imisozi bituma habaho uruhombo ruteye ubwoba ku butunzi bw' Uburundi. Twokwibutsa ko imyuzurira yo muri Ruhuhuma 2014 yatewe n'inzuzi za Gasenya na Gikoma yononye vyose hamwe fbu 7.000.000.000 ku nyubakwa gusa (nukuvuga 0,18% ry'umwimbu wose wo mu Burundi). Mu 2015 imyuzurira ya Rutunga na Nyaruhongoka zarabaye amarushwa ateye ubwoba ku gihugu ihitana ubutunzi bungana na fbu 3.000.000.000 n'abantu barenga 1.400 baturatujwe.

IKIGABANE CA II. IBARURA RY'IMYUKA ITUMA IKIRERE GISHUHA KU GWEGO GW' IGIHUGU

II.1. Intangamarara

Iki kigabane cerekana ibarura c'ivyuka vy'imyuka mu kiringo ca 2000-2015 kandi gishingiye ku myaka yatowe 2000, 2010 na 2015. Categuwe hisunzwe ingingo za 4 na 12 z' amasezerano y'ibihugu vyo mw'ishirahamwe « ONU » bihurikiye hamwe kw'ihindagurika ry'ibihe n'intumbero yatanzwe kubihugu bikiri munzira y'amajambere (les non annexe 1), ku ntumbero kw'ihindagurika ry'ibihe vyemewe mu ngingo ya 17/CP.8. Iyo ngingo ivugako ivyo bihugu vyotanga inkuru mw'ibarura yavyo ku myuka batoye itari mu yunvikanyweko i Montréal, amasoko yayo (sources) n'ibishobora kuyishingura (puits) mu bushobozi buke bari bifise bakoresheje mw'itegurwa ryayo ubuhinga bwemewe kandi n'inama nkuru y'ibihugu vyashize inkumu ku masezerano.

Kugira bwemeze ivyo bwashizeko urukumu Uburundi bwaratanze icegeranyoca mbere ku bidukikije mu 2001 n'icakabiri muri ruheshi 2010.

II.2. Umwihwezo w'ibarura ry'ivyuka bishusha ikirere

Ibarura ry'igihugu ry'ivyuka bishusha ikirere bikomoka ku masoko ane:

1. Amasoko ntanganguvu
2. Itunganya ry'amahinguriro n'ikoresha ry'ivyahinguwe
3. Uburimi, amashamba n'irindi koreshwa ry'amasi.
4. Gutunganya imicafu.

Iryo barura ryokozwe ku bwoko bune bw'imyuka ishusha ikirere : umwuka bwa karubone(CO_2), uwa metane(CH_4) nuwa protoxyde ya azote (N_2O).

Ubuho bwakoreshejwe bwari bushimikiye ku ngingo ngenderwako za 2006 z'umugwi uhuza abahinga b'ama Leta mw'ihindagurika ry'ibihe (IPCC). I nivo yambere munzira yo guharura imyuka niyo yakoreshejwe.

II.3. Ibiranga ibigize intwari mu ncamake

Gkurikiranira hafi amasezerano y'ibihugu bihurikiye hamwe kubw'ihindagurika ry'ibihe ku rwego rw'igihugu bikorwa n' Ubushikiranganji bw'ibidukikije, uburimi n'ubworozi. Buciye ku biro vyabwo vy'Uburundi bijejwe gukingira ibidukikije vyaratunganiye integuro y'icegeranyo ca gatatu c'igihugu bufadikaniye n'ubundi bushikiranganji n'inzego z'igihugu n'abikorera ivyabo, inyigisho za kaminuza, n'amashirahamwe adakorana na Leta.

Imigwi ijewe itohoza y'imyuka ishusha ikirere yarashizweho kugira yegeranye ibiharuro kandi itange ibarura ry'imyuka bakoresheje I logiciel IPCC 2006.

Igiharuzo kigira kabiri kiri aho musi cerekana urutonde gw'ibigo vyari vyitavye integuro be n'ukwemeza raporo z'imigwi.

Igiharuzo ca 2: urutonde gw'ibigo vyari vyitavye integuro be n'ukwemeza raporo z'imigwi

Ibisata	Ibigo vyaterereye mu integuro ya raporo z'imigwi	Ibigo vyaterereye mu kwemeza raporo y'imigwi
Amasoko ntanganguvu	Ibiro bikuru vy'amasoko ntanganguvu n'ibiro vy'umushikiranganji ajejwe amasoko ntanganguvu	Ibiro bikuru vy'amasoko ntanganguvu n'ibiro vy'umushikiranganji ajejwe amasoko ntanganguvu Ibiro bijejwe amashamba
Amashamba	Ibiro bijejwe amashamba	Ibiro vy'umushikiranganji w'ibidudukikije, uburimyi n'ubworozi
Uburimyi	Ibiro bikuru bitunganya uburimwi n'ubworozi	Ibiro bikuru vy'itunganywa ry'uburimyi n'ubworozi
Amahinguriro	Ibiro vy'ibidudukikije n'ihindagurika ry'ibihe	Ibiro bikuru vy'uburimyi
IGutunganya micafu	Ibiro vy'ibidudukikije n'ihindagurika ry'ibihe	Ibiro bijejwe ugutabira isi Ibiro bijejwe igiterwa c'umuceri Ibiro bijejwe ibikaju Ibiro vy' ibidudukikije n'ihindagurika ry'ibihe Ikigo kijejwe imiyaga n'ibihe mu Burundi Ibiro vy'umushikiranganji w'ubudandaji n'amahinguriro Ubushikiranganji bw'indero, inyigisho za kaminuza n'ubushakashatsi Ishirahamwe ry'abanyabugenegene mu guhingura imicafu iva mu bimera Ishirahamwe ry'abakora amashiga y'ikizungu Ibiro bokurur bijejwe amasoko y'amazi n'isuku Ibiro bikuru bijejwe gukingira ibidudukikije mu Burundi Ibiro bijejwe amavuta atangwa n'ibigazi Ishirahamwe rihingura isukari mu Burundi Ishirahamwe rikora ibinyobwa birumije mu Burundi (BRARUDI)

II.4. Ukwegeranya ibiharuro

Ibiro bijejwe gukingtira ibidudukikije n'ihindagurika ry'ibihe ari naco kigo kijejwe ukwegeranya ibiharuro vy'ivyuka bitera ubushuhe mu kirere vyari bijejwe gukurikirana ibikorwa bijanye n'ukwegeranya ibiharuro, kugira umwidondoro w'amashiramhamwe yabigizemwo uruhara n'ugutegura igikorwa c'ukwongereza ubushobozi. Urugamba rw'ukwegeranya ibiharuro gwari rurongowe n'indongozi z'imigwi za buri gisata kirabwa niryo barura. Mu gihe ibiharuro bitaba biriho ku mugwi umwe canke uriya, vyaca bigereranywa hakoreshejwe umwihwezo w'abahinga.

Isuzuma ry'ubuhinga n'akanovera ryambere ry'ibiharuro ryakozwe mu mwiherero watunganijwe hagati mu gihugu kugira babikore atakibaciramwo.

Rero umugwi wose wararonka imyihwezo ivuye mu yindi migwi. Ishingire ry'ibiharuro vyashizwe muri nyabwonko ku ruhande gw'umugwi mpuzabihugu w'abahinga bajejwe ihindagurika ry'ibihe vyarashizweho mu gihe c'uruganda gw'isubiramwo ryatunganijwe mu 2019 n'umuhinga yatowe n'umugambi w'ibihugu bihuriye hamwe kubw'ibidukikije.

Ibigo vyari vyashizwe muriryo yegeranywa, umwihwezo, n'ukwandika ibiharuro bisunze i logiciel IPCC vyerekanywe mu giharuzo ca 2.

Umugwi w'abahinga bo mu gihugu bari bagizwe n'ibigo vya Leta bafadikanije n'abikorera utwabo, barateje imbere ubuhinga bwo kuronka amakuru. Ishigwaho y'imibonano n'ivyo bigo ryabaye ngirakamaro kugira habeho ibiharuro bitari vyarashizwe ahabona ubuheruka vyegeranijwe muntumbero z'igihugu gusa.

Igiharuzo ca 3: Ibigo vyaterereye mw' ibarurwa ry' ivyuka bitera ubushuhe ikirere

Igisata	umugwi	Igiharuro kinyegejwe c' umugwi n' izina	Imyuka/isoko/	Ubwoko bw' igikorwa
			Ikigega	
Amasoko ntanganguvu	Ibikorwa vyo guturira ibitoro	1.A.1- Amahinguriro y' umuyagankuba	Amahinguriro atanga umuyagankuba	Uguhinguraamazutu Lubrifiant Bagasse
		1.A.2- Amahinguriro akora ibintu n' ayubwubatsi	Ihinguriro zijejwe ugukora ibintu n'amashirahamwe yo kwubaka	Uguhingura esanse Ugucukura Peterori Ukuvanga esanse Ikaburimbo
		1.A.3- Ukwiyunguruza	Ukwiyunguruza (mu mabarabara, Mu mazi, mu kirere)	Uguhingura ibitoro/esanse Uguhingura petorori, amavuta, amazutu
		1.A.4- ibindi bisata	Amahoteri, ibitaro, ibigo vya gisirikare n' igipolisi, ubusho(pirizo), amashure y' uburaro, za kaminuza, imiryango, ama izine y' ivyuburimyi, amashirahamwe y' amamashini y'	Amazutu, peterori, amavuta, ibizuku, inkwi, amavuta y' amatara, amakara y' ibiti, ibitoro vya mazutu

Igisata	umugwi	Igiharuro kinyegejwe c' umugwi n' izina	Imyuka/isoko/	
			Ikigega	Ubwoko bw' igikorwa
			uburimyi, ibikorwa vy' uburovyi	
Ikora ry' amahinguriro n' ikoreshwa ry' ivyahinguwe	Ihinguriro ry' ubutare	2.A.2- Ugukora ishwagara	Ugukora ishwagara	Urugero gw' ishwagara ryakozwe
	Ihinguriro ry' ivyuma	2.C.1-Ugukora ivyuma	Uguhingura ubutare bwa fere na asiye	Urugero gwubwo butare gwahinguwe
Uburimyi, amashamba, guta nga amatongo kuco bijanye (AFAT)	Ubworozi bw' ibitungwa binini	3.A.1-Ukubozza ivyatsi	Inka, Intama, impene, ingurube, ibiguruka	Inka zikamwa Izindi nka Intama Impene Ibiguruka
		3.A.2 Itunganwa ry' umwavu	Inka, Intama, impene, ingurube, ibiguruka	Inka, Intama, impene, ingurube, ibiguruka
	Amatongo	3.B.1- Amatongo arimwo amashamba	Amatongo arimwo amashamba n' ihindagugwa ryayo	Ibiharuro kuburinganire bw' amatongo ya Leta n' ayabigenga vy' amatongo arimwo amashamba, ibiti
		3.B.2 - Terres cultivées	Terres cultivées et leurs conversions	bicibwa canke bikorehwa mu gucanwa. Ibindi biharuro birimwo uburinganire bw' amaragiyo, amatongo ndimwa, namatongo yahinduwe mu icukurwa ry' ibizuku.
		3.B.3-Amaragiyo	Amaragiyo n' ihindagurwa ryayo	
		3.B.4-Amatongo akanye	Amatongo akanye n' ihindagurwa ryayo	
	Amasoko yisanzuye n' amasoko y' irungikwa kwisi ritari iry' umwuka wa karubone(CO 2)	3.C.1- Amarungikwa aturuka kw' iturigwa ry' imicafu	Amatongo ndimwa aguma ari amasi ndimwa	Urugero gw' ivyatsi biturirwa mugihe co gukuraho amababi hakoreshejwe umuriro imbere yo kwimbura mu gice kirimwe ibikaju
		3.C.2- ugukora ishwagara	Ikorehwa ry' ishwagara mu burimyi	Urugero gw' ishwagara
		Ugukorresha i	3.C.3-Ikorehwa	urugero rwa urée

Igisata	umugwi	Igiharuro kinyegejwe c' umugwi n' izina	Imyuka/isoko/	
			Ikigega	Ubwoko bw' igikorwa
		fumbire (urée)	ry a urée mu burimyi	
		3.C4-Irungikwa ryihuta ry'umwuka wa azote(N ₂ O) bivuye ku matongo atunganijwe	Ikorehwa ry' intabire ya NPK mu burimyi	Urugero gwiyo ntabire ya NPK
		3.C.5. Irungikwa ritanyaruka ry'umwuka wa azote ku matongo atunganijwe	Ikorehwa ry' intabire ya NPK mu burimyi	Urugero gwiyo ntabire ya NPK
		3.C.6-Irungikwa ritihuta ry' umwuka waazote icunyunyu rituka kw' itunganywa ry' umwavu	Inka Impene Intama Ingurube Ibiguruka	Inka zikamwa Izindi nka Impene Intama Ingurube Ibiguruka
		3.C.7- Igiterwa c' umuceri	Iterwa ry' umuceri	Ibice vy'ukwimbura umuceri mu mwaka n' igihe c' imera ryawo
	Ibindi	3.D.1. ibiva mu mashamba	Ibiva mu mashamba n' ibikoreshe	Urugero gw' inkwi zaciwe
Imicafu	Ugukura imicafu igumye	4.A-Ugukura imicafu igumye	Ikigo co gukura imicafu idatunganijwe (imicafu igumye yo mubisagara)	Urugero gw' imicafu igumye
	Ihingurwa ry' amazi yumucafu nayo basheshe	4.D- Ihingurwa ry' amazi yumucafu nayo basheshe	Amazi acafuye yo mu mazu, amazi acafuye yo mu mahinguriro	Urugero gw' imicafu iseseka

II.5. Indondoro ntoya y'ubuhinga

Ibarura ry'ivyuka bishusha ikirere ku gwego gw'igihugu ritunganijwe ku buryo bitanga inyishu kubitegekanijwe n'amasezerano y'ibihugu bihuriye hamwe mu bijanye n'ihindagurika

ry'ibihe mubijanye n'ivyegeranyo vyo mubisata vyerekanywe muri section 2.2, kimwe kimwe murivyo kikaba kigabuwe mu migwi mitomito.

Irungikwa ry'ivyuka ubwo nyene vya (C_2O , CH_4 na N_2O) ntivyashotse bipimwa ariko vyaragereraniye bokoresheje uburyo butuma -baharura ivyuka vyarungitswe ku biharuro vy'igikwa/ uburyo kama bwibonekeza mu bisata bitandukanye nk'igitiri y'ibikoresho vyakoreshejwe mukugira haboneke umuyagankuba canke uburinganire bw'ishamba ukwo bumeze n'ikirere.

Igereranywa ry'irungikwa ry'ivyuka n'ingene bikwegwa mubigega canke amaribamubigega canke amariba vyaharuwe hisunzwe ingingo ngenderwako za IPCC 2006 muriyo ibiharuro vy'ibikorwa vyari vyagwijwe na factori z'irungikwa/ z'inunuzwa (facteurs d'émissions/absorption).

Uko bimeze, uburyo bwa mbere (niveau 1) busaba ibiharuro bitoya hamwe n'ibitigiri vy'irungikwa ry'ivyuka ryakozwe kenshi ngo bikoreshe ibihugu bitararonka ibiharuro vyavuye (par défaut). Hisunzwe umugwi n'igice c'inama w'umugwi mpuzabihugu w'abahinga GIEC, uburyo bwa kabiri (niveau 2) rukenera cane cane ibiharuro bisambuye canke les factori y'imyuka ikorewemu gihugu nyezina.

Uburyo bwa gatatu (niveau 3) butanga ibiharuro bisambaguye vyerekana inzira zose ku gwego gw'igihugu.

Ku cegeranyo ca gatatu c'igihugu c'Uburundi, ingero za 2 na 3 ntizageragejwe. Ukumenya vyinshi ku buhinga bwakoreshejwe vyerekanwa mu gice c'irungikwa ry'ivyuka kuri buri gisata.

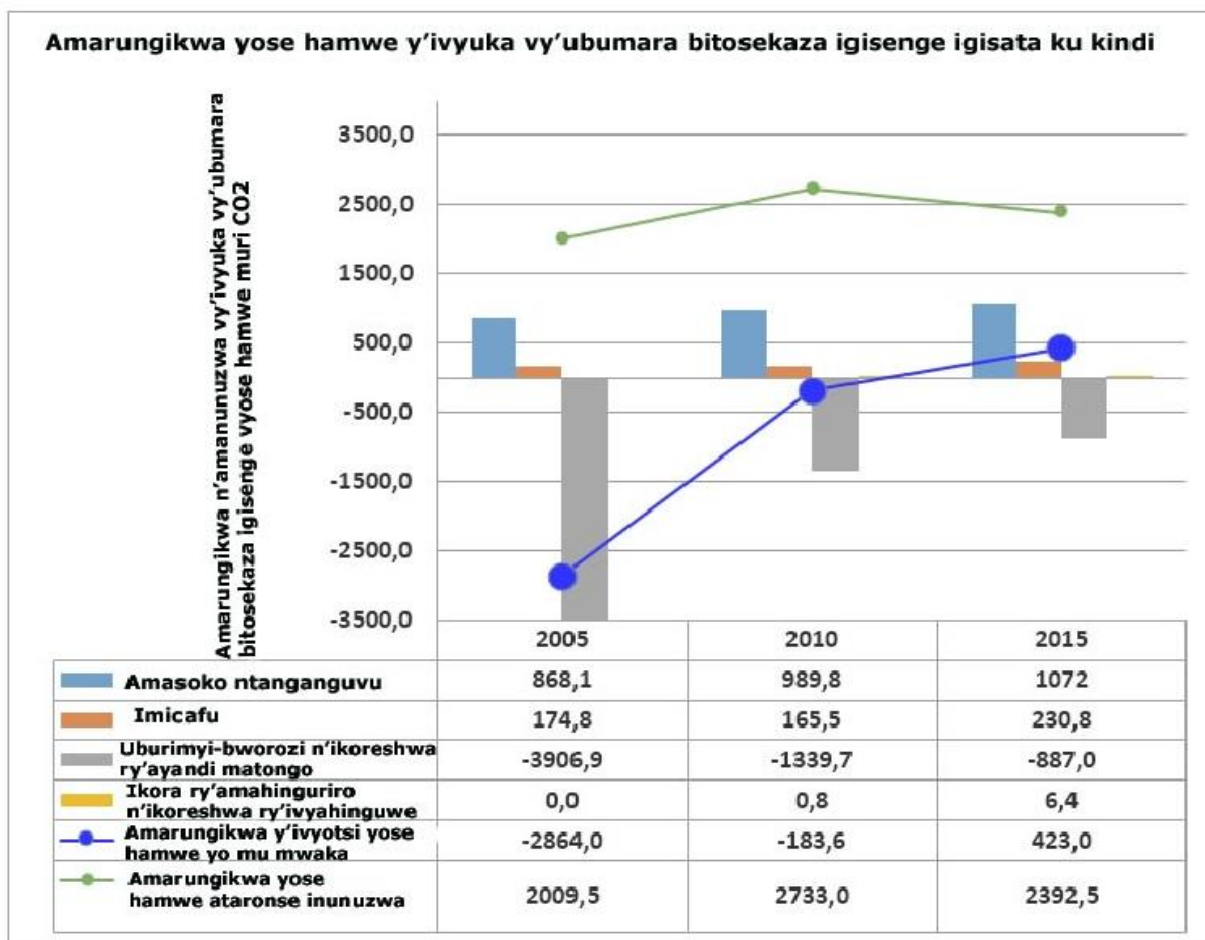
II.6. Incamake yingene imyuka ingana

Isanamu ya mbere iri musi yerekana ibitigiri vy'ivyirungikwa ry'ivyuka n'inunuzwa risambuye y'Uburundi hagati ya 2005 na 2015.

Irungikwa ry'ivyuka mukirere rirangwa n'igwirirana mugihe ibiharuro vy'ibinogo (ibigega) vyagabanutse. Tubiravye, irungikwa ry'ivyuka ku gwego gw'igihugu ryarongerekanye.

Kuriyo sanamu ya mbere nyene, twashobora kandi kumenyesha ko ibiharuro birebire vy'ivyuka mu 2010 zingana na $Gg\ 2733,0\ CO_2$.

Imvo nyamukuru y'iryo gwirirana ry'irungikwa n'iterambere ry'ubutunzi, itemwa ry'amashamba n'ihindugwa ry'amatongo arimwo amashamba n'amaragiro mu masi ndimwa vyibonekeje mu biringo vya 2005-2015. Nubwo birukwo, haribonekeje igabanuka ry'umurindi mu vy'ubutunzi mu myaka yegereye 2015 bituma habaho igabanuka ribandanya ry'ivyuka birungikwa mu kirere. Kandi, twisunze amakuru atandukanye, ibitigiri vy'iduga buri mwaka ry'umwimbu wo mu gihugu hagati vyari kuri 4,75% mu mwaka wa 1998 (umwaka w'ambere w'ibarugwa mu Burundi) ku bice 0,90 mu 2005; 3,79 mu 2010 na -3,90 mu 2015 bivuye ku ndyane zishingiye ku mibano na politike. Ibiharuro bigeranywe kuri ayo mabarura 4 ni 2.77. Ku biringo vyose, 1998-2017, ingereranyo y'umwaka ni 2,49.



Igicapo ca 5: Igerageza ry'irungikwa ry'ivyuka bishusha ikirere ku gisata

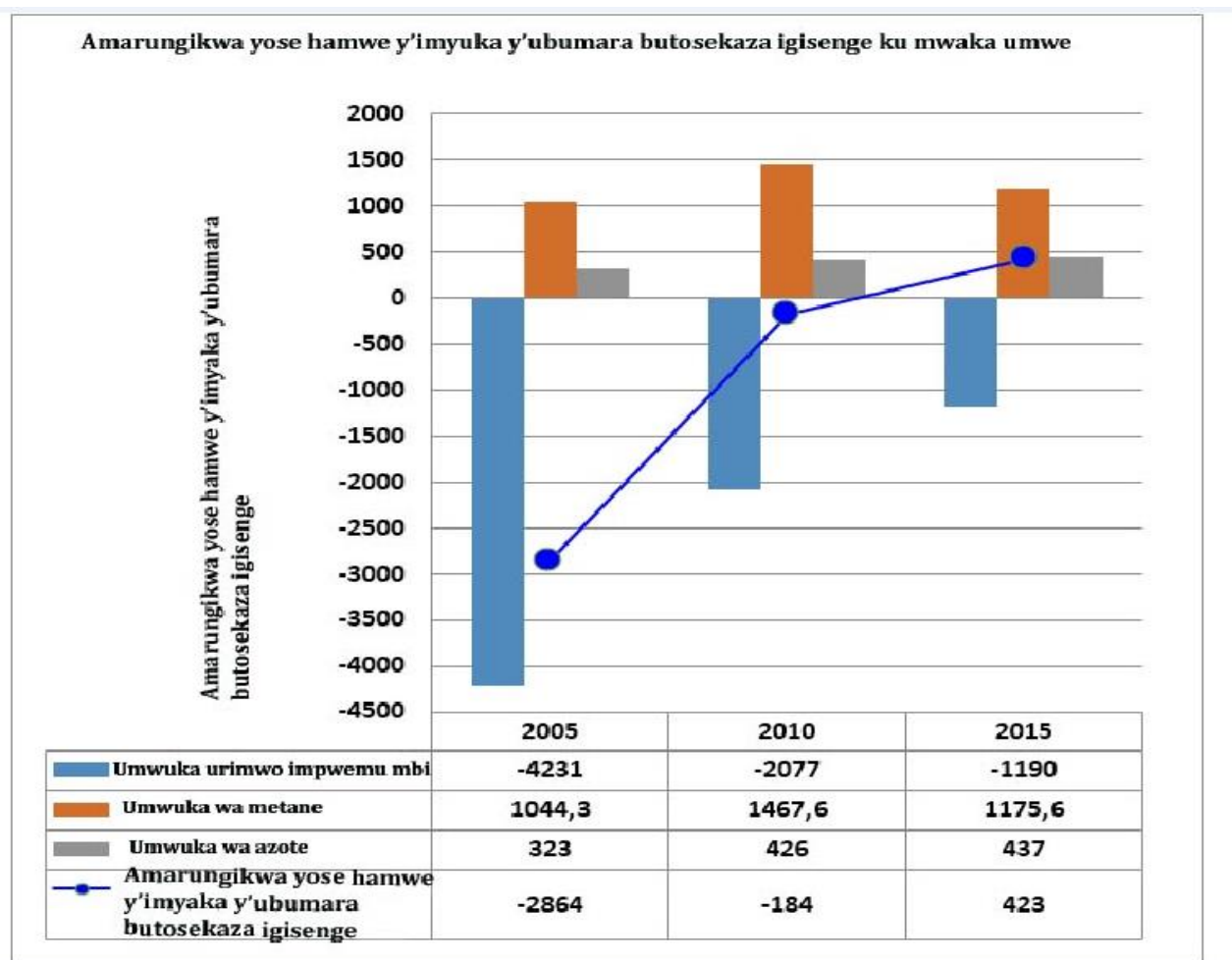
Ku gicapo ca 6 cerekeye imyuka biragaragarako karubone (C_2O) ari mwinshi, uri hagati ya Gg -4231 za ECO_2 na Gg -1190 za ECO_2 . Intererano nyamukuru kuriryo rungikwa ry'umwuka CO_2 ituruka kw'irima ry'amashamba n'ikoreshwa ry'ayandi matongo. Umwuka (CH_4) uza ku rugero gwa kabiri mu myuka irungikwa. Ibipimo vyawo vyangana na Gg 1.044,3 za ECO_2 mu 2005; Gg 1 467.6 za ECO_2 mu 2010 na Gg 1175.6 za ECO_2 mu 2015.

Intererano nyamukuru ituma habaho umwuka wa CH_4 n'uburimyi, itemwa ry'amashamba n'ugukoresha nk'isi ndimwa ayandi matongo atagenewe kurima. Iryo bituma twemeza ko igisata ca mbere mu burundi kirungika umwuka wa CH_4 ari uburimyi, ugutema amashamba n'ugukoreshwa nk'isi ndimwa amatongo atari yarabigenewe, hagakurikira amasoko ntanganguvu. Umwuka ugira gatatu urungikwa ni N_2O n'intererano zavyo zituruka ku micafu, (umwihwezo n'uguta imicafu) n'amasoko ntanganguvu n'ibiturigwa.

Irungikwa ry'icuka ca CO_2 riguma ari riri musi y'ubusa, bisugura ko uburundi ari ikinogo (ikigega) kuva 2005 gushika 2015. Ariko, ibiharuro vy'ibinogo mu Burundi vyaragabanutse ibice birenga 40% kuva mu 2005 gushika 2010 hanyuma ku bice bingana na 32.45% kuva mu 2010 gushika mu 2015. Kubijanye n'umwuka CH_4 wariyongereye ku bice 40,5% kuva mu 2005 gushika mu 2010 hama ugabanuka ku 19.9% mu 2015. Mu guheraheza, kuri N_2O carinyongereye

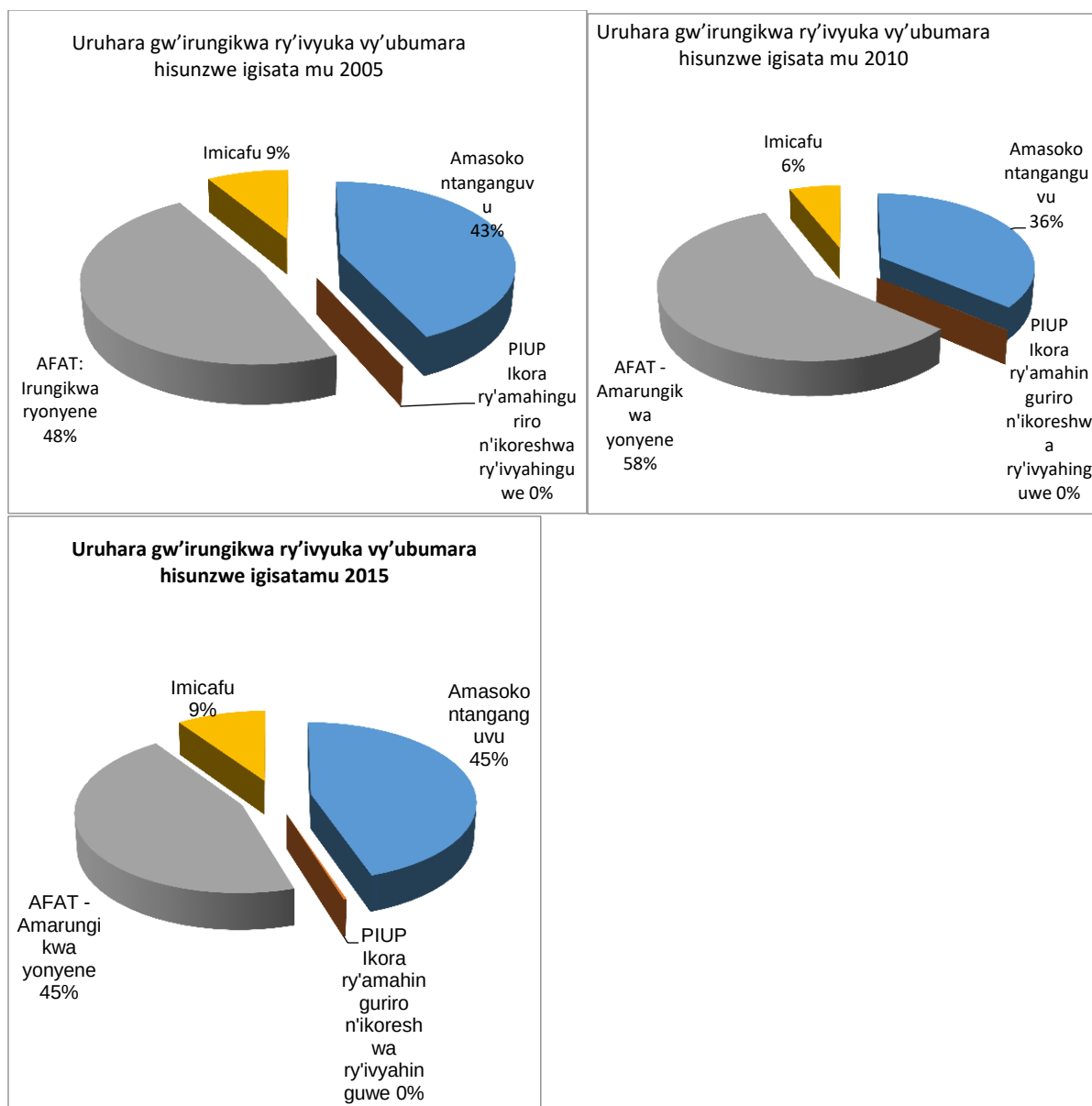
ku bice 32% kuva mu 2005 gushika mu 2010 hama ku bice 2.6% kuva mu 2010 gushika mu 2015.

Biramenyeshejwe ko iduga ry'irungikwa ry'ivyuka kuva mu 2005 gushika mu 2010 vyibonekeza kandi mw'igwirirana ry'imyuka murico kiringo nyene. Nkukwo bisiguwe aho musu, ivyo bifatanya iduga ry'ubutunzi n'itema ry'amashamba.



Igicapo ca 6: Igeregeza ry'irungikwa ry'umwuka dufatiye ku myuka

Mu bijanye n'irungikwa rishingiye ku gisata (igicapo 7), uruhara bw'uburimy, amashamba n'irima ry'amtongo atabigenewe (irungikwa ryo nyene) vyavuye ku bice 48% biza ku bice 58% mu 2010, hama bigabanuka ku bice 45% mu 2015. Uruhara gw'igisata c'amasoko ntanganguvu cavuye ku bice 43% kiza ku bice 36% mu 2010, hama bishikira ibice 45% mu 2015. Uruhara gw'igisata c'imicafu ruri hagati y'ibice 6 % n'ibice 10%, mu gihe ibikorwa vy'o mumahinguriro n'ikoresha ry'ivyahingwe vyerekana ibice biri musu ya 1% y'irungikwa ryose hamwe ry'ivyuka.



Igicapo ca 7: Uruhara gw'irungikwa ry'ivyuka bishusha ikirere ku gisata

II.7. Ukwihweza imigwi nyamikuru

Umwihwezo w'imigwi nyamikuru warakozwe kugira haboneke ibisata binini na bitobito n'ivyuka bihambaye mw'ibarurwa kandi bisabe ubwira bukwiye mu biharuro vyavyo.

Iki cigwa ni urutonde gw'imigwi yose ifise irungikwa ry'ivyuka ringana n'ibice 95% y'ibarura ryose, iyo biteranijwe hisunzwe urutonde kuva kuri kinini uja kuri gitoya.

Icigwa c'imigwi nyamukuru hisunzwe uburimyi, amashamba n'ikoresha ry'ayandi matongo mw'inunuzwa ririmwo ibinogo vyojamwo umwuka wa karubone (amashamba) birimwo ibitigiri bijanye n'ingereranyo y'inunuzwa ry'uwo mwuka mu gice c'uburimyi, amashamba n'ikoresha ryayandi matongo, hisunzwe ibitigiri bizwi neza hatiriwe harisungwa ubwoko (amanumuzwa agereranywa musi yubusa).

Hisunzwe imigwi yakoreweko mu myaka 3 y'ibarura: 2005, 2010 na 2015, twashobora kuvuga ko imigwi indwi yatowe nka mikuru mu Burundi. Iyo nayo irimwo:

- (i). amatongo asigayemwo amashamba;
- (ii) iyindi migwi- amasoko ntanganguvu (CH_4 na N_2O);
- (iii) amatongo yahinduwe amasi ndimwa;
- (iv) ibora ry'ivyahambwe;
- (v) irima ry'umuceri;
- (vi) ibikomoka ku biti;
- (vii) ukwiyunguruza mu mabarabara.

Ibisobanuye biri mu giharuzo ca 4 kiri aho musi no muri annexe ya 2 inyuma yiki cegeranyo.

Igiharuzo ca 4 : Ivyavuye mu cigwa co kuraba imigwi nyamukuru

Imfanyiko z'imigwi y'umugwi mpuzabihugu GIEC	Imugwi ya GIEC	Imyuka uri mu mugwi	2005	2010	2015
3.B.1.a	Amatongo arimwo amashamba Yagumye ari amashamba	umwuka wa CO_2	X	X	X
1.A.4	iyandi migwi- amasoko ntanganguvu	umwuka wa CH_4	X	X	X
3.B.2.b	amatongo yahinduwe amasi ndimwa	Umwuka wa CO_2	X	X	X
3.A.1	ibora ry'ivyahambwe	Umwuka wa CH_4	X	X	X
3.C.7	Irima ry'umuceri	Umwuka wa CH_4		X	X
3.D.1	ibikomoka ku biti	Umwuka wa CO_2	X	X	X
1.A.4	iyindi migwi- amasoko ntanganguvu	Umwukawa CH_4	X	X	X
1.A.3.b	ukwiyunguruza mu mabarabara	Umwuka wa CO_2		X	X

II.8. Ingene imyuka yifashe ku gisata kimwe kimwe

II.8.1. Igisata c'amasoko ntanganguvu

Igisata c'amasoko ntanganguvu mu Burundi kigizwe cane cane n'ikoreshwa rikabije ry'ibiti bikoreshwa nk'inkwi canke amakara haba mu gihugu hagati canke mu bisagara. Iyo migwi ibiri y'amasoko ntanganguvu igira yonyene ibice 96,7% y'urugezo gw'amasoko ntanganguvu ku gwego gw'igihugu. Ubundi bwoko bw'amasoko ntanganguvu bigira ibice 3,3% bikaba bigizwe n'ibiva mu bitoro bingana na 2,5 %, umuyagankuba 0,5% n'ibisigaye (ibiva kw'izuba, ibiva mu mase imisarani, ibizuku) ntibirenza ibice 0,3%.

Igisata c'amasoko ntanganguvu kiza ubugira kabiri mu kurungika ivyuka bishusha ikirere havuye igisata c'uburimi, amashamba n'ikoreshwa ry'ayandi matongo. Akagwi "amasoko ntanganguvu n'ibindi bisata" birimwo ikoreshwa ry'ibikomoka kuyandi masoko ntanganguvu (nk'ugukinjika) mungo, n'ibigo vya Leta kandi bitwara igice kinini cane c'irungikwa ry'ivyuka riri hagati y'ibice 87% na 89% mu kiringo ca 2005-2015. Mu bijanye n'ugukinjika, igice kinini c'abantu batanzwe n'inkwi z'ugucana hamwe n'amakara ava mu bito. Igwirirana ry'irungikwa ry'ivyuka murako kagwi nukuvuga mu gisata c'amasoko ntanganguvu muri rusangi rifatanye kuvyaho tubayemwo vya misi yose.

Mugutora imyuka iva mu gisata c'amasoko ntanganguvu, ubuhinga bwakoreshejwe bworonderewe mu gitabu ca 2 c'ingingo ngenderwako za IPCC 2006 c'umugwi mpuzabihugu w'abahinga mu bijanye n'ihindagurika ry'ibihe. Twisunze ivyo, ibiharuro vyatowe ku ngezo (niveau) imwe imwe birerekana ngaha musu:

Igiharuzo ca 5: Idondoro ry'ibiharuro bivanye n'ingezo

Ingezo	Ubwoko bw'ibiharuro	Imyihwezo
Ingezo ya 1	- Ibiharuro ku rugero gw'ibiturirwa - Facteri y'imyuka yatanze ku bihugu bitagira ibiharuro vyavyo	Ivyo biharuro vyarakoreshejwe
Ingezo ya 2	- Ibiharuro ku rugero gw'ibiturirwa - Facteri y'imyuka yatowe mugihugu nyene	Izo mvo ntizibaho mu Burundi
Ingezo ya 3	- Ubwoko bw'ibiturigwa-ubuhinga bw'uguturira - Amategako y'ikoreshwa - Ubuho bw'isuzuma - Akanovera k'ishigikira - Imyaka y'ibikoreshe bikoresha mu guturira ibitoro	Ubwo bwoko bw'ibiharuro ntibubaho mu Burundi

Nubwo igisata c'amasoko ntanganguvu gifise imigwi ibiri irekura imyuka ku gwego gw'igihugu, igisata c'amasoko ntanganguvu cakoresheje intambwe ya 1 murizo ntambwe 3 ziri hejuru.

Ingezo ya 1 niyo yakoreshejwe hisunzwe ingingo ngenderwako za IPCC2006.

Mu gisata c'amasoko ntanganguvu, imigwi mitomito ikurikira yarisunzwe ku ngereranyo y'irungikwa ry'ivyuka vy'ubumara mu kirere:

- Ibiturirwa biguma mu kibanza kimwe;
- Amahinguriro ashingiye ku masoko ntanganguvu;

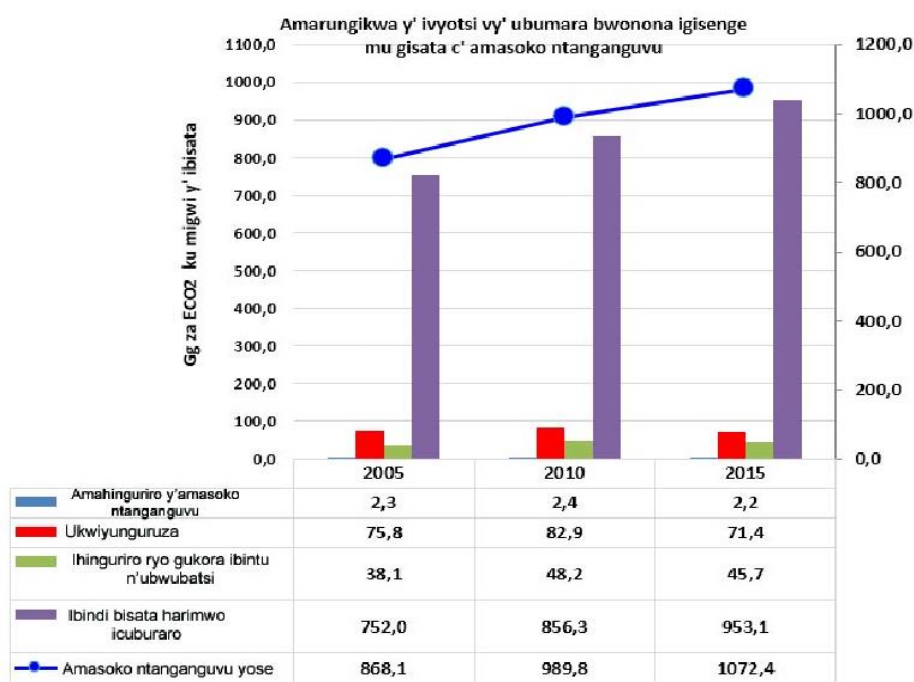
- Amahinguriro y'ugukora n'ukwubaka;
- Igisata c'ubudandaji n'amategeko;
- Igisata c'uburimy, amashamba n'uburovyi;
- Igisata c'ingo n'imiryango;
- Ibiturigwa bituruka ku gutwara abantu n'ibintu

Ibiharuro vyatanzwe mu ngero z'uburemere, ariko ivyo biharuro nyene bitegerezwa guhindugwa mu ngero z'ugupima umuyagankuba ari nazo uwo mugwi wakoreshejemwo ingingo z'ihindugwa ziri mu ngingo ngenderwako zo 2006, igitabu ca 2, ikigabane ca 1 n'igiharuzo ca 1.2. Tugereraniye ni facteuri z'imyuka zerekanywe mu ngingo ngenderwako z'umugwi mpuzabihugu w'abahinga mu bijanye n'ihindagurika ry'ibihe zo mu 1996, facteri zimwe zimwe zari mu ngingo ngenderwako z'uwo mugwi mpuzamakungu w'abahinga mu bijanye n'ibidukikije wo mu 2006 ni nshasha, mu gihe izindi zasubiwemwo.

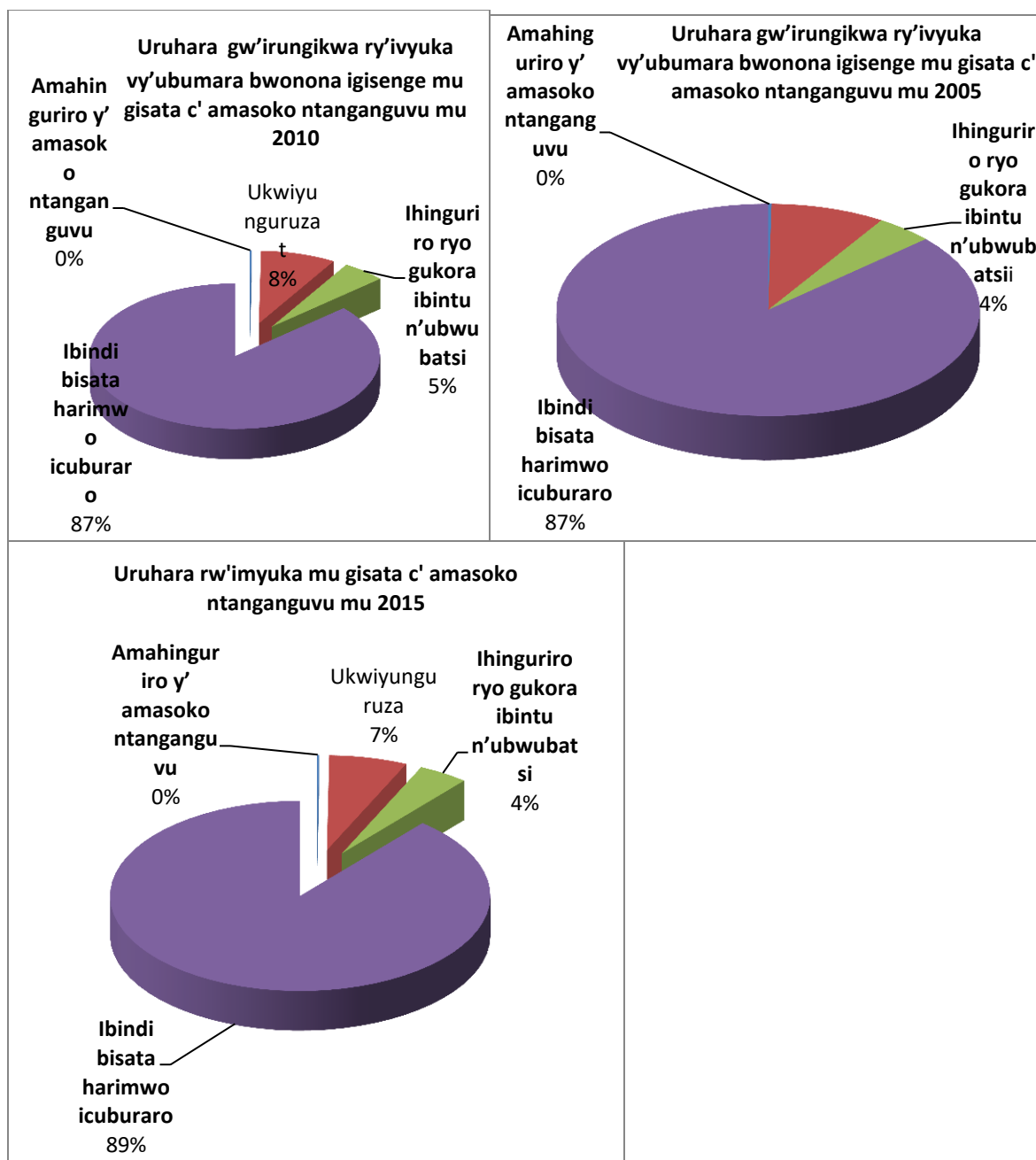
Imyuka iva mu gisata c'amasoko ntanganguvu irahinduka ku bice Gg 868,1 za ECO2 gushika kuri Gg 1072,4 za ECO2. Umurwi w'ibindi bisata w'amasoko ntanganguvu, niwo niwo utuma imyuka iba myinshi muri ici gisata. Iyo myuka ari hagati ya Gg 752 za ECO2 gushika kuri Gg 953 za ECO2 vyerekana 87% gushika kuri 89% y'imyuka yose y'umuyagankuba. Naho idashitsa 10%, uruhara rwa kabiri rw'imyuka ruva mu gace gatoya k'ugutwara abantu n'ibintu. Imyuka muri ako gasata iravana n'ihindagurika ry'ubutunzi bw'igihugu. Rero, kuva 2005 gushika 2010, iyo myuka yiyongereye kuva kubice Gg 75,1 za ECO2 gushika kuri Gg 82,8 za ECO2 hanyuma rigabanuka gushika kuri Gg 71,4 za ECO2. Nko mu kagwi k'igisata c'ugutwara abantu n'ibintu, imyuka ivuye ku mahinguriro akoribintu n'ubwubatsi (umugwi ugira gatatu urungika imyuka kuva kubice 4 gushika kubice 5%). Vyariyongereye ibice bingana na Gg 38,1 za ECO2 gushika ku bice Gg 48,2 za ECO2 hanyuma biragabanuka kubice Gg 45,7 za ECO2.

Akagwi gatoya k'amahinguriro-y'amasoko ntanganguvu niko kanyuma kagira Gg 2,2 gushika kuri Gg 2,4 za ECO₂ no musu ya 1% turavye igisata c'amasoko ntanganguvu muri rusangi.

Ibicapo vya 8 na 9 ngaha musu vyerekana ingene imyuka ingana yutwo tugwi tugwi.



Igicapo ca 8 : Uruhara w'imyuka ku gisata c' amasoko ntanganguvu



Igicapo ca 9 : Uruhara gw'irungikwa ku gisata c'amasoko ntanganguvu

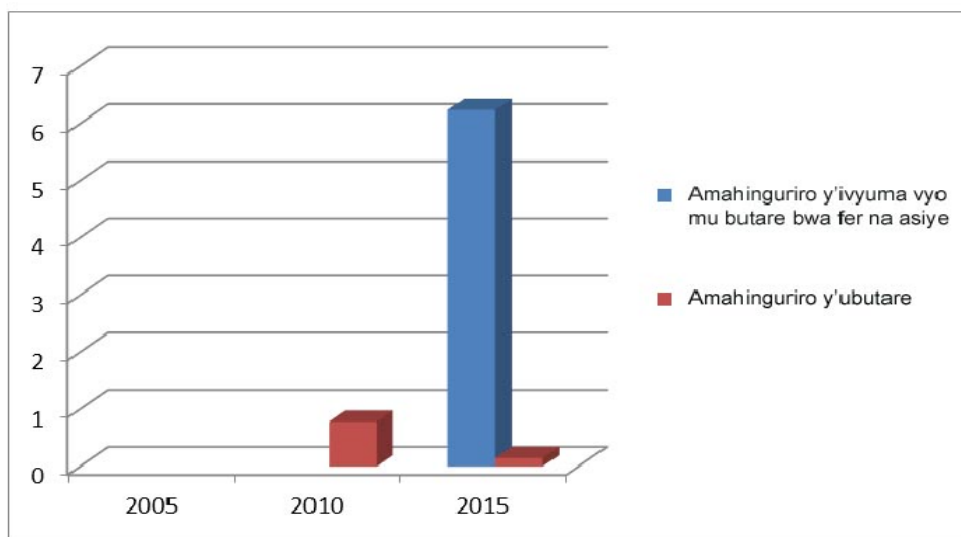
II.8.2. Igisata c'amahinguriro n'ikoresheya ry'ivyahinguwe

Igisata c'amahinguriro co mu Burundi kiraba cane cane amahinguriro y'uburimi n'ubworozi, amahinguriro y'ivyuma, amahinguriro y'ubutare hamwe n'umugwi y'amashirahamwe matomato n'ayagereranye. Muri ayo mashirahamwe harimwo ishirahamwe rihingura isukari

(SOSUMO), ishirahamwe rihingura ibinyobwa (BRARUDI), ishirahamwe rihingura ishwagara n'isima (BUCECO). Imyuka ivuye kw'ihingurwa ry'isima n'ishwagara ntiriharurwa ibikoresho (clinker na machefer) bakoresha muri ayo mashirahamwe biva hanze y'igihugu.

Ico gisata ntikiri nyamukuru mumyuka. Ibarura ry'imyuka murico gisata wisunze ingingo ngendrwo za IPCC2006.

Ico gisata nico canyuma mu Burundi mubijanye n'imyuka ishusha ikirere. Ni imigwi mikeya cane murico gisata irungika ivyo vyuka mu kirere kandi irungikwa rikabije ryangana na Gg 6,4 za ECO2 mu mwaka w' 2015 (igicapo ca 10). Gushika ubu, imigwi ibiri ariyo yiye: amahinguriro y'ivyuma hamwe namahinguriro y'ubutare niyo ivamwo imyuka ingana na Gg 6,2 za ECO2. Igisata c'ivuma kikaba ari icambere co mw'ikora ry'amahinguriro n'ikoreshwa ry'ivyahingwe ibitigiri vyaco bikaba vyegeranijwe mu mwaka wa 2015.



Igicapo ca 10 : Imyitwarire y'irungikwa ry'ivyuka vy'ubumara y'igisata c'ikora ry'amahinguriro n'ikoreshwa ry'ivyahingwe

II.8.3. Igisata c'uburimyi, amashamba n'irindi koreshwa ry'amatongo

A. Idondorwa ry'uburimyi mu Burundi

Ubutunzi bw'uburundi bushingiye cane cane ku burimyi bw'imfungurwa, bukorwa n'umugwi munini w'abanyagihugu (ibice birenga 90% vy'abarundi bose), inyenyezagurwa ry'amatongo (rigereranywa na ha 0,5/ ku muryango) n'umwimbu mukeya cane. Mu gihe c'imyaka cumi irangiye, haribonekeje impinduka nziza mu butunzi ariko bwagumye bugoyagoya twisunze umwimbu wo hagati mu gihugu wamafaranga y'abanyamerika angana na 286 mu 2014-2015 (icegeranyo c'umugambi w'igihugu wo gushigikira uburimyi wa 2015). Twisunze icegeranyo gifatiye kw'iterambere ry'umunyagihugu (IDH) muri 2017, intambwe y'ubukene ntiyahindutse kuva mu 2006 gushika mu 2015 (IDH=0,404 mu 2015 ryagiye kuri 0,270 mu 2016 kandi igihugu cari mu kibanza c'184 ku bibanza 186 vy'ibihugu vyo kwisi yose).

Aho rero, urugero gw'ukwiyongera ry'umwimbu uva mu burimyi (2%) ruri musu y'urugero gw'igwirirana ry'umwimbu (2,6%). Kandi hafi ya 75% vy'abantu babayeho mu bukene (musu y'ifaranga 1 ry'abanyamerika kumuntu kandi kumusi) n'ibice 85 y'imiryango baguma bugarijwe n'ubukene bw'ibifungurwa (icegeranyo c'icigwa c'umugambi w'igihugu ujejwe gushigikira uburimyi wo muri 2015).

Ubworozi bufise ikibanza nyamukuru mu burimyi bw'Uburundi. Igihugu giharura hafi 1.200.000 y'abarimyi muribo 700.000 bakaba bakora ubworozi. Muri abo barimyi 20% barafise inka, 45% ibitungwa bitobito, 5% ingurube abasigaye bafise ubworozi buvanze (icegeranyo c'ubworozi bw'inka n'inkwavu, FBI 2013).

B. Idondorwa ry'amashamba n'irindi koreshwa ry'amatongo

b. 1 Amatongo agizwe n'amashamba

Mu bijanye n'ivyuka ishusha ikirere n' iyibikwa mu bigega (puits) ku matongo, hariho imigwi 5 mu Burundi:

- (i) Amatongo agizwe namashamba ;
- (ii) Amasi ndimwa ;
- (iii) Amatongo y'uburagizi n'imyaba ;
- (iv) Amatongo yo kubamwo ;
- (v) Ahantu hari amazi (cane cane imyonga, ibiyaga n'inzuzi) .

Mu Burundi dufise ubwoko bubiri bw'amashamba nukuvuga amashamba cimeza n'amashamba yatewe. Amashamba cimeza yose hamwe angana na ha 240.716, nukuvuga ibice 8,6% vy'uburinganire bw'igihugu cose (Ubushikiranganji bw'amazi, ibidukikije, ugutunganya amatongo n'ibisagara 2013), mugihe umugwi ugira kabiri wegera ha 128.375, canke 4,6% (Umukenyuro w'igihugu n'intunganyo y'ibikorwa vy'igihugu 2013). Ibityi bijanye n'indimo, imboga, ibityi vy'ivyamwa n'ibindi bityi bigize ha 65.000.

b.2. Amasi ndimwa

Amasi ndimwa agizwe n'ibiterwa mbumbarugo n'ivyo gushora haba mu myonga canke ku mitumba. Mu burunganire, ibitegwa mbumbarugo vyo ku mitumba bitwara 30% vy'uburinganire bw'igihugu cose, ibiterwa njabukamazi 4%. Imyaba irimwa itegwamwo ibiterwa ingana n'ibice 3%. Ayo masi aramara. Ariko 36% y'amatongo arimwo icunyunyu kibi. Mu ntumbero y'ukugwanya ukumera guke kw'amatongo n'ikenye ry'umwavu, abarimye bongereza amasi ndimwa amatongo yagenewe ibindi bikorwa. Baranakoresha kandi ifumbire y'ikizungu. Mu ntumbero yo kugabanya ububi bwayo matongo, bakoresha ishwagara. Ivyo vyose bituma habaho inkomoko y'irungikwa ry'umwuka mubi wa karubone.

b.3. Amatongo y'ukuragiramwo n'ivyatsi bifuka isi

Ayo matongo yagenewe uburagizi bw'ibitungwa, kandi usanga kenye agizwe n'ivyatsi vyinshi. Ariko amatongo amwamwe arafise ibityi bikebake. Amatongo y'uburagizi agize ibice 28% vy'isi yose y'uburundi nukuvuga ha 779.352 (ubushikiranganji bw'uburimye n'ubworozi 2008). Amashyamba agizwe n'ubwoko bw'ivyatsi butandukanye.

b.4. Amatongo y'ukubamwo

Ukuntu abantu babayeho, uburinganire bw'amazu, ibikoreshe vy'ukwubaka biratandukanye bivanye nukwo umuntu aba mu mitumba canke mu gisagara canke bivanye n'intara umuntu abayemwo. Hisunzwe amatohoza yakozwe kugira hamenyekane uburinganire bw'amatongo arimwo amazu, vyaragaragaye ko ata gisata nakimwe c'igihugu gifise ibiharuro bijanye n'uburinganire burimwo amazu. Mu mitumba, uburinganire burimwo amazu buharugwa mu masi ndimwa mugihe ibisagara bitwara niburiburi ha 25.000.

b.5. Amatongo arimwo amazi

Amatongo akanye agizwe n'imyaba irimwa niyitarimwa. Igice gitoya c'imyonga irimwo amazi kirakingiwe mu gihe iyisigaye ikoregwa uburimwe, ugucimbura ibumba n'ibizuku.

Uburinganire bwose hamwe bw'imyonga bugereranywa na ha 26.021 (ubushikiranganji bw'amazi, ibidukikije, itunganywa ry'amatongo n'ibisagara 2000). Imyaba ikingwiye igizwe na ha 7.113 harimwo ha 379 zihereye muri parike ya Ruvubu na Rusizi. Mu buduga, imyaba yahindutse ibibanza vy'ibizuku. Ubwoko bw'ibimera bwiganje mu buduga ni « *Lobellia milbraedi* » na « *Mascantus violaceus* ». Ahadahanamye n'ahakanye bukebuke hagaragara ivyatsi bikurikira : « *Cyperus latifolia*, *Cyperus papyrus* na *Phragmites* ku nkengera z'ibiyaga n'inzu ».

Uburinganire bw'ahari ibizuku ubu bwegera ha 14.428 harimwo ha 1140 zo mu Buyongwe zicukugwamwo ibizuku kuva mu mwaka wa 1977 (ubushikiranganji bw'amazi, ibidukikije, ugutunganya amatongo n'ibisagara 2000) na (ubushikiranganji bw'amazi n'ibidukikije 2005). Uburinganire bumaze gukoreshwa bungana na ha 284 (ubushikiranganji bw'amazi n'ibidukikije n'itunganywa ry'ibisagara, 2000 na 2005). Kubwubwo bushikiranganji nyene, ubutaka bimbamwo ibizuku bungana na ha 284.

C. Ubuhinga

Ku migwi indwi nyamukuru, itanu yegukira igisata c'uburimi, amashamba n'ikoreshwa ryayandi matongo.

- (i) Amatongo agizwe n'amashamba akiri amashamba ;
- (ii) Amatongo yahinduwe amasi ndimwa;
- (iii) Umwavu uvuye kuvyatsi bibora;
- (iv) Ibiterwa vy'umuceri;
- (v) Ibivuye mu biti vyiciwe.

Aho rero, ibiharuro za factori z'imyuka na factori z'uguhindura ntiziraboneka mu Burundi. Ibiharuro bitangwa mungingo ngenderwako za IPCC 2006 bwarakoreshejwe kugira habeho uguharura uko imyuka ingana.

Mu kagwi k'igisata c'amashamba n'ayandi makoresheya y'amasi, ubuhinga bukoreshwa mu guharura imyuka ishusha ikirere bwitwa "ubuhinga bwo gutakaza inyungu". Busigugwa kandi bukeranwa mu ngingo ngenderwako z'umugwi mpuzabihugu w'abahinga mu bijanye n'ihindagurika ry'ibihe 2006. Ingingo ngenderwako za IPCC 2003 niza FAO 2008 na zone zarakoreshejwe.

D. Incamake y'ingareranyo ya factori y'imyuka mu gisata c'uburimi amashamba n'ikoreshwa ry'ayandi matongo

Igisata c'uburimi, amashamba n'ikoreshwa ry'ayandi matongo nnico kwicarira muvyerekeye imyuka ishusha ikirere ku mvo zikurikira:

- Ni ikigega w'imyuka ya karubone : ico gisata gishingura Gg 4,873.5 za ECO₂ mu 2005, Gg 2917,2 za ECO₂ mu 2010 na Gg 1970,0 mu 2015 (kubera ibiti) ;
- Nico gisata ca mbere mu kurungika imyuka ivyo kirungika bingana n'igice c'ibirungikwa n'ibindi bisata vyose hamwe vyo mu Burundi (kubera uburimi).

Igiharuzo ca 6 kiri musu cerekana amarungikwa yo mu gisata c'uburimi, amashamba n'ikoreshwa ry'ayandi matongo, harimwo igitigiri c'imyuka ija mukirere n'igitigiri c'imyuka ibikwa mu bigega, hanyuma hakaba imyuka iboneka hateranijwe ubwo bwoko bubiri.

Igiharuzo ca 6 : Incamake y'amarungikwa yo mugisata c'uburimyi, amashamba n'ikoreshwa ryayandi matongo ugereranije n'ivyo mu gihugu cose

Imyaka	Imyuka mukirere iturutse burimyi, amashamba n'ikoreshwa ry'ayandi matongo gusa(A)	Imyuka ibitse mw'isi, amashamba n'ayandi matongo(B)	Imyuka iteranije yo mu burimyi n'amashamba(C=A+B))	Imyuka igaragara atayibistwe(hatarimwo amashamba n'uburimyi) (D)	Imyuka yose yo mugihugu(B+D)
2005	966.6	-4873.5	-3906.9	2009.5	-2864.0
2010	1576.9	-2916.6	-1339.7	2733.0	-183.6
2015	1083.0	-1970.0	-887.0	2392.5	423.0

Mu bijanye n'ukubika umwuka wa karubone, ibisata birabwa ni amatongo agizwe n'amashamba n'ibiva ku bito vyaciwe. Ku myaka yose ibitse hamwe (igiharuzo ca 6 kiri aho hejuru) yaragabanijweko ibice bingana na 40% hagati y'imyaka ya 2005 na 2010 kandi n'ibice 32,8% hagati ya 2010 na 2015. Iryo vyavuye ku guhonywa amashamba gukabije hamwe n'ihindugwa ry'amatongo ry'ibonekeje kuva mu myaka 25 iheze.

Imvo y'iryo honywa ry'amashamba n'iryo hindurwa ry'amatongo vyaratohojwe mu cegeranyo cisanzuye c'Uburundi kw'ibarura ry'imyuka ishusha ikirere muri Ntwarante 2018 kandi ingingo nyamukuru zikurikira zarizwe:

- Umwihwezo w'ibiharuro vy'itohoza n'ivyegeranyo bitandukanye vyakozwe kuva 1990 gushika uno musi birerekana ko uburinganire burimwo amashamba ya Leta butera bugabanuka mugihe gitari c'abantu kiguma cyongera. Tugereranije umwaka wa 1990, uburinganire bwose hamwe bw'ahatewe ibiti vya Leta mu mwaka wose vyaragabanutse muri rusangi, ivyerekana igabanuka rya ha 11.547,40 (igisata c'amashamba 1990);
- Iruhande y'uburinganire bw'ahatewe ibiti, ivyavuye muriryo tohoza vyerekana ko uburinganire bwose hamwe n'ubwamashamba yahinduwe akoresheye ibindi hagati ya 1995 na 2005 bugeranywa na ha 31.116(Inama nkuru y'igihugu ijewe amatongo n'ayandi matongo 2005);
- Hanyuma nko ku mashamba, amasi y'ivyatsi nayo yaragabanijwe guhera ku myaka 25 iheze. Igwiza ry'ibiterwa n'itegwa ry'ibiti navyo niyo ntango y'igabanukwa y'amatongo yo kuragiramwo n'amasi arimwo ivyatsi. Kubw'ikigo kijejwe uburimyi mu Burundi ISABU, 1998 (imenyekanishwa ry'ibikorwa vy'uburimyi n°23),

amatongo yo kuragiramwo yavuye kuri ha 1.250.000 mu 1954 aya kuri ha 940.000 mu 1998, nukuvuga hafi ha 300.000 zatakaye mu myaka 44.

Naho biruko, twisunze ivyategekanijwe vyashizweho ufatiye kw'ihindagurika ryibonekeje hagati ya 1970 na 1987, uburinganire bw'amatongo yo kuragiramwo mu 2005 bugeranywe na ha 912.000 harimwo igabanuka ryo kumwaka rigereranye ringana na ha 4.059.

Imyuka yo mu gisata c'uburimi (iyija mukirere gusa), amashamba n'ikoreshwa ry'ayandi matongo agabwa hanini n'imigwi y'ico gisata ikurikira: amasi ndimwa, ibora ry'ivyatsi, imyuka yose hamwe ivuye kw'itunganywa ry'isi, igitegwa c'umuceri n'itunganywa ry'umwavu.

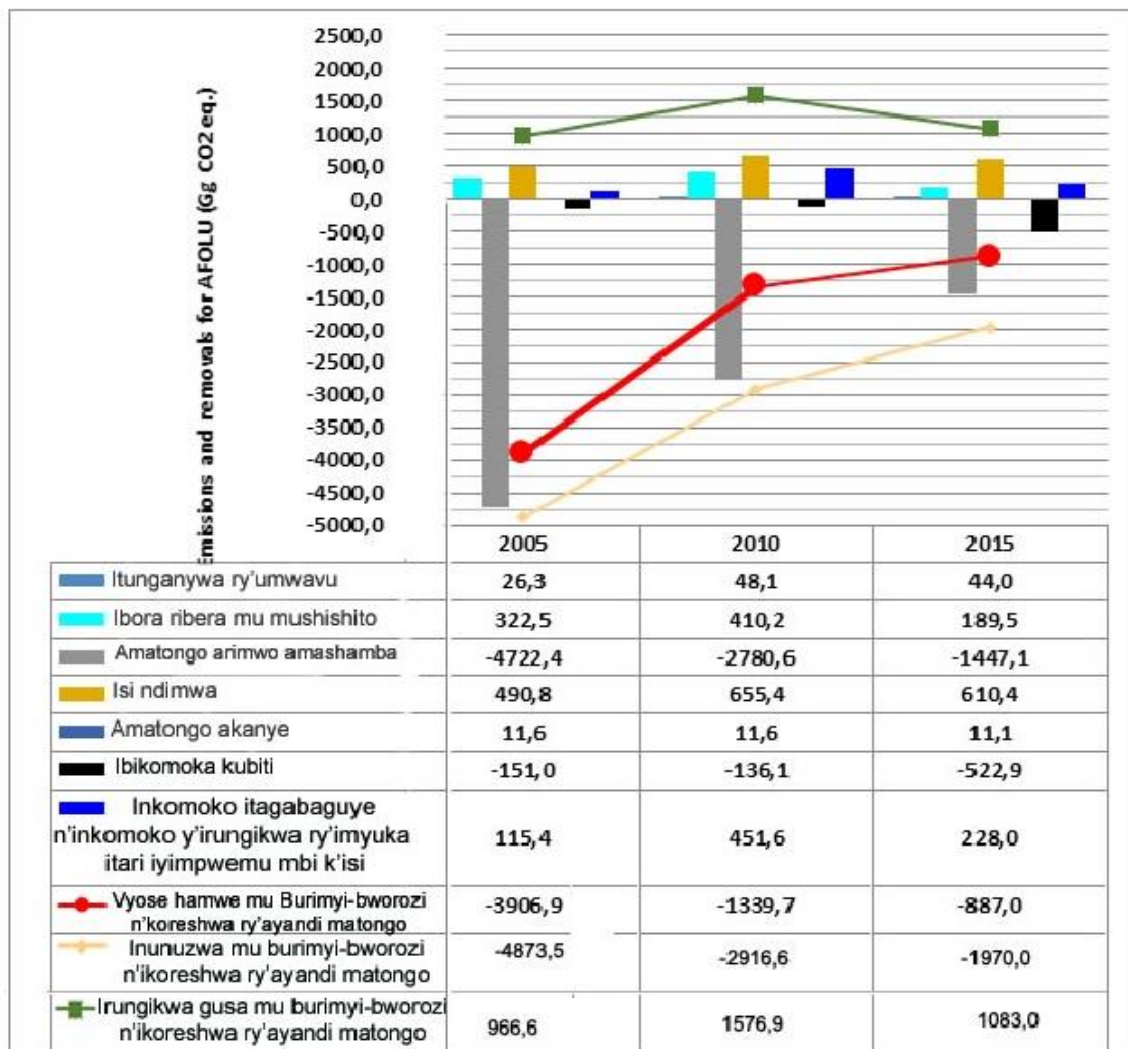
Kuva 2005 gushika 2015, imyuka yo mutwo tugwi twose yaraduze mu kiringo c'imyaka 5 ya mbere (2005-2010), hanyuma iragabanuka mu kiringo c'imyaka itanu ikurikira (2010-2015).

Imyuka ku mugwi umwe umwe yerekanwa ngaha musu:

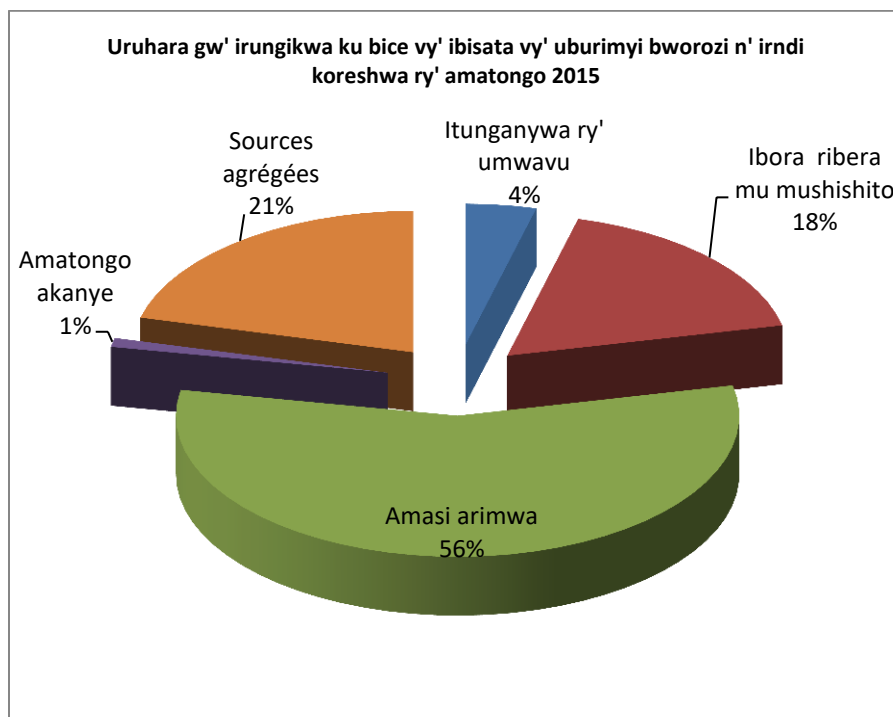
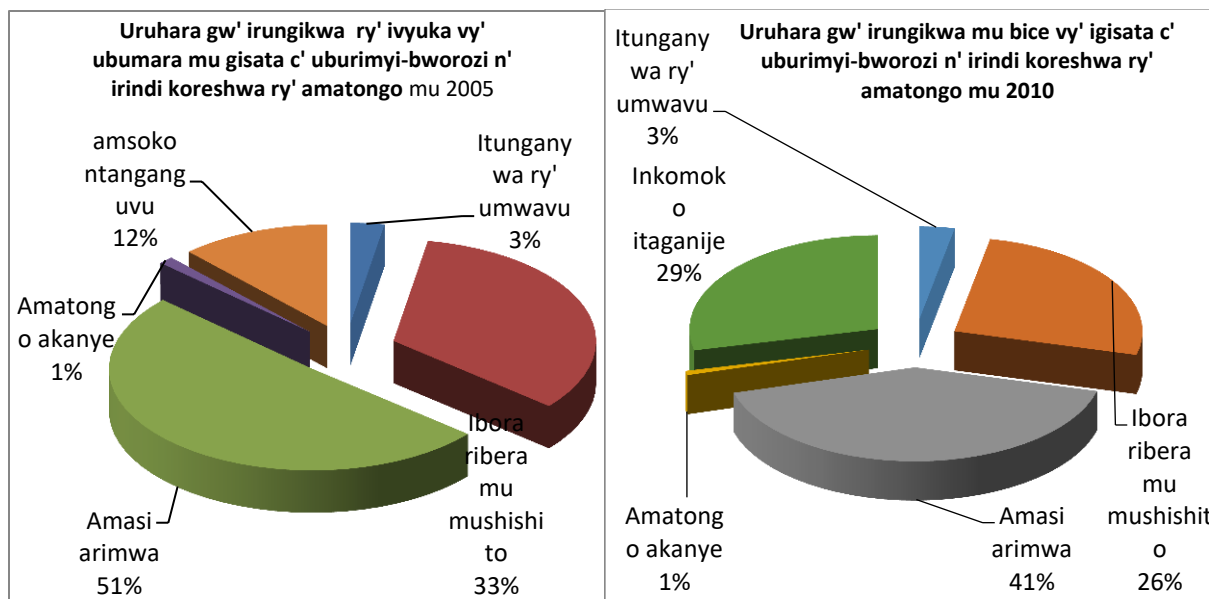
- imyuka ituruka ku masi ndimwa yariyongereye ku bice 35% hagati ya 2005 na 2010 n'igabanuka rya 6,8% hagati ya 2010 na 2015. Ivyo bisigurwa n'ihindura ry'amatongo yo kuragiramwo nayandi arimwo ivyatsi mu masi ndimwa nkukwo vyasiguwe mu bigabane biri hejuru. Uruhara rw'imyuka ku masi ndimwa ruri hagati ya 51% mu 2005, 41% mu 2010 na 56% muri 2015;
- Imyuka iturutse ku micafu iva mukuza kw'inka yariyongereye kuri 27% hagati ya 2005 na 2010, hama igabanuka kuri 53% hagati ya 2010 na 2015. Ivyo vyari bivuye kw'ihinduka ry'igitiri c'inka. Mugihe igitiri c'inka zikamwa cavuye kuri 7.420 mu 2005 kija kuri 7.568 mu 2010 na 34.367 mu 2015, igitigiri c'izindi nka cavuye kuri 461.393 kija 295.739 hanyuma kigabanuka kuri 195.836.
Ibice vy'imyuka iva ku mase irahindagurika hagati ya 33% mu 2005, 26% mu 2010 na 18% mu 2015;
- Imyuka atagabanijwe ishingiyeye kw'itunganywa ry'isi yariyongereye ku bice 291,2% hanyuma iragabanuka kubice 49,5. Vyatewe n'igwirirana ry'uburinganire bw'amatongo yagenewe kurimamwo umuceri, bwavuye kuri ha 25.524 buja ha 68.560 (kuva muri 2005 gushika muri 2010) hanyu kuri ha 48.589 (kuva 2010 gushika 2015). Uruhara rw'imyuka itagabanijwe ivuye kw'itunganywa ry'isi ruva ku bice 12% mu 2005 gushika kuri 29% mu 2010 na 21% muri 2015.

Itunganywa ry'amase n'uburere burimwo amazi ntibirimwo imyuka myinshi: bitanga imyuka ingana ibice 3-5% na 1% uko bikurikirana.

Amasanamu ya 11 na 12 aho hepfo yerekana igwirirana ry'imyuka n'uruhara gw'imigwi mito mito yo mugisata c'uburimi, amashamba n'ikoreshwa ry'ayandi matongo.



Igicapo ca 11 : Ingene imyuka ingana mu gisata c'uburimi, amashamba n' irindi koreshwa ry'amatongo.



Igicapo ca 12 : Ibice vy' imyuka mu gisata c' uburimi, amashamba n' ikoresheya ry'ayandi matongo.

II.8.4. Igisata c'imicafu

Mu Burundi, imyuka ishusha ikirere igizwe n'ivyo gutegura n' uguta imicafu. Itunganywa ry'imicafu igumye risa nirititaweho. Mu ntara 18 zigize igihugu, igisagara ca Gitega co nyene n' igisagara ca Bujumbura nivyo bifise ubuhinga bushobora gukoreshwa mu gukura imicafu mu mazu yo mu bisagara. Vyongeye, ntiharenga mu ntango z' umwaka wa 2010 hamwe n' uruhara gw'amashirahamwe yigenga mukwegeranya imicafu, ko ibitigiri vyo gukura imicafu mu gisagara ca Bujumbura gwiyoungereye. Kera, ikigo c'ubuhinga c'amakomine (SETEMU) nticayora ibirenga ibice 8% vy'imicafu igumye yo mu mazu imbere y'ukwegurira ico gikorwa amashirahamwe yigenga kandi ninaho iyegeeranywa ry'imicafu igumye ryaciye ryiyongera riva ku bice 8 rija kubice 46%.

Imyuka ituruka kwiturirwa ry'imicafu igumye mu kirere hadapfunganye hamwe n'ihingurwa ry'imicafu igumye mubuhinga kama (biologique) ntivyashoboye kugereranya biturutse kw'ikena ry'ibitigiri.

Ubwoko bw'imicafu

Mu Burundi, imicafu irungika imyuka mu kirere ishobora gusigurwa kandi igatondekwa uku gukurikira:

a. Imicafu igumye yo mugisagara

Nta vyo kuvangura imicafu riba mu Burundi. Imicafu igumye itagwa mu kajagari iyindi igatunganywa mu mwavu w'ibitegwa. Mu gisagara ca Bujumbura ijanwa mu kibanza cabigenewe co mu Buterere mugihe mu bisagara vyo hagati mu gihugu naho itabwa mu bibanza vyatunganyijwe hirya y'ibisagara.

Naho ibiharuro ku rugero gw'imicafu yo mu gisagara ca Bujumbura ruzwi, ingereranyo zikurikira zarakozwe hisunzwe ingene igihugu kimeze n'ibitigiri vyakozwe n'umugwi mpuzabihugu w'abahinga mu bijanye n'ihindagurika ry'ibihe GIEC :

- Umweneguhu wo mu gisagara ca Bujumbura asohora muri make kg 0,6 kumusi canke kg 217 ku mwaka (Rusama 2011), murivyo bice, 57% vyiyoye imicafu bishobora kubora, kuri 43% y'imicafu itabwira ;

- Imicafu itabora igizwe cane cane n'ibirahuri (15%), imifuko, n'amacupa y' ibitameneka (8%), impapuro n'ibikarato (6%), na 5% z'ivyuma ;
- Inkwi n' ibizivamwo bigira 3% ibishambara navyo 4%.
- Ibikoresho vyo kwa muganga n' ibindi bikaze vyagereranjwe ku rugero gw'ibice 2%.

b. Imicafu y'amazi yo mu mazu y'abantu n'ayubudandaji.

Mu gisagara ca Bujumbura, iyo micafu itemba ijanwa n'umuhora mu kibanza cabigenewe co ku Mubone hama mu gihugu hagati naho vyisuka mu nzuzi no mu binogo vyabigenewe;

c. Imicafu y'amazi yo mu mahinguriro.

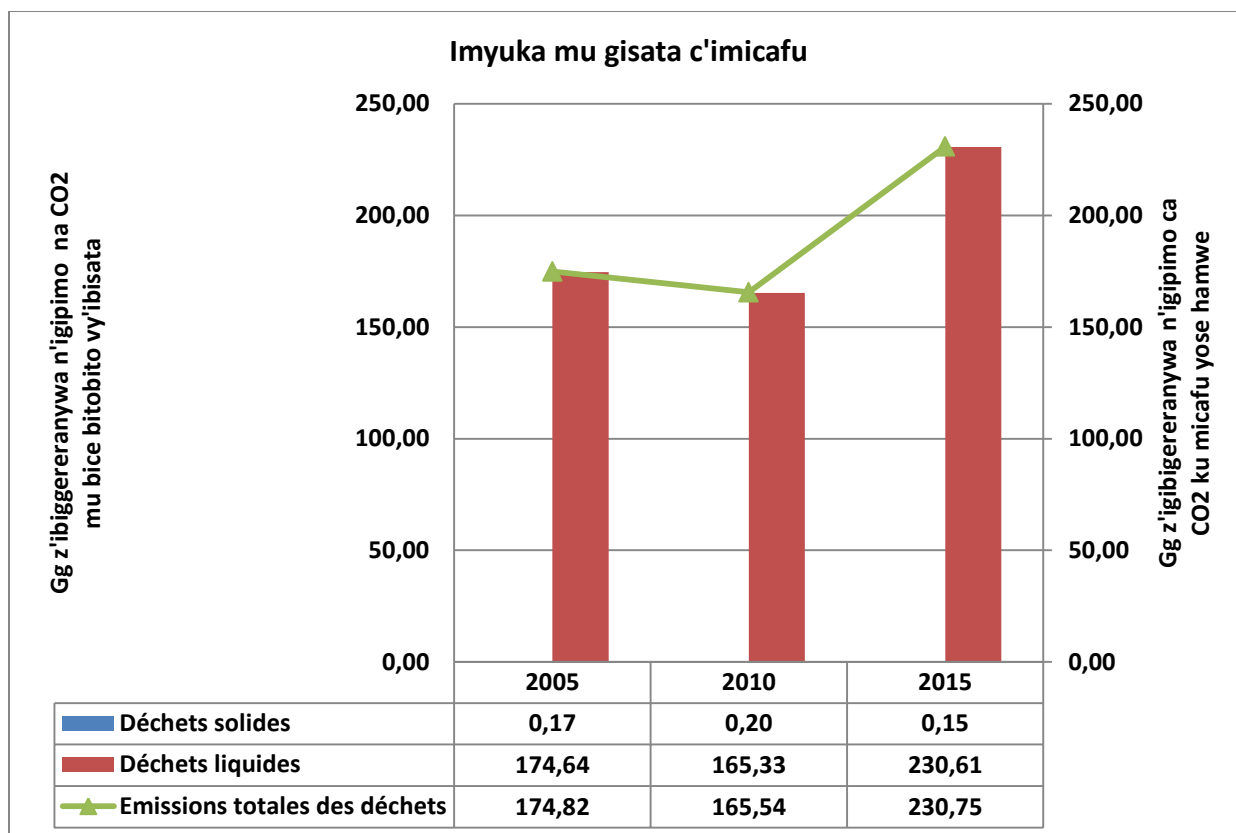
Amahinguriro yo mu gisagara ca Bujumbura arungika amazi y'ubucafu mu kigo c'igihugu cagenewe kwegeranya amazi acafuye co ku Mubone mugihe hagati mu gihugu iyo micafu yisuka mu nzuzi zihagereye. Amahinguriro amwe amwe na mahinguriro mato mato aratangura agatunganya neza amazi mabi yakoresheje imbere yo kuyarungika mumihora canke ibigenewe canke kuyarungika mu nzuzi.

d. Imyuka iturutse ku gisata c'imicafu

Imicafu nta myuka ishemeye iyivamwo. Ibarura ry' imyuka mu gisata c'imicafu ryakozwe hakoreshejwe ubuhinga bw' umugwi mpuzabihugu kw'ihindagurika ry' ibihe bwo ku rugero gwa 1 gw'amategeko ngendegwako y'uwo mugwi, logicieli IPCC 2006. Ibiharuro vyakozwe hakoreshejwe ubuhinga bwo mu mashini nyabwonko yategekanijwe mu ngingo ngendegwako bifatanijwe n'ikoreshwa ry'ubuhinga bw'imashini nyabwonko bw' uwo mugwi 2006 bisuzumwe rimwena rimwe abahinga bukoze iryo barurwa baracisha ahabo.

Kuva mu 2005 gushika mu 2010 imyuka yo mu gisata c'imicafu iva kuri Gg 174,8 za ECO₂ igashika kuma g 230,7 za ECO₂ nkukwo tuvuyerekwaga n'ishusho ya 13 aho musu. Imyuka mu gisata c'imicafu iva ahanini mu mazi y'imicafu.

.



Igicapo ca 13 : Ingene imyuka ingana mu gisata c'imicafu

II.9. Inzira c' isuzumwa ry' akanovera

Ingingo ngendegwako z' umugwi mpuzabihugu w' abahinga mu bijanye n'ihindagurika ry' ibihe (2006) zisaba ko hobaho isuzumwa ry' akanovera mu kugereranya ivyavuye mw' irungikwa canke mu gukoresha inyigisho zitandukanye mu kugereranya ivyavuyemwo no mukurondera ibitangenda neza. Zisaba kandi ko iryo suzumwa ryobamwo ikibazo c' imvo z' irungikwa, isuzumwa y' ibiharuro vy'ibikorwa, ihingurwa n' itandukanywa ry'ikoresheya, ikintu cibonekeza, nukugwanya iharura ryisubiriza.

II.9.1. Ugusuzuma akanovera

Ku gusuzuma akanovera:

- Umwihereho warateguwe kuva ku wa 6 Munyonyo gushika kuwa 12 Munyonyo kugira bategurwe iyegeranywa ry'ibiharuro ku rubuga. Umugwi wose wari wasomye ingingo ngendegwako za 2006 kandi warashizeho ubuhinga bwo gukora, ibisata bivamwo ibiharuro bifatirwako ni fishe y' ibibazo kugira hegeranywe ibiharuro vyizigiwe.

- Uruganda rwo kwemeza ibiharuro vyegeranijwe rwarabereye I Bujumbura mu kwezi kwa Nyakanga 2017;
- Urundi ruganda gwaratunganijwe I Muramvya kuva kuwa 2 gushika kuwa 6 Ndamukiza umwaka wa 2018 kugira ngo ibisata bitandukanye bijejwe ibarurwa vyerekane ivyegeranyo vy'imfatakibanza kandi bagire ico babivuzeko c' ubaka kugira igisata cose kinonosore icegeranyo caco c' imfatakibanza;
- Kuva kuwa 16 gushika kuwa 17 Myandagaro 2018 haratunganijwe uruganda gwo kwemeza ivyegeranyo vy'amabarura ku kwego gw'igihugu aho abahinga b'ibisata bari bateguye amabarura, abahinga baturuka mu bigo bisanganywe ibiharuro n'abandi bahinga bavuye mu bindi bigo bifitaniye ubucuti bari bahuye kugira basuzume namba ibiharuro vyakoreshejwe vyari bikwiye.

II.9.2. Ugukingira akanovera

Ivyegranyo vy'ibarura mu bisata vyakorewemwo ibarura n'icegeranyo kirimwo ivyo vyegeranyo vyose vyararungitswe mu mugwi nshigikirabikorwa wa PNUD na PNUE kugira vyigwekwo kandi bagire ico babivuzeko. Uwo mugwi waciye ushiraho umuhinga avuga indimi zibiri yaciye yiga ivyo vyegreanyo ubwambere ari kure hama amara iyinga yose hamwe n'abahinga bateguye ivyegeranyo vy' imigwi aho hose kugira bongereze akanovera k' ibiharuro n'itunganywa ry'avyo kugira bategure ibiharuro vy'irungikwa ry'ivyuka.

Mu ruganda gw'yinga, impinduka zikurikira zarashizweho.

- Igitabu c'ibiharuro vya nyuma caratejwe imbere;
- Itegurwa ry'amakenga ryaratunganijwe;
- Umwihwezo w'imigwi nyamukuru warakozwe;
- Ubuhinga bw'imashini nyabwonko (Excel) bwarashizweho;
- Igiharuzo c'ibizobandanya carateguwe;
- Impinyanyuro zo muri kazoza kumabarura y' ivyuka yu' ubumara yarateguwe;
- Integuro y'iyandikwa ry'ikigabane ca kabiri c'inama nkuru y'igihugu hamwe n'icegeranyo c'igihugu gisasanuye ku myuka ishusha ikirere vyaratejwe imbere.

II.10. Icigwa gisanzwe c'ubudasa

Nkuko vyerekanywe mu gitabu ca I c'amategako ngendegwako y'umugwi mpuzabihugu w'abahinga mubijanye n'ihindagurika ry'ibihe, amakenga niyo kimenyetso c'ukumenya igitigiri nyaco c'ivyungwa. Ubudasa bishirwa hamwe n'itomora be n'ihindagurika. Uburundi ntibugira ivyigwa vy'igihugu ku budasa canke ku bitigiri vy'ivyigwa, haba ku mvo z' irungikwa ry' imyuka. Kuriyo mpamvu, ibiharuro vy' umugwi mpuzabihugu w'abahinga mu bijanye n'ihindagurika ry' ibihe vyarakoreshejwe kandi biratangwa n'ingingo z' uwo mugwi nyene zo mu 2006.

Ivyavuye murico gikorwa c'isuzuma ry' ubudasa kuva mu 2005 gushika 2015 ku Burundi ni ibi: Ubudasa kw' ibarurwa ryose hamwe ry' imyuka ishusha ikirere ni 22.092.

Ubudasa mu myitwarire y' imyuka ishusha ikirere ni 17.192.

II.11. Icigwa nyamukuru c'indunduro

Ibarura rikwiye ni ibarura rishiramwo ingereranyo ku masoko yose, ibigega vy'imyuka, kandi bikora ku turere twose nyamukuru tw' igihugu ibarura rikorwamwo. Muri make ibarura ry' igihugu rigerageza gushiramwo igiharuzo gikwiye c'amarungikwa n'amanunzwa y'ubwoko bwose. Icigwa c'indunduro ku gisata cose vyaratanzwe ku mpapuro zinyuma y'iki cegeranyo kandi zerekana icigwa cisanzuye c'indunduro.

II.12. Gutunganya imibaruho muri kazoza

Icegeranyo c'ibarura ry' imyuka ishusha ikirere gisaba ukwegeranya ibiharuro vy' isanzuye ku bikorwa n'ingereranyo vy' imvo z' irungikwa ry' imyuka yo mu gihugu. Ku nkurikizi, ibarura ry' igihugu ry' imyuka ishusha ikirere risaba impinduka zibandanya z' akanovera. Urutonde gw' iminduka gwarateguwe kandi gwemezwa mu ruganda gwo kuwa 11 Ntwarante 2019. Imfashanyo y' uburyo buvuye ku mpande 2 n'ubuvuye ku mpande nyinshi burakenewe kugira Uburundi bufashwe gutezimbere ibarura ryabwo ishusha ikirere vyerekanywe aho musu. Ikiringo c'ishigwaho ry' impinduko zatowe cashizwe ku rugero gwa hafi, kwo hagati n'ubwo kure.

II.12.1. Impinduka zateguwe z' ubuhinga n'ukwiyungunganya mu ntwaro

Twisunze ingingo ngendegwako z'umugwi mpuzabihugu w' abahinga mu bijanye n'ihindagurika ry' ibihe, igice ca 2006 ku bijanye n'amabarura y'igihugu ku myuka ishusha ikirere, urugero rwo kumesha ibarura rishingiye ku kanovera k' ibiharuro n'ubuhinga bwakoreshejwe bitondetswe mu migwi wa 1, wa 2 canke wa 3. Nubwo hariho amajambere yagizwe n'umugwi w'abakoze iryo barura ry' imyuka ishusha ikirere mu Burundi kugira

habehoitezimbere ry' ibiharuro niry' ubuhinga, icegeranyo c'ishigwa kumwanya co kumyaka ibiri n'icegeranyo ca 4 c'inama y' igihugu bizotanga ubushobozi bushoboka bw' impinduka.

Ngaha musibikorwa bisabwa gukorwa ku rugero gwa hafi canke rugeranye:

- Itunganywa ry' ibarura ry' ibice bitonze, ku mwaka ku mwaka, kuva mu 2005 gushika ku mwaka wanyuma wegeranye n'umwaka w' isohorwa ry' inama nkuru y' igihugu izokurikira;
- Gushiraho itohozwa ku biharuro bigabaguye;
- Kugira isuzuma ry'indunduro;
- Kugira umwihwezo ukwiye w' ibarura;
- Iterambere rya factori ry'imyuka ku gwego gw' igihugu

Muri izo mpinduka zose zatanze aho hejuru iyikingigwa nyamukuru ryo kugwego gwo hejuru ni itunganywa ry' ibice bitonze vy' amabarura akurikirana kuva mu 2005. Ikindi nyamukuru kiza kuba ukwegeranya ibiharuro bigabaguye. Ikindi nyamukuru ku gwego gw' igihugu ni isuzuma ry' indunduro hama icanyuma ni iterambere rya factori y'imyuka ku gwego gw' igihugu.

Mu gihe co gutunganya icegeranyo ca 3 kw'ihindagurika ry'ibihe, itegeko nshikiranganji ritegura gushira ku kwego gw' igihugu amabarura ryaranditswe kandi rizojanywa mu nama nshikiranganji kugira ryemezwe imbere y' ukwo umwaka wa 2019 urangira.

II.12.2. Impinduka ziteguwe z' ugukomeza ubumenyi

Nubwo hariho ubumenyi bwatanze mu gihe co gutegura icegeranyo ca 3 kw'ihindagurika ry'ibihe, biracakenewe kwungura ubumenyi bw' umugwi ukora ukora kw'ibarura ry' imyuka ishusha ikirere n'ubwabari mu ntwaro. Ikiringo co kwungura ubumenyi cobaye n'imiburiburi indwi 2 zikurikirana harimwo n'ubumenyi bwo mu majambo hamwe n'imyimeyerezo. Ukwo kwungura ubumenyi cikorwa uko gukurikira:

- Icigwa c'ukwegeranya ibiharuro;
- Ugutezimbere ubuhinga;
- Icigwa c'imigwi nyamukuru;
- Umwihwezo w'imyitwarire;
- Ugusuzuma akanovera;
- Umwihwezo w' ubudasa;

- Umwihwezo w' indunduro;
- Ikoreshwa rya logiciel (IPCC canke iyindi) ;
- Ukwandikwa ivyegeranyo.

Ivyigwa vyose nyamukuru vyo kwungura ubumenyi vyatanzwe ngaho hejuru ninkenerwa cane bishobotse vuba na vuba.

II.12.3. Impinduka zitegekanijwe mu gisata c'amasoko ntanganguvu

Icegeranyo c'ibarura ryo mu Burundi kirashiraho ibiharuro bijanye n'ibikorwa, nubwo biriho ariko bidakwiye. Vyarihwejwe ubwambere ko hariho ibura ry' ibiharuro bisambaguye. Ku nkurikizi, ibiharuro bikurikira vyarerekanywe kugira bishobore kwegeranywa hisunzwe amatohoza:

- a. Kwegeranya ibiharuro bijanye n'ibitoro biseseka mu mabarabara, mu kirere no mu mabahari hamwe n'ikoreshwa ry' ibitoro mu mazu, amashirahamwe n'amahinguriro bitari kumurongo;
- b. Kwegeranya ibiharuro vy' ikoreshwa ry'ibiti mu mahinguriro, ibigo vy' ubudandaji (nkamazu y' uburiri) ndetse n'ivyo bacanamwo amakara ;
- c. Kwegeranya ibiharuro ku biranga ivyuma vyo kwunguruza abantu n'ibintu, (amamodoka, amapikipiki, amakamyo, n'indege);
- d. Gutegura n'ugusuzuma facteri y'imyuka iva mubicanwa vy'amazi, bigumye n'ibitumuka vyose (gaz) hamwe n'ubuhinga bwa none buvyerekeye,

Ukwegeranya ibiharuro guteguye ku rugero gwo hafi nugwo hagati mu gihe itegurwa n'isuzumwa rya facteri ry'imyuka ku gwego gw' igihugu n'ibiboneka biranga amasoko ntanganguvu biteguwe kuva ku rugero gwo hagati uja kugwo hejuru.

II.12.4. Impinduka zitegekanijwe mu gisata c'ingene amahinguriro akora n'ikoreshwa ry' ivyahinguwe

Imyuka imwimwe ikoreshwa mu gushusha amazu, mu ma firigo n'ibindi ntihabwa agaciro kuko ivyo ikoreshwamwo bikiri bike cane. Mu kiringo kigufi, Uburundi butegukanya gukora ibarura ry' imyuka hajemwo niyo myuka.

II.12.5. Impinduka zitegekanijwe mu gisata c'uburimyi, amashamba n'ikoreshwa ry'ayandi matongo

Mu gihe co gukora ibarura mu gisata c'uburimyi namashamba, haribonekeje ibura ry' ibiharuro ku bigize amashamba yo mu Burundi. Kugirango ibarura zikurikira zigende neza hokorwa ivyo bikurikira:

- a. Ibarura ry' amashamba yo mugihugu;
- b. Ugusuzuma ububiko bwamaho;
- c. Ishigwa kumwanya ry' ikarata yerekana ikoreshwa ry'isi mu Burundi;
- d. Ibarura ry'uburimyi muri rusangi;
- e. Ibiranga ibitungwa birakenewe kugira tuje ku rugero gwa 2 gw' ubuhinga gw' uguharura imyuka muri ico gisata;
- f. Ugukora ama factori y'imyuka ku rwego rw'igihugu bikozwe n'ibigo vy' ubushakashatsi (ISABU, FABI n'ibindi);
- g. Ubushobozi bwo gushikira amatohoza avuye ku muhora w' ikinyenyeri « COLLECT EARTH » gikuru cegeranya ibiharuro vyo kwisi yose hakoreshejwe logicieli FAO-GOOGLE.

Nubwo igikorwa ca mbere n'ica nyuma bishobora gushirwa gushirwa mungiro mu kiringo kigufi n'ico hagati, ibikogwa bisigaye bishobora gukorwa mu kiringo co hagati n'icakure.

II.12.6. Impinduka zitegekanijwe ku gisata c'imicafu

Nubwo Uburundi busanganwe ibiharuro vyo gukorerako vyizewe kandi bisuzumwe ku micafu igumye n'iyamazi, ubudasa bukikije imyuka yatowe murico gisata c'imicafu bwari bunini cane kandi birasaba gusuzuma ubuhinga bwakoreshejwe mw' ibarura rizokurikira. Ico gikorwa vyiza cikorwa mu kiringo c'umwanya muto.

IKIGABANE CA III: IDO N'IDO RY'INGINGO ZAFASHWE CANKE ZATEGEKANIJWE KUGIRA NGO AYO MASEZERANO AJE MU NGIRO

III.1. INTEGURU Y'INGINGO ZIFASHA GUHANGANA NYAKWO N'IHINDAGURIKA RY'IBIHE

III.1.1. IHINDAGURIKA RY'IBIHE MU BURUNDI N'IBISATA BIGERAMIWE KURUTA IBINDI

Inkurikizi mbi z'ihindagurika ry'ibihe rihanze Uburundi ziva cane cane kw'igwirirana ry'imyuka ishusha ikirere. Muri iki gihe, iryo hindagurika ry'ibihe riramaze kuzana intambamyi ziboneka mu mibano n'ubutunzi aho rigeramiye cane cane ibisata vya nkenerwa mu buzima bw'igihugu n'abene gihugu. Iryo bisata ni uburimiye, amasoko ntanganguvu, amazi, amashamba n'ibibanza bikingiwe, amagara y'abantu, ugutwara ibintu n'abantu hamwe n'inyubakwa rusangi. Ihindagurika ry'imeru ry'ikirere ryibonekeza mukuntu imvura igwa, ubushuhe hamwe n'ibiza bituma igihugu c'Uburundi kigeramirwa cane kandi bizogira ingaruka ku twigoro dukorwa mu guteza imbere igihugu. Iryo hindagurika ry'ikirere rituma haba ingorane zidasanzwe zerekanwa n'igabanuka ry'umwimbu w'uburimiye n'ubworozi, impfu z'abantu, imyuzurira n'uruzuba rwinshi, igwirirana ry'indwara, ukwononekara kw'inyubakwa zaba iza Leta canke iza abikorera utwabo tutibagiye itituka ry'ibidukikije.

III.1.1.1. Igeramirwa ry'igihugu rituruka kw'ihindagurika ry'ibihe

Inkurikizi z'ihindagurika ry'ibihe zatumye haba igeramirwa ridasanzwe mu bisata vyinshi vy'ubuzima bw'igihugu naho atari co kimwe mu ntara zose no mu bihe vyose. Ibihe vy'ibura ry'invura birangwa n'uruzuba rw'igihe kinini mu bihe bitandukanye no mu ntara zitandukanye z'igihugu, kuva mu myaka y'igihumbi n'amajana icenda na cumi n'indwi (1917) gushika ubu bigatuma haba ingorane haba muvuyerekeye imibano n'ubutunzi ku bene gihugu. Imyuzurira iturutse ku mvura nyinshi nayo nyene iribonekeza rimwe na rimwe. Inkurikizi zituruka kw'iryo hindagurika ry'ibihe zituma haba ingorane zikomeye ku buzima bw'abantu baca bageramirwa kuruta. Izibonekeza kuruta izindi ni kuva ku bene gihugu bitewe n'amapfa yisubiriza, ugufungura nabi gutewe n'igabanuka ry'umwimbu bigatuma hiturwa abagiraneza.

Ibiza bimwe bimwe nk'imyuzurira canke uruzuba rwinshi vyaratumye kandi n'ubu bituma abenegihugu batari bake bava mu zabo. Kuva mu mwaka w'ibihumbi bibiri na gatanu (2005) gushika ubu, ibiza ntibisiba guhekura Uburundi. Nko mu mpera z'umwaka w'ibihumbi bibiri na gatanu (2005) no mu ntango z'umwaka w'ibihumbi bibiri na gatandatu (2006), mu buraruko bw'igihugu uruzuba rwafashwe nk'ikiza rutuma abenegihugu batari bake bahungira mu bihugu bibanyi vy'Urwanda na Tanzaniya.

Mu myaka y'ibihumbi bibiri na gatandatu (2006) n'ibihumbi bibiri n'indwi (2007), imyuzurira idasanzwe yariziziye igice kitari gito c'igihugu. Intara za Kayanza, Ngozi, Ruyigi, Bururi na Makamba nizo zabangamiwe kuruta izindi.

Mu mwaka w'ibihumbi bibiri n'icenda (2009) imvura y'isegenya yamaze indwi zibiri yarononye ibitari bike mu gihugu nka cose. Ikiyaya c'Imbo ku nkengera z'ikiyaga Tanganyika, intara yo Mumirwa iri hejuru y'ikiyaya c'Imbo, intara kama ya Buyenzi n'intara yo hagati ishira ubuseruko, mu ntara za Mugamba na Kirimiro zarageramiwe gose. Mu mwaka w'ibihumbi bibiri na cumi (2010), imvura y'isegenya yaraguye mu gisagara ca Bujumbura ica itera imyuzurira myinshi. Ikibuga c'indege mpuzamakungu ca Bujumbura caratewe n'amazi yarengeye uruzi Mutimbuzi. Mu mwaka w'ibihumbi bibiri na cumi na rimwe (2011), n'ubundi imvura y'isegenya yaraguye ku murwa mukuru wa Bujumbura itera imyuzurira muma komine atatu ariyo Ngagara, Cibitoke na Kinama bituma ibintu vyinshi bihatikirira. Mu kwezi kwa Ruhuhuma kw'umwaka w'ibihumbi bibiri na cumi na kane (2014), kubera imyuzurira yari mu buraruko bw'igisagara ca Bujumbura, mu Gatunguru no mumicungararo yaho inzu zababa igihumbi zarabomotse, abantu ibihumbi mirongo ibiri (20000) barabura aho baba, haharurwa abitavye Imana mirongo indwi n'indwi (77).

Muri Ruhuhuma umwaka w'ibihumbi bibiri na cumi na gatanu (2015), bivuye kw'ibomoka ry'imisozi rivanze n'imyuzurira i Nyaruhongoka no mumicungararo ya Cashi na Gitaza mu ntara ya Rumonge abantu mirongo ibiri (20) baritavye Imana n'amazu arenga amajana atatu (300) arasambuka.

Muri Ruheshi umwaka w'ibihumbi bibiri na cumi na gatanu (2015), imyuzurira yaribonekeje mu ntara za Cibitoke, Bubanza, Bujumbura-Rural, Rutana na Rumonge.

Kuva muri Nyakanga umwaka w'ibihumbi bibiri na cumi na gatanu (2015) abantu barenga imiriyoni zine (4 000 000) barakozweko n'inkurikizi z'imvura y'isegenya, ibura ry'amazi, imiyaga y'igihuhusi, imyuzurira n'ibomoka ry'imisozi. Iryo hindagurika ry'ibihe ryononye amahegitari ibihumbi mirongo itatu (30000ha) y'ibiterwa n'inzu ibihumbi bitanu (5000) zirabomoka. Ibirasi amajana atatu (300) vyarabomotse n'ibitarurwa mirongo itatu (30) birasambuka. Abantu barenga ibihumbi mirongo ine na babiri (40002) barataye izabo bivuye kuri ivyo biza kandi boba bakeneye cane kugarukirwako n'abagiraneza mu ntara za Kirundo, Makamba, Bubanza, Cibitoke na Ruyigi.

Muri Munyonyo uwo mwaka nyene, kubera ikiyagayaga El Nino, imyuzurira yariziziye abantu ibihumbi mirongo itatu (30000) haca hitaba Imana abantu mirongo itatu na babiri (32). Muri Ndamukiza umwaka w'ibihumbi bibiri na cumi n'umunani (2018) imvura y'isegenya yaraguye mu ntara nka zose z'igihugu ironona ibitari bike mu buzima bw'igihugu. Kubw'ivyo biza, ibisata bitari bike vy'ubuzima bw'igihugu bica bigeramirwa kandi inkurikizi zavyo zikaba nyinshi cane.

Muri Rusama umwaka w'ibihumbi bibiri na cumi n'umunani (2018), imisozi yarabomotse mu micungararo y'i Nyaruhongoka ku nkengera y'ibarabara ry'igihugu numero zitatu (RN3) amaja mu ntara ya Rumonge hasambuka amazu yababa amajana ane na mirongo ibiri n'abiri (422) bica bituma imiryango ibihumbi bibiri n'amajana atandatu na mirongo ine n'ibiri (2642) ita izabo, amashure indwi n'amashengero indwi biraguruka, imirima mirongo itatu n'indwi (37) irononekara hitaba Imana abantu bababa indwi abashika batanu barakomereka.

Kubera ingorane zidasanzwe ziterwa n'ihindagurika ry'ibihe ziguma zongerekana uko bukeye uko bwije, kumenya guhangana n'ivyo biza niyo nyishu ibereye gusumba izindi.

III.1.1.2 Utwigoro tw'igihugu mu kumenya guhangana n'ihindagurika ry'ibihe

Ihindagurika ry'ibihe si agaseseshwa rumuri mu Burundi. Inkurikizi ku buzima bw'abantu ziguma ziyongera buri gihe. Nico gituma hategerezwa gufatwa ingingo zo kumenya guhangana n'ihindagurika ry'ibihe ikaba n'ingendo ntabanduka mu gihugu.

Muri ivyo bihe vy'ihindagurika ry'ibihe, abantu bose na cane cane abirimizi bagerazeza kubimenya. Kenshi abantu batangura guhindura ubuhinga bwo gukora. Abarimiye barahindura ubwoko bw'ivyo barima (baca bahitamwo ubwoko bw'ibiterwa vyera ningoga kugira birinde uruzuba. Ubuvinga bw'ukurima burahinduka haba mugutegura ibirango canke ubuhinga bakoresha nko mu ntara zimwe mbere usanga batevye kurima. Ugukoresha uburyo bwo kurwiza umwimbu (ugukora imyavu) hakoreshejwe neza amazi make: ivyo bibonekera rimwe na rimwe mu kwagura ahandi naho mukwongereza uburyo mubice bizwi neza (ufatiye kw'iboneka ry'amazi).

Kuborozi, icibonekeza muruhande rumwe n'ukworora ibitungwa na cane cane hisunzwe ubwoko bwavyo (impene, inkoko, inka) murundi ruhande ni ihindagurika ry'ibiranga misi vy'ibiryo vyazo na cane cane mu kurisha: Ihinduka ryaho birisha canke ibirangamisi vyo kurisha.

Hari n'igihe bahigira inyishu mubindi bisata atari uburimiye mukurondera ubundi buzi arico gituma abantu baja muzindi ntara canke mubindi bihugu ari navyo bigaragara muri ino misi.

Mubijanye n'ingingo zifatwa ninzego z'igihugu, utwigoro two guhangana nizo ngorane twarakozwe naho tutafashije cane tukaba twibonekeza mugushiraho inyandiko z'amategeko n'uburyo bwoguhangana n'ivyo bibazo mu kugabanya ingaruka zijanye n'ihindagurika ry'ibihe. Nico gituma hashizweho ibikoresho bikurikira:

- Umugambi w'igihugu ujanye no guhangana n'ihindagurika ry'ibihe (PANA 2005) ;
- Indinganizo y'igihugu n'umugambi ujanye n'ihindagurika ry'ibihe (uva kumwaka w'ibihumbi bibiri na cumi na kabiri gushika kumwaka w'ibihumbi bibiri na mirongo ibiri na gatanu (2012-2025) ufise ihangiro nyamukuru ryo gufasha reta n'abayifata mu mugongo mu gushira mungiro ingingo zafashwe muguhangana n'ingaruka mbi z'ihindagurika ry'ikirere ;
- Ivyegeanyo kw'ihindagurika ry'ibihe n'iki kirimwo vyatanze akaryo ko gukomeza ubumenyi bw'igihugu mu bijanye no kugenzura imyuka ishusha ikirere, umwihwezo wo kugabanya imyuka no guhangana n'ihindagurika ry'ibihe ;
- Integuro y'igihugu ku bijanye n'ihindagurika ry'ibihe (2014-2018) ifise intumbero y'ugufasha abenegihugu mu guhangana n'ingaruka z'ihindagurika ry'ibihe no kugabanya ivyononekara biturutse kw'irwirirana ry'inzeduka ziturutse kw'ihindagurika ry'ibihe ridasanzwe biciye mu guhanahana amakuru nyakwo, ataco banyegeje kubijanye n'ibiza.

III.1.2 Intara zigeramiwe gusumba izindi n'ihindagurika ry'ibihe mu bisata bitandukanye

III.1.2.1 Intara zigeramiwe mu gisata c'uburimi

Muvyigwa bijanye n'igeramirwa ry'ihindagurika ry'ibihe, ibiharuro birerekana intara zigeramiwe n'inkukura be n'uruzuba. Ivyo vyatumye hatorwamwo intara zigeramiwe cane n'ingaruka mbi z'ihindagurika ry'ibihe.

a) Uburere bugeramiwe n'inkukura

Hariho ibirere bigeramiwe muri komine Mutambu na Isare, bishika bine bikeneye imigambi yihuta yo guhangana n'impanuka ziva kwihindagurika ry'ibihe. Hagufi ibice mirongo itatu kw'ijana (30%) vy'ibiti vyarahonye hagati y'umwaka w'ibihumbi bibiri na cumi na kabiri n'umwaka w'ibihumbi bibiri na cumi na kane (2012-2014) n'inkukura ironona amatoni ari hagati y'amajana abiri n'amajana ane (200-400 t kuri ha no ku mwaka) mu mirima ata biterwa birimwo. Muri komine Marangara yo mu ntara ya Ngozi naho nyene harageramiwe (inkukura yononye umwimbu wababa amatoni mirongo indwi kuri hegitari (70t/ha) k'umwaka).

b) Uturere tugeramiwe n'uruzuba

Intara kama z'uburundi zatowe nk'izigeramiwe n'uruzuba rw'igihe kirekire ni cane cane intara kama ya Bugesera mu buraruko bw'igihugu n'ikiyaya c'Imbo m'uburengero.

- ✓ Intara kama ya Bugesera isanzwe yiziziwe n'ihindagurika ry'ibihe kuva mu myaka mirongo ibiri iheze. Ivyo bituma umwimbu uca ugabanuka hakaba amapfa n'uguhungira mu bihugu duhana imbibe nk'Urwanda na Tanzaniya ;
- ✓ Mu kiyaya c'Imbo kiri hagati ya metero amajana indwi na mirongo indwi na zine na metero igihumbi (774-1000m) tuvuye aho amabahari ahera (altitude). Ico kiyaya kigabuye mu mirwi itatu itandukanye, Ikiyaya ca Rusizi gifise hagati y'ibirometero mirongo ibiri na mirongo ibiri na bitanu (20-25km) vy'ubwaguke hamwe n'ibirometero mirongo itatu na bitanu (35km) vy'uburebure n'ikiyaya c'ikiyaga Tanganyika kimeze nk'inkengera y'ibirometero ijana na mirongo ibiri (120km) vy'uburebure kigashobora rimwe na rimwe kugira nk'imetero zishika ijana z'ubwaguke.

Hambavu y'uturere tugeramiwe n'inkukura be n'uruzuba vy'urutavanako haca hiyongerako utundi turere tugeramiwe n'imyuzurira ingaruka zikaba nini cane ku mwimbu w'uburimi, w'uburovyi no ku buzima bwa misi yose bw'abenegihugu. Utwo turere ni nk'ikiyaya c'Imbo, imyonga n'amasoko.

Mu gisata c'ubworozi, intara zatowe nk'izigeramiwe gusumba izindi nizazindi zisanzwe zisinzikazwa n'uruzuba.

Ukwiyongera kurengeje kw'ingaruka mbi ry'ihindagurika ry'ibihe kwongereza itituka ry'ubutunzi kama bigaca bitandukira cane cane igisata c'ubworozi kuberako ibitungwa bihagirira ingorane ziturutse kukubura ivyatsi bikwiye bigaca bituma ubworozi butarwira ivyo bigatera inzara mu benegihugu.

Ingaruka mbi zituruka kw'ihindagurika ry'ibihe zirabangamiye n'ibinyabuzima biba mu mazi. Ivyigwa vyakozwe kubijanye no kumenya uturere tugeramiwe n'ihindagurika ry'ibihe vyashize ahagaragara uturere dukurikira :

- Umurwi wa mbere (I) : ugizwe n'uturere twa Gitaza, Magara, Nyaruhongoka na Kabezi. Utwo duce twama duhura n'ibiza bitandukanye biterwa n'imvura irimwo imiravyo be n'ibihuhusi. Ivyo biza ni nk'isenyuka ry'imisozi be n'imyuzurira bituma haza imicafu itandukanye tutibagiye n'ukwononekara ry'uduce amafi avyariramwo ;
- Umurwi wa kabiri (II) : ugizwe n'akarere ka Kagongo na Rumonge. Ako karere gakunda kwizizirwa kenshi n'imiyaga idasanzwe nayo igatuma haba amakuba menshi haba ku bintu no ku bantu. Muri icyo gihe abarovy'i benshi baritaba Imana. Ako karere nyene niko kameze nk'akabangamiwe bivuye kw'ihindagurika ry'ibihe mu gisata c'uburovyi mu kiyaga Tanganyika ;
- Umurwi wa gatatu (III) : ugizwe n'akarere ka Muguruka kose. Ni cane cane imiyaga y'igihuhusi ivanze n'imvura y'isegeya vyibonekeza muri ako karere. Ivyo bizana agahombo kanini ku mashirahamwe n'imiryango y'abarovy'i cane cane iyo miyaga ije mw'ijoro bariko bararoba.

Muri rusangi, ku nkengera z'inzuzi zose zisuka mu kiyaga Tanganyika hama hageramiwe n'inzeduka zituruka kw'ihindagurika ry'ibihe.

- Ibiyaga vyo mu buraruko (IV)

Kubijanye n'ibiyaga vyo mu buraruko bw'uburundi, ukugeramirwa kudasanzwe kwibonekeza mu kiyaga Cohoha aho imiyaga idasanzwe n'ibihe vy'uruzuba rurerure vyateye agahombo kanini n'ukwononekara kw'ibikoresho vyo kuroba hamwe n'amafi yo mu kiyaga. Ntawokwiyobagiza ikiyaga Gacamirindi aho amazi nka yose yakamye kikazohava mbere kigenda amazimayongo.

III.1.2.2 Uturere tugeramiwe mu gisata c'amasoko ntanga nguvu

Ivyigwa vya vuba vyagizwe kubijanye n'ihindagurika ry'ibihe n'isano ryavyo mw'ihindagurika ry'ibihe mu Burundi vyerekana ko uburundi bwugarijwe n'ihindagurika ry'ibihe mu gisata co kurwiza umuyagankuba uva ku mazi n'iboneka ry'amasoko ntanganguvu aturutse ku bitu n'ibibikomokamwo. Intara zibangamiwe gose n'inkukura ni cane cane intara za Bujumbura, Bubanza na Cibitoke. Kubera ko ahava ingomero z'umuyagankuba ugaburira igihugu cose: Rwegura (18MW) na Mugere (8MW) be nahariko harubakwa izindi ngomero z'umuyagankuba nka Mpanda (10.4MW), KABU16 (20MW) ari muri izo ntara.

Igisata c'amasoko ntanganguvu kirabangamiwe n'amazi yikamya hamwe n'imyuzurira mu gihe ingingo zo guhangana nivyoya biza zitazofatwa.

Ivyagaragajwe mubirango vya vuba vyerekana ko ingomero z'umuyagankuba zononekaye mu ntara zimwe zimwe z'igihugu aho ihindagurika ku bijanye n'amazi vyibonekeje kuruta ahandi. Twovuga nko :

- Ukwuzura ivyondo kw'urugomero rwa Ndurumu i Buhiga ;
- Umwuzurira w'urugomero rw'umuyagankuba mu mwaka w'ibihumbi bibiri na cumi n'indwi (2017) i Bujumbura ;

- Itwarwa ry'urugomero rw'umuyagankuba uva ku mazi rwa Ruvyironza mu mwaka w'ibihumbi bibiri na cumi na kane (2014), mu mwaka w'ibihumbi bibiri na cumi na gatandatu (2016) n'umwaka w'ibihumbi bibiri na cumi n'umunani (2018) ;
- Igabanuka ry'umuyagankuba mu gihugu cose bivuye ku gukena kw'imvura ufatiye ku karorero k'umwimbu w'urugomero rwa Mugere (hagabanutse ibice 20% mu mwaka w'ibihumbi bibiri na cumi n'indwi), igabanuka ry'umwimbu w'urugomero rwa Rusizi ya kabiri (hagabanutse ibice 32%), no ku rugomero rwa Rusizi ya mbere (hagabanutse 14%) ;
- Ugukora buhoro buhoro canke ihagarikwa ry'ingomero zimwe zimwe (akarorero ka Marangara gushika mu mwaka w'ibihumbi bibiri na cumi na gatandatu (2016).

III.1.2.3 Uturetse tugeramiwe mu gisata c'amazi

Dufatiye ku rugero rw'igeramirwa riterwa n'ihindagurika ry'ibihe, uburundi bwogaburwa mu turere dutandatu dufatiye ku kugene isi n'ikirere vyatwo bimeze. Natwo ni :

- **Ikiyaya c'Imbo mu burengero** : ni intara ishushye, ubushuhe burarenze, amazi akavamwo umuhishwa, imvura ni nkeyi kandi isi yaho ntibika amazi.

Muri iki gihe ubutunzi buturuka ku mazi muri ako karere buguma bunyika nkifu yimijira na cane cane mu nzuzi nkuko twari twabivuze mu vyamenyeshejwe mw'itangazo rya mbere rya Reta y'uburundi ku bijanye n'ihindagurika ry'ibihe.

Igeramirwa muri ako karere ryerekanwa cane cane n'ikenya ry'amazi meza ku benegihugu n'irwirirana ry'indwara ziterwa no gukoresha amazi mabi nka korera n'amacyina.

- **Imisozi yo mu Mirwa** : ni akarere kagizwe n'imisozi ihanamye iri hagati y'ikiyaya c'Imbo (774-1000m) n'urunani rw'imisozi ya Congo-Nil (2000-2670m). Iryo geramirwa riva kukuduga kurengeje kw'imisozi murako karere hari inzuzi nyinshi zegeranye kandi zimanuka gose. Kuronka amazi meza biragoye kubera gushinga kw'iyi misozi bituma imihana iba kure na kure kandi ubutunzi kama bw'amazi bukurikira urugero rw'igabanuka nkuko twaverekanye muvuyashikirijwe ubwambere n'ubwa kabiri na leta y'uburundi kubijanye n'ihindagurika ry'ibihe.
- **Urunani rw'imisozi Congo-Nil** : urwo runani rugizwe n'imisozi itonze umurongo ariko itangana : Mu Burengero, ruhanamiye ikiyaga Tanganyika kurenga imetero igihumbi (1000m), mu Buseruko ruca rufatana n'amataba yo hagati atakiyatandukanya kiboneka. Uburebure bw'urwo runani buri hagati ya metero ibihumbi bibiri n'ibihumbi bibiri n'amajana atandatu na mirongo indwi (2000-2670m). Ikirere caho kivamwo imvura iri hagati ya mirimetero igihumbi n'amajana ane na mirimetero igihumbi n'amajana atandatu (1400-1600mm) hamwe n'ubushuhe buri hagati ya 18°C na 15,8°C mu mwaka. Amasoko y'amazi ariko agabanuka nk'ahandi mu gihugu cose nk'uko

twabibonye mu vyashikirijwe ubwambere, bikagira inkurikizi ku mwimbu w'ibiterwa n'aho atari ku rugero rumwe n'izindi ntara z'igihugu.

- **Amataba yo hagati** : Iyo ntara irangwa n'imitumba myinshi itandukanywa n'imyonga iteze, ijaga kandi irimwo utugezi twinshi. Hagwa imvura ikwiye, ariko igaburwa ryayo mu bihe vy'umwaka nivy bitera ingorane. Igihe c'ici kimeze nk'igisigaye ari kirekire gusumba hambere, rimwe na rimwe hagaca amezi atanu canke atandatu ata mvura iguye. Ingorane iyo ariyo yose yerekeye ikirere ituma haba ikurikizi mbi ku masoko y'amazi, hagahava haba ukubangamirwa ku buzima bw'abenegihugu basanzwe aribenshi cane kandi batazi gusoma no kwandika.
- **Ikiyaya ca Kumoso** : iyo ntara irangwa n'ishamba rigizwe n'ibiti bitegeranye rimeze nk'iryo dusanga mu ntara zumye z'igihugu kibanyi ca Tanzaniya. Inzuzi ni nkeyi, amasoko y'amazi meza ntakunda kuboneka kandi ntiyegeranye. Imvura ihagwa yegereye igipimo ca mirimetero igihumbi n'amajana abiri k'umwaka (1200mm/an), ariko ubushuhe burenga ikigero ca 21°C, bigatuma hatakara amazi menshi agenda mu mwuka. Igeramirwa ry'iyi ntara ritumwa nivy bikurikira :
 - Ikama ry'amasoko y'amazi ari hejuru ;
 - Igabanuka ry'umwimbu w'ibifungurwa bituma hashobora kuza amapfa ;
 - Ukubura kw'amazi meza hafi na hafi ;
 - Isuku rike ku benegihugu batazi gusoma no kwandika bituma haduka indwara ziva mu kunywa amazi mabi (amacinya, korera) ;
 - Ubukene butagira izina no gutega amaboko abagira neza.
- **Ikiyaya ca Bugesera mu buraruko bushira ubuseruko**: Iyo ntara igizwe n'igice kinini c'intara ya Kirundo hamwe n'igice gitoya ca Muyinga intara irangwa n'imvura nkeya (ni kuvuga 1059.7mm ku mwaka iyo ijuru ryagenze neza kuva 1981-2010) hamwe n'ubushuhe bungana na 21°C bigaca bituma haba itakara ry'amazi biciye mu mwuka. Kuva mu myaka mirongo ibiri iheze iyo ntara ihura n'ingorane zivuye kw'ihindagurika ry'ibihe rituma imvura igwa itevye hagaca haba umwimbu muke ukurikirwa n'amapfa, impfu z'abantu n'amatungo, hamwe n'uguhunga amapfa. Ingaruka mbi zijanye n'ivyo biza bituma haza izi nkurikizi:
 - Kubura amazi yo gukoresha;
 - Igabanuka ridasanze ry'umwimbu rigakurikirwa n'amapfa hamwe n'impfu z'abantu;

- Ukudafungura ibikwiye haba kubakuze no kubana
- Guhunga kw'abenegihugu bagana ibihugu bibanyi barondera ahosumba ahandi;
- Gutege amashi abagira neza kugira bafashe abarokotse;
- Guhimiriza abenegihugu mu kugarukira kuri benewabo bo mu ntara za Kirundo na Muyinga;
- Gutituka kw'ibidukikije bivuye mu gutema amashamba, imiriro ya nyakanga, inkukura, imyuzurira mu myonga, itwarwa ry'imirima n'ibindi biza bitandukanye;
- Igabanuka ry'ibinyabuzima bivanye n'igabanuka ry'amazi y'ibiyaga.

III.1.2.4 Uduce tugeramiwe mu gisata c'amashamba n'ibibanza bikingiwe

- ❖ Mu kiyaya ca Rusizi, bivanye n'ukuragira be n'imiriro ya nyakanga, amashamba cimeza agizwe na calaba forirosa na commiphora madagascariensis, vyasubiriye buhoro buhoro ishamba rya hyphoene, navyo bigaca bisubirirwa n'ivyatsi bidakura.
- ❖ Mu ntara zirimwo amashamba atazitanye, ubwoko bw'ibiti uhasanga ni Brachystegia, julbernardia, Isoberliria navyo bikaba bitinya umuriro, gutemwa no guturirwa bica bituma hamera ibiterwa bibana n'udushamba tudashobora guhinduka ibibira canke hakaba ubugararwa bw'amabuye.

Iyo miriro ituma haba isubira inyuma ry'amashamba bigahinduka utwatsi tugizwe na hyparrhenia na loudetia, natwo utwo twatsi tugahava dusubirirwa n'isi igaragara canke ibingomangoma birimwo imigina y'iswa.

- ❖ Ibiti navyo birabangamiwe n'abenegihugu barondera inkwi zo gucana, ibiti vyo kwubaka n'amatongo mashasha yo kurima. Kubera y'uko urugero rwo gukoresha ibiti ari $1.26m^3$ ku muntu no ku mwaka, ukubura kw'amasoko ntanga nguvu yosubirira inkwi, kutaronka ibisubirira ibiti vyo gucana bituma ihonywa ry'amashamba riyongeraga gusumba.
- ❖ Kubera imvura nyinshi, utuyira duca hagati mu mashamba n'uturaro bizononekara kubera inkukura. Ku bitara, imyuzure ku masi aciriritse bizobandanya kandi bigire inguvu gusumvya. Ku mitumba ihanamye yo mu Mirwa, inkukura n'ibomoka ry'imisozi bizongerekana gusumba. Kubera imvura nyinshi, urugero rw'amazi ya Tanganyika ruzoduga.

- ❖ Mu gihe c'uruzuba rw'igihe kirekire, ubwoko bw'ibikoko bimwe bimwe n'ibiterwa bizogenda amazimayongo kubera ukwuma kw'ibinyabuzima vy'ibiterwa hakaba hashobora no kuza ubundi bwoko harimwo n'ibiyogeza ibiterwa.

Ku misozi, urugero rw'amazi ya Cohoha, Rweru, Rwihinda, Kanzigiri mu kiyaya ca Bugesera ruzogabanuka gose kubera iyongerekana ry'uruzuba. Igabanuka ry'amazi y'ivyo biyaga rizotuma hagabanuka ibinyabuzima biri mu gace k'ayo mazi hamwe n'igabanuka ridasanze ry'umwimbu w'amafi.

III.1.2.5 Intara zigeramiwe mu gisata c'amagara y'abantu

Indwara nyinshi ziteye isibe ziterwa n'ihinduka ry'ubushuhe n'iyongerekana ry'imvura.

a) Ukubangamirwa na marariya

Ibiharuro vy'igwirirana rya marariya vyerekana intara umunani z'igihugu ikazemwo gusumba izindi. Izo ntara ni Gitega, Karusi, Kayanza, Muramvya, Musinga, Mwaro, Ngozi na Kirundo hari ibice 56% vy'abenegihugu bose bafatwa n'iyi ndwara. Twomenya ko Marariya ibangamiye n'izindi ntara mu buryo busanzwe naho mu mezi amwe biba agahomera bunywa (Ndamukiza, Rusama, Ruheshi na Gitugutu, Munyonyo na Kigarama).

b) Ukugeramirwa mu gufungura nabi

Gufungura nabi ni ingorane ikomeye ku magara y'abantu kandi bituruka ku nkurikizi z'ihindagurika ry'ibihe. Icigwa kijanye no gufungura nabi mu Burundi hagati y'umwaka 2010 na 2018 vyerekana ko gufungura nabi kwagaragaye cane mu mwaka 2018 mu ntara za Ruyigi, Ngozi, Karusi na Mwaro. Ico cigwa cerekana kandi ko urugero ruri hejuru cane haba ku bahungu canke no ku bakobwa.

III.1.2.6 Uturere tugeramiwe mu bisata vyo gutwara abantu n'ibintu hamwe n'inyubakwa

a) Igisata co gutwara abantu n'ibintu

Inyubakwa rusangi mu gisata co gutwara abantu n'ibintu zirageramiwe n'ihindagurika ry'ibihe. Amasanganya menshi yaribonekeje cane ku mabarabara kandi mu ntara zitandukanye z'igihugu ibintu vyarunyutse bivuye ku mvura y'isegenya :

- Inyengetera ry'amazi kunkombe rituma ibomoka hamwe n'ubunyerere bwinshi bw'ibarabara ;
- Ibitarurwa birarererwa n'amazi co kimwe n'imiserege ;
- Inkengera z'ibarabara zirabomoka;
- Ibarabara rirononekara.

Amabarabara yahuye nizo ngorane ni:

- Ibarabara ry'igihugu RN1 ryarabomotse ahatari hake kuva mu mwaka wa 2012 bivuye kumvura nyinshi ;
- Ibarabara ry'igihugu RN3 (Bujumbura –Rumonge- Nyanza-lac) ryarononekaye ibice bitari bike vyaryo bivuye kw'ihindagurika ry'ibihe na cane cane imvura y'isegenya;

- Ibarabara RN9 (Bubanza-Ndora) rirageramiwe no gusiduka hamwe n'ukwata imigaga kuri PK4+860 ;
- Ibarabara Bujumbura-Cibitoke muri komine Bukinanyana mu micungararo y'ishure ry'intango rya Nyandago (PK27+800), ibomoka ry'umusozi mu ntango rituma abantu batarengana ;
- Ibarabara ry'igihugu numero R10 (Rugombo-Kayanza) naryo nyene rirabangamiwe co kimwe nayandi mabarabara. Ubunyerere n'imigaga biribonekeza. Izo ngorane urazisanga ku mabarabara aca ku nzuzi ziri mugisagara ca Bujumbura.

Igeramirwa siriy' amabarabara gusa. Imihora yo mukirere nayo nyene iriko irasinzikara nkuko bimeze kuma barabara. Ibibuga vy'indege birageramiwe n'iyononekara rya kaburimbi hamwe nifyonyagurika ry'imihora bivuye kuguhinduka kw'ububombe bw'isi. Hirya y'ivyo, imyuzure ibangamiye ikiyaya c'Imbo ntisiga ikibuga c'indege mpuza makungu ca Bujumbura.

Ikivuko ca Bujumbura kirageramiwe biturutse ku kwisuka kw'umusenyi uva mu ruzi Ntakangwa ruca impande y'ikivuko mu buraruko na cane cane mu gihe c'imvura. Inkengera z'ikivuko zibandanya zaguka kubera iyongerekana ry'umuvuduko w'amazi. Izo nkengera zagutse zica zonona inyubakwa zihagereye zigaca zisuka imicafu n'umusenyi impande yahagenewe kubika ibikono bijamwo igitoro hagati ya 4m na 1m. Aho hantu hose hafise ingorane y'umusenyi w'umurengera.

b) Igisata c'inyubako

Inyubako za leta nizo abikorera utwabo zirageramiwe n'ihindagurika ry'ibihe. Akarorero nyako nako igisagara ca Bujumbura cashikiwe n'ingorane nyinshi cane cane ku nkengera z'inzuzi zica muri ico gisagara.

Hambavu y'inyubakwa zabikorera utwabo, amashure nayo nyene yarahuye n'ingorane z'ukwata imigaga : ishure ry'isumbuye rya Vugizo, ishure ry'intango rya Mutanga no muri karitiye Nyakabiga kw'ishure rito ryitiriwe ikibanza ca bose (mupfunyapfunyo y'ururimi rw'igifaransa EPJP) aho imvura idasanzwe yononye ibitari bike kw'iryo shure mu mwaka wa 2012.

III.1.3 ukwihweza igeramirwa ry'ibisata vyatoranijwe kuva 2005 hamwe n'ingaruka ry'ihindagurika ry'ibihe muri ivyo bisata

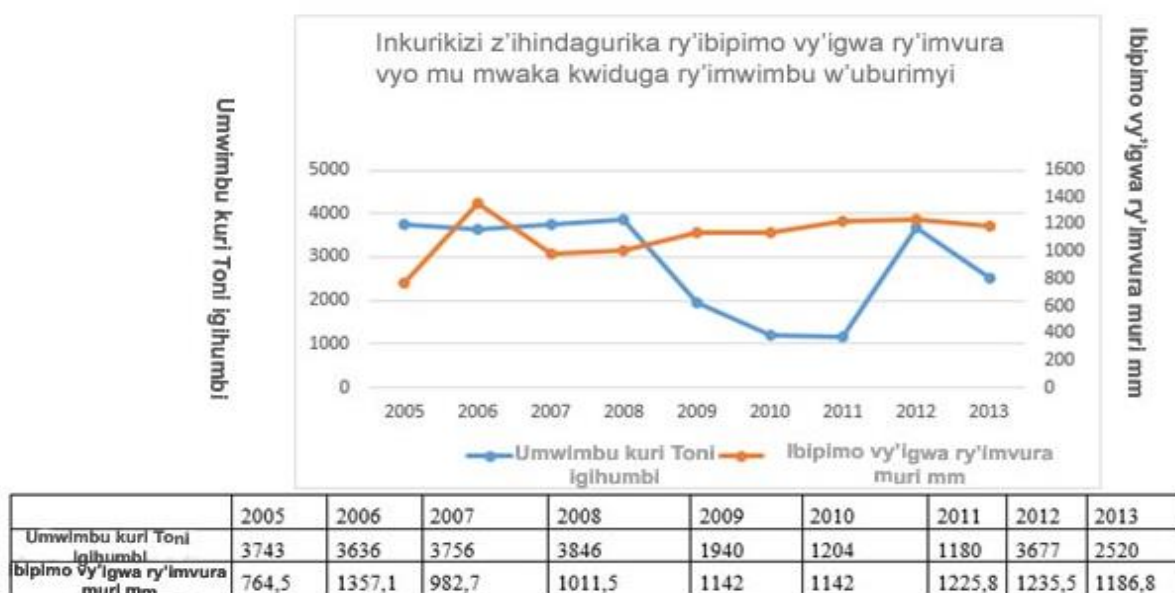
Mu Burundi, ibiza vyashitse mu bihe bitandukanye vyerekana ukuntu ibisata bitandukanye bigeramiwe, ivyo bikagira ingaruka kw'iterambere ry'ubutunzi bw'igihugu.

III.1.3.1 Ingene ibisata vy'uburimi, ubworozi n'uburovyi bigeramiwe

a) Uburimi

Inkurikizi z'ibiza bituruka kw'ihindagurika ry'ibihe ntizisiba kwiyerekana, biva kenshi kukugabanuka gukabije k'umwimbu w'ibiterwa.

Muho turiko turiga, ukwihweza ihindagurika ry'ikirere kutwerekana ko habaye n'ihindagurika ry'umwimbu uko umwaka utashe bigatuma haba igabanuka ridasanzwe ry'umwimbu kuva muri 2005 gushika 2016. Iryo vyabonetse cane cane kuva muri 2011 nkuko igicapo ca 14 kiyerekana aha muho.



Igicapo ca 14 : Inkurikizi z'ihindagurika ry'ibiranga igihe c'iduga ry'umwimbu

Hambavu y'ihindagurika ry'urugero rw'umwimbu hari izindi nkurikizi nazo ni izi:

- Igabanuka ry'umwimbu w'ibiterwa mbumba rugo ;
- Ihindagurika ry'ibihe vy'irima ;
- Igwirirana ry'indwara z'ibiterwa ;
- Igabanuka ry'umwimbu w'ibiterwa njabukamazi nk'ikawa n'ibigazi ;

Naho biruko, haraho bishika ko umwimbu w'ibigori, amasaka n'umuceri birwira.

b) Ubworozi

Ukwihweza igitigiri c'ibitungwa catumye tubona ko ibitigiri vy'ibitungwa mu ntara zigeramiwe n'uruzuba vyagabanutse tugereraniye n'intara zitarimwo uruzuba rwinshi, cane cane ku bitungwa birisha ubwatsi bwinshi nk'inka.

Igiharuzo ca 7 : ugutandukanya ibitungwa dufatiye ku ntara

Intara	Inka	Impene	Intama	Ingurube	Inkwavu	Inkoko	Ibitiba vy'inzuki
Bubanza	73472	121659	4089	38480		8273287	4219
Bujumbura	45575	116896	23851	30742	21934	139178	13549
Bururi	115270	163655	62030	25961	15116	273197	26113
CANKUZO	59752	157986	12045	3095		171592	21746
Cibitoke	19650	123012	10532	20371		119664	29527
GITEGA	58598	203653	32059	42325	39679	264747	128670
Karusi	29646	152396	28755	8939	28297	87085	21494
KAYANZA	37986	158726	31783	40572	84638	47169	27741
KIRUNDO	27926	176224	7880	16556	31566	198384	17890
MAKAMBA	21551	105381	18735	3973		355939	6497
MURAMVYA	36218	65873	8573	14506	22105	53564	9145
MUYINGA	25906	265653	14703	49259	54671	301177	14959
MWARO	51717	63238	21869	15155	14855	70660	6517
NGOZI	47887	139194	31179	25521	48413	111435	23306
RUTANA	21221	181472	7545	12995		162705	12608
RUYIGI	23349	19563	14185	14794	10809	203893	25857

Igikorwa c'umwihwezo w'ingene ibitigiri vy'ivyororwa bingana ku kirometero kwadarato (km²) (Ubwinshi bw'ivyororwa: igicapo ca 3) mu ntara zitandukanye z'igihugu kirashira ahagaragara ukuri kuri hagati y'ubusumbasumbane ufatiye ku kurwira kw'ivyatsi bikundwa bivanye n'ikirere ufatiye ku ntara kandi bimeze uku gukurikira:

- ❖ Intara zigeramiwe n'uruzuba (ziri munyandiko ihiritse kandi ishimitse) zirimwo inka nkeyi ku Km² ariko ibitungwa bitobito ni vyinshi (impene, ingurube be n'impene) ;
- ❖ Intara zibangamiwe buke buke zirimwo igitigiri c'inka n'ivyororwa bito bito bimeze nk'ibingana kubera zisanze ari intara kama z'ubworozi. Vyongeye tuzisangamwo utubande two kuragiramwo ;
- ❖ Intara zigeramiwe buke (Gitega, Kayanza, Muramvya, Mwaro na Ngozi) zirimwo inka zigereranye ariko ibitungwa bito bito ni vyinshi. Iyororwa ry'ibitungwa binini ntirituruka kw'igeramirwa n'uruzuba kubera ko hari ibindi bituma nk'irwirana ry'abantu (Igiharuzo ca 6).

Igiharuzo ca 8 : Igabanganywa ry' ibitungwa hisunzwe ubwinshi kuri km2

Intara	Uburinganire (Km ²)	Inka	Impene	Intama	Ingurube	Inkwavu	Inkoko	Ibitiba vy'inzuki
BUBANZA	1089	58	88	3	40	3	83	30
BUJUMBURA	1233	49	69	12	66	7	75	38
BURURI	1376	75	77	37	17	9	50	34
CANKUZO	1965	33	86	6	3	3	52	9
CIBITOKE	1636	19	80	4	14	-1	98	15
GITEGA	1979	39	80	15	30	23	92	14
KARUSI	1457	21	94	11	10	19	74	9
KAYANZA	1233	25	116	18	34	34	67	13
KIRUNDO	1703	12	144	2	13	29	107	12
MAKAMBA	1960	15	57	14	6	3	91	2
MURAMVYA	696	59	62	6	30	20	75	7
MUYINGA	1836	16	112	14	16	19	95	6
MWARO	1376	40	35	16	20	8	52	2
NGOZI	1474	28	68	3	19	57	33	14
RUTANA	1959	13	62	7	3	2	70	4
RUYIGI	2339	15	114	11	10	3	69	5
Urugero rw'igihugu	25311	30	86	9	19	23	77	11

Hambavu y'urugero rw'ibitigiri rw'ibitungwa, hari ibindi bimenyetso vyihariye biva kw'ihindagurika ry'ibihe:

- ✓ Igabanuka ry'umwimbu w'amata gushika ku bice 60% kubera ubwatsi bwumye ;
- ✓ Gutakaza ibiro kw'ibitungwa gushika ku bice 30% ;
- ✓ Igabanuka ry'irondoka ry'ibitungwa ;
- ✓ Ugufatwa n'indwara nk'inyonko y'ibitungwa, inzoka be n'umuyaya ku bitungwa bikuru nk'inka.

c) Igisata c'uburovyi

Kuvyerekeye ikiyaga ca Tanganyika, imero y'imicungararo y'ikiyaga n'iyo ituma ibinyabuzima vyo mu mazi bibaho. Ivyo bitumwa n'utunyabuzima turibwa hamwe n'umwuka wo guhumeka

usanga mu mazi. Kubaho n'igabanganwa ry'ivyo bibiri bituruka k'ubushuhe n'ivangavangana ry'amazi musu ku metero 100.

Umwihwezo w'ibipimo vy'ubushuhe bw'ikiyaga hagati y'umwaka 1964 na 1994 ryerekana ukwongereka kw'ubushuhe bungana na 0.7°C i Bujumbura. Amazi yo hejuru afise ubushuhe bwababa 26°C, ni ukuvuga ko ubushuhe bwiyongereye ku rugero rwa 0.34°C mu myaka 37.

Ivyo bituma kandi n'amazi yo musu ashuha bigatuma ivyokurya n'umwuka wo guhumeka bigabanuka. Uwo mwaka warashika ku metero 60 muri 1994.

Amaza ku nkengera, amazi y'ikiyaga yaraduze hagati ya 1961 na 1964, vyaturutse kuruvura rwinshi bituma urugero ruva ku metero 775.09 rushika ku metero 777.06 ni ukuvuga ko rwiyongereye i metero 2. Kugereranya ivyashitse muri kahise kuvyerekeye ibihe mu nkengera z'ikiyaga Tanganyika hamwe n'ivyerekeye umwimbu w'amafi vyerekana ko bifitaniye isano cane cane ufatiye ku muvuduko w'umuyaga. Umwaka wa 2016 wabayemwo umuyaga unyaruka cane utari bwaboneke ku kibuga c'indege ca Bujumbura ku muvuduko wa 1.4m ku mu segonda, i Makamba wari nka 1,6m ku mu segonda. Uwo mwaka niwo wabayemwo umwimbu w'amafi mwinshi utari bwaboneke, ungana n'amatoni 21806 muri icyo gihe kuva 2005 gushika 2017.

Kuvyigwa vy'ubushuhe, uko bihindagurika biratandukanye n'urugero rwo gufata amafi. Ivyo vyaradomwe ko urutokye muri icyo gihe mu mwaka wa 2005 wari ushushye gusumba iyindi yose gushika ku bipimo vya 30.8°C na 30.2°C i Bujumbura ni Nyanza-lac, umwimbu w'amafi uca uba mukeya gose gushika ku amatoni 9605.

Twibukanye ko Andrew Cohen yari yaravuze ko ukwongereka kw'ubushuhe bw'ikiyaga kwari kwatanguye kugira inkurikizi k'ubuzima bw'amafi, bica bituma hakeha uburaro bukwiye bwayo mafi mu kiyaga Tanganyika. Udufyera tugabanuka ku rugero rwa 38% kuva 1946 ivyo tubisanga mu kinyamakuru "Proceeding of National Academy of Sciences, 2016". Muri icyo candiko ku binyabuzima vy'amafi mu kanyabutatu ka Rusizi no mu micungararo y'ikiyaga, basanze ubwoko bw'amafi 32 yatowe mu mwaka 1998 butashoboye gutorwa muri 2007.

Uko bigenda kose, kubera ihindagurika ry'ibihwe, hazoba igabanuka ry'ububiko bw'amazi, ibinyabuzima bibure aho biba, iyongereka ry'inkukura no kwandura kw'amazi hamwe n'igabanuka ry'umwimbu w'amafi. Izindi nkurikizi n'izi zikurikira:

- Ibura ry'amafi y'amororano ;
- Gusambuka kw'inyubakwa z'uguhingura amafi, kw'ibirwari n'ibikoreshe vyo kuroba ;
- Kugabanuka gukabije kw'urugero rw'amazi canke gukama burundu kw'inzuzi n'ibigega vy'amazi ;
- Kugabanuka canke ibura ry'isesa ry'uruzi ;
- Kwononekara kw'uturere tubomvye ;
- Irwirirana ry'urudengeri rw'amazi ;
- Ibura ry'amafi mu kiyaga ;
- Itwarwa ry'abarovy.

III.1.3.2 Ukwihweza igeramirwa mu gisata c'amasoko ntanganguvu

Ingaruka k'uruzuba n'uruvura rwinshi vyiyerekanye mu ntara zimwe zimwe z'igihugu vyatumye umwimbu w'ingomero z'umuyagankuba ugabanuka. Mugihe imvura yataze, urugero rw'amazi rw'ingomero z'umuyagankuba ruragabanuka bigaca bituma umuyagankuba utabonekera ku gihe nkuko vyari bisanzwe. Yamara haribonekeje igabanuka ry'urugero rw'amazi mu rugomero

rw'umuyagankuba rwo mu Rwegura mu bihe imvura igwa ku bwinshi. Kubera urwo rugomero arirwo rw'ifashishwa cane mu gihe izindi ngomero ziba zatewe n'ivyondo vyazibiye imiringoti. Hafatiwe kw'irwirirana ry'ibitera ihindagurika ry'ibihe, iyongerekana ry'umuyagankuba mu ngomero zimwe zimwe, uwo mwihwezo werekana isano riri hagati y'umwimbu w'umuyagankuba n'ihindagurika ry'ibihe. Uwo mwihwezo waranakozwe no kubijanye n'igabanuka ry'urugero rw'amazi mu rugomero rw'umuyagankuba rwo mu Rwegura mu mwaka wose kukiringo kiva kuri 2010 gushika 2015 n'ihinduka ry'urugero mfatizo mu mwaka kuri ico kiringo nyene.

Iyavuye muri uwo mwihwezo vyerekanwa muri iki kibaruzo gikurikira:

Igiharuzo ca 9 : umwihwezo w'igeramirwa ry'igisata c'amasoko ntanganguvu mu Burundi

Igisata cihwejwe	Ibibazo nyamukuru/inkurikizi zishoboka	Igeramirwa	Ukwo vyitwa
Amasoko ntanganguvu	Iburagirika ry'umuyagankuba uva ku mazi	Igeramirwa riva ku:	
		1. kugabanuka kw'urugero rw'amazi mu biyaga bivuye kukugabanuka kw'imvura n'uruzuba rurerure canke ibikorwa muntu mu biyaga tubande	Ukubangamirwa kurengeje urugero
		2. Iyuzura z'ivyondo ry'ingomero bivuye ku nkukura nyinshi ritewe n'uruvura rurengeje	Ukubangamirwa kurengeje urugero
		3. Iyononekara z'inyubakwa z'amahinguriro n'ibikoresho vy'umuyagankuba bivuye kuruvura rwinshi rwateye imyuzurira	Ukubangamirwa kuri hagati na hagati
		4. Ikenerwa ry'umuyagankuba mwinshibivuye kwiduga ry'ubushuhe	Ukubangamirwa kudashemeye
	Igabanuka ry'inkwi zo gucana	Igeramirwa rivuye mu kurondera inkwinyinshi zo gucana bigatuma ibiti bihona	Ukubangamirwa kuri hagati na hagati
	Ingorane yo kuronka amazi	Igeramirwa rivuye kw'ikena ry'umuyagankuba kugira ngo amapompo akore neza	Ukubangamirwa kudashemeye

Ingaruka ry'ihindagurika ry'ikirere ziyerekanye muri kahise mbere n'ubu mu gisata c'umuyagankuba uva ku mazi ni nkizi:

- Igabanuka ry'umwimbu w'umuyagankuba mu gihugu cose biturutse ku ruzuba n'itara ry'imvura ryatumye haba icikagurika ry'amata muri kahise;
- Ukugabanya gukoresha umuyagankuba canke kwugara ingomero zimwe zimwe (akarorero ka Marangara);

- Ukwuzura ivyondo kw'ingomero n'utugomero zahora zikora kubera inkukura mu misozi no mu nkengera z'ingomero (akarorero k'urugomero rwa Ndurumu i Buhiga);
- Imyuzurira ikaze ku rugomero rwa Ruvyironza i Gitega, be n'urugomero rutanga umuyagankuba uva kuzuba i Bujumbura mu mwaka wa 2017 be na 2018 bivuye ku mvura irengeje;
- Isambuka canke itituka ry'ibikoresho bitwara umuyagankuba (ibiti, intsinga, ivyuma bigabanya umuvuduko w'amatare) i Bubanza, Bururi, Makamba, Rumonge, Bujumbura na Kanyosha, nahandi.
- Iyongerekana ry'urugero rw'umuyagankuba kugira bakanyishe inyubakwa mu gisagara gishushye cane nka Bujumbura. Kubera yuko atabiteguye biraboneka muvuyerekeye gukanyisha amazu, ntawoshobora gutanga urugero rw'igeramirwa ryoba riva ku muyagankuba bivuye kw'ihindagurika ry'ikirere. Mugabo ivyigwa vyarerekanye ko ukwo ubushuhe bwiyongera niko hasabwa umuyagankuba mwinshi.

III.1.3.3 Isuzuma ry'igeramirwa mu gisata c'amazi

Amazi yo mu kuzimu avomera imirima ameze neza ashobora guhindurwa n'ihindagurika ry'ibihe iyo ariko arabisikanya mw'isoko. Rero umwihwezo w'ipimwa ry'urugero rw'amazi mu gace k'ipimiro ka Gitega hakoreshejwe ibipimanguvu 4, warabandanijwe kuva 2013 gushika uno musi. Ivyavuye kw'uwo mwihwezo vyatumye uwujwe ako gace ahindura ingendo mu gukurakuranya irungikwa ry'amazi.

Umwihwezo w'urugero rw'amazi mu gace k'ipimiro ka Rumonge hakoreshejwe ibipimanguvu 5 werekana ivyashitsweko bikurikira:

- Kubera isi ya Rumonge yubatswe mu budasa bwibumba guhera hejuru, igitandara ca 2 kirakingiwe cane n'ingaruka zishoboka z'ugucufuza amazi, bitandukanye n'igitandara cegereye hejuru kitigeze gishikwako n'amacukurwa yakozwe;
- Ibipimanguvu 1 na 5 (Ru-Pz01 na Ru-Pz05) vyaremeje ko urugero rw'icunyunyu fer ruba rutoya iyo uriko uregereza ku mpera z'ubuseruko bw'igisagara kandi ko vyosaba gusukura amazi kugira ashobore kunyobwa;
- Kuvyerekeye iyo ayo mazi atemba aja ugupima ukoresheje DGPS ufatiye kuri ivyo bipimanguvu 5 vyashoboye kwemeza yuko imirongo ndangabushobozi ibangabanganwa n'inkombe z'ikiyaga ni ukuvuga iyo amazi atemba ava (mu mitumba/ku musozi) uagenda ku kiyaga.

Ikigega c'amazi ca Gihofi na Kinyinya mu ntara ya Kumoso kingana n'ibipimanguvu 5. Kuvyerekeye ubushobozi, ivyashitsweko twasanze ari vyiza i Gihofi, kumurindi w'amazi uri ku rugero rurenga 50m^3 kw'isaha. Amabuye y'ishwagara arimwo imigaga afise inguvu nyinshi ubiteraniye n'ibiranga amazi bishimishije cane kurugezo rwa $T=2.1 \times 10^{-2} \text{m}^2$ ku mu segonda. Ibishwagara vy'ibivubivu biri mu kigega c'amazi bikwiragira buhoro buhoro gusumba ivyo mu Gihofi. Umuvuduko w'amazi wabababwira 10m^3 kw'isaha. Amazi yo mu kuzimu afise akanovera mu ntara ya kumoso, kiretse hamwe hamwe usanga harimwo icunyunyu fer mu mpande zimwe zimwe (Igiharuzo 10).

Igiharuzo ca 10 : Umwihwezo wa bimwe mu biranga ubutaka

ID	Ec μS/cm	ubushuhe °C	Igipimo c'ubumara pH	Icunyunyu Fe(II) mg/l	O2 yayonze mu mg/l	Fluor mg/l	Redox
Gf-F1bis	502	24.4	7.0	0.8	8	0.24	259
Gf-F2	440	24.6	7.3	0.2	7	0.12	247
Gf-F3	545	23.5	7.1	0.0	6	0.06	240
Kn-F1	171	24.3	6.5	1.0	2	0.13	
Kn-F2	182	23.8	6.6	0.4	3	0.00	132

Ubusumbasumbane bw'imvura dufatiye ku ntara no kugihe mu gihugu butuma mu ntara zimwe imvura y'ikirenga itera ingorane zikomeye bigatuma umwimbu w'uburimyari ucuba mukeya. Vyongeye iyongerekanari ubushuhe n'imvura bituma akanovera k'amazi kagabanuka, hagaca haba irwirirana ry'indwara ziterwa n'udukoko n'amazi mabi, marariya niko karorero kaboneka cane mu Burundi. Inkukura ivuye ku mvura ituma ibiyaga vyuzura urwondo inkurikizi nazo zikaba igabanuka ry'umuyagankuba n'uwundi upfa ubusa kubera ubushuhe bwongerekanye birenze urugero.

Kuvyigwa vyashizwe ahabona n'ubuyobozi bw'amasoko y'amazi mu bushikiranganji bujewe ibidukikije itituka ry'akanovera canke kubura amazi biterwa n'ihinduka ry'ikirere bishobora kugira izi nkurikizi:

- **Mu mibano, amagara n'ibidukikije** : ubushuhe bivuye ku kuvoma kure ; iyongerekanari ry'indwara zo gucibwamwo ; iyongerekanari ry'amatati avuye mu gupfa amazi n'iyongerekanari ry'iva muzabo ry'abantu kubera ibura ry'amazi ; itituka ry'akanovera k'amazi n'iyobu hoba hagiye mu uducafu dukeya; akamuto kabi kavuye kw'iyongerekanari kw'umwuka wa N_2O ;
- **Uko inyubako rusangi n'ibikoreshe vyifashe** : itituka ry'inyubako n'ibikoreshe, ugushyira inyuma kw'iterambere n'isambuka ryazo ;
- **Akanovera k'amazi n'ingene gahungabanywa** : kwononekari kw'amazi kubera ko habuze umuti wokuyategura ngo bakuremwo umwanda n'ivyunyunyu biyatesha akanovera, ukudashika aho amazi avomwe, kwandura kw'amazi kubera yatembewemwo imivo, ibura ry'amazi kubera kwononekari kw'ibikoreshe, itituka ry'ibigega vy'amazi kubera vyarengewe hamwe n'ihagarikwa ry'ugutanga amazi vy'imfata kibanza iyo atayahari ;
- **Ikenerwa ry'amazi** : iyongerekanari ry'amazi akenewe n'urugero rw'ayo ku kubayakoreshe ;
- Kuvyerekeye gutanga amazi n'uko abikwa: kwononekari kw'ibinyabuzima (ugupfa kw'udukoko tumwe tumwe dutoduto), itituka ry'inyubakwa n'imiringoti bivuye ku bushuhe bw'ivyuma kubera irwirirana ry'umwuka wa Hydrogene urimwo soufre (H_2S)

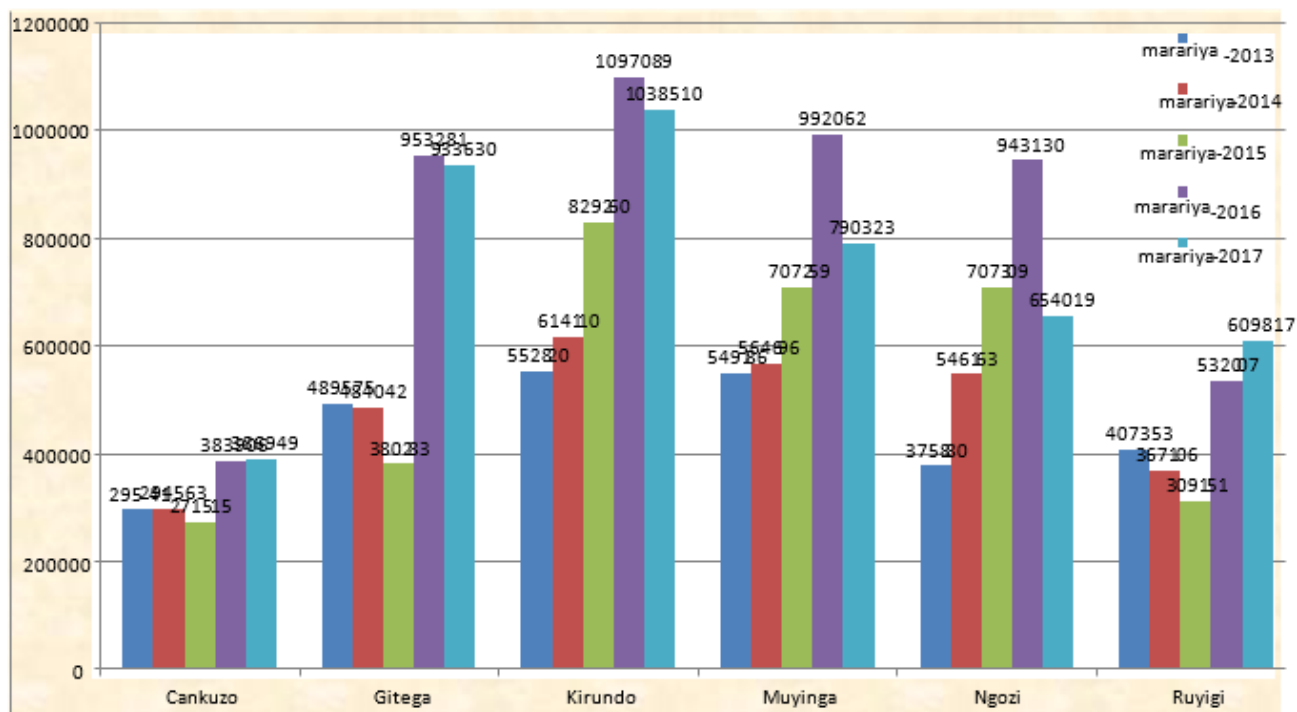
III.1.3.4 Umwihwezo w'igeramirwa ry'amashamba n'ibibanza bikingiwe

Mubishobora gushika kubera ihindagurika ry'ibihe, twovuga ko nkiyo imvura ibaye nyinshi, irimwo imiyaga n'ibi bikurikira:

- ✓ Ukwononekara kw'ibiba mu mashamba n'isitagurika ry'ibiti biherekejwe n'ibomagurika ry'imisozi. Ibindi bishika ni nk'izimangana ry'ibinyabuzima (ibikoko n'ivyatsi) harimwo n'ibiterwa bivuye kundwara ziterwa n'utuzinu duto duto ;
- ✓ Bivuye kumvura nyinshi, utuyira two mu mashamba n'uturaro duto duto turononekara kubera ivyondo ;
- ✓ Kandi amatuta y'ibiti hamwe n'imbuta zo gutera birahononekarira ;
- ✓ Kuvyerekeye ibibanza bikingiye, imyuzurira yo mu misozi iciriritse iribonekeza kandi ni myinshi. Mu misozi ihanamye yo Mumirwa inkukura irabomora imisozi ikaza n'umurindi munini. Kubera imvura y'ikirenga, urugero rw'amazi y'ikiyaga Tanganyika rurasubira kuduga ;
- ✓ Mugihe uruzuba rumaze igihe kinini, ubwoko bumwe bumwe bw'ibiterwa n'ibikoko burazimangana kubera ivyatsi biba vyumye bikaba bishoboka ko haboneka ubundi bwoko bw'ibinyabuzima harimwo n'ubukoko butera ibiterwa ;
- ✓ Kubijanye n'ibibanza bikingiwe, urugero rw'ikiyaga Cohoha, Rweru, Rwihinda na Kanzigiri mu kiyaga ca Bugesera ruguma rugabanuka kubera iyongerekana ry'uruzuba ;
- ✓ Igabanuka ry'urugero rw'amazi y'ivyo biyaga rituma haba igabanuka ry'ibinyabuzima hamwe n'igabanuka ry'umwimbu w'uburovyi.

III.1.3.5 Igeramirwa mu gisata c'amagara y'abantu

Hishimikije igipimo c'irwirirana ry'indwara z'ibiza mu Burundi, harihwejwe isano riri hagati ry'ihindagurika ry'ibihe n'ingorane ziba mugisata c'amagara y'abantu. Marariya n'ugufungura nabi nizo ngorane zisumba izindi.



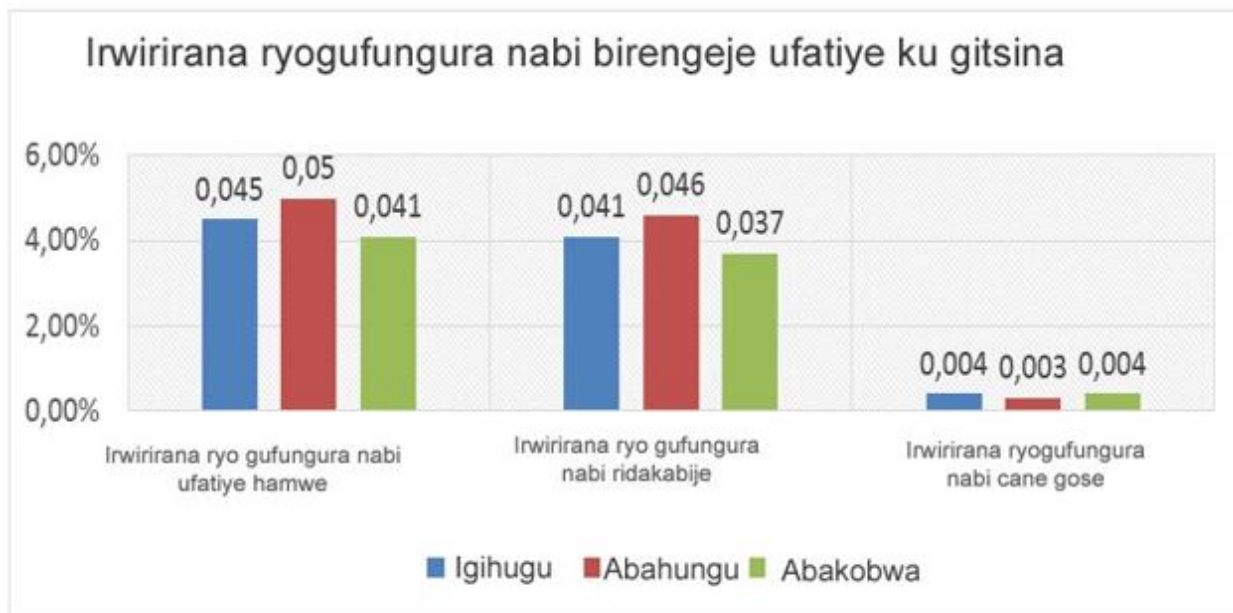
Igicapo ca 15 : Irwirirana ry'amarariya mu turere tumwe tumwe twacaguye kuva 2013-2017

a) Kugeramirwa n'indwara ya Marariya

Muri 2017, marariya niyo ndwara ya mbere yica abantu kuko abashobora gufatwa na marariya bari ku rugero rwa 815.2‰ (ku bantu 1000) n'uburwayi buri ku rugero bwa 27% (EDSIII, 2016-2017). Marariya yo nyene ingana na 45.4% ku bitigiri vy'abivujije ku ma vuriro mu mwaka 2017 kandi 50.5% y'abana bari musyi y'inyaka 5 bavuye bari barwaye marariya (igicapo 15 kiri hejuru)

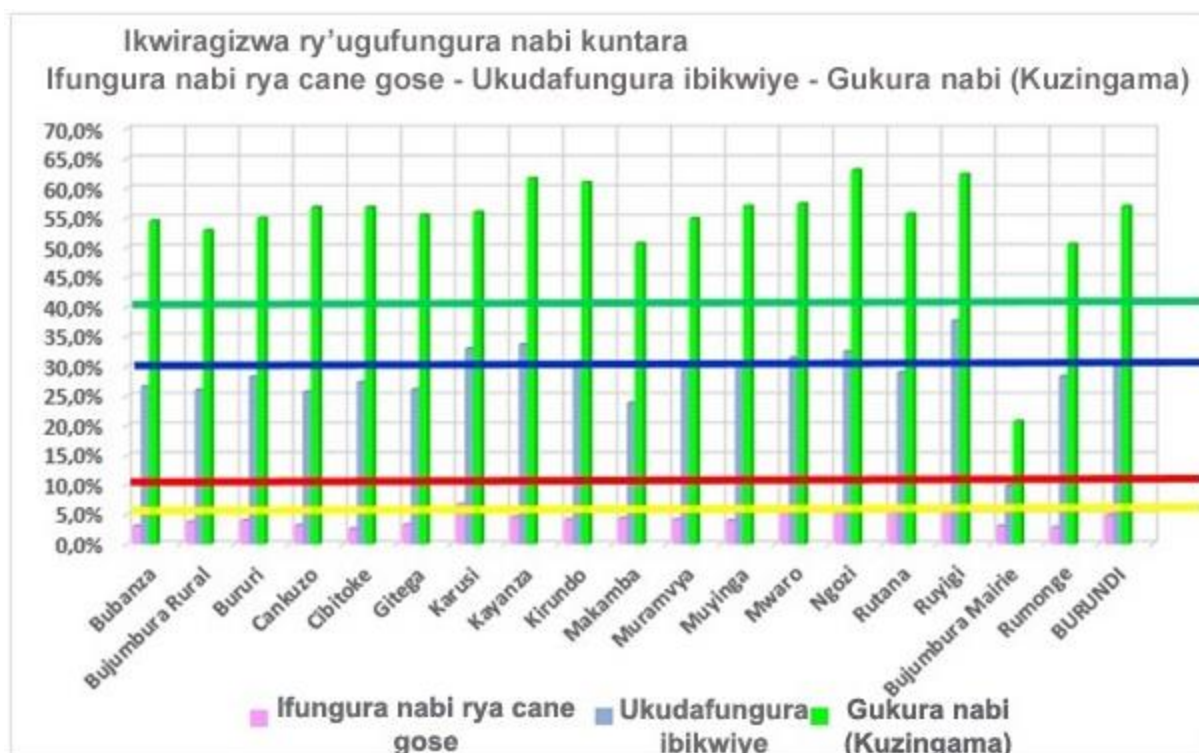
b) Ukugeramirwa n'ugufungura nabi

Ugufungura nabi ni ikibazo kidasanze kuyerekeye amagara y'abantu kandi guterwa n'ihindagurika ry'ibihe. Dufatiye ku vyigwa vya EDSIII 2016-2017, ibipimo vyerekana ugufungura nabi ku bana bari musyi y'inyaka 5 ni 56% harimwo abafungura nabi cane gose bashika 6% (igicapo 16).



Igicapo ca 16 : irwirirana ryo gufungura nabi birengeje ufatiye ku gitsina

Umwihwezo w'irwirirana ry'ugufungura nabi utwereka ibura rikabije ry'ibifungurwa nka hose mu ntara z'uburundi. Ibiharuro ni ikirenga i Ngozi, Kirundo, Kayanza, Ruyigi na Cankuzo. Ukuzingama kw'abana kuri mu gihugu cose kiretse mu gisagara ca Bujumbura. Ibituma iryo fungura nabi riratandukanye ariko ntawokwirengagiza ihindagurika ry'ibihe (igicapo ca 17).



Igicapo ca 17 : urugero rwo gufungura nabi ku ntara

III.1.3.6 igeramirwa mu gisata co gutwara abantu n'ibintu hamwe n'inyubako

Ukugeramirwa kw'inyubakwa rusangi n'ibindi kujanye n'ingene zubatswe hamwe n'ibizikikije nivyoyerekana ikarirwa ry'izo nyubako n'ihindagurika ry'ibihe. Bisanzwe bizwi ko umuvuduko w'ihindagurika ry'ubushuhe uva cane cane aho iyo nyubakwa iri n'ubwoko bwayo (ibarabara, ikivuko, ikibuga c'indege n'ibindi). Muvyerekeye inyubakwa, ibihimba bibangamirwa gusumba ibindi bihinduka uva ku nzu uja kuyindi biturutse aho yubatswe, ukuntu imeze, kumyaka imaze n'ico ikoresheya. Kuberako izo nyubakwa ziri mu ntara ikazemwo imyuzurira, inzu nizo zigeramiye cane. Ugusenyuka kw'imisozi inyuma y'imvura nyinshi kurabangamira inzu ziri aho hantu. Ivyo arivyo vyose, haraba ibibazo bidasanzwe gushika aho kwimuka ariyo nyishu yo nyene iba isigaye.

III.1.4 Ugutera imbere kw'ibisata bitandukanye mu guhangana n'ihindagurika ry'ibihe guhera ubu gushika muri 2050

III.1.4.1 Integukanya bihe gushika 2050

Mu ntumbero yogutegura icegeranyo ca gatatu kw'ihindagurika ry'ibihe, integukanya ry'ibihe ryakozwe n'ikigo kijejwe ivy'ihindagurika ry'ikirere (IGEBU) hakoreshejwe ivyoshobora

gushika ritegekanya ko hazoba ubushuhe bw'inshi bw'ikirere mu gihe c'ici kandi bizoguma vyongerekana muri kazoza.

Iteganya gihe mu mihingo itandukanye y'igihugu ryerekana ko urugero rw'imvura n'ubushuhe buzongerekana. Ubuhinga buhanitse bw'indanga gihe (RCP 4,5 na RCP 8,5) bwerekana ko ku mwaka imvura iziyongera ku rugero ruri hagati y'ibice 12% na 13.15% hose ku bibanza 5 vy'indanga gihe gushika mu mwaka wa 2030 na 2050. Vyerekana kandi 0,80 na 0,91 mu mwaka wa 2030 n'iyongerekana ry'imvura riri hagati y'ibice 1.89% na 2.02% gushika mu mwaka wa 2050.

Ubwo buhinga bwerekana kandi iyongerekana ry'ubushuhe ku rugero rwa nyuma ku mwaka ruri hagati y'ibice 0.91% na 0.99 % gushika mu mwaka wa 2030 n'iyongerekana riri hagati y'ibice 2.04% na 2.14% gushika mu mwaka wa 2050 ku bishobora gushika vyose n'ibibanza vyose vy'indangagihe.

Amahindagurika yategekanwa ku mvura no k'ubushuhe bwanyuma n'ububayabaye ntibihushanye cane ku buhinga ndangagihe RCP 4,5 na RCP 8,5, ariko birahushanye gushika ku mwaka wa 2030 na 2050.

Ku kigo ndangabihe c'**Imbo**, imvura ku mwaka izohinduka kuva kubice 12.95% gushika mu mwaka 2050 mu gihe ubushuhe bwanyuma bugereranye ku mwaka buzohinduka ku rugero rw'ubushuhe rwa 0.87oc gushika 2030s na 2.02oc gushika mu mwaka 2050s, n'ubushuhe bubayabaye buzoboneka ku rugero rwa 0.91oc gushika mu mwaka wa 2030s na 2.12oc mu mwaka wa 2050s.

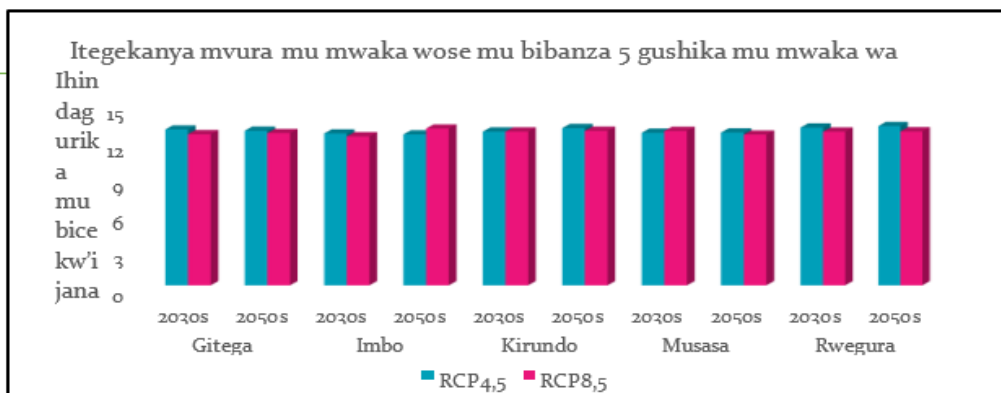
Ku kibanza c'indangagihe ca **Rwegura**, imvura izohinduka ku rugero rw'ibice 13.15% gushika mu mwaka wa 2050 mu gihe ubushuhe ku rugero rwa nyuma buzoboneka ku rugero rwa 0.80oc gushika mu mwaka wa 2030s na 1.97oc gushika mu mwaka wa 2050s, n'ubushuhe bubayabaye buzoboneka ku rugero rwa 0.92oc gushika mu mwaka wa 2030s na 2.13 oc gushika mu mwaka wa 2050s.

Ku kibanza ndangagihe ca **Gitega**, imvura izogabanuka ku rugero rw'ibice 12.88% gushika mu mwaka 2050 mu gihe ubushuhe bwa nyuma buzohinduka ku rugero rwa 0.89 oc gushika mu mwaka wa 2030s na 1.95 oc gushika mu mwaka wa 2050, n'ubushuhe bubayabaye buzohinduka ku rugero rwa 0.93 oc gushika mu mwaka wa 2030 na 2.09 oc gushika mu mwaka wa 2050.

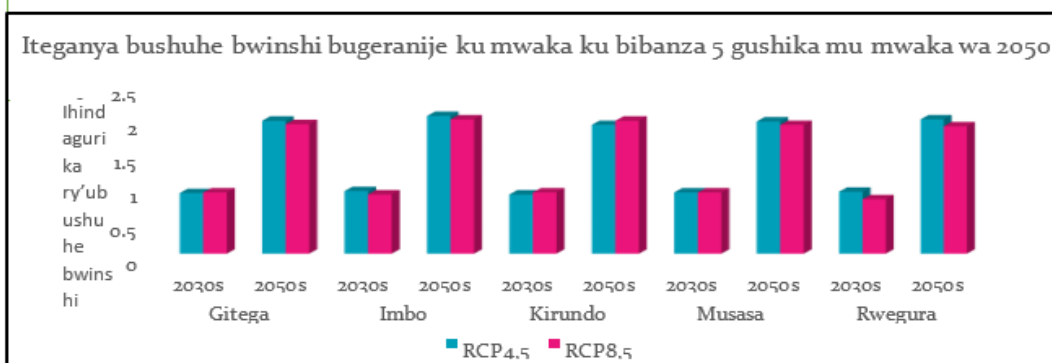
Ku kibanza ndangagihe ca **Kirundo**, imvura izoboneka ku rugero rw'ibice 12.99% gushika mu mwaka wa 2050 mu gihe ubushuhe bwa nyuma buzogera ku rugero rwa 0.87 oc gushika mu mwaka wa 2030 na 1.95 oc gushika mu mwaka wa 2050, n'ubushuhe bubayabaye ku rugero rwa 0.95 oc gushika mu mwaka wa 2030 na 2.14 oc gushika mu mwaka wa 2050s.

Ku kibanza ndangagihe ca **Musasa**, imvura izoboneka ku rugero rw'ibice 12,75% gushika mu mwaka wa 2050 mu gihe ubushuhe bwa nyuma buzongana na 0.90 oc gushika mu mwaka wa 2030 na 1.94 oc gushika mu mwaka wa 2050s, n'ubushuhe bubayabaye buzongana na 0.95 oc gushika mu mwaka wa 2030 na 2.11 oc gushika mu mwaka wa 2050s (raba ibicapo biri musu).

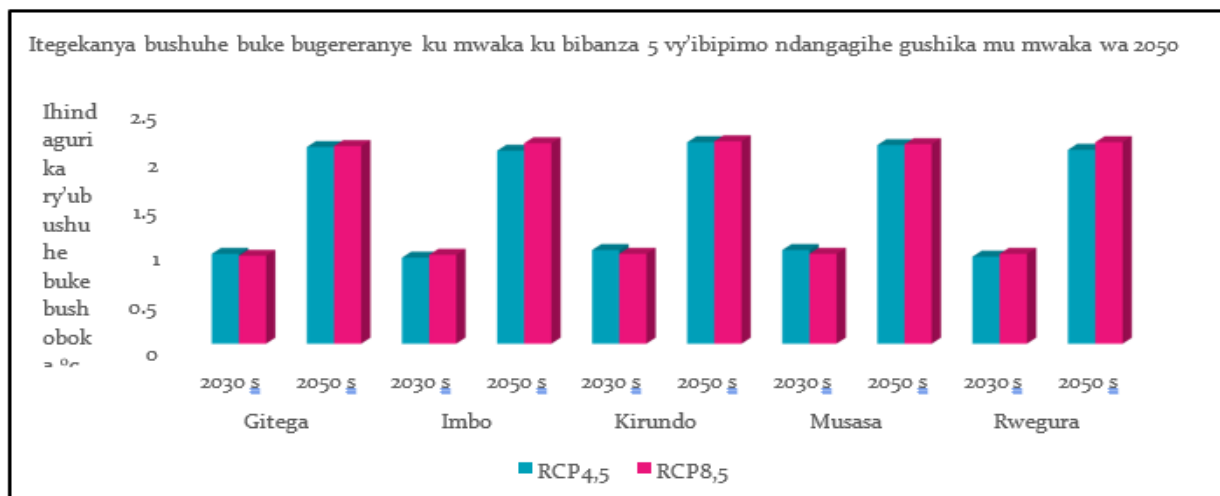
Amateganya bihe yarerekanye ihinduka ry'imvura rimeze nka co kimwe kuri izo nteganya bihe zibiri no kungero zibiri (2030 na 2050) mu gihe hibonekeza amahindagurika ku ngero z'ubushuhe bwa nyuma n'ububayabaye izo nteganyabihe zitegekanye ihinduka ry'ubushuhe bu bayabaye bwo hejuru gushika ku bushuhe bwa nyuma n'ububayabaye. Ivyo vyerekana ko muri kazoza, hazibonekeza iyongerekana ry'ubushuhe mw'ijoro gusumba ku murango. Izo nteganyagihe ziza zishimangira amateganyagihe yakozwe yakozwe n'umugambi ACCES n'icegeranyo ca 2 gishikirijwe na leta y'uburundi kubijanye n'ihindagurika ry'ibihe c'umwaka wa 2010 (igicapo ca 18).



Itegekanya bushuhe bwinshi bushoboka gushika mu mwaka wa 2030 na 2050 ku bibanza 5 vy'ibipimo ndangagihe vya **Gitega, Imbo, Kirundo; Musasa na Rwegura**



Iyongerekana ry'ubushuhe buke bushoboka gushika mu mwaka wa 2030 na 2050 ku bibanza vy'ibipimo ndangagihe vya **Gitega, Kirundo ; Musasa na Rwegura**



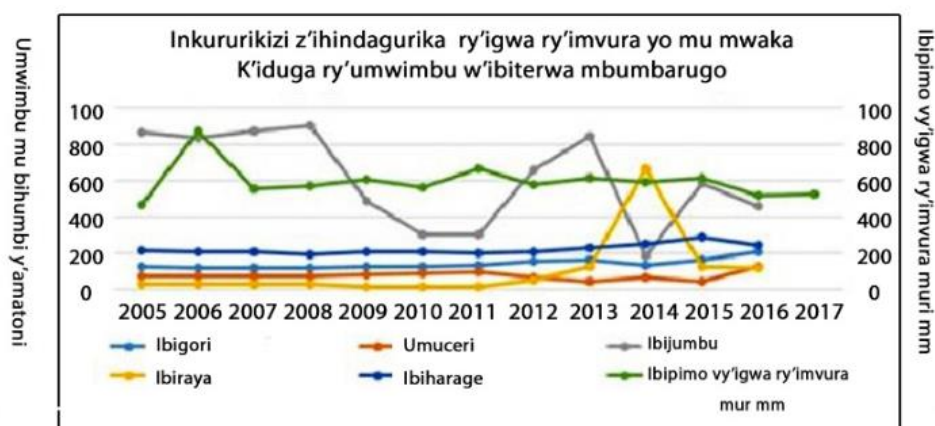
Igicapo ca 18 : Iyongerekana ry'imvura gushika mu mwaka wa 2030 na 2050 ku bibanza vy'ibipimo ndangagihe vya Gitega, Imbo, Kirundo ; Musasa na Rwegura

Iyongerekana ry'imvura muri rusangi (kurenza ibice 12%) canke z'inguvu zayo rishobora gutera imyuzurira mu biyaya vyo mu Burengerero bw'Imbo n'inkukura mu Bumanuko no mu mataba yo hagati, bigatuma abantu baba ku misozi, mu myonga baronka umwimbu mukeya w'ibirimwa, hakononekara inyubakwa rusangi z'igihugu, izimangana ry'ibinyabuzima, ingomero z'amasoko ntanganguvu zikazibirwa n'ivyondo,...

Hari kandi iyongerekana ry'indwara ziterwa n'udukoko mu kiyaya c'Imbo na Kumoso hamwe no mu myonga. Utwigoro two kwirinda canke ku gerageza guhangana n'ihindagurika ry'ibihe dutegerezwa gutangura mu bisata vyose atari uko ibintu n'abantu bizohahonera.

III.1.4.2 Iterambere ry'igisata c'uburimi bivuye kw'ihangana ry'ihindagurika ry'ibihe

Umwihwezo w'iterambere ry'igisata c'uburimi ntiwirengagiza nagato ibiranga ihindagurika ry'ibihe navyo bikaba ari ubushuhe n'imvura hanyuma umuntu akaraba ingorane bitera ku biterwa mbumba rugo uko imyaka igenda ikurikirana. Umwimbu w'uburimi n'ugufungura neza bishobora guhura n'ingorane kubera ihindagurika ry'ibihe abantu nibatagira utwigoro bagahindura ingendo. Kuri ivyo, si agaseseshwa rumuri ko ihindagurika ry'umwimbu ryibonekeza mu bihe vy'iyongerekana ry'ubushuhe n'igabanuka ry'imvura (2011-2016). Biragaragara ko ingaruka mbi z'ihindagurika ry'ibihe zibonekeza bimwe biboneka ku biterwa mbumba rugo (Igicapo ca 19)



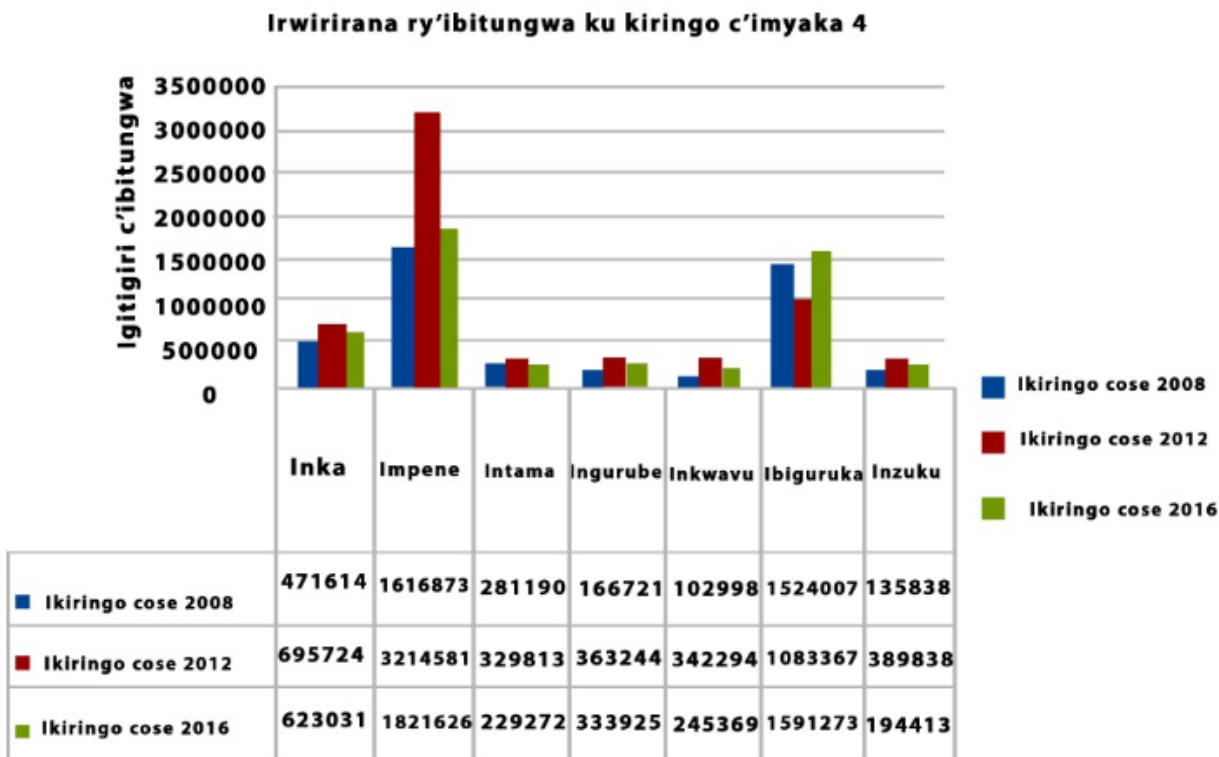
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Ibigori	123	117	116	118	120	126	128	152	162	128	161	201	
Umuceri	68	68	71	74	78	83	91	65	41	67	39	125	
Ibijumbu	867	837	874	900	484	303	300	660	840	181	581	459	
Ibiraya	26	26	27	29	11	9	9	48	123	664	124	119	
Ibiharage	214	206	205	190	203	202	199	206	225	252	283	238	
Ibiipimo vy'igwa ry'imvura muri mm	923,7	1742	1113	1131	1214	1122	1322	1150	1228	1173	1219	1025	1049

Igicapo ca 19 : Inkururikizi z'ihindagurika ry'igwa ry'imvura yo mu mwaka kw'iduga ry'umwimbu w'ibiterwa mbumbarugo

Turashobora kwemeza tudakekeranya ko hatabaye utwigoro tw'aba na bariya umwimbu w'ibiterwa mbumba rugo na njabuka amazi uzogabanuka ku mwaka ku mwaka ku kiringo c'imyaka 10. Nico gituma hakenewe guhindura ingendo mu gisata c'uburimi butunze abenegihugu barenga ibice 90%.

Muvyerekeye ubworozi, umwihwezo w'iterambere ry'ico gisata wabaye mu kiringo c'imyaka 4 kuva mu mwaka 2008-2016 hakurikijwe ihindagurika ry'igitigiri c'ibitungwa. Ivyavuye mw'ico cigwa bitwerekako igitigiri c'ibitungwa kitahindutse gose naho leta yagize utwigoro mu gutaanga inka. Turabona ko umwimbu wabonetse atawowugereranya n'utwigoro leta yagize mu gutanga inka.

Iki ni ikimenyetso nyacyo c'ingorane zitandukanye ziri muri icyo gisata, muri izo ngorane harimwo ihindagurika ry'ibihe. Ibitungwa ntivyashoboye gutanga umwimbu kubera ko ukubaho kwavyo ntikwari gushemeye (igicapo ca 20).



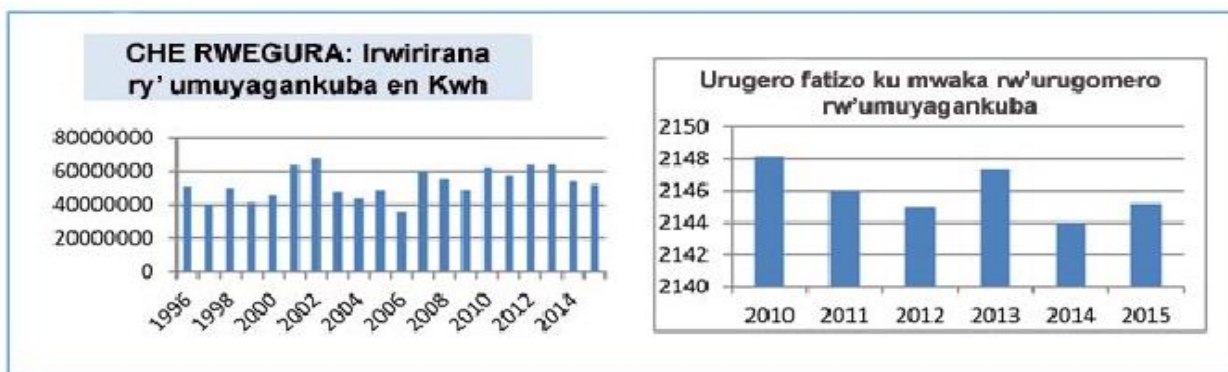
Igicapo ca 20 : Irwirirana ry'ibitungwa kuva mu mwaka wa 2008 gushika mu mwaka wa 2016

Twihweje ivyo bihahurira vyose, twovuye ko hashobora kuba igabanuka muri kazoza ry'ibitungwa mu mirwi yavyo itandukanye nico gituma umwenezi hugu wese asabwe kugira uruhara rukomeye mu gukomeza icyo gisata c'ubworozi kugira ngo tuzitire tutaronerwa ingorane zijanywe no gufungura nabi.

III.1.4.3 Iterambere ry'igisata c'amasoko ntanganguvu

Dufatiye kuvyigwa vyakozwe n'ikigo kijejwe ivyihindagurika ry'ikirere mu Burundi (IGEBU) mu ntumbero yo kwihweza ihindagurika ry'ibihe mu mwaka wa 2018, utunenge twinshi mu vyerekeye imvura twabonetse hagati y'umwaka wa 1990 n'uwa 2014 twerekana ibihe vy'imvura nyinshi bishobora gutuma haba imyuzurira canke ugutara kw'imvura ivyo bigaca bikwega igihe c'uruzuba. Dufatiye kuri ivyo biranga ikirere, ihindagurika ry'urugero rw'umuyagankuba mu ngomero zimwe zimwe nka Rwegura mu kiringo c'umwaka wa 1996 gushika mu mwaka 2015 ryarihwejwe kugira haboneke isano riri hagati y'urwo rugero rw'umuyagankuba n'ihindagurika ry'ibihe. Harakozwe icigwa kuvyerekeye ihindagurika ry'urugero rw'amazi mu rugomero rwa Rwegura ku mwaka wose mu kiringo kiva mu mwaka wa 2010 gushika mu mwaka wa 2015 harimwo n'ihindagurika ry'urugero rwayo mazi mu mwaka no muri ico kiringo nyene. Kuri ivyo, iyo ata mvura igwa, urugero rw'amazi mu ngomero ruragabanuka bigaca bituma haba ihindagurika ry'urugero rw'umuyagankuba.

Yamara rero, tubona ko urugero rw'amazi mu rugomero rw'umuyagankuba rwa Rwegura mu biringo usanga hari imvura nyinshi rwagabanutse. Ivyo vyabaye bivuye ku kurenza urugero mu gukoresha urwo rugomero iyo izindi ngomero zitariko zirakora nk'akarorero bivuye ku vyondo vyabaye vyinshi bikazibira imiringoti.



Igicapo ca 21 : Irwirirana ry'umwimbu w'umuyagankuba ku rugomero rw'amazi rwa Rwegura guhera mu mwaka wa 1996 gushika mu mwaka wa 2014 n'urugero fatizo rwo ku mwaka guhera ku mwaka wa 2010 gushika mu mwaka wa 2015

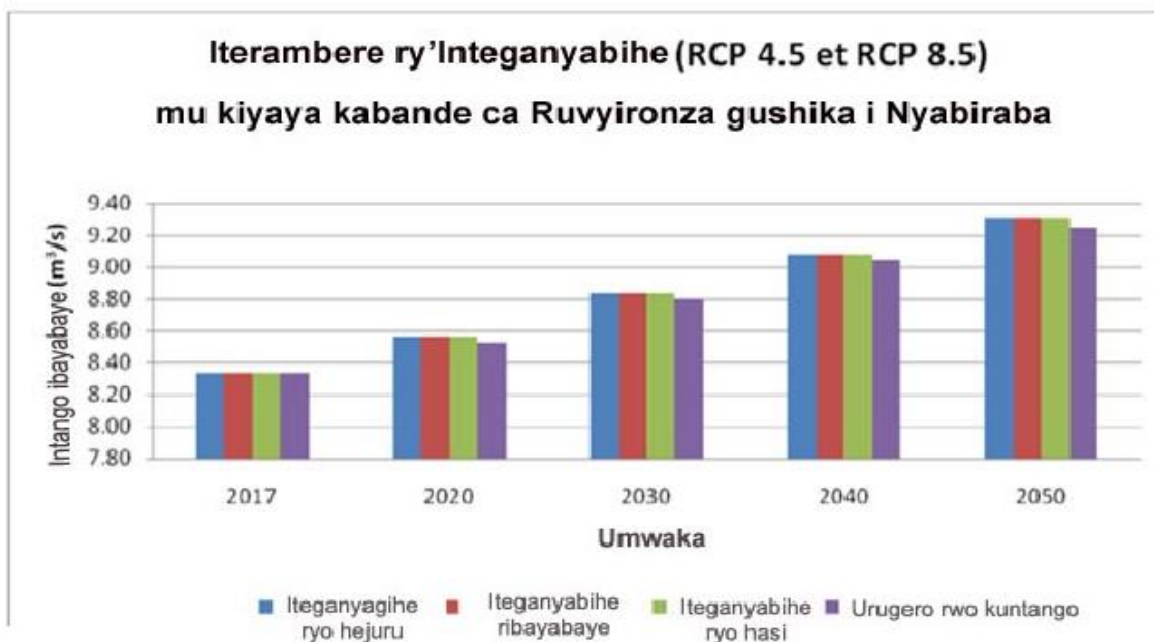
Dufatiye kw'ico gicapo, biraboneka ko ibihe vy'imvura bihurirana n'umwimbu w'umuyagankuba ukwiye ariko ukava kandi ku mvo zituruka kw'ihindagurika ry'ibihe ku rugomero rwa Rwegura. Naho biri ukwo, ivyo bihe vy'urushana vyatumye haba imyuzurira y'ikirenga mu ngomero za Buhiga na Ruvyironza rwabanje guhagarikwa kuva mu mwaka wa 2004. Biboneka y'uko igisata c'amasoko ntanganguvu gishobora gusubira inyuma kubera imyuzurira n'iyuzura ry'ivyondo muri kazoza nihatafatwa ingingo zibereye mu mwanya ubereye. N'ubundi, turavye iteganyagihe ry'ikigo kijejwe ivy'ihindagurika ry'ikirere (IGEBU) ryakozwe hiyumviriwe ibishobora gushika vyose (urugero rwo hejuru, Urugereranye n'urwo hasi) kubera ihindagurika ry'ibihe mu micamo n'utubande ritegekanya iyongerekana ry'amazi kuva mu mwaka wa 2020 gushika mu mwaka 2050 ku ruzi Ruvyironza no kuva mumwaka wa

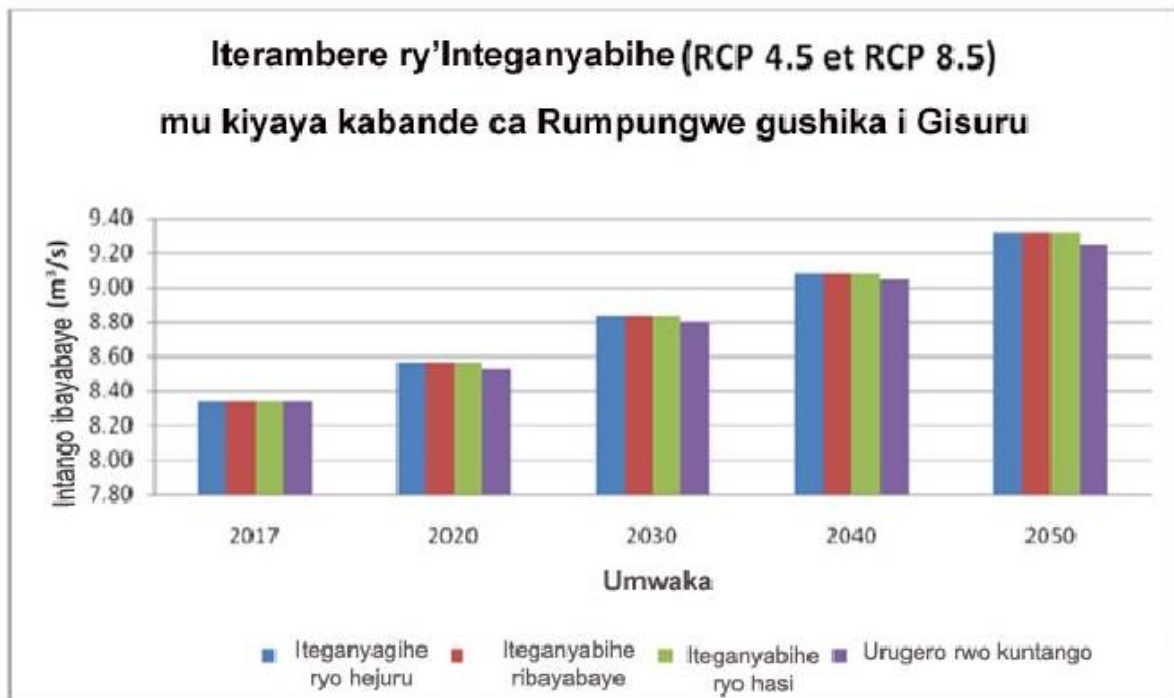
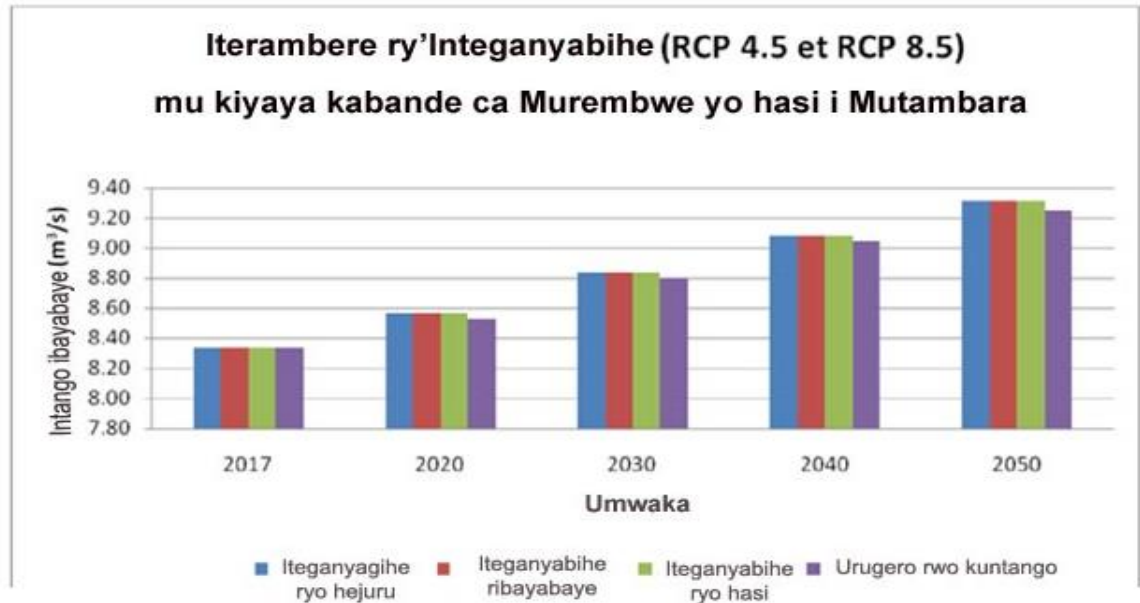
2030 gushika mu mwaka wa 2050 ku mcamo n'aka bande ka Murembwe. Ico gihe harashobora kuzoba inkukura ku misozi n'imyuzurira ku ngomero ziri mu turere tugeramiwe gusumba utundi nihatagira igikorwa haba mu ntango canke mu mpera z'iyo micamo n'utubande kugira bakingire izo ngomero.

III.1.4.4 Iterambere ry'ubutunzi mu gisata c'amazi

Igisata c'amazi kiguma gihindagurika biturutse kw'ihindagurika ry'ibihe. Ivyo bibonekera k'umurindi w'amazi y'inzuzi uguma uhindagurika ; ivyo bigatuma haboneka isano riri hagati y'umurindi w'amazi y'inzuzi n'igipimo c'imvura muri ivyo micamo n'ububande. Ibitegekanijwe vyose (hejuru, hagati no hasi) bafatiye kw'ihindagurika ry'ibihe vyerekana ko umurindi w'amazi ya Ruvyironza i Nyabiraba, kuri Murembwe yo hasi i Mutambara na Rumpungwe i Gisuru uva kuri 8.33m^3 ku mu segonda gushika kuri 9.32m^3 ku mu segonda, kuri 11.7m^3 ku mu segonda gushika kuri 12.8m^3 ku mu segonda no kuva kuri 7m^3 ku mu segonda gushika kuri 7.6m^3 ku mu segonda kuva ku mwaka wa 2005 gushika ku mwaka wa 2017 (ikiringo cafatiweko) ; ivyo bihurirana n'iyongerekana ku rugero rw'ibice 11.88%, 8.55% no gushika ku rugero rw'ibice 0.57%.

Rero, hariho iyongerekana ridasanzwe ry'iterambere ry'ubutunzi mu gisata c'amazi mu kiringo co kuva mu mwaka wa 2020 gushika mu mwaka wa 2050 kuri Ruvyironza no kuva mu mwaka wa 2030 gushika mu mwaka wa 2050 kuri Murembwe yo hasi. Iyongerekana ritoya ry'ubutunzi mu gisata c'amazi riraboneka guhera mu gihe c'umwaka wa 2020 gushika mu mwaka wa 2050 kuri Rumpungwe (igicapo ca 22)





Igicapo ca 22 : Iterambere ry'integanyabihe ry'imurindi ibayabaye y'amazi

III.1.4.5 Ihindagurika ry'ibihe mu gisata c'amashamba n'ibibanza bikingiwe

Mu Burundi, ihindagurika ry'ibihe rirangwa n'imvura iri ku rugero rurenze hamwe n'iduga ry'ibipimo vy'ubushuhe. Iyo hari imvura nyinshi inkukura irabica bigacika, inzuzi ziruzura, zigatera imirima n'ivyondo, isi n'urugero rw'amazi y'inzuzi ruca ruduga. Ico gihe haca haduka imyuzurira mu biyaya n'imyonga n'itobekara ry'amazi.

Mu gihe habaye uruzuba rurerure ivyatsi biruma, imiriro ya Nyakanga irarwira, ububande butarimwo inzuzi buruma kandi ubwoko bumwe bumwe bw'ibinyabuzima burashobora kuzimangana.

Mu biyaya biciriritse vy'Imbo, uruzuba rw'igihe kirekire rutuma amazi agabanuka hamwe n'igabanuka ridasanze ry'urugero rw'amazi rigakurikirwa n'ikama ry'amasoko muri ako karere hamwe n'ibisa n'ubugararwa.

Mu mpande z'imitumba ihanamye yo Mumirwa co kimwe no mu mataba yo hagati, uruzuba rutuma amasoko y'amazi n'igitigiri c'utunyabuzima tuba mw'isi ndimwa tugabanuka.

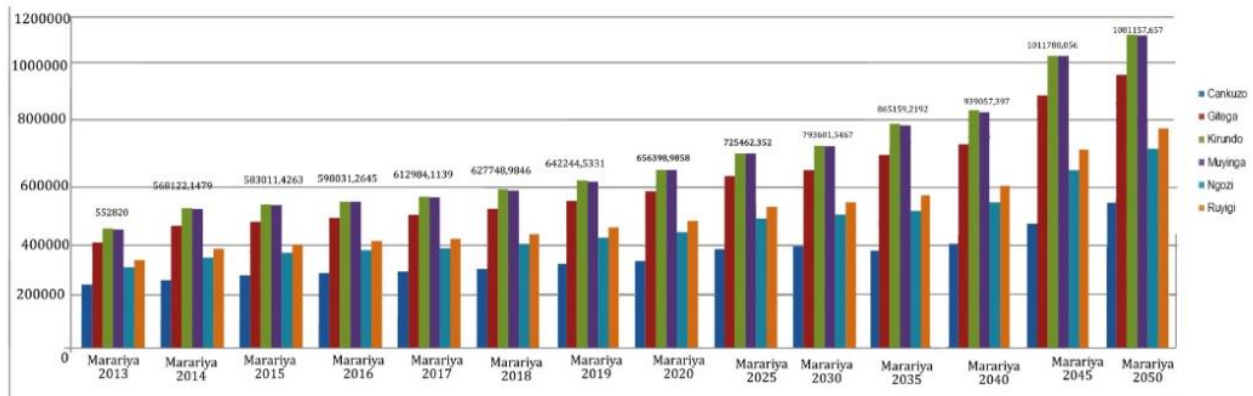
Mu kiyaya ca bugesera, ihindagurika n'igabanuka ry'imvura vyatumye amasoko y'amazi ari ahakirurutse akama hamwe n'igabanuka ry'utunyabuzima tuba mw'isi ndimwa.

III.1.4.6 Ihindagurika mu gisata c'amagara y'abantu

Igicapo c'urugero rw'ingaruka n'irwirirana ry'indwara ya marariya yerekana ko intara zo mu buraruko (Kirundo, Muyinga, Ngozi, Kayanza) be n'intara zo hagati zishira ubuseruko (Karusi, Gitega, Cankuzo, Ruyigi, Rutana) zirakarirwa n'indwara ya marariya. Umwaka wa 2017, ubukana bwa marariya bwangana na 815% mu mwaka (815 ku gihumbi). Izo ngaruka zikomeye zerekana itituka ry'ibihe ugereranije n'ibice vya 217% (217 ku gihumbi) vyashikirijwe mu mwaka wa 2012 n'ikigo c'igihugu kijejwe guhanahana amakuru mu gisata c'amagara y'abantu. Ntawokwirengagiza ko guhera imyaka myinshi marariya yagumye ari ikibazo kiraje ishingira ku magara y'abenegihugu. N'ubwo biri uko, ibiharuro vy'ihindagurika ry'ibihe nkuko bitangwa n'ikigo kijejwe gusuzuma ivy'ihindagurika ry'ikirere mu Burundi (IGEBU) vyerekana irwirirana hamwe n'igabanuka ry'ubushuhe n'imvura uko imyaka igenda irakurikirana. Kubw'ivyo, ibiharuro vyerekezwa mu mwaka wa 2050 vyerekana ko mu myaka iri imbere marariya izofata abantu benshi kubera imvura n'ubushuhe bizongerekana. Twibukanye ko marariya ikara cane mu ntara zifise ubushuhe buri ku gipimo kirenze 16°C. Muturere aho iyo ndwara irwirirana nk'ikiza mu bihe bimwe bimwe ; icibonekeza n'uko hari ibihe vyorohereza iyo ndwara (ubushuhe, imvura) kandi ivyo bihe biziyongera gusumba mu myaka iri mbere.

Muri uwo mwihwezo, umwaka wa 2013 niwo watowe kuba intango kubera ko marariya yari yagabanutse ugereranije n'iyindi myaka. Twomenya kandi ko ibiharuro vy'imbere y'umwaka wa 2013 tutabisanga mu cegeranyo DHIS2. Nico gituma umwaka wafashwe nk'intango ya mbere ugizwe n'ibiharuro vy'umwaka wa 2013 (igicapo ca 23). Turavye abafashwe n'indwara ya marariya mu mwaka wa 2014, irwirirana ry'abafatwa na marariya gushika mu mwaka wa

2050 ryerekana ko iyo abantu biyongereye n’abarwayi baca biyongera. Ivyo bikaba biterwa ahanini n’ihindagurika ry’ikirere hamwe n’ihindagurika ryahantu agakoko gatera marariya kaba. N’ukumenya ko ivyigwa vyinshi bihuriza ko n’inyuma y’umwaka wa 2050 indwara ya marariya izoba ari ikibazo gihanze cane igisata c’amagara y’abantu.



Igicapo ca 23 : Irwirirana rya marariya gushika mu mwaka wa 2050

III.1.4.7. Ihindagurika mu gisata co gutwara abantu n’ibintu

Dukurikije amateganyagihe yakozwe n’ikigo kijejwe gusuzuma ivy’ihindagurika ry’ikirere (IGEBU) atwereka ko agatasi saison A) izorwamwo imvura irengeje ku rugero rushobora gushika ku bice 10%. Inkurikizi z’ihindagurika ry’ibihe ku nyubako rusangi ni nyinshi cane kuva kera gushika n’ubu. Iyongerekana ryo kwisubiriza n’ubukari buturutse kw’ihindagurika ry’ibihe bizotuma haba ingaruka mbi nyinshi ku nyubako no kwunguruza abantu n’ibintu.

Iyononekara cane ry’umuhora mukuru w’amabarabara rizotuma haba ingorane muvyerekeye ubutunzi mu mice myinshi, haba mu budandaji ku rwego rw’igihugu canke mu kibano mu kubura imigambi ijanye n’ubudandaji, ukubura canke iduzwa ry’ibiciro vy’ibidandazwa mbumba rugo. Iyongerekana ry’igipimo mfatizo c’ubushuhe riva kw’iyongerekana ry’urugero rwo kubomba kw’isi rizotuma hononekara amabarabara ya kaburimbi n’isambuka ry’imishinge y’amabarabara.

III.1.5. Igenzurwa ry’ishirwa mu ngiro ry’ubuhinga n’ingingo zokurikizwa muri kahise no muri kubu

Mu ntumbero yo kugabanya ingaruka mbi ziva kw’ihindagurika ry’ibihe, leta y’uburundi yaratanze intumbero ya politike biciye mu mugambi murikira gihugu wo gushika mu mwaka wa 2025, CSLPII hamwe na politike z’ibisata bitandukanye mu gihugu nka politike ijewe amazi, umugambi wa leta mu vyerekeye amazi, uburimi n’ubutandukane bw’ibinyabuzima ; politike y’igihugu ijewe amashamba, umugambi ntunganya bikorwa mu kurwanya itituka

ry'isi n'ibindi. Hambavu y'ivyo, leta y'uburundi yarateguye yongera iremeza indinganizo zavuye mu migambi ntunganya bikorwa zijanye n'ihindagurika ry'ibihe nazo zikaba ari izi :

- Politike n'ubuhinga bw'igihugu hamwe n'imigambi ntunganya bikorwa kw'ihindagurika ry'ibihe ;
- Ubuhinga bwo guhanahana amakuru mu gihugu mu bijanye n'uguhangana n'ihindagurika ry'ibihe ;
- Umugambi ntunganya bikorwa w'igihugu mu guhangana n'ihindagurika ry'ibihe (PANA) ;
- Ivyegeranyo vy'igihugu kw'ihindagurika ry'ibihe.

Ivyo vyirwa bitandukanye birashira ahabona ivyokorwa vyihuta vyofasha mu guhangana n'ihindagurika ry'ibihe. Umwihwezo waho gushira mu ngiro izo ndinganizo zibikorwa nyamukuru n'imigambi ntunganya bikorwa nivyo bigize iki cigwa.

III.1.5.1 Aho gushira mu ngiro integuro n'imigambi y'uguhangana n'ihindagurika ry'ibihe bigeze

a) Gushira mu ngiro umugambi w'igihugu ntunganya bikorwa mu bijanye n'uguhangana n'ihindagurika ry'ibihe(PANA)

Iyo ndinganizo irimwo ibikorwa nyamukuru 12 vyotegerejwe kurangurwa. Icigwa cerekana ko ibikorwa bimwe bimwe vyaranguwe mu gihe ibindi bitarashikwako kubera ibura ry'uburyo n'ubushobozi buke bw'inze.

Ibikorwa vyaranguwe vyerekeye :

- ✓ Inyifato ibereye mu guhangana n'ihindagurika ry'ibihe aho amanama yo guhimiriza ku rwanya imiriro ya Nyakanga yarwijijwe, ibiganiro vyinshi vyaracye ku mboneshakure hamwe n'inama zo gukangurira abenegihugu kumenya ingaruka mbi z'ihindagurika ry'ibihe ;
- ✓ Iyongerezwa ry'inguvu mu guteza imbere ubuhinnga bwo kuziganya inkwi aho abantu benshi bakurikiranye inyigisho zo gukoresha amaziko ya kijambere. N'ubundi amaziko mennshi ya kijambere yarahingwe mu gihugu cose. Ico gikorwa kirabandanya nubundi ;
- ✓ Kurwanya inkukura n'ugutsimbataza ibijanye n'inzuzi zo Mumirwa n'Imbo biciye ku mugambi w'igihugu wo kurwanya inkukura (P.N.L.A.E), ibikorwa vyo gukingira amashamba biratunganwa buri mwaka hakoreshejwe uburyo bwa Leta.

Muvyerekeye gusubiriza ivyononekaye, ubuyobozi bw'amashamba bugira utwigoro mugutera ibiti ku mitumba igaragara, guteza imbere igisata co kurima imivyaroy'ibiti kugira ibiti bivangwe n'ibiterwa hamwe no gutera imigano ku nkengera z'inzuzi zimwe zimwe zica mu gisagara ca Bujumbura. Niko rero inzuzi za Gasenyi et Nyabagere zatunganijwe n'inyubako zikomeye hakoreshejwe ibikoresho bikomeye kandi birama, uburyo bwatanzwe n'ibanki y'isi yose. Ibisata birabwa niyo migambi ni ukugabanya inkurikizi z'ihindagurika ry'ibihe, ukuzigama

ibinyabuzima, gukingira amazi mpuzamakungu, igabanuka ry'inkurikizi y'ibihumanya ibinyabuzima biramba (P.O.P) n'imyanda hamwe no kwirinda ugutituka kw'isi. Aho rero turabona intererano ya GIZ mu mugambi wayo witwa « Guhangana n'ihindagurika ry'ibihe mu gukingira a amazi n'amasi ». Uburyo bwo gukora uyu mugambi bwahawe Uburundi buvuye mu kigeza c'isi kibungabunga ibidukikije (FEM). Birakenewe ko tuvuga imigambi imwe imwe yakozwe n'abikorera utwabo n'amashirahamwe adaharanira inyungu za politike baguma bafasha gushira mungiro umugambi PANA. Abo ntitwabashize muri iki cegeranyo kuko badahanana inkuru n'Ubushikiranganji bujewe ibidukikije.

b. Ishirwa mungiro ry'integuro yo guhanahana amakuru kw'ihindagurika ry'ibihe

Ishira mu ngiro riri kuntambwe nziza kubera ishirwaho ry'urwego rw'igihugu rujewe gukinga ibiza no gutorera umuti ibibazo (PNPRGC) rwaragiyehe kandi ibirimo vyo guhimiriza ikivunga c'abantu vyarateguwe.

c. Ishirwa mungiro ry'ibiri mu vyegeranyo vy'igihugu kw'ihindagurika ry'ibihe

Naho Leta ifise ugushaka ariko ikabura uburyo, ingingo zibiri ziri mu cegeranyo ca mbere ntizagiye mu ngiro. Nazo nizo zikurikira :

1. Gukomeza ubushakashatsi kuvyerekeye imyuka ituma ikirere gishuha (imfashanyo mu buhinga no mu mahera yohabwa inzego z'igihugu nka kaminuza, ISABU, IRAZ) ;
2. Gushigikira ishirwa mu ngiro ku rwego rw'igihugu no mu bihugu bibanyirwaho rujewe gukurikirana no gutororokanya inkurikizi y'amahindagurika y'ibihe mu bisata bibangamiwe.

Mu vyerekeye ingingo ziri mucegeranyo ca kabiri, ibikorwa vyinshi vyarashizwe mu ngiro mu bisata bitandukanye.

- Muvyerekeye gukomeza inzego :
 - ✓ Ubushikiranganji bwinshi bujewe ubuhinga bwarahagurutse, ugisata co guhangana n'ihindagurika ry'ibihe ;
 - ✓ Ishirwaho ry'abahuza bikorwa mu bushikiranganji bw'ubuhinga burabwa canecane n'itunganywa neza ry'ibidukikije muri rusangi tutibagiye ihindagurika ry'ibihe,
- Mubijanye no kwongereza ubushobozi
 - ✓ Kwongereza ubumenyi ku bahinga bo mu gihugu batororokaniye ivy'imyuka ishusha ikirere (inventaires des GES) ;
 - ✓ Kwongerereza ubumenyi ku bahinga bo mu gihugu mu gutunganya isuzuma ry'igeramirwa hamwe no guhangana n'ihindagurika ry'ibihe ;
 - ✓ Gutunganya inyigisho zo guhimiriza guhangana n'ihindagurika ry'ibihe ku ndongozi zo ku rwego rwo hasi bikorwa na OBPE ifashijwe na PNUE.
- Kubijanye no gushira mungiro imigambi :

- ✓ Iyegegeranya ry'ibikenewe mu buhinga mu bisata bijejwe kugenzura ubutunzi kama riherutse kwemerwa riranzururikirwa ababijejwe(UNEP/DTU) mu ntumbero yo kurondera uburyo bwo gukora imigambi ;
- ✓ Mu gihe ca none, ibisata bitandukanye muri kaminuza n'ibisata vy'ubuhinga vyarashize munteguro zavyo ivyigwa bijanye n'ihindagurika ry'ibihe;
- ✓ Ubuhinga bwo gukurikirana igwirirana ry'ibinyabuzima no gutororokana ibiharuro mu bubiko bw'ibiharuro buriho muri OBPE;
- ✓ Ibikoresho biteye imbere vyo kwegeranya ibiharuro (GPS, SIG, n'ibindi vyose) vyarakoreshejwe.

Iki giharuzo gikurikira cerekana imigambi yaranguwe n'iyitaranguwe mu gushira mu ngiro icegeranyo ca kabiri kubijanye n'ihindagurika ry'ibihe.

Igiharuzo ca 11: Ukwerekana aho ishirwa mungiro ry' imigambi rigeze

Imigambi yaranguwe canke iyiriko irarangurwa	Imigambi itararanguka
1. Icirwa kw'itororokanywa ry'amazi ari mu kuzimu mu Burundi; 2. Guteza imbere urwego rufasha gufata ingingo (DSS) mu gutunganya no mu kubungabunga amasoko y'amazi; 3. Ishirwa mu ngiro ry'umugambi w'akarorero GIRE; 4. Kugendereza ku musi ku musi ihindagurika ry'ikirere; 5. Gusunura no kwongereza amasoko y'amazi; 6. Gukurikirana neza akanovera k'amazi yo mu nzuzi nkuru nkuru zo mu gihugu; 7. Kunonosora integanya bihe mu gukinga amabi hakiri kare; 8. Gutsimbataza ubuhinga bwo kwegeranya ibiharuro nteganyagihe n'amazi; 9. Ubumenyi mw'iboneka ry'amazi(kuru rugero rukwiye n'akanovera) hamwe n'isabwa ry'amazi rirashirwa ahabona ku musi ku musi; 10. Ubumenyi bw'abakozi bo mu gisata c'amazi no kuyaryohora bwateye imbere;	1. Gutunganya ibiharuro vy'amazi; 2. Gutororokanya abakeneye amazi; 3. Gutegekanya ubuhinga bwo gukoresha neza amasoko y'amazi; 4. Guteza imbere ubuhinga bwo kwegeranya no gusesangura ibiharuro kubijanye n'amazi; 5. Gutunganya ingomero zo kugumya amazi ku mitumba y'intara ya Bugesera; 6. Kwungura ubuhinga bwo gutunganya no kumenyekanisha ibitigiri hamwe n'amakuru; 7. Ubushikiranganji bw'inyigisho za Kaminuza burashiraho igisata co gukurikirana ubuhinga n'ubushakashatsi mu gutunganya amasoko y'amazi, ibisata bijejwe kudandaza amazi no kuyaryohora; 8. Ubushikiranganji bujewe inyigisho z'amashuri mato mmato n'ayisumbuye burashira bukungera bugakurikirana igisata c'ukwungura ubumenyi mu bijanye n'ubuhinga n'ubushakashatsi mu gutunganya amasoko y'amazi, ibisata bijejwe amazi n'ukuyaryohora;

11. Guteza imbere no gukwiragiza ubuhinga bwo kwegeranya amazi y'imvura mu kuyakoresha mu mirima no mumazu: ico gikorwa carakozwe vya nabi nabi nico gituma ari ukukibandaya kuko kirahambaye 12. Ubuhinga bwo kwegeranya amazi y'amarekano (SCEP): umugambi nawo nyene uja mu ngiro buhoro buhoro; 13. Gufata neza amazi y'amarekano: ni umugambi uja mu ngiro buhorobuhoro; 14. Umugambi wo kurwanya inkukura mu ntara yo mu Mirwa: umugambi uja mungiro buhoro buhoro; 15. Kugumiza kurugero rumwe umurindi w'amazi yo mu nzuzi n'imigende mu Mirwa n'igisagara ca Bujumbura kitibagiwe: ni umugambi uja mu ngiro buhoro buhoro; 16. Gukingira dusangiye mu kiyaga gikarirwa n'imyuzurira c'ikiyaga Tanganyika no mu micungararo y'ibiyaga vya Bugesera.	9. Ubushobozi m'ubushakashatsi bwo gutunganya amasoko(les ressources) y'amazi, ibisata bijejwe kudandaza amazi no kuyaryohora biraterwa intege (birongererezwa ububasha).
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Kuri ibi nukwongerako ishirwa mu ngiro ry'imigambi imwe imwe yo mu karere Uburundi buherereyemwo nka:

- Gutunganya neza ibidukikije mu karere ikiyaga Victoria giherereyemwo, igice ca kabiri (LIVEMPII);
- Umugambi w'akarere mu gutegeza imigambi ntunganya bikorwa y'ibihugu kubijanye n'ukwimba ibibombori vy'inzahabu ku rugero rutoyi muri Afurika;
- Umugambi wo gutunganya akarere mu burimyi bw'ibiterwa vyimeza mu kiyaga ca Kagera (PGTE KAGERA);
- Kwongereza ubushobozi mu gutegeza ibikenewe mu kurwanya ivyuka vyonona ikirere(Afurika yo hagati, y'Uburengerero niy'abakoresha ururimi rw'Igifaransa) n'ibindi;
- Umugambi wo guhangana n'ihindagurika ry'ibihe mu gukingira amatungo kama y'amazi n'amasi (ACCES), (2014-2018), wasubiwemwo kuva 2019 gushika 2021;
- Umugambi wo gutunganya imyonga, imisozi n'ububande hamwe n'umugambi wo kunonosora ibijanye n'ihindagurika ry'ibihe;
- Gutegeza neza gusumvya itunganywa ry'ibibanza bikingiye kugira bakingire ibinyabuzima mu Burundi;

- Gutunganya imisozi n'ububande kugira ngo haboneke umwimbu urama w'ikawa mu Burundi;
- Ihanagana rusangi n'ingaruka z'ibiza biva kw'ihindagurika ry'ibihe.

d. Ishirwa mungiro ry'integuro y'igihugu n'indondabikorwa kw'ihindagurika ry'ibihe

Iyo nteguro yateguwe mu mwaka wa 2013 kandi utegerezwa kuba washizwe mu ngiro mu mwaka wa 2025. Isuzuma ry'ishirwa mu ngiro ryari ryashimikiye ku bikorwa vyakozwe n'Ubushikiranganji bujewe uburimy. Ivyavuye muri iryo suzuma vyerekana ko 90% vyibikorwa vyateguwe biriko birarangurwa. Kuvyerekeye OBPE, ivyakowe n'ubuyobozi bw'ibidukikije n'ihindagurika ry'ibihe hamwe n'ubuyobozi bw'amashamba vyerekana ko cumi kubikorwa mirongo ibiri na bitanu vyateguwe bitarakorwa.

III.1.6. Ibikorwa ntayegayezwa vyatoranijwe mu guhangana n'ihindagurika ry'ibihemuri kazoza ufatiye ku bisata bitandukanye

Mu vyerekeye ihindagurika ry'ibihe, uwariwe wese agerageza guhindura ingendo kandi ukurondera inyishu kenshi ubisanga mu guhindura inyifato kugira hagabanurwe inkurikizi. y'ihindagurika ry'ibihe, ryibonekeza hano iwacu mu myaka mirongo itatu iheze mu nkukura itembana ivu ry'imisozi, ibomoka ry'imisozi, itituka ry'amashamba n'ibibanza kama, iyononekara ry'amazi, irwirirana ry'indwara ziterwa n'udukoko hamwe niziva ku mazi mabi, ibomoka ry'uburaro bw'abantu, isamburwa ry'inyubako rusangi mu vy'ubutunzi n'imibano; igabanuka ry'umwimbu w'ibirimwa, ibura rikabije ry'imfungurwa, gufungura nabi, ...

Muguhangana nizo ngaruka, hari uburyo bwo guhindura ingendo bwategekanijwe nk'uko Igiharuzo gikurikira kibitegekanya

Igiharuzo ca 12: Uguhindura ingendo mu bisata bitandukanye

Igisata	Umugwi	Guhindura ingendo
Uburimyi, ubworozi n'uburovyi	Uburimyi	1.Ingendo nziza yo kubika amazi n'amasi mu bice bigeramiwe rwose n'ibomoka ry'imisozi n'inkukura; 2.Guteza imbere, guhimiriza no gufata mu mugongo inyifato ya bose yo guhindura ingendo; 3.guteza imbere ikoresheya ry'umwavu kama (kuzika ivyatsi, umwavu w'ibitungwa); 4.Guteza imbere uburimyi mu kuziganya mu ntara zigeramiwe n'uruzuba; 5.Kugira ubushakashatsi kubiterwa birindana n'ihindagurika ry'ibihe; 6.Kugwiza no gutegekanya imbuto zirobanuye mu bigo bijewe kurwiza imbuto; 7.Guteza imbere no kwamamaza ubuhinga bukwiye

		mu guhangana n'ihindagurika ry'ibihe; 8.Gutegura uburyo bwoshobora kugwiza amazi mu myonga cane cane mu gutera ibiti no guca imikobeko
	Ubworozi	1.Gukarihiriza ubwenge aborozi n'abakozi bo muri ico gisata kuvyerekeye ubuhinga bw'ukworora hubahirijwe ibidukikije; 2.Guteza imbere ubworozi bw'ibitungwa bito bito; 3.Kumenyekanisha itegeko n° 1/21ryo ku wa kane gitugutu rivuga ivyerekeye “ kugumiza ibitungwa muruhongore no kubuza iyerera ry'ibitungwa mu Burundi” kugira rikurikizwe neza; 4.Gutunganya umwuga w'ubworozi bufatiye ku burere; 5.Gushiraho ingingo zo gutera intege aborozi bipfuzwa kworora kijambere; 6. Guteza imbere ihingurwa ry'ivyokurya vy'ibitungwa.
	Uburovyi	1.Gukomeza ubudahangarwa bw'ibinyabuzima vyo mu mazi no kw'isi mu guhangana n'ihindagurika ry'ibihe; 2.Guteza imbere ubumenyi n'uburyo bwo gukurikira no kubungabunga inkuru zose mubijanye n'uburovyi; 3.Kubungabunga neza gusumvya imiserege itwara amazi mu bisagara, ayatamba ava mu misozi hamwe n'inzuzi kugira harindwe ihumanywa ry'ikiyaga Tanganyika; 4.Gukomeza ubuhinga burama bw'ukuroba; 5.Gukingira n'ukubungabunga uburaro bw'ifi bugeramiwe na cane cane kunkengera z'ibiyaga mu gushiraho ibibanza bikingiwe; 6.Kwiga ibiharuro vy'urugero rw'ibinyabuzima vyo mu kiyaga kugira hafatwe ingingo zo guhangana n'ihindagurika ry'ibihe; 7.Kumenyekanisha canke gukomeza amategeko n'amasezerano yerekeye uburovyi no kuba maso mukuyakurikiza.
Amasoko ntanganguvu		1.Kwubaka ingomero z'umuyagankuba zishasha no gusubiramwo izihasanzwe bagashiramwo n'uburyo bwo gukinga imyuzurira kuri ivyo bikoreshe

		n'utuyira tujayo; 2.Gukoresha inguvu zihingurwa mu bicafu vyo mu miryango; 3.Gukoresha inguvu ziterwa n'imishwarara y'izuba mubibanza biri ahatarashika umuyagankuba; 4.Kugira ubushakashatsi ku muyaga no ku bushuhe bw'isi kugira bivemwo umuyagankuba; 5.Ugushigikira gukora amakara hakoreshejwe imicafu yataw ibora; 6.Kumenyekanisha amaziko ya kijambere akoresha amakara n'ibiti; 7.Gukomeza ubushobozi kubo vyega bose kugira habe itunganywa n'ikurikirana ry'imigambi igamije guhangana n'ihindagurika ry'ibihe.
Amasoko y'amazi	Muri politike	Gushira ibibazo vy'ihindagurika ry'ibihe n'ibidukikije mu nteguro y'itunganywa neza ibiraba amazi n'isuku.
	Gutunganya imigambi	1.Kuja inama n'ingingo mu gusuzuma ingene intara yose yifashe mu kuronka amazi n'amagara meza, ivyo bigafata nka nkama ingorane zova kubihe no kuri ayo mazi; 2.Kwiyumvira no gushiraho ido nido ry'ihindagurika rihakwa kubaho hamwe n'ingingo yofatwa mu bihe vyihuta nababijejwe, ababungabunga n'abakoresha amazi n'abitura inzego zijejwe isuku; 3.Gutegekanya inginno mperekeza: gukarahiriza ubwenge abo biraba kuvyerekeye kudafata minenerwe ingorane z'ikirere, guhimiriza ababikoresha kuvyerekeye kubungabunga isuku n'amazi.
	Ibikorwa	1.Kubanza gukora ivyigwa vy'ibanze imbere yo kwubaka za rusengo canke ibijanye n'isuku bafatiye kungaruka zoterwa n'ikirere ; 2.Gushiraho ingingo zorohera abahinga bakorera muri ivyo bisata muntubero y'ugutera intege amashirahamwe y'akarorero mu guhangana n'ihindagurika ry'ibihe; 3. Impande y'uwujwe kwubaka inzu hakwiye kwongerwako uwujwe kugendura iyo nzu akaraba ko ataco yoba igihe gihindutse.
Amashamba n'ibidukikije	Intererano mukugabanya	1.Guha agaciro ibisigazwa vy'ibiti mukubicana; 2.Kudasesagura no kuziganya ibikoresho

	carubone	ntanganguvu cane cane mu kumenyekanisha no mugukwiragiza hose amaziko ya kijambere ; 3.Gukoresha ibizuku bigasubirira amakara be n'ibiti bikoresha n'imiryango; 4.Gutera intege imigambi yo gusubizaho amashamba iriko irakorwa mugushira imbere gukingira imisozi n'utubande n'ukurona ivyabanyagihugu bocana Atari ibiti. 5.Guhindura ingendo mu kwongereza akamaro k'ibikoresho ntanga nguvu mu guha agaciro amashamba kama mu ntumbero yo guhangana n'ihinduka ry'ibihe
	Isuzuma ry'ibikorwa vyihutirwa vya politique y'igihugu mubiraba amashamba mu Burundi	1.Gutororokanya no guhanahana ibiranga ibiti vy'amashambavyohana n'ihindagurika ry'ibihe; 2.Gusubiza mu minwe ya Leta no gusubira gutera ibiti mu bibanza vyubatswemwo bidaciye mu Mategeko; 3.Gutunganya iimisozi n'ububande kugira ngo barwanye inkukura; 4.Gukwiragiza ubwoko bw'ibiti vyo mu mashamba bikura ningoga kandi bihangana n'ihindagurika ry'ibihe; 5.Guteza imbere ibijanye n'amashamba n'uburimyi bw'ibiti bivanze n'ibiterwa cane cane kubiraba ubwoko bubereye ibice bitandukanye bihangana n'ihindagurika ry'ibihe; 6.Gusigura uburenganzira bw'abo vyega nivyobategerezwa gukora kugira batunganye mu bwenge inyungu z'amashamba mugushiramwo abo biraba bose; 7.Gutegura no gushira mu ngiro ibiranga ibiti bikwiye gukoresha mu butunzi butandukanye kugira bahe agaciro gakwiye igiti no guhingura igiti co gukoresha gikwiye ibisabwa; 8.Kumenyekanisha ubuhinga bushasha bwo guhingura igiti; 9.Gukura inyungu mubiva mu bita hamwe n'ibicafu biva mu guhingura igiti kugira bikoreshe neza; 10.Guteza imbere ubuhinga bwo guhingura amatafari n'amategura budasaba inkwi nyinshi; 11.Kumenyekanisha no gukwiragiza hose amashamba ya kijambere; 12. Kwiyamiriza ikoresha nabi ry'ibiti

		nk'akarorero muguhimiriza ikoreshwa ry'ivyuma mu kibanza c'ibiti mu nyubako.
Amagara y'abantu		1. Kwiyumvira umugambi woba usangiwe n'abajejwe amagara y'abantu n'abajejwe ibidukikije; 2. Gutegura umugambi w'ubushakashatsi muvyerekeye amagara y'abantu n'ibidukikije; 3. Gushiraho urwego rwo guhuza imigambi ikorwa mubisata vy'amagara y'abantu n'ukubungabunga ibidukikije hamwe n'uburyo bwo kubikurikirana; 4. Gushira ibisata vy'amagara y'abantu n'ibidukikije mubitegerezwa kwitabwaho mu nteguro yo kurwanya ubukene; 5. Kudomako urutoke ibiranga igihugu muri rusangikugira hakurikiranwe imigambi y'amagara y'abantu n'ibidukikije; 6. Gutegura amategeko yihariye agenga isano riri hagati y'amagara y'abantu n'ibidukikije cane cane mukurimbura ingaruka ku magara y'abantu; 7. Gukora icigwa c'ingaruka ku magara y'abantu hakoreshejwe ibikoresho vyabigenewe mu ntumbero y'icigwa c'ingaruka ku bidukikije n'imibano; 8. Kuronsa ibisata vy'ubushakashatsi mu vy'amagara y'abantu n'ibidukikije uburyo, haba mu bakozi babinonosoye, mu bikoresho no mumafaranga; 9. Gushira uburyo bukwiye mu gisata c'amagara y'abantu n'ibidukikije.
Gutwara abantu n'ibintu		1. Gukingira utuyira tw'ubwato n'ikiyaya c'ikivuko; 2. Kwubaka uruhome rutandukanya ikibanza c'ikivuko n'isukiro ryuruzi Ntahangwa; 3. kugomorora ikiyaya c'ikivuko ca Bujumbura; 4. Gukatisha uruzi Ntahangwa kugera aho rwahora ruca mu kwisuka mu kiyaga Tanganyika, 5. Gukatisha umuserere uzana amazi yakoreshejwe mw'isoko ya Buyenzi kandi yisuka mu kiyaya c'ikivuko; 6. Gutegura umugambi ku mwaka ku mwaka wo kubungabunga amabarabara biciye mu buyobozi bw'amabarabara; 7. Gutegekanya uburyo bw'amafaranga akwiye yo gukora ivyohuta vyoshika mu mwaka; 8. Gufata ingingo zikenewe mu gusanura

		amabarabara ahasanzwe muntumbero yo gutuma ayo mabarabara ashobora kurinda ihindagurika ry'ibihe.
	Inyubakwa	Gushiraho ingingo zokutibagira ihindagurika ry'ibihe mu gutegura imigambi yo kubaka amazu.

III.1.7. Integuro nshasha mu bisata bitandukanye mu ntumbero yo guhindura ingendo mu guhangana n'ihindagurika ry'ibihe

Igiharuzo ca 13: Integuro nshasha kugira duhangane n'ihindagurika ry'ibihe

Ibisata	Igisata	Guhindura ingendo
Uburimyi	Uburimyi	1.Integuro itumbereye umwimbu mwiza ntangere w'ibikorwa vyo mubanyagihugu hamwe n'uburyo bwo kubikurikirana bwamaho; 2.Kwamizaho n'ugukomeza ubushakashatsi; 3.Integuro yo kunonosora iterambere mu buhinga kubijanye vyose nico gisata; 4.Integuro yo guteza imbere no uburimyi burama; 5.Integuro yo guteza imbere ibisata vy'uburimyi bitandukanye; 6.Integuro yo kwongereza umwimbu w'ivyarimwe hamwe n'ibungabunga ryavyo.
	ubworozi	1. Integuro yo guhuza imirima, amashamba n'ibikoko; 2. Integuro yo gushira mu ngiro ibwirizwa n°1/21 ryo ku wakane Gitugutu rivuga riti “kugumiza ibitungwa muruhongore no kwihaniza iyerera ry'ibitungwa bitaha mu nzu n'ibitungwa bitobito; 3. Integuro yo guhindura ingendo y'aborozi mu

		guhangana n'ihindagurika ry'ibihe; 4. Integuro yo guteza imbere ubworozi bw'ibikoko bitobito.
	Uburovyi	Integuro yo gushira mu ngiro ntangere ibungabunga ry'ibisata vy'uburovyi bitandukanye hamwe n'ibungabunga ry'ibiyaga mu ntumbero y'ukurwanya gufungura nabi n'ukubura imfungurwa ndemamubiri.
Amasoko ntanganguvu		1. Guteza imbere no kubungabunga ibitwara amatara ; 2. Guhamba intsinga, gukoresha umuyagankuba ivyunguka; 3. Kwagura ubwoko bw'inguvu bukoresha kugira ntitwizirwe n'ubwoko bumwe gusa mu guteza imbere ubundi bwoko bw'amasoko ntanganguvu; 4. Gukomeza ugufashanya kw'ibihugu haba mu ntara canke mu karere Uburundi buherereyemwo; 5. Gukomeza ubushakashatsi n'uguteza imbere igisata c'amasoko ntanganguvu adahumanya ikirere.
Amasoko y'amazi	Amasoko y'amazi n'isuku	1. Guteza imbere uburyo bwo kuzigama no kubungabunga amazi y'imvura kugira bayakoreshe mu bikorwa vya misi yose; 2. Guterera mu gutegura inkengera z'inzuzi n'imisozi ihanamye yo mu Mirwa nahandi hageramiwe kugira ntihasure kubomoka; 3. Kunonosora ido nido ry'amasoko ahari mu gihugu kugira dupime ubushobozi

		bwayo atworohereze abayakenera ubu no muri kazoza; 4.Gushiraho uburyo bwo gutabaza bwihuta kuvyerekeye ihindagurika ry'ibihe kugira hagabanuke inkurikizi mu vy'ubutunzi n'imibano; 5.Gukingira no kubungabunga ibibanza ntegerwa vy'ibiyaga n'inzuzi; 6.Itegurwa ritomoye ry'imisozi-n'ububande be n'imyonga kugira ibidukikije bigume bikingiye; 7. Gukingira no kubungabunga ibice bibamwo imyuzurira kugira baganye ubukana bwayo.
Amagara y'abantu		1.Integuro “amagara meza kuri bose”, 2.Gukomeza uburyo bwo gucunga bikwiye indwara no kuyihagurukira muburyo bwose; 3.Gucungana n'indwara ry'ivyaduka vyofasha cane mu kurwanya indwara kama n'ivyaduka; 4.Gushiraho ikigo c'ibikorwa vyihutirwa/urwego rwo guhuza /no gukorana n'ibindi bisata; 5.Kubandanya kuvura abana bari muni y'inyaka itanu n'abakenyezi bibungenze ku buntu hamwe no ku rugero rwa mbere rwa malaria bituma ugira ico ukoze ku ruhanahane rw'agakoko kayitera; 6.Kwiga inyifato y'imibu yanduza malaria; 7.Gukingira imirwi y'abantu mugufasha ibikenewe (gukwiragiza imisegetera ya MILDA, PID, n'ibindi).

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III.1.8.Imigambi yo guhangana n'ihindagurika ry'ibihe

Muri uyu mwihwezo, abahinga baterereye ivyorangurwa n'integuro yo guhindura ingendo, itondeshwa ry'akamaro kizo nteguro ufatiye kubiziranga mu gisata kimwe kimwe nkuko Igiharuzo gikurikira kivyerekana.

Igiharuzo ca 14: Imigambi yoshirwa imbere mu bisata

Ibisata	Igisata	Inyifato y'umugambi	ingengo y'amafaranga (Dollars)
Uburimyi	Uburimyi	1.Guhingura no gukwiragiza imbuto zirobanuye zirinda ihindagurika ry'ibihe	1 140 155 ;880
		2.Gukundisha n'uguteza imbere uburimyi buramba	8 618 711,710
	Ubworozzi	1.Guhuza uburimyi, ibiti n' n'ubworozzi n'ibungabunga rirama ry'amashamba cimeza nibibamwo	18 392 856 ,470
		2.Umugambi wo gutera ibitegwa bikinga inkukura no gukingira ibidukikije	92 325 000
	Uburovyi	1.Umugambi wo guhindura ingendo mu guhangana n'ihindagurika ry'ibihe hamwe no kwongereza umwimbu w'ifi mubibanza barobamwo	200 000
		2. Kworora amafi munyanza kugirango hatuzwe inzara mu banyagihugu	47 186 062

		3.Gukingira inzuzi n'ibiyaga barobamwo kugira tugwize imfungurwa ndemamubiri	50 000 000
Amasoko ntanganguvu		1.Gusanura ingomero z'umuyagankuba zisanzweho	200 000 000
		2.Gukingira ibiza ingomero z'umuyagankuba (imyuzurira n'ivyondo)	50 000 000
		3.Guhingura umuyagankuba mu myavu yo mu bisagara	90 000 000
		4.Gutunganya imigambi ya « biogaz » mu mabohero, amashure 'uburaro, amakambi ya gisirikare n'ahandi hose hari uburaro bwa benshi,	

Ibisata	Igisata	Inyito y'umugambi	Ingengo y'amafaranga
Amasoko ntanganguvu		mu mirwi y'abihebeyimana n'abandi	110 000 000
		5.Gushira umuyagankuba uturuka kuzuba munyubakwa za leta zirikure y'umuhora	150 000 000
		6.Umugambi wo gushiramungiro iterambere rijanye numuyagankura uva mu mwuka CH4 ucika biogaz	968 000
Amasoko y'amazi		1.Kureka amazi y'imvura arekwa ku mazu muntumbero yo kuyakoresha ivyo murugo	41598 628
		2.Umugambi w'ugutera intege kugira inzuzi zo mu Mirwa ntizigume zigira uko zishatse	28 971 000
		3.Umugambi wo gukurikirana ivy'ubuziranenge bw'amazi	2 908 256
		4.Umugambi wo gushiraho ikigo karuhariwe co gukarihiriza ubwenge abakora muvyerekeye amasoko y'amazi	2 620 000
Amashamba n'ibibanza kama		Umugambi w'ibungabunga rirama ry'amashamba n'ibibanza kama mu ntumbero yo guhangana n'ihindagurika ry'ibihe	100 000 000
Amagara y'abantu		Ukugabanya kw'inkurikizi z'ihindagurika ry'ibihe	14 921 975

Gutwara abantu n'ibintu n'inyubakwa		Umugambi w'ugutabara kwihutirwa muguhangana n'ihindagurika ry'ibihe	1000000
Ubushuhe n'ubukanyi, ivyerekeye ibihe nivyamazi		1.Kwagura no gusanura ibibanza vy'itegekanyabihe n'ukwungura ubumenyi bw'abakozi bajejwe ubuhinga	5000000
		2.Gukomeza ubushobozi mubijanye n'umwanya, ubushuhe , 'ubukanyi nivyamazi,	4 000 000
		3.Gukomeza ubushobozi muvyerekeye ivy'uburimi n'imyanya	2 000 000

III.2. INTEGURO IRIMWO INGINGO ZO KUGABANYA IHINDAGURIKA RY'IBIHE

III.2.1. Intangamarara

Uburundi buri mu muryango w'ibihugu bitari muri « annexe 1 » w'amasezerano mpuzamakunga kw'ihindagurika ry'ibihe kandi buraterera mu kigoro mpuza makungu mu gushika kw'ihangiro nyamukuru ryayo masezerano nkuko bitegekanijwe mu ngingo yayo ya kabiri, mu ntumbero yo kugumiza ku rugero rumwe nkuko vyemeranijwe imyuka ishusha ikirere ku rugero rubuza iyonowa ry' ikirere. Uburundi bwariyemeje kugwanya ibiza bijanye n'ihindagurika ry'ibihe mu ntumbero yo kuja mu nzira y'iterambere rirama rijanye n'imigambi ya Leta ishira imbere nkuko bigaragara mu mugambi w'igihugu ujejwe iterambere (PND) 2018-2027).

Kwiweza igabanugwa ry'ihindagurika ry'ibihe igihugu kirimwo ubu n'ibindi bihe vyafatiwe gushika 2030.

Iki gice cerekana ivyashitsweko n'ishirwa ahabona ry'ingingo n'ubuhinga bwo kugabanya imyuka ishusha. Uyo mwihwezo ugizwe n'ibice bitatu. Igice ca mbere kikaba kijanye nibimaze kwandikwa mukugabanya ingaruka mbi zihindagurika ry'ibihe, iryogabanuka rikaba riraba ibisata bikuru bikuru bivamo imyuka ishusha ikirere Igice ca kabiri cerekana ivyashitsweko mukugabanya ingaruka mbi z'ihindagurika ry'ibihe mu bisata vy'uburimi, amasoko ntanganguvu, amashamba guhindagura gukoreshwa amasi n'amahinguriro. Igisata c'imicafu nticashikiriwe n'iryotegekanywa bivanye kidafise ibiharuro bikwiye mugihugu.

III.2.2: Ingingo y'igikorwa

Ingingo ntakemwa zibiri nizo twifashishije muntumbero yo gusuzuma igabanuka ry'imyuka ishusha ikirere.

- Gushikira intumbero y'amasezerano yamaze kuvurwa aho hejuru, hamwe no;

- Gutera intege iterambere rirama mu vy'ubutunzi biciye mu ngingo zirashe, integuro n'iyindi migambi ya none na kazozo, mugihe kigereranye canke ca kure.

Ihangiro ry'uyo mwihwezo nukurondera ingingo zofatwa kugira hagabanurwe imyuka ishusha ikirere hongere hagwizwe ibigega vyo kubikwegantibije mukirere.

Hariyunviriwe ingene imyuka izongana canke kuyikwega mugihe iterambere rigumye rimeze ubu ataco bahinduye bafatiye kumwaka wa 2010 nk'intango.

Kuvyerekeye amasoko ntanganguvu, hakoreshejwe ikigererezo LEAP. Kubindi bisata, abahinga bakoresheje ubuhinga bundi "une regression lineaire/polynomiale"

Inzira yakoreshejwe yibanze mugutororokanya ibiharuro mu bitabo bitandukanye cane cane ivyegeranyo vyaturutse munzego zitandukanye, munteguro, mu migambi y'iterambere tutibagiye gusoma ivyegeranyo vyakozwe mundondoro y'imyuka ya 3 yakozwe hariko harategura ibizubaka iki cegeranyo ca 3.

Igabanuka ryubakiye kuvyatowe mugihe atahinduwe, mugisata kimwe kimwe, bishizweko ibihinduka hashizwe mungiro ingingo canke politike yo kugabanya imyuka canke kugwiza ibigega mubisata .

Incamake y'ivyafatiweko iri mukibariko gikurikira.

Igiharuzo ca 15: Impfunyapfunyo y'inzira yakurikijwe.

IHANGIRO	IGABANWAMURI % (KWIJANA) HAFARIRY'IMYUKA ISHUSHA IKIRERE HISUNZWE UMWAKA WIBANZE MUKIGERERANYO CA MBERE (SCENARIO 1)
Aho bikorerwa	Igihugu cose
Ivyuka birwanywa	Diyoguside ya karubone (CO ₂), metani (CH ₄) na oguside nitire (N ₂ O).
Ibisata vyitaweho	Uburimyi, amasoko ntanga nguvu, amashamba be no guhindagura gukoresha amasi, ibikorwa vy'amahinguriro
Icategekanijwe gifatirwako	Iyo nteganyo yerekana imyuka ishusha ikirere gushika mu 2030 kuri burigisata c'ibikorwa ufatiye ku nteguro za none z'iterambere zateguwe na Leta.
Icategekanijwe kugira hagabanywe imyuka	Iyo nteguro yerekana imyuka kushika muri 2030 bihayeho ihangiro yokugabanya imyuka mu bisata bikurubikuru nk'amasoko ntanganguvu be n'uburimyi
Ivyo bisunze mw'itegekanya y'intango n'iyi kugabanya imyuka	Vision 2025, PND 2018-2027, Plan Directeur Production et transport d'énergie électrique 2014-2030, PNIA
Urugero umwuka utera ubushuhe (PRG)	Ibiharuro vya PRG vyakoreshejwe n'urwego mpuzamareta w'abahinga muvyerekeye ihindagurika ry'ikirere (GIEC, SAR) nivyo: CO ₂ (1), CH ₄ (21)

	N2O (310)
Inzira yo gutegekanya imyuka muri kazoza dukorejeje Icategekanijwe gifatirwako	Mugukora itegekanya ryafatiweko (CNA)'hariyunvirwa uko igisata coteri imbere mu mwimbu, abantu uko bangana, umuyagankuba n'ibindi
Inzira yo gutegekanya imyuka muri kazoza m'itegekanya ry'u kugabanya imyuka	kwitegekanywa rigabanya imyuka hariyunvirwa gushiraho ingingo zirashe n'imigambi mu gisata kanaka.
Isuzuma ry'ivyerekeye imicafu	Imyuka yo muri ico gisata ifise ubushobozi bwo kwongerekana ariko urutonde rwayo rurimwo ugukekeranya kwinshi, ivyo ntivyorosha gutora ibiharuro birashe. Birakwiye kuzicarira ico kibazo mu cegeranyo ca kane kizokurikira

III.2.3. Irimbura ry'igabanuka ry'imyuka n'ingingo zo kuyigabanya

III.2.3.1. Uko imyuka yifashe hakurikijwe ingingo zavuzwe aho hejuru

Igiharuzo ca 16: Igwirirana ry'ikwiragiza ry'imyuka dufatiye kuvyategekanijwe gushika muntango hamwe n'igabanuka

IGISATA	IFATIRO	IMYUKA		
		CO ₂	CH ₄	N ₂ O
Amasoko ntanganguvu	2010	172,183	32,52	0,34
	urugero rusanze (CNA)	345,52	54,16	0,34
	Igabanuka	371,47	13,45	21,31
Uburimyi	2010	-	53,66	7,54
	urugero rusanze	2,66	11,1	0,18
	Igabanuka	2,6	10,9	0,11
Ibishika ku mashamba n'amasi	2010	-2.249,26	2,6	0,23
	urugero rusanze	977	-	-
	Igabanuka	-16709	-	-
ibikorwa mumahinguriro	2010	0,78	0,00	0,00
	urugero rusanze	8,62	0,02	-
	Igabanuka	8,13	0,02	-

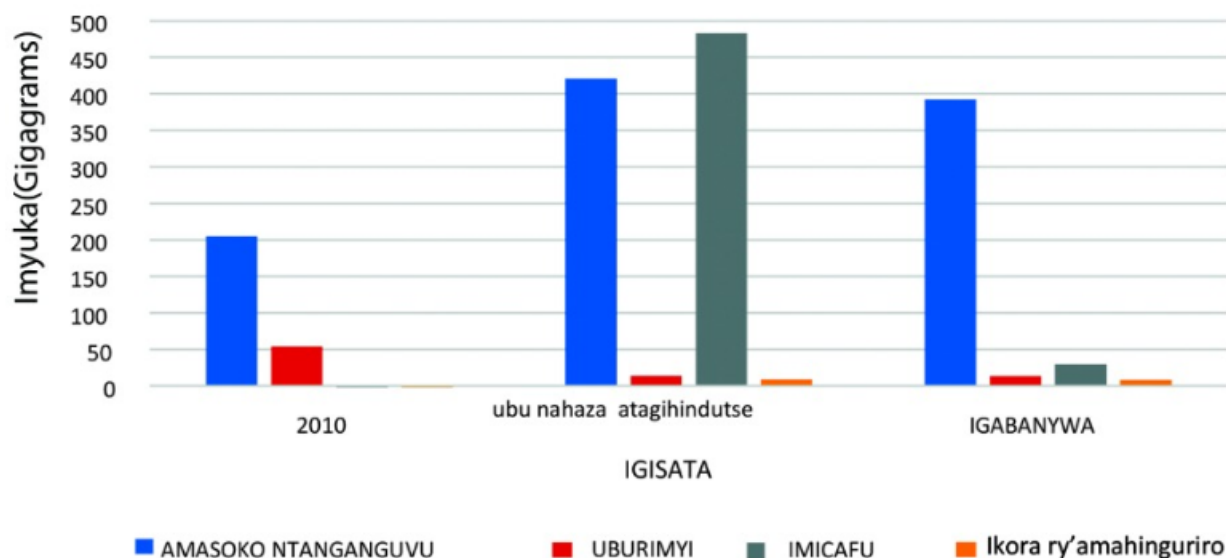
Igiharuzo ca 15 n’uducapo turi muriki kigabane twerekana uko imyuka yifashe dufatiye kuvyategekanijwe baherako hamwe n’igabanuka; imyuka iyo ariyo n’ibisata ivamwo.

Twihaye ibiri mukibariko ca 15, imyuka ishusha ikirere itera yiyongera.

Mu gisata c’amasoko ntanga nguvu, imyuka iva kuri 172,183 za CO₂ Gg muri 2010 gushika kuri 345, 57 za CO₂ Gg muri 2030 urumva rero birwizwa na kabiri ufatiye ku rugero rusanze (CAN) bigafatana n’igabanuka ritoyi iyo ibikorwa vyo kugabanura bitegekanijwe vyagiye mu ngiro.

Imyuka mu bindi bisata naryo nyene rifise intumbero yo kwiyongera naho ufatiye ku biharuro bitiyongera kanini.

Umwuka wa CO₂ muvuyerekeye igabanuka ntujya hasi kuko imbera ya 2030 barateganya bimwe birengeje icanwa ry’ibiti mu bisagara bigasubirizwa n’icanwa rya gaz.



Igicapo ca 24: Iyongereka ry’ikwiragiza ry’imyuka igisata ku kindi dufatiye kuvyategekanijwe gushika hamwe n’imyuka ihumanya

III.2.3.2. Kuraba igabanywa ry’imyuka n’ingingo zifatwa muriyo ntumbero

a. Igisata c’amasoko ntanganguvu

Mu gisata c’amasoko ntanganguvu, ibisata bikurikira vyaratoranijwe hafatiye ku muyagankuba vyakoresheje:

- Igisata caho abantu baba ;
- Igisata c’ubudandaji n’amahinguriro ;
- Igisata ca Leta ;
- Igisata c’amadini ;
- Igisata c’ibisagara n’amakomine ;
- Igisata gitunganya intwari ;
- Igisata c’ubuserukizi bw’ibihugu ;
- Igisata c’abigenga ;

- Igisata co gutwara abantu n'ibintu ;
- Igisata c'uburovyi n'uburimy.

Ni kwitegekanya rya mbere, itegekanya ryo kugabanura imyuka ryakozwe hisunzwe imigambi muri buri gisata, impinyanyuro z'ibisata n'imigambi ntunganya bikorwa vy'igihugu.

Kubiraba igisata c'amasoko ntanganguvu, gutegekanya igabanuka ry'imyuka ryisunze ingingo mpinyanyuro zikurikira:

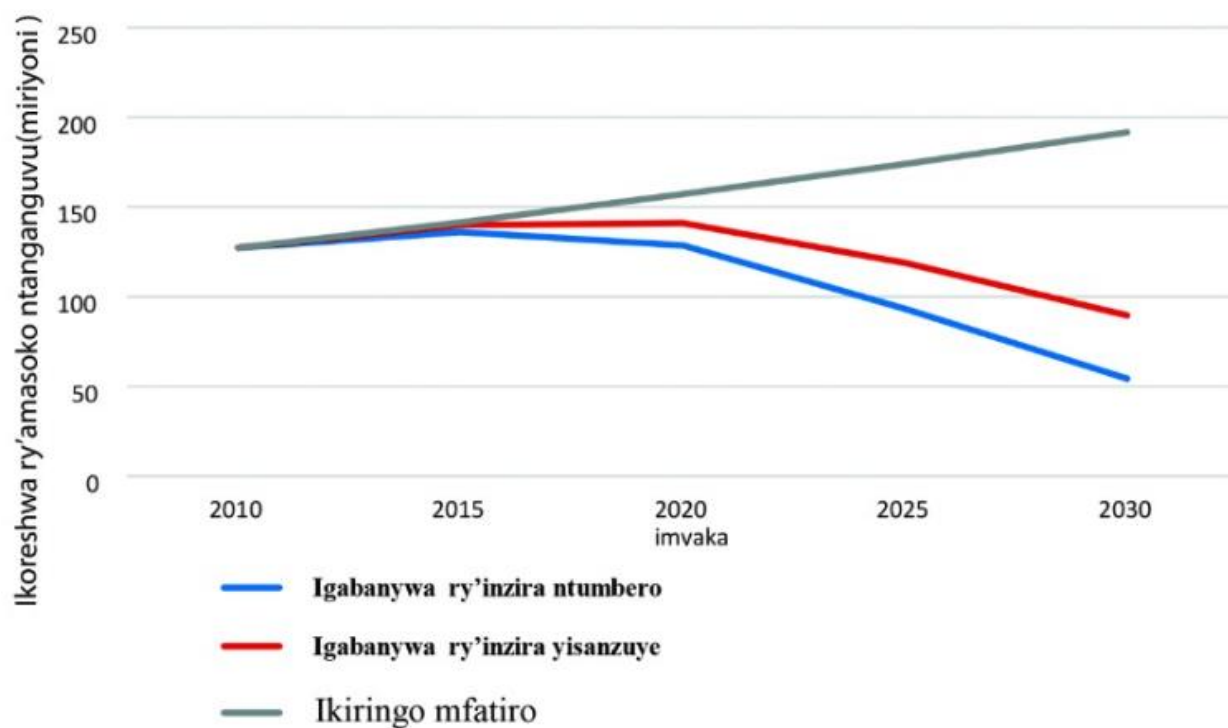
- Gukoresha ubuhinga bwisununuye mu guturira amakara ;
- Gukoresha amashiga ya kijambere mugukinjika mu gisagara muntumbero yo kugabanya ikoresheya ry'amashiga y'ikirundi yonona amakara. ;
- Kugwiza amashiga kijambereaziganya inkwi mu gihugu hagati ;
- Gukoresha umwuka ntanganguvu uva mw'ihingurwa ry'imicafu mu gihugu hagati ;
- Guteza imbere imiduga yo kwiyoungurura ya benshi kugira igitoro kibe gike.

Mu ntumbero yo gufatira kubikenewe mw'iterambere ry'igihugu, ikoresheya ry'amasoko ntanganguvu rizongana na milioni 191,598 za Gigajoules (Gj) muri 2030 izo nazo zikazozana 345,577 Gg za CO₂, imiriyoni 54,16 Gg za CH₄ na miriyoni 0,717 Gg za N₂O.

Hashizwe mungiro umugambi ukomeye wo kugabanya imyuka ishusha ikirere kumwe n'umugambi w'iterambere ry'igihugu c'Uburundi 2018-2027, ikoresheya ry'amasoko ntanganguvu rizongana n'imiriyoni 54,345 Gj. Imyuka bihura nayo izongana na: 371,46Gg za CO₂, 13,45 Gg za CH₄ na 0,181Gg za NO₂.

Igiharuzo ca 17: Iyongerekana ry'ikoresheya ry'umuyagankuba muma miriyoni y'ama Gj

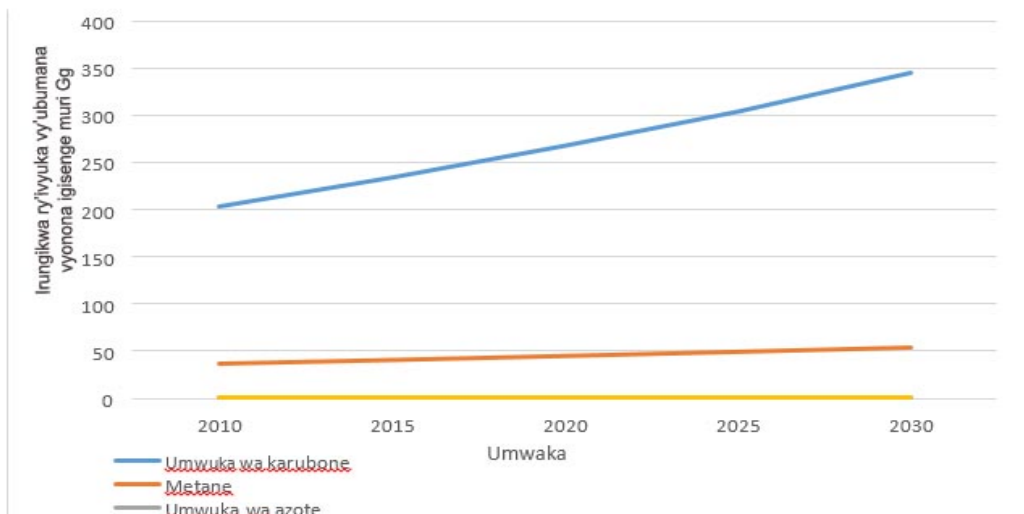
Ivyategekaniye	2010	2015	2020	2025	2030
Igabanuka / itegekanya rikabije	127,247	136,083	128,646	93,309	54,345
Igabanuka/itegekan ya ribayabaye	127,247	139,904	141,031	118,761	89,561
atagihindutse kubikorwa/CNA	127,247	141,461	157,161	173,931	191,598



Igicapo ca 25: Ingene umuyagankuba wakoreshejwe mumamiriyoni y'amaGj

giharuzo ca 18: Imyuka ishusha ikirere muri Gg kw'itegekanya CAN

ingaruka		2010	2015	2020	2025	2030
CO ₂		203.483	234.295	268.032	304.153	345.577
CH ₄		36.545	40.588	44.960	49.473	54.161
N ₂ O		0.485	0.538	0.596	0.656	0.717



Ingicapo ca 26 : Imyuka ishusha ikirere muri Gg kwitegekanya CNA

Ingingo zo kugabanya imyuka

Mu ngingo zashikirijwe mu cegerano ca kabiri ca Leta y'Uburundi kw'ihindagurika ry'ibihe, ingingo zimwe zimwe zarashizwe mu ngiro izindi ntizirakorwa kandi zitegerezwa kugaruka muri iki cegeranyo.

Ingingo zijanye na politike ziriho

- Gugwiza imodokari zitwara abantu benshi,
- Kwama basuzuma ingene imiduga yifashe,
- Guteza imbere amasoko ntanganguvu asubirwamwo;
- Gushira mu minywe y'abikorera utwabo igisata c'amasoko ntanganguvu;
- kwemeza inyandiko n'amategeko yorohereza kwinjiza mu gihugu ibikoresho bijanye n'umuyagankuba w'izuba;
- Ingingo yo kuziganya umuyagankuba (uguhimiriza no kurwiza ibikoresho vyo kuziganya amasoko ntanganguvu);
- Kwinjiza mu gihugu imodoka nshasha.

Ingingo z'ubutunzi

- Ishigikirwa na Leta ry'igisata kijejwe gukwiragiza hose amatara n'amazi;
- Ikurwa ry'ikori ku bikoresho vyo gukinjika bikoresha umuyagankuba.

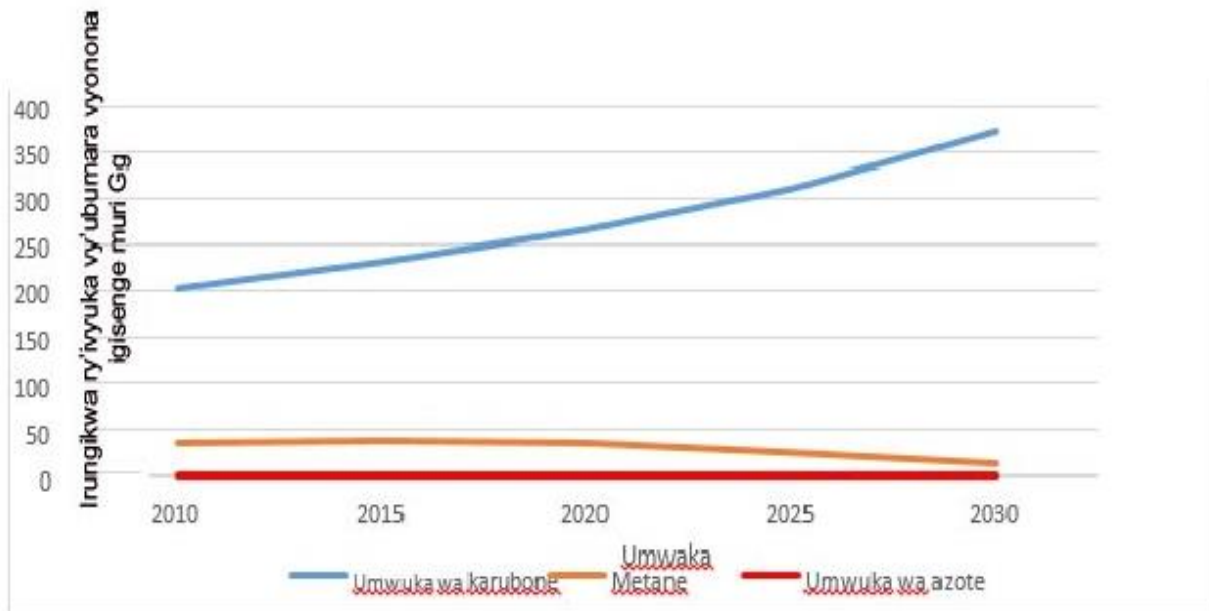
Ingingo z'ubuhinga

- Kugwiza hose amashiga ya kijambere aziganya amakara n'inkwi;
- Gutunganya ikizuku muntumbero yo kugicana mungo;
- Gusubiriza amafuru akoresha inkwi nayakoresha umuyagankuba;
- Kwubaka ingomero nshasha z'umuyagankuba;

- Kwongereza ibimenyetso vy'amatare yo ku mabarabara vyorohereza uruja n'uruza mw'ibarabara kuko bituma imiduga itaguma ari urutavanako igitoro cahononekarira kikagabanuka

Igiharuzo ca 19: Imyuka ishusha ikirere muri Gg mugihe c'itegekanya yo kugabanyaimyuka

Imyuka	2010	2015	2020	2025	2030
CO ₂	203.483	232.137	266.221	310.575	371.465
CH ₄	36.545	39.028	36.512	25.545	13.456
N ₂ O	0.485	0.517	0.484	0.339	0.181



Igicapo ca 27: Imyuka ishusha ikirere muri Gg kw'itegekanya ry'ukuyigabanya

b. Igisata c'uburimyi

Mu gisata c'uburimyi, ingingo zihutirwa zo kworohereza igabanuka ry'imyuka ishusha ikirere n'izi:

- Kugabanya umwuka wa metane CH₄ mu kwongereza ingaburo y'ibitungwa, n'ukwongereza inguvu z'uturemangingo mw'irondoka nyaryo ry'ibitungwa ;
- Kwegeranya metane ivuye mugukoresha umwavu w'ibitungwa kugira hahingurwe umwuka ntanga nguvu (biogaz);

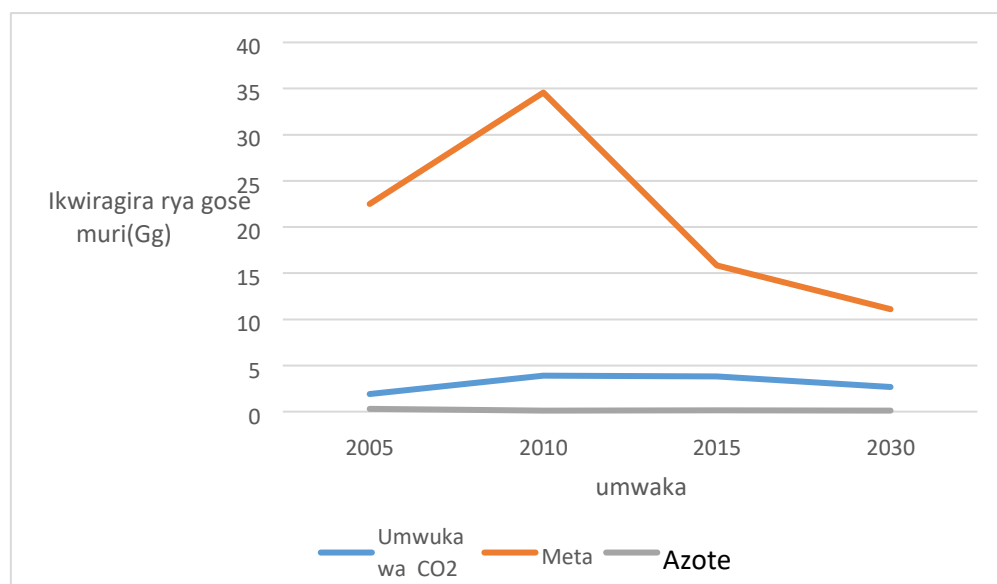
- (iii) Kugabanya urugero rwa metane bivuye mu guhindura ubuhinga bukoreshwa mu kuvomera igiterwa c'umuceri;
- (iv) Kugabanya umwuka wa N₂O hisunzwe ikoreshwa ry'umwavu w'ikizungu uhinguwe mu mwavu utotahaza.

Harimwo n'umugambi PNIA wo guteza imbere ihingura ry'ibindi vyokoreshwa mu kumeresha isi, ukuguma batera imbere mu gukoresha umwavu wo muri nyabarega mu kibanza c'uwikizungu mu guteza imbere uburimyi burama bizotuma hagabanuka 2.4Gg za CO₂ gushika mu mwaka wa 2050;

Hanyuma y'ivyo, ukunonosora ibigize ingaburo y'ibitungwa bizotuma twirinda ni miburi buri 27.97Gg vya metane bituruka ku bitungwa vyuza n'ihuza ry'uburimyi, amashamba n'ibikoko gushika mu mwaka wa 2050.

Igiharuzo ca 20: Imyuka ishusha ikirere (Gg) itegekanijwe mu mwaka wa 2030 hamwe n'intumbero ya PDDAA yo kuyigabanura kurugero rwa 30%

Imyuka	Ikwiragira ryose ry'ivyuka (Gg)			
	2005	2010	2015	2030
Net CO ₂	1,91	3,90	3,80	2,66
CH ₄	22,5	34,57	15,85	11,10
N ₂ O	0,3	0,11	0,15	0,11



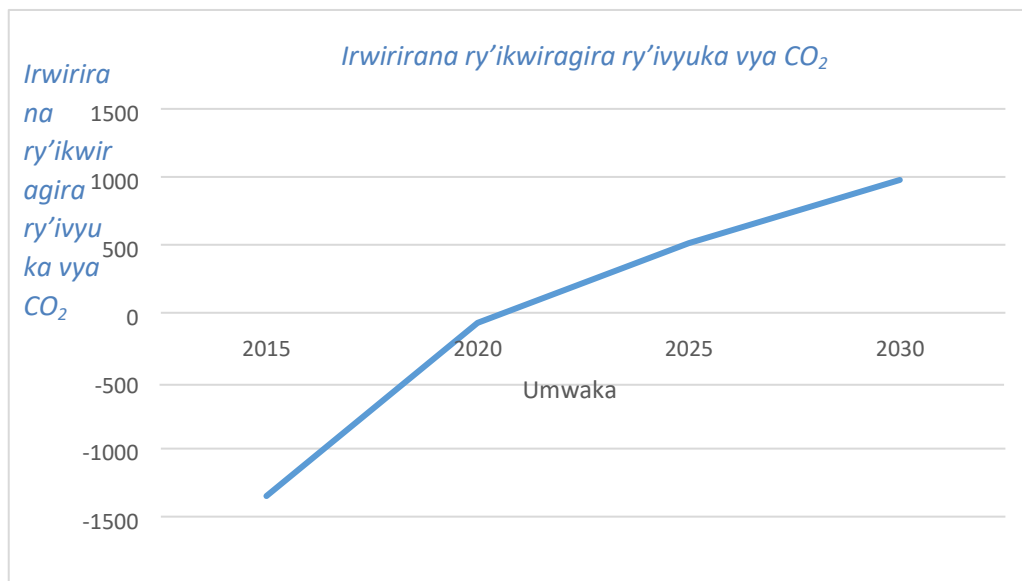
Igicapo ca 28: Imyuka muri (Gg) itegekanijwe mu mwaka wa 2030 hamwe n'intumbero ya PDDAA yo kubigabanya kurugero rwa 30%

c. Igisata c'amashamba

Itegekanya fatizo mu gisata kijanye n'amashamba ryafashwe hisunzwe icyumviro shingiro cemeza ko ugusubiriza amatongo y'amashamba n'izindi ngendo nshasha zongeweko gutera ibiti bingana na hegitari 4000 biciye mu mugambi wa Leta wo gutera ibiti ahashoboka hose ushigikiwe guhera mu kwezi kwa Munyonyo 2017 n'umugambi w'igihugu witwa « Ewe Burundi Urambaye ». Igiharuzo ca 29 n'igicapo ca 30 birerekana uko imyukaishsha ikirere yifahe.

Igiharuzo ca 21: Irwirirana ry'ikwiragira ry'ivyuka vya CO₂ ufatiye kw'iteganya fatizo ryiza

umwaka	Irwirirana ry'ikwiragira ry'ivyuka vya CO ₂ muri Gg
2015	-1348.48
2020	-74.76
2025	511.07
2030	977.17



Igicapo ca 29: Umwuka wa CO₂ ufatiye kw'iteganya fatizo wizewe

C.1. Ingingo zigabanura imyuka mu gisata c'ikoresheya ry'amatongo n'amashamba

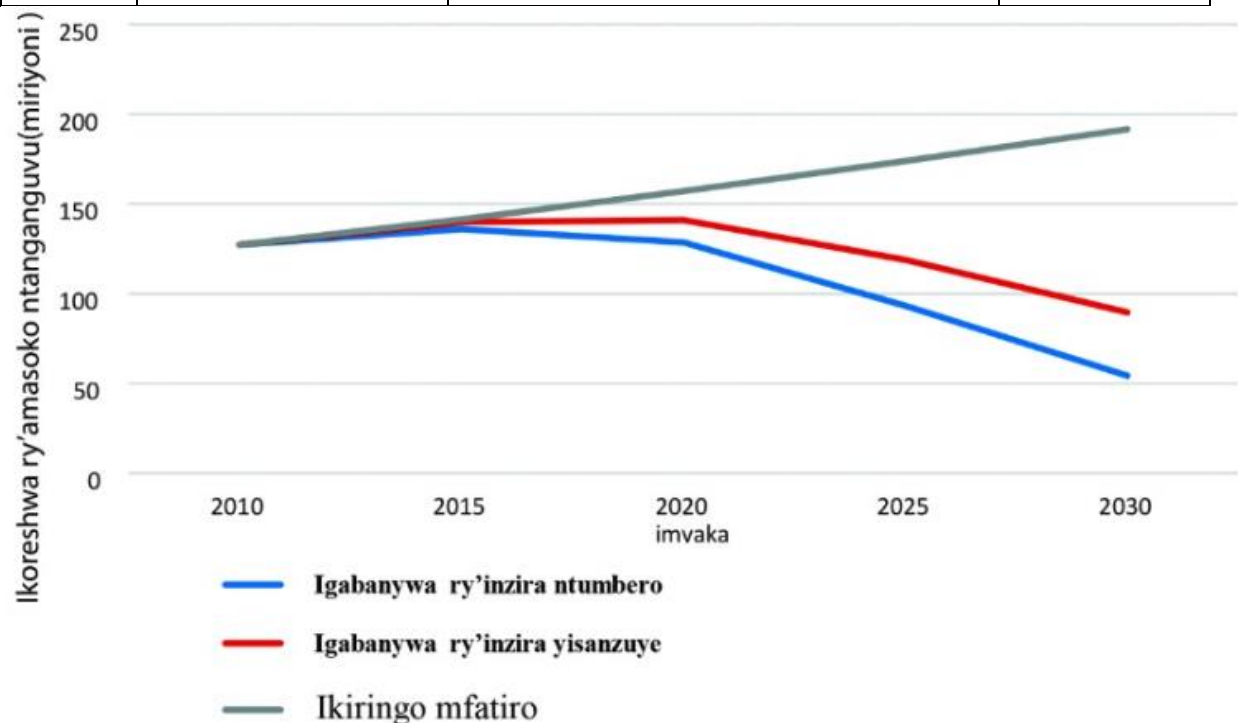
Ibikorwa vyo kugabanya imyuka ku mashamba bishobora kuja mu mirwi itatu.

- Umurwi wa mbere ugizwe n'ibikorwa bifasha mu kwirinda imyuka ya CO₂ nko kudakoresha amashamba agakingirwa ;

- Umurwi wa kabiri ugiwze n'ibikorwa bifasha kwongereza ububiko bwa CONKO gutera ibiti bikundana n'imirima no gutera ibiti bisanzwe ;
- Umurwi wa gatatu ufiteye isano n'itunganywa riramba ry'amashamba ukaba ugabanya gukoresha inkwi na cane cane biciye mu kuzisubiriza n'ibindi bicanwa no kudasesagura inkwi bakoresheje ibikoresho biziziganya bijanye niterambere.

Igiharuzo ca 22: Imyuka ishusha ikirere dufatiye kw'iteganya fatiro ry'iryigabanuka biciye mu gufatany amashamba n'amashiga ya kijambere

Imyaka	Imyuka ya CO2 Mw'iteganya fatizo	Imyuka ya CO2 mw'iteganya ryo kuyigabanya	Imyuka ya CO2 ibitse
2015	-1348.48	-1348.48	0
2020	-74.76261054	-5332.08	5257.317389
2025	511.07	-11266.94	11778.01
2030	977.17	-16709.34	17686.51



Igicapo ca 30: Irwirirana rigereraniye ry'ikwiragira ry'ivyuka dufatiye kw'iteganya fatizo ry'igabanuka biciye mu gufatany amashamba n'amashiga ya kijambere

C.2. Itondeshwa ry'ingingo hisunzwe imyuka yagwanijwe

Hisunzwe ubwinshi bw'imyuka yagwanijwe, izo ngingo zibonekeje aho hejuru zishobora gutondekwa hisunzwe urutonde gwo kuva kuyirwanya imyuka myinshi uja kuyirwanya muke :

Igiharuzo ca 23: Urutonde rw'ingingo hafatiwe ku myuka yarinzwe

iteganya ry'igabanuka	imyuka yarinzwe muri Gg ECO ₂
Iterwa ry'ibiti + amafuru n'amashiga ya kijambere	112000,50
Amaziko n'amafuru ya kijambere	77017,38
Amashiga ya kijambere	64282,33
Gutera ibiti+ n'amafuru y'amakara ya kijambere	47618,26
Gutera ibiti+ biogazi	3918,45
Gutera ibiti	34983,12
Amafuru ya kijambere	12735,05
Biogaz	220,16

e. Ingingo zo kugabanya imyuka mu mahinguriro

Hisunzwe indondoro igira gatatu y'imyuka ishusha ikirere, amahinguriro y'ivyuma itanga imyuka ya 6,23672 Gg ECO₂, ihingurwa ry'ishwagara naryo 1,206323Gg ECO₂ nivyoye nyene vyadomweko urutonde nkibirimwo imyuka naho idashemeye. Icirwa c'igabanuka ry'imyuka riterwa n'abantu rirakenewe kugira uburundi bugire uruhara mu kugabanya ingaruka zituruka kw'ihindagurika ry'ibihe kurugero rw'isi ; kandi ridomako urutonde ku ngingo zishirwa mu ngiro kugira habe umwuka wa carbone ugabanuke.

Udusata dutatu twarasuzumwe tukaba ari utu dukurikira:

- Amahinguriro y'ubutare, ii) amahinguriro y'ivyuma hamwe iii) n'amahinguriro y'ibifungurwa n'ayo ibinyobwa.

Mu gihugu c'uburundi ibisata vyogabanywamwo imyuka mu mahinguriro nivyoye bikurikira :

Igiharuzo ca 24: Bilan des émissions en Gg

imyuka 	2010		2015	
Imirwi 	CO ₂ (Gg)	CH ₄ (Gg)	CO ₂ (Gg)	CH ₄ (Gg)
Imyuka yose hamwe « PIUP »	0,784695		7,470043	0,01872
2.A.2 – ihingura ry'ishwagara	0,784695		1,206323	
2.C.1 – ihingura ry'ivyuma	-	-	6,23672	0,01872

Igisata c'amahinguriro gifise uruhara runini mw'ihinduka nya ryo ry'ubutunzi bw'igihugu, ariko, ico gisata kiracari inyuma mu Burundi naho hafaswe ingingo z'amahinduka kugira icuka kibe ciza mu budandaza, cane cane ingingo zafashwe mubiraba guteza imbere amahinguriro.

Igiharuzo ca 25: Kuraba imyuka ishusha ikirere dufatiye kw'itegekanya fatiro

umwuka	
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	<i>Igiharuro mperekeza</i>	2010	2015	2020	2025	2030
<i>CO₂en Gg (biraba ishwagara)</i>	0,05	0,785	7,443	7,815	8,206	8,616
<i>CH₄en Gg (biraba ivyuma)</i>	0,05		0,019	0,020	0,021	0,022

Ingero zo kworohereza igabanuka

Urugero rwategekanijwe rw'igabanuka rufatira ku bikorwa mu rwego rw'igihugu n'ingingo za politike zirashe zigatuma ibungabungwa nyaryo ry'igisata, hari ingingo zotuma imyuka ihumanya igabanuka. Dufatiye ku cyumvyiro nkorerwako, igabanuka ry'ikwirakwiza rya 3% uko imyaka itanu iheze, Uburundi, bwoshobora gushikira amagabanuka yerekanwa muri iki gicapo kiri aha musu.

Igiharuzo ca 26: iteganywa ry'ikwirakwizwa ry'imyaka ihumanya dufatiye kw'itegekanya ry'igabanuka

<i>umwuka</i>	<i>Igiharuro mperekeza</i>	IMYAKA				
		2010	2015	2020	2025	2030
<i>CO₂</i>	0,03	0,785	7,443	7,666	7,896	8,133
<i>CH₄</i>	0,03		0,019	0,019	0,020	0,020

III.2.4. Intambamyi canke ibibuza bibangamira gushira mu ngiro imigambi n'integuro vy'igabanuka

Intambamyi nyinshi ziratuma ishirwa mu ngiro ry'ingingo zigabanya ricumbagira. Izo ntambamyi ziva muri rusangi kukubura kw'amafaranga hamwe kandi no kutagira ubuhinga bukwiye. Izo ntambamyi tuzisanga aha musu kubisata vy'amasoko ntanganguvu, uburimyi, ikoresha ry'amasi be n'amashamba.

Igisata c'amasoko ntanganguvu

- Ibura ry'amafaranga muntumbero yo guteza imbere umuyagankuba iva ku ngomero muntumbero yokugwiza umuyagankuba;

- Kubura ubuhinga e iyongerekana ribayabaye ry’umwuka uva kuri carbone ;
- Ukubura ibiharuro vy’ukuri kugira haboneke ivyegeranyo ku masoko ntanganguvu.*

Igisata c’uburimy

- Kutamenya bikwiye gukora umwavu wa nyabarega ushobora gusubirira umwavu w’ikizungu ;
- Kudakurikiza bikwiye ingendo n’ibikorwa birama vyo kubungabunga amasi n’amazi canke uburimy bw’ubwenge, bushobora kwongereza bimwe biboneka kandi birama umwimbu n’inguvu z’ibikoresha kugira uwo mwimbu ushikweko.

Vyoshoboka nimiburiburi 30% y’amasi y’indimo atunganijwe hakurikijwe ingendo yo kubungabunga kurama amasi ;

- Harabuze ingendo yo kumenyekanisha ibikorwa biranga uburimy budahobahoba.

Igisata c’amashamba n’itunganywa ry’amasi

- Intege nke mubiraba inzego n’ugutunganya neza igisata ;
- Ukuboneka kw’amakuru y’ukuri kw’itituka ry’amasi n’ibidukikije (ibikorwa bititura);
- Ukumenyekanisha bidashemeye ingingo zo kugabanya ikwiragiza ry’imyuka ihumzanya (guhingura umwavu mu Makara yo gucana, umwuka ntanganguvu, umuyagankuba uva kuzuba, amashiga ya kijambere, amafuru ya kijambere);
- Kutaboneka kw’ibiharuro vy’integuro n’ikurikiranwa ry’imigambi.

Igisata c’imicafu

- Muri rusangi, ingingo z’amabwiriwza n’amategeko zikurizwa murico gisata ntizikwiye kandi niziriho zishirwa mu ngiro nabinabi.
- Dusanga kandi hari isabagi ry’amategeko agenga ico gisata, ivyo bigasigura igituma hakenewe kugena no gukomeza inyandiko n’ugukuramwo, ukujuragirika n’ukuvuguruzanya, hakongerezwa kandi kworohereza ukuyokoresha n’ukuyasesangura;
- Naho ivy’inzego za Leta zijejwe bigaragarac mu nyandiko, mw’ishira mu ngiro haribonekeza igongana kandi ibikorwa vyinshi ntibirangurwa. Tubona kandi ko inzego zihiganwa mukurungura ibikorwa bimwe bimwe kubera inyungu zimwe zimwe. Iyindi ngorane ijanye n’inzego yisubiriza mu Burundi n’uguhindagurika bikunda gushika yivyo ubu Bushikitranganji kanaka bujewe;

- Itunganya ry'imicafu ntirirategurwa neza. Amashirahamwe n'ama koperative ajejwe kuyora imicafu yo mu miryango ntiyuzuza ivyo yiyemeje;
- Urugero rw'imicafu itabwa n'abenegihugu rusumba urugero nyabarega ishobora kwakira.

Igisata c'ubuhinga bw'amahinguriro hamwe n'ikoresha ry'ivyahinguwe

Nico gisata ntigiteye imbere bihambaye kandi intambamyi ni cane cane:

(i)Kutagira ubumenyi kubuhinga(ii) kutagira umutahe (iii) kutagira abantu babinonosoye, n'ibindi.

III.2.5. Imigambi yo kugabanya imyuka itegekanijwe mummyihwezo yakozwe

III.2.5.1. Igisata c'amasoko ntanganguvu

(i) Kugwiza ingomero z'umuyagankuba

Amasoko ntanganguvu niryo nshimikiro ry'ubutunzi. Iboneka n'ikoresha ryayo bifise akamaro ntangere mugihe urugero rw'ikoresha ryayo rwerekana intambwe igihungu kigezemwo mw'iterambere.

Mu Burundi, amasoko ntanganguvu ntatuma gusa abenegihugu bagwiza umwimbu aranafasha mw'iterambere ry'ibindi bisata na cane cane ibisata vyongereza umwimbu nk'uburimi, amahinguriro, igisata c'ubutare, n'ibindi. Mugabo ntitwokwiyobagiza ko amasoko ntanganguvu Uburundi bufise adashobora gutorera umuti vya nkenerwa biguma vyiyongera mu masoko ntanganguvu na cane cane amasoko y'umuyagankuba. Urugero rwo kuronka umuyagankuba rungana 5,6% ufatiye ku nteguro ngenderwako rw'umwimbu, mugukwiragiza no mugutanga umuyagankuba ku benegihugu bo mu Burundi.

Mu ntumbero yo gutorera umuti ico kibazo, Leta iriko irubaka ingomero 4 z'igihugu kunzuzi Mpanda (10MW), Jiji na Murembwe (49,5MW), Kaburantwa (20MW), Ruzibazi (15MW) n'urundi rwo mu karere Rusumo (26,7MW) hatibagiwe isoko rikoresha n'imishwarara y'izuba rya Mubuga (7,5MW).

Ntawokwibagira kwibutsa ko iterambere ry'umuyagankuba uva ku mazi rijana n'uburusho bwo mu mibano n'ubutunzi nka :

- Irwira ry'urugero rw'umuyagankuba mu gihugu ;
- Iyongerekana n'ubutandukane bw'imirimo mu vy'ubutunzi ;
- Guteza imbere imibereho y'abene gihugu ;
- Kuziganya amafaranga y'agaciro bifatiye kw'igabanwa ry'urugero rw'ibifitaniye isano n'ibitoro.

(ii) Igabanganwa ry'umuyagankuba

Amasoko aturuka kumishwarara y'izuba turayasanga mu gihugu ahatari hake. Uburundi burafise isoko riteye igomwe kandi rishemeye. Urugero rw'izuba rungana na 4-5KWh/m² ku musi ni urugero ruri hagati ku mwaka wababa 2000KWh/m² ku mwaka. Ni mw'iyi ntumbero yo kwongereza urugero rw'asoko aturuka ku zuba mu gihugu hagati umugambi wo “gukwiragiza umuyagankuba uva ku zuba ku mihora mitomito muri Afirika” (SESMA BURUNDI) washizweho.

Uno musi ingomero zitanu z'umuyagankuba uva kuzuba w'ubu shobozi bungana na 175KWh ziriko zirubakwa mu mihingo itandukanye y'igihugu.

III.2.5.2. Igisata c'ubuhinga bw'amahinguriro nikoreshwa ry'ibihingurwa

Naho igisata c'amahinguriro mu Burundi kitaratera imbere kandi ko urugero rw'ivyuka bishusha ikirere ari ruto muri ico gisata vyoba vyiza ko iterambere ry'ubuhinga bubereye n'ishirwa mu ngiro ry'amategeko mpuza makungu vyoshirwa mungiro muri ico gisata kugirango natwe duterere mw'igabanywa ry'immyuka ishusha ikirere. Ingingo zikurikira nizo zoja imbere muri iryo gabanya:

- Kubahiriza ingingo mpuzamakungu mukubaka amahinguriro kijamere atonona ikirere,
- Ugutotesha w'imiyobora icamwo umwotsi mw'ihingurwa ry'ivyuma n'ibibiturukako;
- Gukomeza utwigoro tw'ugushakashaka n'ubuhinga bushasha mu gisata c'amahinguriro;

III.2.5.3. Igisata c'uburimyi

Ibikorwa bikurikira vyashizwe ahabona kugira hagabanuke ikwiragizwa ry'imyuka ishusha ikirere,

(i)Guhimiriza ikoroshwa ry'umwavu wa nyabarega n'amase y'ibitungwa

(ii)Ishira imbere ry'ubuhinga bwo guhingura imfungurwa z'ibitungwa zinoze n'ibungabunga z'ibikomoka ku bitungwa

(iii)Gutuza indwara n'ivyonyi

Vyongeye ubuhinga bukurikira bwarafashwe nka nkama mu rutonde rw'ibikorwa mu gihugu mu kuraba urutonde rw'ibiberewe mu buhinga bwo guhangana no kugabanura (EBT II). Ni ubuhinga bwo guhindura ibinyabuzima mu mwuka ntanganguvu.

Dusenguye ubwo buhinga, indondoro z'imigambi zitanu zaradomweko urutoke:

- Ikomezwa ry'ibigo vyo guhingura umwavu uva mu bihema.

- Guteza imbere ubworozi bugumiza ibitungwa mu ruhongore kugira umwavu w'intango ukwire.
- Ukwongereza ubushobozi mu guha agaciro umucafu uva mu bimera kugira batosore, bongere bahingure ibitanganguvu n'ivyongera akanovera k'isi.

III.2.5.4 Igisata C'amashamba n'ugutunganya isi

Ibikorwa bikurikira vyashizwe ahabona kugira hagabanuke imyuka ishusha ikirere.

- (i) Gutera ibiti no gucana amakara mu mafuru ya kijambere;
- (ii) gukoresha amashiga y'inkwi n'imbabura vya kijambere;
- (iii) kwijukira gukora umwuka wa biogaz mu bigo bibamwo abantu benshi.

N'ingingo zikurikira ntizashizwe inyuma:

- Gukinga itakazwa ry'amazi y'imvura n'amasi atwarwa n'inkukura,
- Guteza imbere ubworozi bugumisha ibitungwa mu kugira itituka ry'isi rikingirwe;
- Gutunganya amashamba kuburyo burama n'ugutera ibiti gushika kuri 20% vyisi ndimwa y'uburundi.

III.2.5.5. Igisata c'imicafu

Mur ico gisata, ibikorwa vyadomweko urutoke mu vyegeranyo biheruka no muriki cegeranyo nivyohimurira kugira ico gisata kibungabungwe. Navyo n'ibi:

- Gushiraho ibibanza vyo gutamwo umucafu ;
- Ugukoresha neza ibibanza vyakira amazi y'imicafu mu mihingo yose y'igihugu ;
- Gutegura ifumbire mu micafu iva kubinyabuzima mu ntumbero yo kwongereza ukumera kw'isi. Uwo mugambi ushobora gutuma hagabanuka bimwe biboneka ubwinshi bw'imicafu yo gusuka mu bibanza vyabigenewe hagaca haba igabanuka ry'imyuka na cane cane umwuka wa methane ;
- Ubuhinga bwo guhingura biogaz. Ubwo buhinga butuma imicafu igira akamaro (amazi bakoresheje hamwe n'imicafu igumye kandi bwarageragejwe mu mashure amwe amwe afise uburaro ariko kubera ataburyo mu buhinga no mu mafaranga uwo mugambi ntiwabandanije kandi hitse kuvyo washakwako.
Ubwo buhinga buranakomeye bufise akamaro kanini kubera bushobora gutanga umuyagankuba mu ntara zo, hagati mu gihugu ku ruhande rumwe n'ukugabanya imicafu n'igwirirana ry' umwuka wa methane ku rundi ruhande.

III.2.6. Idomako urutoke ry'Ingingo z'igihugu zikwiye mubijanye no kugabanya imyuka ihumanya ikirere ituruka kubikorwa vy'abantu (NAMAS)

Igiharuzo ca 27: Ingingo zofatwa ku myuka ihumanya ikirere ivuye ku bikorwa vy'abantu

Ibisata	Ingendo zatowe zitondeshejwe hafatiwe kurugero rw'iyirusha iyindi akamaro	Ivyafatiweko mu kuzitora
Uburimyi	✓ Uburyo bwo gutegura ubworozi bushingiye kugaburira ibitungwa mu mpongore, ✓ Gukoresha umwavu w'ibinyabuzima	1. Ryoba rikwiza ibishirw'imbere na Leta? (ego canke oya), 2. Yoba isa n'iyindi ngingo isanzwe ihari? (ego canke oya),

Ibisata	Ingingo zatoranijwe zitohojwe ku rugero rw'ibikenewe	Ivyafatiweko mu kuzitora
Amasoko ntanganguvu	✓ iyubaka ry'utugomero tubayabaye tw'umuyagankuba, ✓ kwironderera umuyagankuba ukoresheje imishwarara y'izuba, ✓ kwubaka ibinogo bihingurirwamwo biogaz hamwe n'ikoresha rya gaz methane, ✓ kwegeranya no guhingura ivyakatsi vy'umwimbu w'uburimyi	3. Ryoba rifise ubushobozi bwo kugabanya butoyi, bwo hagati na canke burenze? 4. Ishira mu ngiro rirashoboka? (ego canke oya), 5. Birasangiye inyungu na : - guhangana (-/neutre/+), - uburyo bwo kubaho (-/neutre/+),

Amashamba	✓ kurwanya itituka ry'amashamba mu kwitaho gukoresha ayandi masoko ntanganguvu n'ibindi bikoresho vyubakwa, ✓ gutera ibiti, ✓ kwongereza ibigega bibika umwuka wa carubone, ✓ ibungabungwa rirama ry'amashamba	- ibidukikije (-/neutre/+)
Gutunganya imicafu	✓ guhingura ibikoresho vy'akamaro mu micafu igumye, ✓ guhingura imicafu y'amazi kugira haboneke methane yo mwuka ntanganguvu, ✓ gutosora no gutunganya amazi y'ubucafu mu bisagara vyose	
Ugutwara abantu n'ibintu hamwe n'inyubakwa	✓ guteza imbere ukwiyunguruza rusangi, ✓ kwiyumwira iyagura rw'ibibanza vyo gucamwo mu nzira yo gutezimbera ibikoresho bidakeneye imoteri	
Ubuhingabw'amahinguriro	✓ Iyubahiriza ry'amategeko, mpuzamakungu kuvyerekeye gushiraho amahinguriro adahumanya ikirere; ✓	
Ibisata	NAMAS zatoranijwe hafatiwe kubikenewe	Ivyafatiweko mukuzitoro
	✓ gutera ibiti bikikuza amahinguriro muntumbero yo gusugerea umwuka wa CO₂, ✓ gukoresha ubuhinga budahumanya kandi bwa none	

IV.2.7. Ugusozera

Naho ari nkenerwa kugabanura imyuka ihumanya ikirre, Uburundi nk'ibindi bihugu bitegerezwa kwitaho igisata c'iterambere kugira buduze urugero rw'imibereho n'ubuzima bw'abantu babwo. Iryo terambere ritegerezwa gushimikira kubaronsa imfungurwa zikwiye, gurwiza amasoko ntanga nguvu no guha agaciro ubutunzi kama bw'igihugu biciye mu kurwiza amahinguriro yavyo kugira ivyahinguwe bigire agacirokisununuye gusumba kandi bibikike.

Mugushikikira intumbero y'amasezerano mpuzamakungu y'ibihugu bihurikiye hame kuvyerekeye ihindagurika ry'ibihe, no mukwemera ingingo yafashwe I Paris mu bufaransa mu nama mpuzamakungu yigira 21, Uburundi buracakeneye ishigikirwa n'amakungu kugira bushire mu ngiro ingingo zigabanya imyuka ihumanya ikirere iturutse ku bikorwa n'abantu.

IKIGABANE CA IV : AYANDI MAKURU Y'INGIRAKAMARO MU GUSHIRA MUNGIRO IHANGIRO RY'AMASEZERANO MPUZAMAKUNGU KW'IHINDAGRIKA RY'IBIHE

IV.1. Icgwa kw'itohoza n'isuzuma ry'ibikenewe mu buhinga mu ntumbero yo guhangana n'ihindagurika ry'ibihe

IV.1.1. Intangamarara

Uburundi buratewe impungenge n'ingaruka ry'ihindagurika ry'ibihe. Hisunzwe ivyegeranyo biheruka gushikirizwa ku vyigwa vyakozwe kwigeramirwa n'ihindagurika ry'ibihe, Uburundi burashobora gukena amazi n'iyongerekana ry'ibifungurwa mu mihingo itandukanye hamwe n'igeramirwa ridasanze n'ibiza biguma vyiyongera. Ihindagurika ry'ibihe si inkuru mbarirano muburundi no guhangana n'ingaruka ryavyo ni ikibazo gihanze isi yose muri iki gihe. Ubuhinga bwa none ni rwo rupfunguruzo mukugabanya ingaruka zihinduka ry'ibihe. Ubuhinga bwa none bushobora gufasha gukingira abantu ihindagurika ry'ibihe, mu kwongereza umwimbu no kuvyaza umusaruro ubutunzi bugeramiwe nk'amazi. Ico cegeranyo kiradondora ubuhinga buriho kandi budasanze bushobora gufasha uburundi guhangana n'ihindagurika ry'ibihe mu mugambi

w'iterambere rirama na cane cane mu gushira mungiro umugambi w'iterambere ry'igihugu c'Uburundi wo kuva mu mwaka wa 2018 gushika mu mwaka wa 2027.

Nivyo, ubuhinga bwa none siwo muti wonyene muguhangana n'ihindagurika ry'ibihe. Ugutunganya gushemeye amasoko ageramiwe, intwaro n'ibindi bisata bitunganya ubutunzi kama na vyo nyene birakenewe gose.

Ako gace gashimikiye kukamaro k'ubuhinga bumwe bumwe mu bisata bitandukanye bushobora gufasha biboneka igihugu c'uburundi mu guhangana n'ingaruka mbi z'ihindagurika ry'ibihe ziguma zibonekeza bidasanzwe. Ivyo bisata ni : uburimyi, amasoko y'amazi, inyubakwa, amagara y'abantu, amashamba n'ibiti, hamwe n'itunganya ry'imicafu.

IV.1.2. Inkurikizi z'ihindagurika ry'ibihe ku bisata bimwe bimwe hamwe n'itohozwa ry'ubuhinga

IV.1.2.1. Igisata c'uburimyi

a) Inkurikizi ry'ihindagurika ry'ikirere ku burimyi

Ihindagurika y'ibihe nkuko ryibonekeza muri ico gisata ni ibura ry'imvura rikurikiwe n'iduga ry'ubushuhe mu turere tumwe tumwe. Ivyigwa vyakozwe hategurwa icegeranyo ca mbere ca Leta y'uburundi kubijanye n'ihindagurika ry'ibihe no kuvyofatirwako biranga ikirere mu Burundi gushika mu mwaka wa 2050 dufatiye kuvyoshika muri rusangi vyerekana ko urugero mfatizo rw'ubushuhe ruzoduga kuva kuri 1°C gushika kuri 3°C ku mwaka. Urugero rw'imvura ruzoduga n'imiburiburi ibice 10% kandi iyo mvura izoburagizwa inkurikizi zavyo zizoba ari : uguhindagurika kw'ikurikirana ry'ibihe, imyuzurira mu myonga no mutubande, itituka ry'isi no guta akanovera kayo, ikena ry'amasoko y'amazi yo mukuzimu, itera ry'ibiza n'isibe biturutse ku kirere (urubura, isegenya, ibihuhusi, n'ibindi).

Uguhindagurika kw'ibihe ibiterwa vyerekana hamwe n'indwara z'ibiterwa zititezwe.

Izindi nkurikizi zikomeye zivuye kw'ihindagurika ry'ibihe muri ico gisata ni izi :

- Uruhombu rw'umwimbu w'ibiterwa, w'ubworozi bw'inka, bw'inkwavu, intama n'impene be n'inkoko ruzoba ntangere kubera ibihe vy'uruzuba rudahera kandi rwisubiriza ruri hagati y'ibice 40% na 60% ;
- Urugero rw'umwimbu w'inyama, w'amata ruzogabanuka cane gusumba co kimwe n'umwimbu w'amafi mu gihe c'uruzuba;
- Imituragoro y'inkuba izoza mu gihe ibihuhusi bizoba ari umurengera kandi bizotuma hapfa ibitungwa vyinshi mu turere tw'imisozi miremire ;
- Ikena ry'ubwatsi bwiza kandi bwinshi bw'ibitungwa.

b) Ubuho bw'ihangana n'ibihe mu gisata c'uburimyi

Kugira duhangane vyukuri n'ihindagurika ry'ikirere mu gisata c'uburimyi, urutonde rw'inyifato twogira, harimwo guhindura y'ubuhinga nivyo vyotegerejwe kwiyumvirwa.

Iki kigabane gitanga uturorero tw'ubuhinga nyabwo bushobora gukoreshwa mu ntumbero yo guhangana kwagutse mu (i) kwongera ukwihagararako kw'ibiterwa, (ii) mu kugabanya

ikoresha ry'amazi no kuyasesagura mu burimyi, (iii) kwongereza ubushobozi bwo guhangana n'imyuzurira hamwe (iv) no gukingira ibitungwa inkurikizi zihindagurika ry'igihe.

Ubuvinga bwerekanywe aho hejuru ntawovugako aribwo bwo nyene ariko bufise intumbero yo kwerekanako bushobora kugabanura igeramirwa riturutse kw'ihindagurika ry'ikirere

Igiharuzo ca 28: Ubuvinga mu burimyi bwo kugabanya imyuka no guhangana n'ihindagurika ry'ibihe

Inkurikizi yategekaniye ry'ihindagurika ry'ibihe	Ibikenewe mu buvinga	Ubuvinga
Igabanuka ry'urugero rw'umwimbu w'ibiterwa riva ku bushuhe bwaduze cane	✓ Ubwoko bushasha bw'ibiterwa birinda ubushuhe	✓ Irobanura ry'ibiterwa
Igabanuka ry'urugero rw'umwimbu mu burimyi ituruka kw'igabanuka ry'imvura	✓ Ubwoko bushasha bw'ibiterwa bikenera amazi makeya ✓ Ubuvinga bwo gutorokanya, kubika no gusabikanya amazi bwisununuye ✓ Ubuvinga bwisununuye bwo kuvomera	✓ Irobanura ry'ibiterwa ✓ Ivomera ✓ Kugenzura ububombe bw'isi
Igabanuka ry'urugero rw'umwimbu w'ibiterwa mu burimyi bavomera kubera amazi yo kuvomera ari make.	✓ Akarusho k'ivomera riteye imbere ✓ Ubwoko bushasha bw'ibiterwa bikenera amazi abayabaye ✓ Ubushobozi bwo kubona kare ibikenewe umwanya ku mwanya no kwongereza ibungabunga ry'amazi n'ikoresha ryayo uko bikwiriye	✓ Kuringaniza isi ✓ Kuvomera ✓ Kugenzura neza ububombe bw'isi
Amazi yo kuvomera agabanutse kubera yuzuye ivyunyuny	✓ Intambanyi z'amazi arimwo ivyunyuny ✓ Ubwoko bushasha bw'ibiterwa birinda ivyunyuny	✓ Kwuzuza kubuvinga bubayabaye ikigega c'amazi yo mw'isi ✓ Gukwega amazi y'ivyunyuny ✓ Kwubaka ibikoresho munsu ✓ Kwubakira amazi mukuzimu ✓ Irobanura ry'ibiterwa
Igabanuka ry'urugero rw'umwimbu w'ibiterwa bivuye kw'iyongerekana ry'imyuzurira canke urugero rurengeye rw'amazi	✓ Ubwoko bushasha bw'ibitegwa birinda ukubomba kurengeye kw'isi ✓ Kwongereza ubuvinga bwo kugenzura urugero rw'itemba ry'amazi n'imyuzurira	✓ Irobanura ry'ibiterwa ✓ Igenzura ry'ububombe bw'isi

Iyongerekana ry'ubukana bw'ivyonyi vy'ibiterwa n'indwara	✓ Ubwoko bushasha bw'ibitegwa birinda cane ivyonyi n'indwara ✓ Ukwongereza ubuhinga bw'ukugwanya indwara n'ivyonyi	✓ Irobanura ry'ibiterwa
Uruhombu rw'umwimbu kubera y'ivyago birenze kuvyerekeye ikirere	✓ Kwongereza ubushobozi bw'iteganyagihe mu bibihe vy'isibe hamwe n'ubuhinga bwo kugabisha amazi atararenga inkombe ✓ Ubuho buteyimbere kugira hongerezwe ukurinda kw'ibiterwa muguhangana n'amateganyagihe adasanze	✓ Igenzugwa ry'iteganyagihe ✓ Irobanura ry'ibiterwa
Ibangamirwa ry'ibitungwa n'ingaruka ry'ihindagurika ry'ikirere	✓ Kwongereza imfungurwa z'ibitungwa ✓ Gukingira ibitungwa ihindagurika ry'ubushuhe	✓ Ivyokurya bihinguwe vy'ibitungwa ✓ Igenzurwa ry'ubushuhe ku bitungwa

b.1. Kwongereza ubukomezi kw'ibiterwa

Ibiterwa biri n'umwihariko wo kubangamirwa bivuye ku bushuhe burengeje, kw'ihindagurika ry'ubushuhe mu gihe ca hise, kw'ihindagurika ry'ikurikirana ry'ibihe vy'imvura, kw'itituka ry'akanovera k'isi hamwe n'isugerezwa n'udukoko twonona imirima be n'iyongerekana ry'indwara. Iyongerekana ry'ubushobozi bw'ibiterwa mu guhangana n'ihindagurika ry'ibihe rifise akamaro ntangere mu kuronka ingaburo ikwiye.

Irobanura ry'ibiterwa

Imigambi yo kurobanura ibiterwa ishobora gukoresha ubuhinga bwa kera be n'ubuhinga bwa none nk'ubuhinga bw'amagara y'ibiterwa mukurondera uduhimba soko dufise ibiranga inkomezi kw'ihindagurika ry'igihe. Imigambi yo kurobanura ibiterwa ishobora gutuma hongerezwa inguvu zisanze zihari canke guha inguvu ibindi biterwa. Ivyo birashobora gukorwa kugira hongerezwe ukudakarirwa n'ibiza bimwe bimwe nk'ukongerekana kw'ubushuhe mfatizo bwaba bukeya canke bwinshi, ubushuhe burengeje, uruzuba, imyuzurira n'ukwiyongera kw'ivyunyunyumu mu ntumbero yo gufasha igiterwa guhangana n'ihindagurika ry'ibihe. Irondoka, rifatanije n'ukugwanya udukoko dutera ingwara, rishobora kwongereza kudakangwa n'udukoko be n'indwara, vyoshoboye kwongerekana kubera ihindagurika ry'ibihe. Irobanura kw'igeramirwa ry'ibiterwa risaba kumenya ukuntu ihindagurika ry'ibihe rishobora gukorana n'udukoko be n'indwara zitera isibe mu karere

b.2. Kugabanya ikoresha n'isesagurwa ry'amazi mu burimyi

Ihindagurika ry'ibihe rizogira inkurikizi ziboneka ku rugero no kukanovera k'amazi. Kubera ivyo, ibisata bikoreshamwo amazi menshi, nk'uburimyi, butegerezwa kuronka uburyo bwo guhindura ingendo hamwe no gukoresha gusumba uburyo bafise busanzwe bugeranyeye. Vyongeye iyongerekana ry'abantu n'iry'ikoresha ry'amazi kubayakoresha ahatari mu burimyi bizomara amazi yokoresheje abarimyi, naho ihindagurika ry'ibihe ritojamwo. Muri ico gihe, ingingo zo guhindura ingendo atakwicuza zica ziba nyishi.

Hari uburyo butatu bufatiye ku buhinga kugira ngo hakoreshe amazi make mu burimyi, Kubika amazi no kuyagwiza.

Guringaniza imirima

Uruhombi runini rw'amazi ruturuka kw'isesa ry'amazi ataco rimaze mu mirima. Integuro ihambaye mu kugabanya isesa ry'amazi ivuga ko imirima yoba ku rugero rwo hasi uko bishoboka. Ubuhinga bwa vuba, harimwo gukoresha ukuringaniza bwarongerereje gutumbereza ukunganisha kw'ihaguruka ry'umurima imbere yo guteragira. Ugusena imirima bikorwa n'umusenesho uri ku kadunduri kandi ugakoresha hamwe n'imashini irima kugira ngo iringanize imirima y'ibiterwa mu ntumbero yo kubika amazi yo kuvomera. Umurima uteze urorohereza ikurikirana ry'itemba ry'amazi.

Kuvomera imirima ukoresheje umurindi w'amazi

Ukuvomera imirima gurtyo kumaze imyaka ibihumbi n'ibihumbi gukorwa mu ntumbero yo kubika amazi mu burimyi, ariko ubuhinga bwo kuvomera buzoguma bukomeza guhinduka uko ihindagurika ry'ibihe rizoguma rikara. Ukuvomera hakoreshejwe umurindi w'amazi akoroka, hakoreshejwe uburyo bwo kumijagira amazi ima ku rindi, ku rugero rwo hejuru, riratanga umwizero kw'ihanana ngira kamaro ry'amazi be n'igabanuka ry'uruhombo rw'amazi biciye mu gutumuka k'umwuka. Ubwo buhinga bwo kuvomera bugaburira ubwo nyene imizi y'ibiterwa kandi bushobora gufasha ko hoba ububombe nyabwo ku bitegwa.

Kugenzura ububombe bw'isi

Ukugenzura ububombe bw'isi nibwo buryo nyabwo bushobora kugaburira ibiterwa amazi ari ku rugero rukwiye no mugihe nyaco. Kugenzura ububombe bw'isi kunogerereza akamaro k'ingingo z'ukuvomera kandi gakurikirwa n'izi nkurikizi: iyongerekana ry'umwimbu, umwimbu nyawo, igihagararo kibereye imivyar, igabanuka ry'indwara, iduga ry'agaciro k'amazi hamwe n'igabanuka ry'igicro co kuvomera.

Igenzura ry'ububombe bw'isi mu burimyi riba hakoreshejwe imashini mpima bubombe.

b.3. Gukingira ibitungwa inkurikizi z'ihindagurika ry'ibihe

Ibitungwa birageramiwe n'inkurikizi z'ihindagurika ry'ibihe cane cane mu gukarirwa n'indwara zituruka k'udukoko no kutarinda ubushuhe. N'imfungurwa zavyo zizohura nizo ngorane zidahengeshanya kwiyongera.

Imfungurwa ziryo howe z'itungwa

Imfungurwa zibitungwa zirashobora guhindurwa mu ntumbero yo kworohereza iyungurugwa hamwe no kwongereza ingaburo zikenewe. Uburorero bw'iyongereza ngaburo ni ubu bukurikira: inani z'imfungurwa zigizwe n'ibisigarira vy'ibikaju n'umwavu utotahaza, indema mubiri zitarimwo ibikwiye, ibinure n'ivyunyuny.

Naho aha nini ari uburyo bwo kugabanya igeramirwa ry'ibitungwa, iryohorwa ry'ibifungurwa vy'ibitungwa hamwe n'ukurinda ibiza ritanga uburusho bwinshi bwo kumenyera aho vyororewe mukwongereza akarusho ko kurisha no kurinda ibiza. Mugihe imero y'ikirere iriko irahinduka imfungurwa, zikaguma zikenewe gose, iryohorwa ry'ingaburo ziboneka rizofasha aborozi bagumya igitigiri c'ubusho bwabo bakoresheje indya nkeyi nk'akarorero, imfungurwa zirafasha kandi ibitungwa guhangana n'ibihe biri kurugero rw'ikirenga. Nk'akarorero, ibitungwa bibangamiwe n'ubushuhe bikeneye imfungurwa zihariye kugira bigume ku rugero rusanze rwo gutanga inyama n'amata. Ingaburo yavyo irashobora guhindurwa hakongerwamwo ivyunyuny nsanganyangaburo, n'ibindi vyongerwamwo kugira hatangwe ivyo bikenewe.

Gutunganya ubushuhe ku bitungwa

Ubuuhinga bwo gutunganya ubushuhe bwibanda cane cane kw'irondoka mu kurinda ubushuhe, bigabanya guhanahana ubwo bushuhe hagati y'igitungwa n'ikirere, n'igabanuka ry'ubushuhe mu micungararo yaho ibitungwa biba. Ubushobozi bw'igitungwa mu gukanya buva kubituma

vyinshi vy'ubwoko bwicorogwa nk'ibara ry'ubwoya n'ingene ugutwi kureha, hamwe n'ingero y'ivyo umubiri wacu ukoresha.

Ukurobanura ubwoko bw'ibitungwa birinda ubushuhe n'irondoka rifatiye kw'ivyo biziranga birashobora kugwiza ibitungwa bishobora kurinda neza ubushuhe bw'umurenga.

IV.1.2.2. Amosoko kama y'amazi

a. Ingaruka ry'ihinduka ry'igihe mu gisata c'amasoko kama y'amazi

Kugwiza amazi meza n'ingorane na cana cane ko amasoko y'amazi adakwiye hose co kimwe mu gihugu gitanzwe n'uburimi buva ku mvura. Naho urugero rw'imvura ruguma ruhindagurika cane kuburyo butazwi ahanini mugihugu hagati, ihinduka ry'ibihe riza riyongera kuzindi ngorane nk'igwirirana ry'abantu, ubwongerekane bwo gukenere amaziminsi akoreshe mu mihana, iterambere ry'ivomera ry'imirima, irwirirana ry'amahinguriro n'itunganywa ridashemeye ry'amasoko y'amazi (GIEC 2014).

Ingaruka ry'ihinduka ry'ibihe ku masoko y'amazi rishobora gushirwa mu bice bitatu: amazi menshi, amazi make n'igabanuka ry'akanovera. Hategekanywa ko intara zitari nke zizoba mu bihe bibi vy'uruzuba n'imvura y'ikirenga bizotuma igihugu gihangana n'imyuzurira n'uruzuba. Ivyo biza bibi birenze bishobora gukwega ukutarinda amazi kw'ibiterwa.

Igiharuzo ca 29 gica kumayange inkurikizi n'ibikenewe mu buhinga vyamaze kuvugwa mugushira ahabona ubushobozi bwo guhangana n'ihindagurika ry'ibihe mu gisata c'amasoko y'amazi. Urwo rutonde rw'ibikenewe mu buhinga ntawovugako rugera aho. Uburorero bw'ubuhinga bushobora gutanga inyishu kubibura bwarasesanguwe mu kigabane «c'ubuhinga bwo guhangana n'ihindagurika ry'ibihe mu gisata c'amasoko y'amazi»

Igiharuzo ca 29: Ubuhinga ku masoko y'amazi kugira hagabanuke kandi habe ihangana rifatiye kw'ihindagurika ry'ikirere

Inkurikizi ziyumviriwe z'ihindagurika ry'ikirere	Ibikenewe mu buhinga	Ubuhinga
Gutanga amazi meza		
Igabanuka ry'amazi atemba kw'isi kubera ihindagurika ry'urugero rw'imvura rikabije, n'ukuduza umuhisha bikabije	✓ Ubuhinga bwo gutorokanya amazi, bwo kuyabika no ku nonosora ihanahana ryayo ✓ Kunonosora akamaro k'ikoresha ry'amazi	✓ Kwegeranya amazi y'imvura ✓ Gusubiriza amazi yo mu bigega-kuzimu
Ibura ry'amazi yo mukuzimu	✓ Iryohora ry'akamaro k'ikoresha ry'amazi ✓ Iyongerekana ry'isubiriza ry'amazi y'ibigega-kuzimu	✓ Gutera amashamba kugira hasubirizwe amazi mu bigega_kuzimu

Ukubungabunga amazi y'imvura		
Iyongerekana ry'imyuzurira biturutse kw'ihinduka ry'ikirere rikabije	✓ Inonosorwa ry'itegekanya gihe n'uburyo bwo kugabisha hakiri kare ✓ Inonosora ry'ibungabunga ry'amazi y'imvura hamwe n'imyuzurira mukwifashisha inyubako z'urwirungu kandi z'urwatsi rutoto	✓ Uburyo bwo gukurikirana itegekanya gihe ✓ Gusubiriza amazi mu bigega-kuzimu
Ubuziranenge bw'amazi		
Ukwiya dukiza kw'amazi yuzuye ivyunyuyu	✓ gutangira amazi yuzuye ivyunyuyu ✓ Iyongerekana ry'ugusubiriza amazi mu bigega-kuzimu rirama ✓ Iyongerekana ry'ugutosora amazi	✓ Ishira mu ngiro ry'umugambi wo gupima aho amazi amenere ✓ Gukuramwo umunyu ✓ Gutosora amazi yakoreshejwe igihe bashaka gusubira kuyakoresha
Igabanuka ry'ubuziranenge bw'amazi atemba kw'isi.	✓ Iyongerekana ry'ugutosora amazi ✓ Iryohora ry'ibungabunga ry'amazi y'imvura mu kwirinda iyanduzwa ry'amasoko y'amazi ✓ Ugukingira amasoko y'amazi	✓ Gutorera umuti amazi anyika n'ibomoka ry'impome ✓ Kuzitira inzuzi zisozwamwo ubwato no kuzikuramwo ivyobuza amazi gutemba

Urugero rw'amazi

Inkurikizi y'imero y'ikirere rigira ku rugero rw'amazi mu Burundi ishobora kwiyerekana biciye kw'igabanuka ry'imvura (uruzuba), iyongerekana ry'imvura (rituma haba imyuzurra canke ihinduka ry'indangagihe n'ikiringo c'imvura. Ubutunzi bw'amazi buzoburagizwa gose na gose n'ibikenewe bindi biva kwiyongerekana ry'abantu, igwirirana ry'ibisagara, ry'uburimi n'ibindi bituma.

Uburyo bwo guhangana bushimikiye ku nkoresho ngirakamaro y'amasoko y'amazi buhasanzwe buzoguma bwongerekana muri ivyo bihe kandi bushobora gushiramwo ubundi buhinga

nk'ukwegeranya amazi y'imvura, ukubikwa kw'amazi atemba kw'isi, gusubiriza amazi yo mubigega-kuzimu, igabanuka ry'uruhombo rw'amazi hamwe n'igabanuka ry'abakenera amazi.

Ukwegeranya amazi y'imvura

N'aho abantu babikoze kuva kera na rindi, ukwegeranya amazi y'imvura yo hejuru ku mazu n'ubuhinga buhimirizwa nk'inyishu nyunganizi igaburira amazi imiryango n'inze. Iyongerekana ry'inzu zubatswe mu bikoresho bikomeye (nk'akarorero zisakaje amabati canke amategura) hamwe n'ishikira ryoroshe ry'ivyuma n'ibiva mu mashanda mukujana amazi vyaragabanuye ikiguzi co gushira mungiro ukwegeranya amazi y'imvura (CEP) mu miryango. Mu bihugu biri mu nzira y'amajambere, kwegeranya amazi y'imvura mu miryango bakoresha ubuhinga CEP. Mu ntara zirimwo amazi menshi y'ubuziranenge, amazi akoreshwa mu bikorwa bidasaba amazi meza nk'ukuvomera utwatsi ugukoropa n'ukumesura impuzu. Ubwinshi bw'ubuhinga ngirakamaro bwo kwegeranya amazi mu rugero kanaka buva kubuziranenge bw'amazi, igiciro, ubushobozi bw'ayandi masoko y'igaburirwa ry'amazi mu miryango n'isura y'igwa ry'imvura y'ubutunzi bw'imiryango n'ibindi bifatirwako.

Uburyo bubayabaye bwo kwegeranya amazi kuri buri muryango burerekanwa kw'ishushanyo ya 32. Ibiranga ikikoresho co kwegeranya amazi avuye ku mazu hejuru n' ibi: (1) ikibanza bakiriramo amazi y'imvura ikirwa (2) ibikoresho vyo kuyatwara birimwo imiringoti mu ntumbero yo kwunguruza no gutumbereza amazi (3) ibikoresho vyo kubika amazi kugira azokoreshe hageze. Ubuziranenge bw'amazi burashobora gukingirwa mukwongerako kimwe canke vyinshi mu bikurikira: Imimina/ igosora, ukwica udukoko ukoresheje umuti, ibikoresho vyo gukatisha imvura za mbere.

Ingendo yo gukatisha imvura ya mbere irimwo igizwe n'ugukurako urugero rwa mbere rw'imvura yegeranijwe kugira hakingirwe ubuziranenge bw'amazi. Hari icyumviro kivuga ko muri rusangi, iyanduzwa ry'amazi riragabanuka ku kabiri kuri mirimetero y'amazi bakuyeko.



Igicapo ca 31: Ibiranga nshimikiro ubuhinga bwo kubika amazi y'imvura mu buraro bw'umuryango umwe.

Kwegeranya amazi y'imvura biri mu bituma horoha ihangana n'ihindagurika ry'ibihe mu miryango cane cane biciye ku ngiro zibiri: (1) Uburyo butandukanye mu kugaburira amazi

imiryango (2) ukutavogerwa kwo hejuru kw'itituka ry'ubuziranenge bw'amazi. Kwegeranya amazi y'imvura bishobora kandi kugabanura umusunikano uba ku masoko y'amazi yo hejuru kw'isi n'ayari mukuzimu. (nk'akarorero, ikigega gikoreshwa mugukwiragiza amazi atemba mubantu) mu kugabanya imiryango isaba amazi; ubwo buryo burashobora gukoreshwa kandi mu gusubira kuvomera utubiko tw'amazi two mukuzimu. Akandi karusho gashoboka ko kwegeranya amazi y'imvura atezwe hejuru kumazu n'igabanuka ry'imyuzurira iturutse kumvura y'igihuhusi.

Kubika amazi yo hejuru kw'isi

Ukubika amazi bituma hegeranywa amazi iyo ari menshi kandi akabikwa mu bigega, kugira aze akoreshwe muri kazozo. Ibigege n'inyanza zimbwe n'abantu bikoreshwa mu kubika amazi ngo akoreshwe muri kazozo. Ingomero z'amasi zisanze zubakwa kenshi na kenshi mu ntumbero yo guhingura utugega duto duto, tutadimbitse, tujamwo amazi make make kandi agabauka kumwaka kumwaka kubera yakoreshejwe.

Gusubiriza amazi y'ibinogo

Ugusubira kwuzura ikigega (c'amazi yo mukuzimu, ikigega kibungabunzwe canke kubika mukigega canke kwegeranya) bishobora gukorwa mu ntumbero yo kubika amazi, kurinda iyiyadukiza ry'amazi yuzuye ivyunyunyuru no gutorera umuti ingorane iterwa n'ikoresha rirengeje ry'amazi. Ukwuzura kandi ikigega c'amazi yo mukuzimu bishobora kuba ngirakamaro mu mihingo irimwo itemba ry'amazi ibihe bimwe bimwe bitandukanye nk'intara za Bugesera, Kumoso n'Imbo na cane cane iyo igihe c'ikenerwa ry'amazi menshi rihurirana n'ikena ry'amazin y'invura.

Ukugabanya isesagurwa ry'amazi

Uruhombu rw'amazi rushobora kuboneka mu gihe co kuyashingura, kuyakwiragiza canke kuyatanga, mw'itumuka ry'umwuka canke bivuye kugutoroka kw'amazi (cane cane bivuye kugusaza kw'inyubako) canke ikoreshwa ritabereye, ridakurikije amategeko canke ritagenzuwe. N'aho ingereranyo y'urwo ruhombu itandukanye gose ufatiye ku bihugu n'imero y'ikirere, ivyigwa vyose vyerekana ko urwo ruhombu rubaho kandi ko kumbure ruzoguma rwongerekana kubera iyongerekana ry'ubushuhe.

Ubuvinga butandukanye budufasha kugabanya uruhombu rw'amazi ni ubu bukurikira:

❖ Mukugabanura gutakaza amazi yo mubigege

- Gutera ibiti vy'amashamba mu ntumbero yo gukingira ibigege vy'amazi;
- Gukoresha ibigege bidimbitse (bifise amajepfo harehare) canke vy'amazi yo mukuzimu kugira hagabanywe uburinganire bw'uruhande rubangamiwe;
- Gutera ibiterwa kugira inkurikizi z'umuyaga zigabanuke;
- Gukoresha ibitevya itumuka ry'umwuka hamwe no;
- Guhoma ibigaga mu ntumbero yo gukinga inyengetera ry'amazi.

❖ Mukugabanya uruhombu rw'amazi mu gihe c'ihana hana

- Gushira mu ngiro umugambi wo gusuzuma icoroka ry'amazi;
- Kudomako urutoke amavomo atarekuwe no kugabanya igaburirwa ritemewe;
- Gushirako ibiharuro urugero rw'amazi;
- Kugabanya icoroko n'ihagarika mu gusanura no gusubiriza imiyoboro y'amazi;
- Kubaka ibikoresho vyo kugenzura inguvu z'amazi kugira hagabanywe inguvu zo mw'ijoro kandi bigatuma hagabanuka uruhombo ruva kw'icoroka ry'amazi;
- Guteza imbere ingendo yo « kubungabunga ibihari» mu ntumbero yo kuzigama no kuryohora inyubakwa z'amazi zihasanze.

❖ **Mukugabanya uruhombo rw'amazi ruvuye kw'ivomera**

- Gutorera umuti icoroka ry'amazi n'ibomoka ry'impome ;
- Gutunganya inzuzi zisozwamwo ubwato no gukuramwo ibibuza amazi gutemba (kugomorora)

Ubuvinga bwo kugabanya ikoresheya ry'amazi

Urugero rw'amazi akenewe rurashobora kugabanuka kandi ikoresheya ribungabunga amazi mu miryango n'imirwi y'ubudandaji ikongerekana bivuye kubuvinga busha (nk'akarorero, twa surwumwe turimwo amazi anyaruka canke yikwega, amogero arimwo yikwega ubuvinga bwo guhingura busubiyemwo), hamwe n'ingingo zirashe (ibiciro vy'amazi, igabanuka ry'ikoresheya ry'amazi atayowe, ukubungabunga guhurijweko bw'amasoko y'amazi), ihanahana ry'ivyiyumviro ryibanda ngaha kubuvinga bushasha.

Itosora n'ibika ribereye ry'amazi meza mu miryango canke mu bibanza vy'ikoresheya (POU: mu congereza) ni uburyo bwo kuryohora amazi mu kuyatosora n'ingoga aho nyene. Ubuvinga bwo gutosora buzwi cane ni imiti yica udukoko, iyivuzwa (ivurirana) ibiminina vy'ishashara, ibiminina vy'umusenye, gutosora hakoreshejwe imishwarara y'izuba (SODIS) canke ibikorwa vyo gutosora hakoreshejwe imishwarara ntaboneka (ultra violet) hamwe n'ibikoresho bihuza ibivuzwa n'ivyica imigera.

Turashobora kubona ishushanyo y'ibimininisho bibiribisanzwe vyo mu bwato POU be n'indondoro ya kimwe cose mu bikigize; intosoramazi mu gishashara (hirya ibubafu) ni ikimininisho gikoresheya n'amazi n'umusenye uzira inenge (BSF mu congereza) mu Cuma ubwakabiri ibubafu. Ivyo bikoresho ukwo ari bibiri bihagaze hagati ya metero 0,5 gushika ku metero 1 na y'ubujajuru. Igicapo ca kabiri uhagaze iburyo yerekana amacupa ateretse ku gasongero k'inzu, yerekana ingero yo gutosora amazi hakoreshejwe izuba (SODIS mu congereza). Uburyo bwakure, ishushanyo y'umuzigo wo kuvurisha no gutosora rwo mubwoko bwa Procter & Gamble, PUR; umuzigo umwe urimwo igarama 4 z'udutete dushobora gukoresheya mu gutosora ama ritiro 10 y'amazi.



Igicapo ca 32: Ishusho zine z'ubwo buhinga bwokoresheya n'abenegihugu

Gutera intege ikoresheya ry'ubuhinga nziganyamazi

Ibiziganyamazi bizwi gusumba ibindi ni ivyozwa vyombo n'ibimesura impuzu; ibikoresheya bizwi gose n'ivyo mu bwogero n'ama robinet. N'aho binganya akamaro, ivyo biraziganya amazi (nk'akarorero uduhimba tw'ubwogero dukoresheya amazi make). Ivyo bikoresheya birashobora kandi kuba ivyisunuruye nk'ibikoresheya nyoboramazi bikoresheya amazi mu gikoni na za surwumwe (igicapo ca 33).

Igicapo ca 33: Ibikoresheya nyoboramazi bikoresheya mu gikoni na za surwumwe

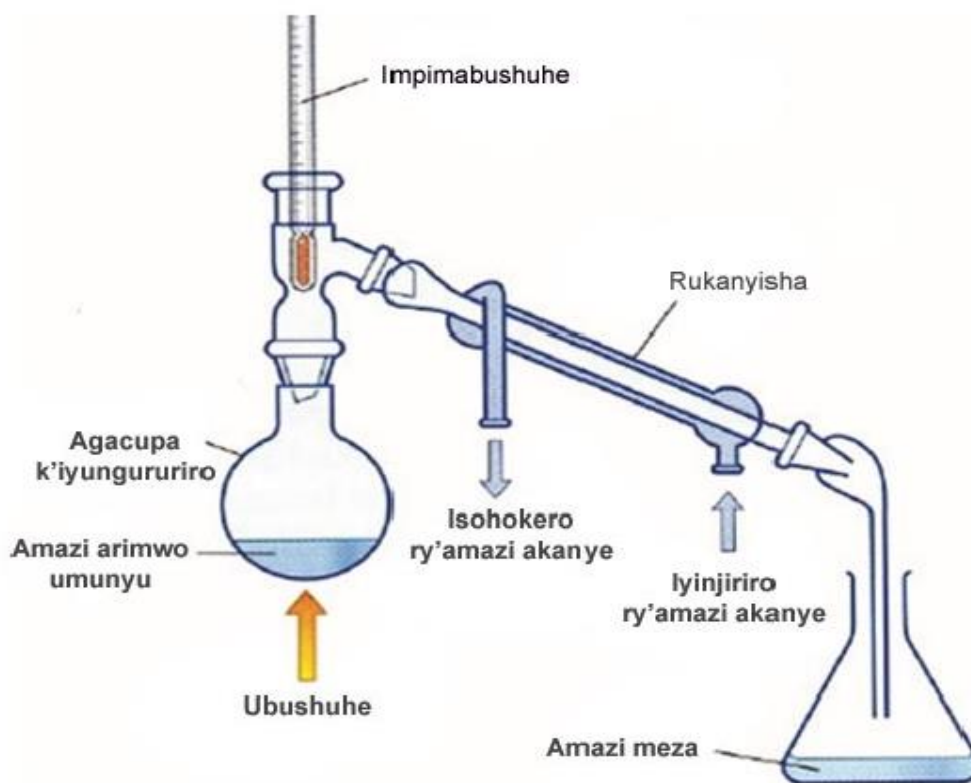


Ikuramwo ry'ivyunyunyuru

Ikuramwo ry'ivyunyunyuru rikuramwo umunyuru ukoreshwa mu gikoni be n'ibindi vyunyunyuru biyongeye mu mazi meza canke atosekaye

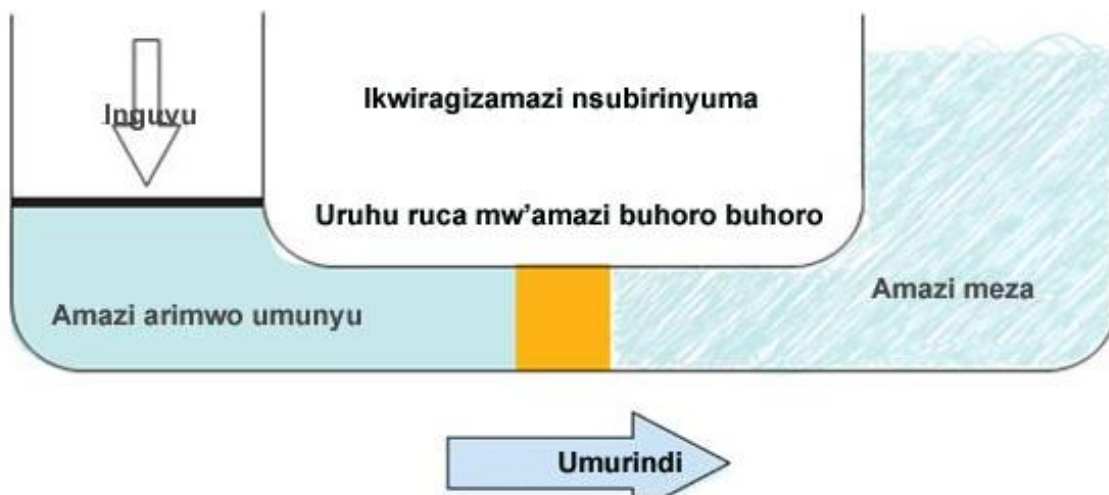
Mugukuramwo ivyunyuny bitanga amazi meza n'amazi arimwo imicafu myinshi gose. Uburyo bukuru bukuru bwo gukuramwo ivyunyuny bugabugwa kandi kubiri: ubukoreshwa n'ubushuhe be n'ubukoreshwa n'agasaho kutwenge.

Kugicapo kiri aha muni, turabona urubeya rw'umuriro barabisha kugisafuriya kirimwo amazi arimwo ivyunyuny vyinshi, amazi aratumuka ariko umunyu ugumaho. Umwuka w'amazi uca wiyungurura hanyuma ugaca uduga mukindi gisafuriya ugaca uhinduka amazi hama ugaca ujojotera mu mupira. Ubwo nyene ayo mazi aba ari meza cane. Ubuhinga bwo gukoresha ubushuhe bwa none butanga amazi menshi gusumba iyungurura risanzwe.



Igicapo ca 34: igicapo cerekana uyungurura ry'amazi, uburyo busanzwe gusumba ubundi bwo gukuramwo ivyunyuny hakoreshejwe ubushuhe.

Muri ico gicapo, inguvu nyinshi zishirwa mu mazi arimwo umunyu, bica bisaba ko amama y'amazi aca mugasaho k'utwenge duto duto; ivyunyuny ntabwo kurengana kandi bica biguma inyuma.



Igicapo ca 35: Ikwiragizamazi nsubirinyuma

Ubuvinga bwo kuryohora amazi mu kuyakuramwo ivyunyunyuru bwataye imbere bimwe biboneka kw'isi, ivyo bikaba vyatumye haba iterambere rihoraho ryo gukoresha inguvu n'ukurama kwazo. Ayo muryohora yatumye kandi hagabanuka igiciro c'ibikorwa n'igiciro co kubungabunga ubuvinga bushasha. Ariko, ubushakashatsi n'iterambere ry'ubundi buvinga ryashobora muri kazoza kudushikana ku muryohora aboneka. Iryo bikoreshe bishasha birimwo: agasaho kayungurura amazi kubuvinga bukomeye, uturingoti n'udusaho two mu buvinga bukomeye.

Kuvangura ivyunyunyuru mu mazi vyofasha kurwego atari ruto gukingira ingaruka mbi zivuye kwihinduka ry'ibihe na cane cane ko iryo tandukanya ry'amazi n'iryo umunyu vyongereza umwimbu w'amazi kandi bigatuma akanovera k'amazi kadatituka. Mugihe amasoko y'amazi kamere adakwiye haba haba mukanoverana canke mu gitigiri, ukurondera izindi nzira zo guhingura no gutanga amazi ni igikorwa gica gishirwa imbere (kugira amazi ntakene). Ubuvinga bwa none bwo kuvangura ivyunyunyuru n'amazi biratuma amazi adatituka kubera buvingura amazi akaba meza kandi naho yoba atosekaye cane (arimwo imyanda myinshi).

Gutosora (gutyorora) amazi aho nyene akoresherezwa

Mu mihingo myinshi yo kwisi itandukanye aho abantu bataronka amazi meza, na cane cane ahatagira aho amazi abikwa ku buryo bushemeye, gutyorora amazi aho aca akoresha vyofasha cane. Guteka amazi ni bumwe mu buryo bukoreshwa cane n'abantu, ariko bitwara umwanya n'uburyo atari buke.

Gutyorora amazi acafuye (arimwo imyanda)

Ubuvinga bwa none butandukanye burashobora guhingura amazi arimwo umwanda akaba amazi meza bigatuma ashobora nko gukoreshwa no mu mahinguriro Manini. Ubwo buvinga bwa none bwo gutyorora amazi buratuma ya micafu iri mumazi ivamwo yose.

b. Kugabanya imyuzurira y' amazi

Imyuzure y'amazi nayo nyene iri mu bigize inkurikizi mbi z'ihinduka ry'ibihe. Ubuhinga bwa none bwo kugabanya izo nkurikizi mbi burategekanya ingene amazi y'imvura n'imyuzure y'amazi bikurikiranwa bigatuma atavyononekara vyinshi.

Gutunganya amazi y'imvura

Gutunganya amazi y'imvura bisaba ubuhinga bwinshi bwateguwe mu ntumbero yo kugabanya umurindi w'amazi y'imvura n'ibiyatosekaza mugihe ariko arakoresha.

C.Ubundi buhinga

c.1. Kwongereza ubukomezi bw'ibinogo vy'amazi vyubakiwe mugihe c'imyuzurira y'amazi

Ibinogo vyubakiwe hari ibifise imiringoti, ivyimvye yivyuma canke bimbishije amaboko. Ibinogo vy'imiringoti n'ibinogo bifise umuhora w'agatoboro k'umuzingi kamanuka munsu mukuzimu. Ibinogo bimbishije amaboko ariko nivyo bishobora kuzana umwanda mwinshi gusumba ibinogo bifise umuringoti ariko vyose vyotanga amazi atyoroye bikoze k'ubuhinga bukwiye. Kimwe mu vyiza vy'ikinogo cimbwe n'amaboko n'uko kidatwara amahera menshi, muri rusangi kiratanga amazi menshi narirya kiba cagutse.

Ibiranga rero ivyo binogo vyubakiwe: (1) urwubako rw'isununuye hejuru kugira ngo amazi atakora kugwinjiriro (2) urusenge ruri mw'ibumba ishashara munsu mukuzimu rw'imetero 1 gushika kuri 3 kugira rubuze imicafu kwinjira hamwe n'ugushobora gupfundikira ico kinogo umuntu ahejeje kuvoma. Ikindi cokorwa kugira vyorohe gukoresha ico kinogo no kugira imyanda ntiyinjiremw n'ugukoreshwa ipompo y'iminwe.



Igicapo ca 36: Ipompo ikoresha iminwe irinda umwuzurira.

Urubumbiro rungana imetero 1 y'uburebure na m 2,9 z'ubwaguke. Irahenganye kuri degree 45 kugira intango ntiyononekare mu bihe vy'imyuzurira.

IV.1.2.3. Igisata c'amasoko ntanganguvu

a. Ingaruka ry'ihinduka ry'ibihe mu gisata c'amasoko ntanganguvu

Mu Burundi, ingaruka z'ihindagurika ry'ibihe mu gisata c'umuyagankuba tuzisanga mucegeranyo c'umugambi w'igihugu wakoze mu 2007 (PANA). Nizo zikurikira :

- Kenshi ingomero zitanga umuyagankuba zirakunda guhagarara zarengaje umwanya zategerezwa gukora, ivyo bigatumwa kandi n'uko imvura itagwa bikwiye nicyi rirerire;
- Iziba rya burundu ry'imihora ku ngomero zimwe zimwe bivuye ku nkukura idasanzwe kubera uruvura rwinshi rutuma ingomero zimwe zimwe z'umuyagankuba zihagarara muzigeramiwe gusumba izindi ni iz'imarangara, ibuhiga n'ikayenzi;
- Imyuzurira yibonekeza kenshi mu ngomero z'umuyagankuba nk'izo ku mugere ituma umuyagankuba ubura mu kiringo kirekire;
- Iyongerekana ry'itemba ry'amazi ava kw'itituka ry'amasi mugasozi-kabande tw'ingomero z'umuyagankuba;
- Ihindagurika ridasanzwe mu kuronka umuyagankuba bivuye kw'ihindagurika ry'irwa ry'imvura;
- Igabanuka ridasanzwe mu gisata c'umuyagankuba rituma haba ingorane zibonekaza mu gukwiragiza umuyagankuba mu bisata bitandukanye vy'imibano n'ubutunzi vy'igihugu;
- Ikibazo rusangi c'ibura ry'inkwi n'amakara bivanye n'ibikorwa vya muntu biguma vyiyongera hamwe n'iduga ry'ubushuhe bifatanye n'ihinduka ry'umuvuduko wigwirirana ry'ibiti.

Igiharuzo ca 30: Ingaruka zitezwe kw'ihindagurika ry'ibihe n'ubuhinga bukenewe mwukwo guhangana nazo

Ingaruka zitezwe	Ubuho bukenewe
Ihagarara kenshi kw'ingomero z'umuyagankuba kubera itara ry'imvura n'uruzuba rurerure	✓ Kwubaka neza ingomero hafatiwe kw'ihinduka ry'ibihe ✓ Gutera ibiti ku misozi-n'utubande ku ngomero z'umuyagankuba
Iziba burundu ry'imiringoti ku ngomero zimwe zimwe rituma umuriro ubura burundu	✓ Gutera ibiti mu biyaya-tubande ku ngomero z'umuyagankuba ✓ Kwirinda kurima mu bice vyegereye ingomero z'umuyagankuba

Imyuzure myinshi mu nzu z'ihinguriro ry'umuyagankuba ituma umuyagankuba ubura mu bihe birebire	✓ Gutera ibiti ku misozi-n'utubande ku ngomero z'umuyagankuba ✓ Kuryohora ubuhinga bwo gucungera no guhangana n'imyuzura ✓ Kwubaka impome zikinga imyuzurira
Irwirirana ry'amazi atemba aturutse kwitituka ry'amasi ku misozi tubande ku ngomero z'umuyagankuba	✓ Gutera ibiti ku misozi-n'utubande ku ngomero z'umuyagankuba ✓ Kwubaka ibikingirizo vyo kurwanya inkukura ✓ Gukoresha amazi make mukurima
Ihindagurika ridasanze mu kuronka umuyagankuba bivuye mu kugomera amazi n'ihindagurika ry'irwa ry'imvura	✓ Kugwiza ubuhinga butandukanye bwo kuronka umuyagankuba ✓ Kwigira ingendo yo kubungabunga umuyagankuba
Igabanuka ridasanze mu gisata c'umuyagankuba rituma haba ingorane zibonekeza mugukwiragiza umuyagankuba mu bisata bitandukanye vy'imibano n'ubutunzi vy'igihugu	✓ Kugwiza ubuhinga butandukanye bwo kuronka umuyagankuba ✓ Kwigira ingendo yo kubungabunga umuyagankuba ✓ Gutunganya neza igisata c'amasoko ntanganguvu mu gucungana n'ihinduka ry'igihe
Ikibazo rusangi c'ikenye ry'inkwi n'amakara bivanye n'ibikorwa vya muntu biguma vyiyongera hamwe n'iduga ry'ubushuhe bifatanye n'ihinduka ry'umuvuduko w'irwirirana ry'umwavu	✓ Kurwiza imigambi yo gutera ibiti ✓ Kurwiza imyavu kama ✓ Ubuhinga buteye imbere bwo guturira amakara ✓ Uguhindura akamenyero mu guteka

Igisata c'amasoko ntanganguvuntigituma gusa haba ihinduka ry'ikirere kubera irwirirana ry'umyuka ihumanya ikirere ni naco ahubwo kigeramiwe cane n'ingaruka ry'ihindagurika ry'ibihe. Vy'umwihariko, igisata c'amasoko ntanganguvu mu Burundi kizogeramirwa cane n'ihindagurika ry'ibihe kuko gifise ubushobozi buke bwo kwongereza inguvu z'ukwigwanira. Mugihe gukenye umuyagankuba biguma ryongerekana, ico gisata

kirakwiye gusubirwamwo kugira ngo gitange umwimbu uramba. Urukurikirane rw'ivyerekana akamaro ntanganguvu –umwimbu, ukwiyunguruza, ihanahana be nikoreshwa – rurabangamiwe cane n'ihindagurika ry'ibihe. Uruzuba n'imyuzurira bizonona bimwe biboneka ihingurwa ry'umuyagankuba uturutse kunzuzi. Intsinga zo kuwutwara no kuwukwiragiza zirahakwa kwononekara bimwe bikomeye kubera imikuba n'imiya ivyo bigashobora gutera ikena ry'umuyagankuba rihombesha. Umuyagankuba ukoreshwa wotegerezwa kwongerekana, kubera ikirere gishushe kizosaba ikanyisha rirenze.

Ubuhinga bwo guhindura ingendo burimwo kugabanura haba ihakwa canke haba igeramirwa ry'ibigize amasoko ntanganguvu kw'ihinduka giturumbuka ry'ikirere. Inyishu zo guhangana iz'integuro canke iza poritike zarashizweho ku gisata cose n'ikigabane cose c'isoko. Iyongerezwa ry'amasoko nyimbura umuyagankuba rishobora kugwiza umutekano vy'umuyagankuba.

Igiharuzo ca 31: Ubuhinga mu guhangana n'ihindagurika ry'ibihe mu gisata c'amasoko ntanganguvu

Agasata		Ubuho
Ihingurwa ry'umuyagankuba		✓ Umuyagankuba uturutse ku muyaga wo kumuvuduko muto nk'umuyaga unshinze ✓ Uburyo bwo kuwukora bugabuye mu mice ✓ Umuyagankuba uturutse kuzuba ku mirwi y'imiryango no ku muryango umwe ✓ Ingomero ntonto
Umuyagankuba uturutse ku biterwa		✓ Amatanure y'isununuye ✓ Iforoma yo gukora amakara
Ibizuku		Amatanure yisununuye yo guturira amakara
Gutwara umuyagankuba		✓ Kugenzura n'ubwenge bukwiye urugero rutarengwa. ✓ Gukoresha umuyagankuba udahagarara mukuwujana kure
Ikoresha ry'umuyagankuba	Mu Nyubakwa	✓ Amatara akenera inguvu nkeyi ✓ Ibikoresho vy'igenzura nyabwenge mu kumurika ibikoresho bikoresha inguvu nkeyi ✓ Ibindi bikoresha inguvu nkeyi bigahanahana atantsinga
	Mu gutwara abantu n'ibintu	✓ Amatara atunganya umuvuduko ✓ Imiduga itwarwa n'umuyagankuba ✓ Gutunganya igisagara mu ntumbero yo

		kworoherez abiyunguruza
	Mu mahinguriro	✓ Inkono zishuha neza ✓ Imoteri zikora neza ✓ Kucana amatara kubwenge ✓ Gukoresha uburyo bunyuranye mu masoko ntanga nguvu
	Mu miryango	✓ Amashiga nziganyamakara ✓ Ibikoresho bitwara umuyagankuba mukeyi ✓ Amatara akoreshwa n'inguvu nkeyi ✓ Ibikoresho vyo kugenzura kubwenge iyatsa ry'amatara

b. Igenzura ry'ubuhinga mu gisata c'amasoko ntanganguvu



Iryo genzurwa ry'ibanda ku buhinga bushobora gukoreshwa mu miryango yo mukirundi bifise inkurikizi zikomeye mu vyerekeye uguhangana n'ihindagurika ry'ibihe no kugabanura imyuka.

Igikoresha n'umuyaga gishinze

Igikoresha n'umuyaga gishinze n'igihingurano gisanzwe kigizwe n'ikurudumu iboheye kugishinze. Kubera inguvu z'umuyaga, wo mugatondo, utubaba duca tuzunguruka

kandi dutanga umuyagankuba kubera igitanganguvu. Ibikoreshamuyaga bishinze bikora mu buryo ngenderwako busanzwe.

Ibikoreshamuyaga bishinze bikoresha mumiryango ntibisaba intumbero nyoboro ugereraniye n'intumbero y'umuyaga kandi ntibigoye guhingura (kuvyerekeye udufukisho, ibiringo n'ibishinze). Iyubakwa ry'igikoreshomuyaga gishinze rirashoboka rigizwe n'uwutari umunyamwuga kandi igiciro caco ntikirengeje.

Ubwo bwoko bw'igikoresha muyaga bukoreshwa cane cane mu bibanza vy'umuyaga biterwa intambamyi n'imisozi canke uburaro bw'abantu nk'inzu zo mu gisagara. Birafise kandi akarusho kaniniya ko gukoresha imiyaga idakomeye (mu gukwegama amazi, ni manzi wararaye). Mu gihe c'umuyaga w'igihuhusi wegereye isi, birafise ubushobozi bwo kwitururiza mu muvuduko. Urugero rw'urwamo rwavyo rumeze nk'urutumvikana, ivyo bishobora kuba vyiza ku muntu adakunda urwamo. Ubwo burusho butuma igikoreshamuyaga gishinze gishobora gushingwa impande y'amazu canke mbere no kubusongero mu bisagara.

Ubuhinga: Ingomero ntonto z'inzuzi

Intumbero ngenderwako y'ikoresha ry'ingomero ntonto k'umuyagankuba gatoyi n'iyo guhindura inguvu kama y'amazi mu nguvu nterura kintu hakoreshejwe akamashini kayungurura amazi hanyuma mu muyagankuba hakoreshejwe ikivyaranguvu.

Hari ubwoko bubiri bw'ubuhinga:

1. Urugomero rw'umuyagankuba rufatiye ku mikuba

Ubwu bwoko bwurugomero bwatowe ubwa mbere mu gihugu ca Autriche, bufise inguvu nyinshi kandi ihunjura rikeyi, ntirikeneye ihanahana rirerire kugira bukoreshwe. Umuyoboro wo gutemba w'amazi uyakura mu ruzi uyazana mw'isukiro muzingi rifise ubwaguke bungana n'ibesani. Iryo zunguruka rikoreshe n'inguvu z'umukuba hamwe n'izikorogwa n'inguvu z'ikirere, bituma n'akamoteri gahingura umuyagankuba.

Urugomero rw'umuyagankuba rufatiye ku mikuba rushobora kuva kumajajuru y'umukuba wa metero 0,7 n'urugero rw'amazi mfatizo rwa litiro 1000 kw'isegonda. Ubwo buhinga ntangorane butera amafi kubera ayo mafi arashobora kujabuka atakibazo ako kagomero haba kw'isoko canke mw'isukiro. Ingomero zishobora guhingura gushika kuri KW 10 ziraboneka kandi urugomero rw'amazi rwa mbere rufatiye ku mikuba mu Busuwisi rwaruguruwe ku mugaragaro i Schöftland, mu ntara ya argovie mu Busuwisi igenekerezo rya 25 Nyakanga 2010. Urwo rugomero rukoreshe ibesani ya metero 6, 5 y'ubwaguke n'izunguruka incuro 20 ku munota kandi nta ngorane bitera ibikoko vyo mumazi. Ruhingura hagati ya kilowate 10 na 15 rutaruhutse, n'ukuvuga ama kwh 130000 ku mwaka, bigatuma rero haboneka umuyagankuba.

2. Umuyagankuba uturuka ku mazi yo mu nzuzi

Igikoresharuzi ni uturingoti dukoreshe amazi mu guhindura inguvu ziva ku gutemba kw'amazi mu biyaga canke mu nzuzi, kuko igikoreshamuyaga gikoreshe inguvu ziva mukuvuduka kw'umuyaga. Uturingoti tw'igikoresharuzi dutuma haba ihinduka ry'inguvu ziva ku muvuduko w'amazi zigahinduka nterurakintu zica zihindurwa umuyagankuba biciye ku mamashini ashobora gufata imero zitandukanye kuva kuri nini ya mamega watt menshi gose idubitswe hasi cane mu majakuzimu maremare mu bibanza birimwo imikuba y'inguvu nyinshi gushika kugatanganguvu gatoyi kareremba hejuru y'amazi yakoreshe mu dukuba dutoyi tw'inzuzi.

Uburusho butandukanye bwo guhingura umuyagankuba mu mazi:

- Ikiyaga Tanganyika n'inzuzi zo mu Burundi birashobora gutuma haba imikuba yo mubiyaga no munzuzi bikomeye;
- Ibikoreshamazi bitanga inguvu zisubiriza, ntibihumanya kandi ntibisiga umucafufu (nimiburiburi bigikoreshwa);
- Kubera uburemere bw'amazi bwisununuye (incuro 800 ugereranije n'ubw'impwemu) ibikoreshwamazi, iyo inguvu zingana, bigira igihagararo gitoyi gusumba ibikoreshamuyaga. Bifuse inkurikizi mu vy'imibano igereranye kandi ntibisaba ivyubako vy'abahinga babunyoye nk'ingomero z'amazi.

Ukugenzurana ubwenge ukwatsa amatara

Intumbero y'imigambi yo kugenzura iyatsa ry'amata n'ugutsimbataza imero nziza n'ukworoha bisabwa n'ababikoresha, hamwe n'ugutsimbataza mumwanya umwe iziganya ry'inguvu zikoresha rituma ibiciro biba bitoyi mukuzimya amata iyo atagikenewe.

Kubera ivyo ubuhinga ni bwinshi kandi inonosorwa ryabwo rirahindagurika gose, mugabo igihe co kugabanuka kenshi usanga ari gitoyi, hagati y'amezi atandatu na cumi n'abiri. Ibikoresho vyinshi urabisanga ubu kw'isoko. Ivyo bikoresho birimwo cane cane:

- Ibizimyamata: bizimya umuco mu gihe kimwekimwe, biri n'akamaro iyo ivyo bihe vy'ikoresha vyatomowe nk'ibiringo abantu bahaca;
- Ivyerekana ikoresha n'ibisuzumyi vy'inyiganyiga: bizimya umuco iyo atanyiganyiga na rimwe ryatowe mu bihe bimwe bimwe. Kubw'umwihariko biramenyereye kuba iyo mu bihe vyo kubaka no gukora bitashobora kumenya atagukekeranya;
- Udukoresho nkwegazuba n'ibikoresha umuco Kama mu kugenzura amata yegereye amadirisha. Iyo umuco kama ukwiye, amata arazimwa canke akagabanywa;
- Amasaha bashobora guha umwanya wo gukora, aratsa kandi akazimwa imico nk'amasaha amwe amwe yarategakanijwe (imbere y'amazu, ibiro be no mu majoro);
- Ibitangamuco vy'inguvu zitandukanye, bitanga umuco mukeyi mu bihe vy'ibikorwa bibayabaye (akarorero, igituro c'imiduga kimurikirwa gushika isaha zitandatu zijoro ariko hagakoresha umuco mukeyi kuva sa sita zijoro gushika mugitondo.
- Ibigenzura ubukana, canke mudasobwa birongereza urugero rw'inguvu rwakoreshejwe n'amata
- Ibizirantsinga (telecommande): ikoresha ryavyo iterambere risanzwe kandi ritavuna, ry'inyubako zihasanze.

Ubwu buhinga bushobora gufatanywa kandi kandi bagafatira kw'isura ry'abwo nk'akarorero, udukoresho two kumurika twa kijambere mu nyubakwa z'amanama zishobora gukoresha mu buryo bwinshi (inama nshingwantwari, ibiganiro, amanama) ziza zisubirwamwo ufyonze akuma gusa.

Gukoresha izuba mu bigwari no mu miryango

Mu Burundi, inyubakwa rusangi nyinshi zagenewe amagara y'abantu be n'indero y'abana ntizirimwo umuyagankuba. Ku nyubakwa ziri mu ntara za kure, hirya y'umuhora w'igihugu mu vy'amasoko ntanganguvu, uburyo bw'inguvu mvazuba bushobora kuba inyishu iremye kandi izimbutse mu kuronka umuyagankuba. Uburyo bwo gukoresha izuba bukoresha ubutunzi mvazuba bwateganywa kandi bw'igiciro kitavuna ugereraniye n'ugukoresha igitoro canke ubundi buryo. Nk'akarorero, mu mashuri no mu mavuriro yo hagati mu gihugu, inyuma y'umuhora, inguvu ziva kuzuba nibwo buryo bubereye kugira ibikoresho nkorana muyagankuba bifise ubukana bukeyi kandi n'akamaro kanini cane cane ku mata, ibikanyisha ku ncanco, ibikoresho nkwegamazi, imboneshakure, imashini nyabwonko n'ibindi.

Ubugingira: Guhingura utugegene tw'ibinyabuzima ducanwa

Amashiga ya kijambere n'ingingo ngirakamaro mu masoko ntanganguvu

Guhindura akamenyero mu guteka

Umwuka ntanga nguvu (Ukubaka ibiyungurura)

akazi kagakorwa neza cane hafi ya 7) hamwe n'ikomwakomwa ry'ikiyunguruzo mu ntumbero yo gushigikira ico gikorwa co guhingura methane. Vyongeye, kugira iyo myanda ivemwo umwuka wa méthane hakenerwa amazi akwiye.

IV.1.2.4. Igisata c'ugutwara abantu n'ibintu hamwe n'inyubako rusangi

a. Ingaruka y'ihindagurika ry'ibihe ku gisata c'inyubako rusangi

Ingaruka zihindagurika ry'ibihe ku nyubako rusangi rishobora kwibonekeza ku butunzi hamwe no kubindi bisata cane cane uburimi n'amagara y'abantu. Idurumbanya ry'ingendo ry'ibintu, ry'ibikorwa n'abantu rituruka ku ngorane zikomeye canke ibikorwa ntwarabantu bitabereye birashobora kuba intambamyi kunyubako zituma ubutunzi bubangamirwa bimwe biboneka.

Ihindagurika ry'urugero rw'imvura n'ubushuhe birashobora kurambira inyubako iyo ubushobozi bwazo bwarengewe. Ihindagurika ry'urupimo rw'ubushuhe haba ihindagurika riciriritse canke ry'ikirenga rizongereza urugero rw'ivyononekaye n'ivogerwa ry'amazu, ibitarurwa n'ububande kandi bigahindura ibisabwa mu kubungabunga kumerera neza abipakiza no kuguruka kw'indege. Ububombe bw'isununuye bushobora gutuma harengwa urugero mw'ivomera, itemba ry'ikaburimbi yacitse amazi hamwe n'ingaruka kuri fondasiyo z'inyubakwa.

Ibiza birenze (imiriro, imyuzurira, isiduka ry'imisozi, itemba ry'ivyondo n'ibindi) n'imicafu ibikurikira bishobora kuzibira amabarabara n'ibitarurwa ku buryo buhoraho canke mu mwanya muto. Inkukura n'isiduka ry'imisozi bituma hononekara ububande n'impande z'imisozi n'intango bizononye kandi bizodurumbanya inyubakwa z'ubuzi. Ingaruka z'ihindagurika ry'ibihe rirashobora kandi kuburabuza utwigoro two gusanura no kubungabunga (nk'akarorero, mu kugabanuka kw'amazi mu gihe c'ukubaka hamwe kuba intambamyi y'ukwegererwa kw'ibikoresho bigakwega ukuvungagurika kuva kuvyunyuyu tutibagiye kubangamira uruja n'uruza.

Igiharuzo ca 32. Kivuga mu ncamake ingaruka z'ihindagurika ry'ibihe hamwe n'ivyankenerwa mu buhinga vyanditswe aho hejuru kandi vyerekana ubushobozi ntangamarara bwo mu buhinga kugira hagabanuke igeramirwa ry'igisata co gutwara abantu n'ibintu. Urwo rutonde rw'ibikenewe mu buhinga rushobora kunganirwa.

Igiharuzo ca 32: Ubuhinga bwo gutwara abantu n'ibintu mu kugabanya no guhangana n'ihindagurika ry'ibihe

Ingaruka yategekaniywe y'ihindagurika ry'ibihe	Ibikenewe mu vy'ubuhinga	Ubuhinga
Ukwononekara kw'amabarabara bivuye ku biza vy'iteganyagihe birengeje urugero	✓ Ubuhinga bwo kwubaka bunonosoye bwo kwihangira ubushuhe, imyuzurira n'imiya ikaze ✓ Inonosora ry'uguhangana n'ibiza	✓ Ibikozwe mw'isima ✓ Ukwiyungu ruza mu bwenge
Ukwononekara kw'inyubakwa bivuye ku biza birengeje	✓ Uburyo bwo ku gaba no ku gabisha vyihuta ✓ Ubuhinga bwo kwubaka bwisununuye mu ntumbero yo guhangana n'imyuzure n'umuvuduko w'amazi bikabije ✓ Kunonosora guhangana n'ibiza	✓ Ibikozwe mw'isima
Ukwononekara kw'inyubakwa zo ku mpande	✓ Gutera intambwe mw'iteganyagihe ry'ibiza birengeje ✓ Ubuhinga bwo kwubaka bitomoye mu ntumbero yo guhangana n'imyuzurira n'imiya ikaze	✓ Uburyo bwo kugabanya umuvuduko ✓ Ishirwaho ry'inze z'iteganyagihe
Ukwononekara kw'amabarabara kwavuye ku biza vy'iteganyagihe birengeje	✓ Ubuhinga bwo kwubaka bunonosoye mu ntumbero yo kw'ihangira ubushuhe, imyuzure n'imiya ikaze ✓ Kunonosora ihangana ry'ibiza	✓ Ibikozwe mw'isima ✓ Ugutwara abantu n'ibintu mu bwenge
Idurumbanya rikomeye ry'ugutwara abantu n'ibintu kubera ibiza vy'ikirenga	✓ Inonosora ry'iteganyagihe ry'ibiza birengeje ✓ Integanyamigambi ihuriweko ✓ Kunonosora ibungabunga ry'amazi y'imvura ✓ Ubuhinga bwo kwubaka inyubakwa zirinda ibiza	✓ Ugutwara abantu n'ibintu mu bwenge ✓ Ibikozwe mw'isima

a1. Kunonosora ukuramba kw'ibikoresho vyubatse ibarabara

Iyongerekana ry'urugero rw'ubushuhe mfatizo hamwe n'ugushoboka kw'amahindagurika yisununuye y'ubushuhe bizogira ingaruka zikomeye kw'isaso y'amabarabara. Amabarabara ashashemwo amabuye arageramiwe bimwe biboneka, ibikoresho nka kaburimbi birashonga kubera ubushuhe burenze bigatuma haboneka utunogo n'uguhindura isura, mbere n'ukwononekara ubutakigaruka.

Uduhimba two muri fondation canke two gusegura turashobora kwononekara kubera ugutemba nabi kw'amazi, vyongeye, umwuzurira w'amazi urashobora gutera ukwononekara kw'ibintu canke icererwa ry'ibikorwa, hamwe n'ibiza birengeje bishobora gukwega inkukura n'ugutakaza akanovera k'isi.

Ibigize isima

Ibikoze isima nta gihe biramara kandi ikomezwa n'intsinga, bihushanye na beton imenyereye, yoyo ishigikirwa n'udukoni dukozwe mu Cuma. Ikomezwa n'udutsinga dutoduto batondeka ukwo babibonye muri rusangi. Beton ishobora guhingurwa hakoreshejwe ivyatawe n'amahinguriro, harimwo n'iminyota itumuka y'amatanure zimeze nk'udutete hamwe n'umusenyi uva mu mayagirizo y'ibisigazwa n'ibisigarira vya carbone (**Lepech n'abandi, 2008, 837**)

a. Inonosora ry'ubukomezi bw'ikivuko

Ukwiye gushyirwa kwo mu mazi kuzogira ingaruka zituruka kw'ihindagurika ry'ibihe. Nk'akarorero iduga ry'urugero rw'amazi yo mu biyaga rizongereza imyuzure mu bivuko. Ibiza birengeje cane kandi vyisubiriza vyongerekanya inyubakwa kuza kw'ibiza vy'umwanya muremure ku bivuko n'amato hamwe n'ihindagurika ryitezwe ry'umuvuduko n'imeru y'umuyaga bizogira ingaruka ku gupakira no gupakurura ibinyabiziga. Ugukingira bikomeye bishobora gukorwa mu ntumbero yo kugabanya iza ngaruka canke ibikoresho birashobora gukingirwa imyuzurira.

Uburyo bukoreshwa mw'igabanya ry'umuvuduko

Kimwe mu myitwarariko y'ibivuko mu guhangana n'iduga ry'amazi y'ibiyaga hamwe n'uguhangana n'imiyaga yo ku nkengera ni urugero rw'umuvuduko hagati y'ubwato n'inkombe iyo amato ari mu mazi, n'ihungabana riba mu mayira y'amato. Ukunyiganyiga gukomeye iyo hari imikuba irengeje ishobora kwongereza umwanya wo guhagarara kw'amato no gutuma ihungabana riteye ubwoba ku mihora y'amato.

Ubwo buryo n'ubuhinga bwa none bukoreshwa mu ntumbero yo kwirinda gukoresha ubuhinga bwari buhasanzwe. Burashobora kugabanya ihungabana mu mihora hamwe mbere n'ugukuraho ikenerwa ry'imihora rimenyereye, bigatuma hagabanuka ukunyiganyiga kw'ubwato iyo buri ku kivuko.

A3. Kubungabunga igisata co gutwara abantu n'ibintu hakoreshejwe ubuhinga

Ubuhinga bwo kwiyungurura ncabwenge

Ubwo buhinga bukoresha ivyuma vyo kumenyesha amakuru mu kwunguruza abantu n'ibintu. Za mudasobwa, ibikoresho vyo mu buhinga bwa electronique, ibigendajuru n'ivyegeranyamakuru bifise akamaro kaguma kiyongera mu gisata co kwunguruza ibintu n'abantu. N'aho ibigize ubwo buhinga bimaze imyaka myinshi bukoreshwa, ubu babukoresha cane cane mu gufasha ibihugu guhangana n'ingaruka z'ihindagurika ry'ibihe.

Ubwo buhinga bukoreshwa muri vyinshi, bituma haba ukutavogerwa ry'igisata c'ugutwara abantu n'ibintu n'uguteza imbere ubushobozi bwo guhangana n'ibiza birengeje ubukana. Ubwo buhinga bushobora kuzana uburusho bwinshi mu vyerekeye uguhangana mukugenzura amabarabara no kuyategura, ukubungabunga no gusubira gukora inyuma y'ikiza.

Inkuru ku mero y'ikirere zirashobora gushirwa muri ubwo buhinga nk'uburyo bwa none bwo kugenzura inyuragirana ry'abantu n'ibintu, no guha impanuro ingenzi, mu ntumbero yo gukura intambamyi mu biraba kwiunguruza.

IV.1.2.5. Amagara y'abantu

a. Inkurikizi zihindagurika ry'ibihe ku gisata c'amagara y'abantu

Mu Burundi, ikoreshe ry'amasi, iyongerekana n'iyegerana ry'abantu hamwe n'ikeha ry'ubutunzi biramaze kugira ingaruka ku magara y'abantu. Kugira ico ukoze kw'ihindagurika ry'ibihe ryashobora kugira ico bihinduye. Ihindagurika ry'ibihe dukeka ko rizongereza igitigiri c'abantu basanzwe babangamiwe (abana, abasaza, abakene), rica ryunyura ubudasa bw'intara mu vyerekeye amagara. Abo bantu basanzwe bahura n'ingaruka ku magara ziturutse ku kirere, ariko biragoye kuzidondagura kubera ukudatumbere kw'igitigiri kinini cizo ngaruka hamwe n'ingorane mugutandukanya ikimenyetso c'ihindagurika ry'ibihe n'ayandi mahingagurika.

Inkurikizi mbi z'ihindagurika ry'ibihe zishobora gushika ku magara zigize umurwi wagutse kandi zirimwo ingaruka zidaseswa. Muri izo harimwo ugupfa no gukomereka kw'abantu biva kubiza birengeje (imyuzurira, indugumba y'ubushuhe buramba nk'akarorero), ukugabanuka kw'ingana be n'ibihe vyihakwa kuza ku magara biturutse ku mero y'ikirere (ukugabanuka kw'umutekano n'iboneka ry'amazi hamwe n'ubuziranenge bw'impwemu), igwirirana ry'indwara zituruka ku mazi mabi be n'iziterwa n'udukoko (nk'akarorero malariya, korera,...). Igabanuka ry'umwimbu mu burimyi bwakozwe n'abakozi benshi hamwe no mu bindi bikorwa bidakenere abakozi hamwe n'umwimbu w'ibiterwa bishobora kuba isoko ry'ifungura ribi, navyo nyene birashoboka.

Igiharuzo ca 33: Ubuhinga mu gisata c'amagara y'abantu muntumbero y'igabanura n'ihangana y'ihindagurika ry'ibihe

Inkurikizi yategekanijwe mw'ihindagurika ry'ibihe	Ibikenewe mubuhinga	Ubuhinga
Iyongerekana ry'indwara zituruka ku mazi mabi	-Itosora n'ihanahana ry'amazi y'isuku -Icungera rinonosoye ry'iyaduka ry'indwara -Kunonosora ugushikirwa	-Ibinogo vy'amazi meza birindwa imyuzurira; -Ubwiherero bukingiwe imyuzurira ; -Uburyo bwo gukinga

	n'ibungabunga ry'amagara, isuzumwa hamwe n'ivurwa	indwara ; - Twa sugumwe dukingiwe imyuzurira;
Itegekanyagihe ry'igwirirana ry'ingwara ziterwa n'udukoko (vecteur)	-Igwaya rusangi ry'ibibangamiye ubuzima ; -Inonosorwa ryo gushigikira ibungabunga ry'amagara, isuzumwa n'ivura.	-Imisegetera irimwo umuti uramba ; -Uburyo bwo gucungera indwara.
		Ugupima mw'isuzuma kunyaruka.

a. Kugabanya ingaruka z'ihindagurika ry'ibihe, isoko ry'ingwara ziterwa n'udukoko

Inzitiramibu irimwo umuti uramba

Gushigikira no kwagura ingengabihe yo gutanga inzitiramibu zo kugitanda utitayeho gusa imirwi y'abantu ikarirwa isanzwe izwi (nk'akarorero : abagore b'ibungenze, abana batoyi batarenza imyaka itanu) bishobora kuja mungingo zo mu gisata c'amagara y'abantu zigamiye guhangana n'ihindagurika ry'ibihe. Izo ngengagihe zishimikiye ku nteguro z'akamaro k'inzitiramibu. Ico kigabane kivuga ivy'umwihariko ivyo bita « Inzitiramibu zo ku gitanda zisize umuti umara igihe kinini » « MILDA ». Ama MILDA akozwe muri Polyester, polythylène canke polypropylène zisizwe umuti nyicadukoko ukoze muri piretre.

Isuzuma ry'ihuta

Isuzuma ry'ihuta ni isuzuma risanzwe ribera kukibanza co kuvurirako. Iyomiti, hifashishijwe uburyo butandukanye ituma basuzuma ningoga ingwara nka malariya, igituntu, sida, isofisi, lashamiose viscerale. Vyinshi bikoresha mu gusuzuma uduhimba turinda umubiri mu maraso y'abagwayi baba bamaze igihe bagwaye canke abaheruka kwandura. Uburyo bw'ihuta bwo gusuzuma Marariya kw'isoko rya none bukoresha ubuhinga bw'anyuzi banderete.

Ama bande amira amazi arahindura inzira iyo bihuye n'abasirikare b'umubiri canke ibiranga vya kimwe canke vyinshi mudukoko dutera malariya. Iseruka ry'umurongo w'ibara rishasha kuri iyo bande vyerekana ko ingwara yatowe. Ugereraniye na rugagamisha yo mw'ipimiro rya kera, ubu buryo bukoresha umwanya mutoyi (Inyishu ziboneka hagati y'iminota itanu na mirongo ibiri), ubumenyi bukeyi, ntakindi kintu wongerako mugabo igiciro cabwo kirisununuye kandi bikoresha rimwe gusa.

Kwongeramwo ubuhinga bwo guhanahana amakuru bugezweho mugisata c'amagara y'abantu.

Amashirahamwe arashobora kugabanya ibangamirwa n'ihindagurika ry'ibihe mu kunonosora amagara y'abantu biciye mugukoresha ubuhinga bwo kumenyesha amakuru bwisununuye. Ubwo buhinga burimwo ubwo kugenzura indwara no kuvura (hamwe n'ubuhinga bwagenewe kunonosora uburyo bwo kuvura kandi bw'akigoro kanini mu ntumbero yo guhangana n'ibituma

umuruho ufatiye ku magara y'abantu. Barashimikira gusumba kw'isuzuma rya kare ry'ibiza, muri iki gihe c'iterambere ry'ingendo, bibanganye kandi bishobora gutera ingorane hagati y'ibihugu. Muri 2005, ishirahamwe mpuzamakungu ryo kubungabunga amagara y'abantu ryarasohoye amategeko mpuzamakungu mu kubungabunga amagara y'abantu(R.S.I) (ayo mategeko ategerezwa gukurikizwa n'ibihugu 194 vyose birigize). Ayo mategeko adomako urutokye kandi ategereye ko hononosorwa ukwitaho n'ubushobozi bw'ibihugu muvuyerekeye gusuzuma no kugabisha kuvyerekeye ivyihuta mumagara y'abantu hamwe n'ukwagura bikwiye urugero rw'ingwara zitegerezwa gutangazwa. Intara zifise uburenganzira bwo gukoresha ayo mategeko nk'ubuhinga bwo guhangana n'ibikenewe mugisata c'amagara y'abantu vyo mu rwego mpuzamakungu hamwe no gushigikira ugufashanya kw'ibihugu vyo mw'isi mukurwanya ingwara ziterwa n'udukoko. (Ashar n'abandi 2010, Andrus n'abandi 2011, Band n'abandi 2013, Lewis n'abandi 2011, Morse 2012).

Inzego zo kugenzura indwara

Inzego zo kugenzura indwara zibanda kubikoreshe bitandukanye n'ishira mungiro y'ivyavuye mu makuru no kuzihanahana biteye imbere bishobora gufasha abajejwe amagara y'abantu kwegeranya, gusesangura, gusigura no gukwiragiza ibiharuro ngirakamaro mu gushigikira ukugenzura n'ugufata ingingo.

Twasurwumwe turinda imyuzurira

Inyubako zo guhingura imicafu yo mu muryango n'iyamakoranirwo rikingiwe imyuzurezirimwo uburyo butandukanye bwo kwubaka utwasurwumwe turamba, turi hejuru canke dukingirwe imyuzurira mu ntumbero yo kugabanya iyandura ry'amasoko y'amazi meza mu gihe c'imyuzurira.

IV.1.2.6. Amashamba

Mu Burundi, ibiva mu mashamba bigizwe n'ibiti vy'ibiterano vyega Leta, amakomine canke abikorera utwabo. Bigizwe kandi n'amashamba kama/kibira, ibibanza kama n'ibindi bibanza bikingirwe, ibiti bitari mumashamba (ibibanza bitandukanye biteweke ibiti).Ibiti vyatowe kuri hegitari 60 000. Bitanguye kuva 1978, ibiti vyatowe mu ngendo y'umugambi waguye wo gutera ibiti washizwe mungiro za leta ifashwe mumugongo n'abakunzi bo hanze.

a.Inkurikizi ry'ihindagurika ry'ibihe ku mashamba

Amashamba n'ibitara nivy'ubuzima bw'abantu benshi mu Burundi kuko bitanga inkwi zo gucana hamwe n'amakara ava mu bita arinkenerwa mu gutegura imfungurwa ariko kandi bitanga ibiti bikoreshe mu bisata bitandukanye nko mubisata vy'ubutunzi n'imibano bitandukanye. Amashamba n'ibitara bibitse 80% y'ibihema biri kw'isi kandi bifasha gukingira imisozi-bubande nkenyerwa mukuronka amazi meza. Ariko, ihindagurika ry'ibihe rituma haba ingorane zinini ku mashamba no ku banyagihugu.

Ihangana n'igabanura ry'imyuka nizo nyishu zibiri zikuru zikuru kw'ihindagurika ry'ibihe.Igabanura rituma hagabanuka ibiritera, ihangana na ryo rikagabanya inkurikizi.

Mugisata c'amashamba,

- Ingendo zo kugabanya zirimwo igabanya ry'imyuka iterwa no guhonya amashamba, ugutema amashamba, ugufata amashamba nk'isoko ry'amakara, ugusubiriza ibikoresho, gnk'akarorero ikoresha ry'ibiti mu kibanza c'ibizuku muguhingura umuyagankuba, n'ibindi bikorwa mu biti.
- Uguhangana kurimwo ibikorwa bigabanya ibangamirwa n'ihindagurika ry'ibihe ku mashamba n'abantu babayeho kubera yo. Ishira mu ngiro ry'ibungabunga rirama ry'amashamba (GDF) ntirishobora gusa kugabanya ingorane ziva kw'ihindagurika ry'ibihe, ariko rirashobora kandi gutanga amahirwe nko gutanga akazi mu gusanura amashamba, kuyazigama, guhingura ibiti no guhingura ibikoresho bikoze mu mbaho, isubirwamwo ry'amategeko agenga isi, ukuriha ibikorwabijanye n'amashamba. Uguteza imbere GDF hamwe n'ugukamisha akamaro kayo mw'igabanya ry'ihindagurika n'ihangana n'inkurikizi zayo bizosaba kenshi amahinduka mu mapolitike, mu ngendo no mu bikorwa.

Muri rusangi, inkurikizi z'ihindagurika ry'ibihe kumwimbu w'amashamba no kunteguro yayo zirahindagurika ufatiye ku bwoko buhari, ibibana na yo, hamwe n'inyishu zatanze mu guhangana n'ibibazo.

Igiharuzo ca 33 kiri aha munsu kiratanga ingaruka za hafi z'ihindagurika ry'ibihe n'ivyokorwa hamwe n'ubuhinga bwo kugabanya izo nkurikizi.

Igiharuzo ca 34: Incamake ku nkurikizi za hafi z'ihindagurika ry'ibihe mw'ibungabunga ry'amashamba n'ibitara

Inkurikizi z'ihindagurika ry'ibihe	Ibikenewe mu buhinga	Ubuhinga
Itituka ry'amashamba n'ibitara	Ibungabunga rirama ry'amashamba n'ibitara	✓ Ugusubira kumera kw'ibiti no gusubiramwo gutera amashamba
Ikeha ry'inkwi bivuye ku kudasubira kumera kw'ibiti	Gukoresha ayandi masoko ntanganguvuasubirira inkwi	✓ gukora amakara mu micafu asubiri inkwi n'ammakara ava mu biti ✓ Kubibura ✓ Gusubira gutera bishasha
Gutakaza uburaro ku bwoko bw'ibikokon'ibitegwa	Kwumura ubwoko bukarirwa n'ihindagurika ry'ibihe	Gushiraho ububiko bw'imbuta z'ibiti vy'ishamba
Kubomoka kw'amabarabara aca mu mashamba n'ibitarurwa	Gukingira inkengera z'utubarabara ntaruka shamba mu gutera ibiti bitonze, gutera ivyatsi ku mpande hamwe no guca imiserege y'amazi y'imvura no kwamizako kuyisibura	✓ Gutera ibiti ku murongo ✓ Gutera ivyatsi bigumya isi

Kwonona amatuta	Kunonosora ubuhinga bwo gutegura amatuta	✓ Kubibura mu gutera buno nyene
Kwononekara kw'ikibanza	Guhimiriza gutera ibiti bifise imizi miremire	Kurobanura imbuto
Ugutakaza ibinyabuzima	Guteza imbere itera ry'ibiti bivanze mu gushira hamwe ubwoko bwinshi ku kibanza kimwe	✓ Gusubira gutera ibiti kama ✓ Uguca ibiti ku mategeko
Ukwononekara kw'imbuto zo gutera	Guhingura imbuto mu bibanza bitandukanye, uburimyari bushimikiye ku kw'ubahiriza ibidukikije	Gushiraho ububiko bw'imbuto
Imiriro ya nyakanga	Guhimiriza abenegihugu ku kurwanya inkurikizi mbi z'imiriro ya Nyakanga	Guca imiciro c'
Ukwuma kw'ivyatsi	Gutera ubwoko budakarirwa n'izuba nk'imivumu vumu, iminyari, igihahe n'ibindi	✓ Kurobanura ubwoko bw'imbuto ✓ Guhindura amashamba mu mirima
Iboneka ry'ubundi bwoko bw'ibiterwa harimwo n'ivyonyi	✓ Ikurikirana inyifato y'ubwoko bushasha bw'ibiti	✓ Irobanurwa ry'ubwoko bw'ibiti ✓ Gutanga ubumenyi ku bijanye n'ibigize ibinyabuzima n'ingene amashamba akora

Ukunaga kw'ibiti vyo mw'ishamba

Ukubaho n'ubushobozi bwo kunaga kw'ibiti bituma bisubira gukura iyo vya temwe. Amahungabana atewe nahavuye ibiti atuma ibindi bimera aho vyatemwe. Mu ntango, iryo mera rishasha ry'ibiti ryononwa no kuvunika kw'ingegene ntoya. Umwanya urengeye ica gatatu c'ibiti (ibice 30% vy'uburinganire bw'isi imbere yuko ibiti bitemwa) worohereza ubwoko bw'ibiti bito bito, birwira vuba vuba kandi bihona ningoga, mu gishingo c'ubwoko bw'ibiti bikenera umuco mwinshi kugira bikure bifise akamaro ko kuramba, gukingira isi be n'urudandazwa. Inyuma y'imyaka 2 gushika kuri 3, ivunika ry'ingegene ntoya riragabanuka ariko rikarwira ku ngegene ntoya z'ibiti bitigeze bitemwa. Ukuzana ingegene ntonto n'ikura ry'ibiti bifise igikuriro kigereranye bisubirira ibindi vyarahimirijwe guterwa mu kiringo c'imyaka 10.

Ukumeresha ibiti vy'agaciro bisaba kubungabunga imivyaroyi y'ibiti ikwiragiye hirya no hino mw'ishamba. Utuzinga tw'ibiti birobanuye turakwiye kubungabungwa mu turere ducibwa mw'ibiti kugira bikingirwe no kubika imivyaroyi. Imihora y'ibiti yategerezwa kubifatanya n'ibice vy'ishamba bidateye mw'ibiti. Itegerezwa ku bungabungwa no gusuzumwa imbere y'uko hatemwa ibiti. Iryo tegeko riri mu ngingo ngenderwako y'ishirahamwe mpuza makungu rijejwe amashamba ari mu bihugu bishushe (OIBT), kandi yarategekanijwe n'ishirahamwe mpuza makungu rijejwe kubungabunga ibidukikije (UICN).

Iryo tegeko riragoye gushirwa mu ngiro n’ubwo akamaro karyo ku bidukikije ari ntangere ku binyabuzima biba mw’ishamba ariko harakwiye ihimiriza ryaryo kubajejwe igisata c’amashamba.

Kwongereza gutera ibiti cimeza

Mu gusubira kwongereza ibiti, n’ ugushira imbere biciye mu gututurira no kubagarira ibiti ukumera kw’ibiti no kurwiza ubwoko bw’ibiti bidandazwa hatibagiwe no gukingira ibihasanzwe binashobotse mu bwoko bwavyo butandukanye.

Ugusubira kwongereza ibiti vyari bihasanzwe birakwiye kuja imbere hakoreshejwe ubuhinga kama bwo gutera ibiti. Ubuvinga bwo kurobanura imiviyaro izosubirizwa mu kiringo gito kuva ku myaka 20 gushika kumyaka 30, ntibwokoreshwa kiretse nko mu mashamba arimwo ubwoko bw’ibiti bwinshi bwo kwokora naho nyene hisunzwe gutandukanya ibiti gusumba guteragira binini binini ku bwinshi canke bidakoreshejwe. Muri make, hasabwa amakurakuranya maremare, nk’ikiringo c’imyaka 50. Imbibe zo musi z’ubwaguke bwo gukoresha ibiva mw’ishamba (n’ibindi vyemezo nk’amasoko canke ubushobozi bwo guhingura ibiti) kandi ntarindi tegeko rizwi hose ryo bishobora ari ugukoresha ubundi buryo bwo kwicungera.

Kubibura

Kubibura n’ubuhinga bwo kwagura ibiti biterwa mu mashamba cimeza vyataye agaciro mu rudandazwa. Kwongereza ni kwongeramwo imiviyaro myinshi y’ibiti bidandazwa ku bita vyari bihasanzwe mu guteragira hafi na hafi (3-4m) ubwoko bw’ibiti bizimvye mu mirongo ibangabanganwa yuguruye mw’ishamba (20-30m). Ubwo buhinga bwakoreshejwe hose kw’isi, rimwe na rimwe umwimbu mwinshi uraboneka, ku buvinganire bubayabaye ariko busuzumwe neza. Nivyo ubwo buhinga buragutse ariko busaba ukwitanga kudasanzwe. Kwongereza ibiti kwisangije akarusho ko kugumana akaranga k’ishamba kama atakuryonona, ariko ako karusho karafise n’inizitizi: Ikurikirana rigoye ry’ibikorwa, ugutunganya ibikorwa ku mwanya muremure wo kubikurikirana, ikenerwa ry’abakozi benshi n’ibindi.

Guhindura amashamba mu mirima

Guhindura amashamba mu mirima biraba ibitara vy’ibiti vyatitutse, bitagitanga umwimbu, bikwiye gusubirizwa.

Urugero rwo kwongereza ubuhinga bwo kubitema rushobora guhinduka biturutse ku buryo busanzwe buhari be n’intumbero zishizwe imbere. Hategerezwa gufatwa nkama : Ugutoranya neza uturere two guteramwo ibiti n’ubuhinga bugezweho bwo gutera ibiti, ikoreshejwe ry’ibikoresheho bigezweho, kwitaho ibiti bikiri bito, kubungabunga ibitara vyateragiye (gukuramwo ivyatsi bibi, kubonesha amashamba y’ibiti, ...) gukingira ibiti indwara zifata ibiterwa n’ubuhinga buteye imbere bwo ku bihingura. Izo ngingo zose hamwe zitegerezwa gutuma ibiciro bikenewe vyubahirizwa mu ntumbero yo kwongereza ishaka mu gutera ibiti. Ubuvinga butandukanye burakoreshejwe mu guhindura amashamba kama imirima : iminwe, imashini, gufatanya gutera ibiti n’uburimyi. Ihitamwo ritegerezwa gukorwa hafatiwe ku bituma bituruka ku bidukikije, k’ubutunzi, ku mibano n’ubuhinga. Ubuvinga bw’iminwe busaba gukoresha abantu benshi badashobora kuboneka umwanya wose ubarondereye. Gukenera gutera

ibiti biramba ku buringanire bu nini bisaba kenshi kwifashisha imashini mu bikorwa bimwe bimwe.

Ingorane zo gutera kenshi ibiterwa vy'ubwoko bumwe ku buringanire bu nini ni nyinshi (na cane cane mu gisata c'amagara y'abantu) kandi ziranagoye gutorera umuti ku bijanye n'uburyo. Ku vanga vanga ibiterwa bituma haba kwongereza ihindagurika ry'imeru n'inyubako y'ibitara vy'ambaye ibiti, bituma ibiti atagaciro bigifise birandurwa, bigabanya ukugeramirwa n'imiriro ya Nyakanga kandi bituma isi ikingirwa neza inkukura.

IV.1.2.7 Gutunganya imicafu

a. Ingaruka ry'ihindagurika ry'ibihe ku kibazo c'imicafu

Mu Burundi, abenegihugu ntibakorana n'igisata kijejwe kwegeranya imicafu yo mu mazu naho kiri ntigikora neza mu ma karitiye y'igisagara ca Bujumbura. Ivyo vyerekanwa n'irwirana ry'amayarara yo soko ry'amabi yose, ingaruka ku magara n'ibidukikije, hariho isazi, imibu, imbeba, udukoko duto duto twanduza indwara, ikwiragizwa ry'indwara nka korera, ukwandura kw'amahaha n'ibindi.

Ikibanza ca Buterere co gutosora amazi yakoreshejwe ntigikora neza naco nyene. Hariho kandi ikwiragira ry'imyuka y'ubumara ituruka ku kubongera kw'imicafu ibanganye, imitiyataye igihe bakunda guturirira mu matanure y'ibitaro n'amavuriro mato mato iyo ahari. Vyongeye imicafu y'amazi, imicafu ituruka ku burimyi, ibikomoka kuri peterori n'ibindi vy'ubumara bisukwa rimwe na rimwe mu nzuzi n'ibiyaga hagaca haba ingaruka y'uko ibikoko n'ibiterwa biba mu mazi bihasiga ubuzima.

Igiharuzo ca 35: Ingaruka zituruka ku micafu

Inkwirikizi	Ibikenewe mu buhinga	Ubuhinga
Ikwiragiza rya N_2O	✓ Gutegura n'uguhingura imicafu igumaraye n'iyamazi ✓ Gusubira gukoresha amazi yatosowe yari mabi ✓ Gukoresha nkifumbire imicafu ibora	Gushiraho amayarara yateguwe n'imihora y'amazi mabi mu bisagara
Umwuka wa metane (CH_4)	✓ Ihingurwa ry'imicafu mu bindi vy'akamaro ✓ Guhingura metane mu micafu hashakwa umwuka ntanganguvu biogazi	Guhingura metane mu micafu y'ibinyabuzima
Iyandura ry'amazi yo hejuru no mu kuzimu	✓ Gutosora no gusubira gukoresha amazi mabi ✓ gukoresha imishafu ibora nk'ifumbire ✓ Guhingura ibisigazwa vyavuye mubiribwa bigahindurwa isoko ntanganguvu	✓ Kumimina muburyo bwa lagune amazi acafuye ✓ Gukora amakara mumicafu ibora

Uguhingura amazi acafuye

Gutosora amazi mabi na lagune

Ubwo buhinga n'ukureka amazi agatamba buhoro buhoro mu bibesani vyo kuyagumya (kuva kuri 3 gushika kuri 5) kandi bigufi (imetero 0.40 gushika ku metero 1.20) mu kurinda amazi mabi kunyengetera mu kuzimu.

Imbere yahoo, amazi abanza kugirirwa itegurwa ry'intangamarara: Kukuramwo ibinure, amavuta, umusenyi n'ibindi, nkuko amazina yavyo avyerekana, hakoreshwa ibikoreshebikuramwo uduhimba tugizwe n'utugumaraye n'ibinure.

Ibibesani vya mbere ni ibibesani bikoresheya ku tunyabuzima duto duto, niho hatitwirirwa ibinyabuzima biri mu mazi acafuye. Amazi aca aca mu nyuma mu ma besani maremare buke buke aririmwo ibiterwa binini binini.

Ivyo bica bimira ivyunyuny biturutse kw'itituka kw'ibinyabuzima kugira bikure. Ibiranga ubwo buhinga n'uko bukoreshwa ku buringanire buri hagati ya 15 na 20 m² ku buriba bwa 50 m³ bw'amazi. Umwanya amarayo utegerezwa kuba mu nini (ni miburi buri imisi 30 n'iyirenga).

Amazi asohoka ava muri ivyo bikoresho yujuje ibitegekwa n'ingingo ya 91-271 yo kuwa 21 Rusama 1999 igenga ibifatirwako mw'itosora ry'amazi: ibikenerwa ku mwuka wa O₂ (DCO), ibisabwa mu binyabuzima kama (DBO), ibireremba hejuru (MES) birimwo. Amazi yataye igihe canke amazi acafuye arimwo ibikwiragiza imyuka yonona ikirere kandi bititura ibidukikije. Ico gikorwa co ku gomorora amazi kizotuma ayo mazi ahingurwa mu ntumbero yo gukuramwo ibikwiragiza iyo myuka.

Ikoreshwa mu burimyi ry'ivyondo biva mw'itosorero ry'amazi

Mu gihe co gutosora amazi mabi mukibanza cabigenewe, umusenyi uca umanuka mu ntango z'ama besani mu gihe ibinure biguma hejuru kubera umwuka wari uri muri ivyo vyondo. Kubera umwuka wa O₂ urungikwa mu bi besani, udukoko dusanzwe turi mu mazi duca tugira ubuzima mu kurya iyo micafu yayongeyemwo. Vyose hamwe (ivyayongeyemwo n'udukoko) bigira ivyondo vya kajijwe. Mu ntumbero yo guhingurwa, ivyo vyondo birumishwa mu ntambwe zikurikirana zibiri:

- Ukubigabanya ubwaguke mu birerembesha bituma hatandukanywa ivyondo n'amazi;
- Kwumisha hakoreshejwe ibindi bihingurwa

Utwondo twibumbabumvye duto duto twumishwa atangorane. Utwo twondo duca dushirwa mu nyuma muri vyarukanyisha hamwe no kumishwa.

Ivyondo bibonetse bikoresheya nk'umwavu wo gufumbira isi mu kibanza c'umwavu w'ikizungu mu burimyi. Ivyondo bihingurwa mu gutosora amazi birashobora gukoreshwa nk'umwavu usanzwe mu gusubirira umwavu w'ikizungu ukwiragiza cane imyuka yonona ikirere. Vyongeye guhingura ivyo vyondo bituma hirindwa ikwiragira ry'umwuka wa methane wari gukwiragizwa iyo ivyo vyondo bititabwaho.

Guhingura methane (CH₄) mu micafu y'ibinyabuzima canke guhingura umwuka ntanganguvu

Iyungurura ahatagira impwemu canke gukora metane, n'itituka ry'ibinyabuzima (amazi yataye igihe, ibisigazwa bigumaye, ibisigazwa nyabuzima, amase y'ibikoko) ata O_2 ihari. Udukoko tubayo turahishisha ibiriho nyabuzima hagaca haboneka umuvango w'umwuka uva ku kubora kwivyo binyabuzima ugizwe na CH_4 , CO_2 na H_2 . Ikiyungururiro (digesteur) ni ikigunguru canke ikinogo gipfundikiye gihingura umwuka ntanganguvu gikoresheje ubuhinga bwo gukora metane ukoresheje ibinyabuzima vyaboreyemwo.

Uwo mwuka ushikwako ku bushuhe bwo ku rugero rwa $35^{\circ}C$ n'imiburiburi. Icanwa ry'uwo mwuka rituma haboneka CO_2 , ukaba uwo mwuka utonona gose kuko udashusha ikirere nka metane. Twokwibukako ikiyungururiro co mu rwego rugeranye rugabanura igeramirwa riri hagati ya toni 3 na 5 muri $eqCO_2$ ku mwaka.

IV.1.3. Ibituma haba agahaze mu Burundi mu guhanahana ubuhinga kugira ihindagurika ry'ibihe itorerwe inyishu.

Ingorane nyamukuru zibonekeza kugira uburundi bukomeze urugamba rwo gutorera inyishu ibijanye n'ihindagurika ry'ibihe n'izi :

1) Uburyo bukeyi muntumbero yo kugabanya izo ngaruka mbi

Uburundi ntabushobozi bufise bwo kurwanya ingaruka n'ibitera ihindagurika ry'ibihe kandi ntanikigo nyakuri bufise co kwiga no gutegekanya ihindagurika ry'ikirere. Bwategerezwa kurondera ubundi buryo no gutorera inyishu ubwo bukene bw'amahera n'ubuhinga bukwiye.

2) Uburyo bukeya bwo kugabanya imyuka n'ugushirimbere iterambere ridatosekaye

Uburundi burafise impano nyinshi kugira dushike kw'iterambere rirama atavyuka vyinshi bija mukirere na cane cane ingomero z'amazi, umuco w'izuba ushobora gutanga umuyagankuba, umuyaga wotanga umuyagankuba, n'ikirere corohereza amashamba gukura nayo akaba ariyo agabanya umuvuduko w'iyi myuka mibi. Ingorane nuko ivyo bikorwa bisaba amahera menshi bigahurirana n'uko kandi ata mitahe y'abigenga canke yabikorera utwabo ija muri ico gisata. Leta yaramaze gufata ingingo na cane cane ngw'abigenga (abikorera utwabo) bashobore gukorana na leta mukuborohereza.

3) Uburyo bukeyi bw'inzego z'igihugu

Amashirahamwe menshi arakorera murico gisata. ariko ihindagurika ry'ibihe ntirirafatwa nka nkama ninzego zose ivyo bikunyugwa n'uko mu migambi ifatwa na ma Leta ico kibazo usanga kititaweho. Ihinyanyurwa ry'imigambi n'inzego zimwe zimwe birakenewe kugira ihindagurika ry'ibihe rije mumigambi y'iterambere rirama mu Burundi.

4) Uburyo bukeyi mu bushakashatsi n'ihanahana ry'ubuhinga

Uburundi ntabuhinga n'uburyo bufise bukwiye mu ntubero yokugira ubushakashatsi muvuy'ihinduka ry'ibihe ntanikirangamisi murico gisata kiri kurwego rw'igihugu. Kuvyerekeye gukoresha ubuhinga bwa none, ubukene burengeje bw'abarundi buratuma ubwo buhinga

buzimvye budashika mugihugu kurundi ruhande, ibihugu biteye imbere ntibishima gutanga ubuhinga bwabo, bigashima kugumya mw'ibanga ubumenyi bwavyo.

Inyishu yico kibazo izova kuri Leta itegerezwa gufata ingingo ruhamya na cane cane kugira ubushakashatsi ntumbero, kurondera ubuhinga no kuvyumvisha umurundi wese ko bimwega, gukomeza amashirahamwe n'izindi nzego zikorera murico gisata, kwigisha abenegihugu n'ugufashanya n'ayandi makungu, amashirahamwe mpuzamakungu.

5) Ibura ry'amafaranga(ubwayo) ku migambi ijanye n'ihindagurika ry'ibihe (ibirere)

Nkuko twamaze kubicako muvuyo twagiye turiga, imigambi imimwe ijanye n'ihindagurika ry'ibihe yashizwe ahabona (yateguwe) mu migambi rusangi yo kurwego rw'igihugu no mubihe bimwe bimwe ntiyasizwe mu ngingo kubera ibura ry'amafaranga (uburyo) ahubwo vyoba bikomoka kutagira imigambi itomoye kuri abo bese bafise uruhara murico gikorwa co guhimiriza ibijanya n'ihindagurika ry'ibihe hamwe no gushobora kumvisha abatanga uburyo kugira imigambi isanzwe ihari ishirwe mu ngiro.

IV.2. Umugambi wo guhimiriza ukwigisha abantu (Abenegihugu) ivyerekeye ihindagurika ry'ibihe

IV.2.1. Intangamarara

Ingaruka mbi zivuye kw'ihindagurika ry'ibihe ntizasize inyuma Uburundi. Ibirere (Isi kama) vyama biriko birasinzikazwa n'umwuzurira w'amazi, ubugaragwa, urubura, itemba ry'imisozi. Kwizo ngorane hakaza hiyongerako inzara, uruja n'uruja rw'abantu, ibiza vy'ingwara zitandukanye n'ibindi. Ibindi vyiyongerako kurizo ngorane n'igwirirana ry'abantu, ubukene, ivangura rivuye ku gitsina n'uburyo bwo gukinga bishemeye ingorane zituruka kw'ihindagurika ry'ibihe.

Ijambo ibidukikije muri rusangi na cane cane ihinduka ry'ibihe n'ibintu igitigiri kinini c'abarundi badategera gisaba y'uko kimenyeshwa kandi kikigishwa kugira haboneke iterambere rirama.

Ibikorwa vya kiremwa muntu na cane cane ikoreshwa rirenze urugero ry'amasoko ntanganguvu hamwe no gutitura amashamba biri muri bimwe mubikorwa biteye isoni vyaranze ikinjana ca mirongo 20.

Ntagihugu na kimwe kitazigera gishikirwa n'izo nkurikizi mbi zivuye kw'ihindagurika ry'ibihe vyongeye nkuko (icegeranyo) ca ONU kw'ihindagurika ry'ibihe kibimenyesha, ama Leta yose ategerezwa gufata ico kibazo nka nkama (ataminenerwe) ariko atari kurugero rumwe kubera ibihugu biteye imbere nivyoye birekura kurugero runini ivyoye vyuka bibi bifise ingaruka mbi kw'iterambere rirama.

Uw'umugambi rero uje werekeye umurundi wese kurugero ariko rwose kugira amenyeshwe ko ihindagurika ry'ibihe atari agasesheshwa rumuri, ko ritikiza inganda kw'isi yose, muri afirika, no mu Burundi cane cane kugira bamenye bese kugwanya ihindagurika ry'ibihe ari igikorwa ca minsi yose kandi kizokwamaho.

IV.2.2. Ukwo vyifashe (aho bigeze) muguhimiriza abantu kuvyerekeye ihinduka ry'ibihe

Muri rusangi, amatohoza yagizwe mu benegihugu, vyarerekanye ko abantu bazirikana ivyerekeye ihindagurika ry'ibihe n'ingaruka zifitiye kiremwa muntu, abenegihugu barabona ingene imvura itakirwa kurugero no mugihe bikwiye n'inkurikizi mbi bizana. Ngwico kibazo, Leta yategerezwa kugishira mumigambi yambere.

Ivyo biganirwo ariko vyarerekanye ko abantu ico kibazo batazi amasonga yaco yose. Muri rusangi abantu ntibategere imvo, ivyerekana izo ntambanyi nicokorwa kugira izo ngaruka zivuye kwihinduka ry'ibihe zikingirwe. Biribonekeza ko abantu benshi batazi ico ihindagurika ry'ibihe bisigura. Nk'akarorero abantu bamwe bamwe ko batazi nagato iryo hinduka ry'ibihe rikomokako n'igihe mu mwaka iryo hinduka ry'ibihe ryatera ingorane.

Abantu ntibategera ko guhonya amashamba, itituka ry'isi, kwubaka inyubakwa mukajagari rifitaniye isano n'ihinduka ry'ibihe.

Kuncuro nyinshi, abarongozi bo kurwego rw'imitumba barashimika kungorane bahura muguhimiriza abenegihugu nuko bigoye guhindura uburyo abantu bafata ico kibazo nka nkama. Birerekana rero ico ko ico kibazo ari abantu bake bakizirikana nikimenyamenya nuko no kumitumba canke mudutsimbiri atama komite yashinzwe kugira ico kibazo gitorerwe inyishu.

Vyongeye, abenegihugu baridogera ingene inyubakwa zubakwa muburyo budashemeye mubice bimwe bimwe vy'ibisagara. Nko mucarama nk'akarorero, abantu baradoma urutoke kukungene amabarabara adafise uburinganire bumwe kubera abantu bamwe bubaka bakarengera ku mbibe zashizweho n'abajejwe gutunganya ibisagara.

Abantu ntibizera itegekenywa ry'ibihe bishirwa ahabona n'ikigo kijejwe kugenzura ihindagurika ry'ikirere, bagashima kwizera ivyo babonesha ijisho mu kirere. Umuntu yihweje ibiva mu biganirwo n'abenegihungu, biribonekeza ko hari umwijima hagati y'ihindagurika ry'ibihe hamwe n'ingorane zijanye n'ibidukikije muri rusangi.

Igiharuzo ca 36 kirerekana inguvu n'ubushobozi buke, icokorwa n'ingorane zihari muri ico gisata c'ihinduka ry'ibihe.

IV.2.3. Inguvu n'ubushobozi buke, amahirwe n'inzitizi

Igiharuzo ca 36: Inguvu n'ubushobozi buke, amahirwe n'inzitizi

Ibibigize	Inguvu	Ubushobozi buke	Amahirwe	Inzitizi
Ishirwaho ry'amategeko n'inzego zemewe kurwego rw'igihugu	-ishingwaho ry'umugambi wa Leta kubijanye n'ihindagurika ry'ibihe -kurazwa ishingira n'ihindagurika ry'ibihe (OBPE, ubuyobozi bw'ibidukikije	-Gufashanya guke hagati y'ubushikiranganji bw'umutekano, bw'amasoko ntanganguvu, bw'amagara y'abantu, bw'ikigega ca Leta, bw'intwari yo hagati mu gihugu	-Ihindagurika ry'ibihe biri mubigize intumbero nyamukuru mumugambi w'iterambere wa Leta 2018-2027 -Hari imirwi(ibisata) bijejwe gukurikirana inkurikizi zihindagurika ry'ibihe	-Uburyo buke mwishirwa mu ngiro w'imigambi ijanye n'ihindagurika ry'ibihe -Igitigiri kinini c'abahitanwa n'ingaruka

n'ihindagurika ry'ibihe) -Abaserukira ubushikiranganji bw'ibidukikije muntara, muma komine no kumitumba -Igisata co gutororokanya no gutanga amakuru kugira abantu bageramiwe bashobore guhimirizwa -Ishirwaho ry'umugambi wa Leta wo kudakumira abakenyezi -Ishirwaho (ry'imigambi) cumi n'ibiri yo gutunganya amatongo n'ibisagara -Ishirwaho ry'amategeko, inyandiko zitunganya ibidukikije -Gushiraho abakurikirana ihindagurika ry'ibihe batandukanye -Ishirwaho ry'ibigo bijejwe ihindagurika ry'ibihe (OBPE, IGEBU). -Igihugu c'Uburundi carateye igikumu mumasezerano mpuz'amakungu ajanye n'ihinduka ry'ibirere (Pritocole de kioto,...) -Kumenya uko amakungu afata nka nkama uko afata ico kibazo	n'ubwamahinguriro. -gufashanya guke hagati y'ibisata OBPE, IGEBU, ISABU -Uburyo buke butororokanywa hagati mugihugu -Uruhara ruke abikorera utwabo baterera - igisata c'ihindagurika ry'ibihe giha uruha ruto abenegihugu -gushobora gushira ahabona no kwegeranya amafaranga muri Leta no kubikorera utwabo kugira ihindagurika ry'igihe gitorerwe inyishu -Uburyo buke bw'igihugu kugira habe ubushakashatsi kubijanye n'ihinduka ry'ibihe -Ukumenya guke kw'abenegihugu imigambi, amategeko n'intumbero yo kuziganya ibidukikije -Ukutubahiriza ibidukikije no gushira mungiro amategeko yashizweho	-Ibitigiri binini vyabaserukira ibisata bitandukanye -Ishirwaho ry'ibigega 50 mpuz'amakungu, amaso ko 45 ya carubone n'imitahe 6000 yabikorera utwabo muntumbero yo kurwanya ingaruka ry'ihindagurika ry'ibihe -Umugambi w'inyishu no gushira hamwe ibikenewe -Imfashanyo y'ikigega c'isi c'ibidukikije biciye muri PNUD, PNUE n'ayandi mashirahamwe afise uruhara muguhangana n'ihindagurika ry'ibihe	ry'ihindagurika ry'ibihe -Uburyo bukeya butangwa kugira abantu bahangane n'ihindagurika ry'ibihe - Uburyo buke kugira hakoreshwe ubuhinga bwa none butazana (budatera) ivyuka bishusha ikirere
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Kwongerereza ubushobozi bw'abafise uruhara runini mw'igabanywa rw'ingaruka ry'ihindagurika ry'ibihe	-Gushinga umugwi ujejwe gushira mu ngiro ingingo zafashwe kurwego rw'inama ya ONU kubijanye n'ihindagurika ry'ibihe -Na IGEBU :Igisata c'ubuhinga bw'iga ivyo kwononekara,gutegan ya ikirere n'ingaruka zizoshobora guturuka kwihindagurika ry'ibihe -Kwisunga ingaruka zavuye kw'ihinduka ry'ibihe mubihe bihitiye kugira hafatwe ingingo zibereye.	-Uburyo n'ubuhinga buke bw'igisata kijejwe kugenzura ikirere -Uburyo buke bwo kumenya gupima urugero no gushinga ijisho ibiza bishobora kwiya dukiza -Integanyabihe ya IGEBU iragoye gutegeza, itanga amakuru adatomoye -Uburyo buke kurwego rw'igihugu n'ubuva hanze -Uburyo buke bwo gukinga no guhangana muburyo bw'ihuta ibiza bitewe n'ihindagurika ry'ibihe -Gufata minenerwe ico kibazo ku bapfasoni, urwaruka, abageze muzabukuru, abagendana ubumuga,... -Kudafata nka nkama ingaruka z'ihinduka z'ibihe kuva kurwego rwo hasi gushika muri kaminuza -Kutagira imihora yo kumenyesha,guhimiriza no kwigisha abenegihugu ibijanye n'ihindagurika ry'ibihe -Uburyo buke bwo kunonosora kubigisha	-Imigambi ngenderwako kugira duhangane n'ihinduka ry'ibirere(MINEAGRI ,GIZ,FAO,OXFAM,PN UD,etc - Intererano ya OMM, ya PNUD kuri IGEBU kugira barwize ibikoresho (inyubakwa,Ubuhinga ngurukana bumenyi)	-Kutizera integanyabihe ya IGEBU -Amakuru adakwiye kubijanye n'ihindagurika ry'ibihe -Inyubakwa zidakwiye zo guteganya ikirere
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		n'abashakashatsi baza kaminuza		
Guhimiriza abamenyeshamakuru n'abantu kugira hashingwe uburyo bwo gutabaza vyihuse	-Gushinga umurwi w'abamenyeshamakuru u bakurikirana ico kibazo -Gushinga imihora yo kumenyesha no guhimiriza abenegihugu -Kwitunganya kurwego rushemeye (ibigo vy'imenyeshamakuru -Kumenya ko ihinduka ry'ibihe ari ukuri (imyuzurira y'amazi, ubugararwa,...)	-Ubushakashatsi n'ubuhinga buracari inyuma mu Burundi -Kumenya no guhimirizwa guke ku benegihugu, -Gutegekanya guke kw'imigabi yo guhanga n'ihinduka ry'ibihe -Kutagira uburyo bwo gukangura abenegihugu -Kutagira ibicapo vyerekana ibice bigeramiwe -Kubura ugufashanya kw'ibisata bifise uruhara muri ico gikorwa co kurwanya ingarka z'ihinduka z'ibihe -Kutamenyesha bikwiye ibijanye n'ihinduka ry'ibihe -Uruhara ruke imihora yo kumenyesha amakuru abishiramwo	-Abamenyeshamakuru barushirize kuzirikana icokibazo ry'ihinduka ry'ibihe ; -Kuzirikana buhoro buhoro icokibazo dufatiye kubiza vyo muri 2014, 2015,2016,2017(biturutse El nino/Nina n'ibindi)	-Ibiza vyinshi bikomoka kunganuka z'ihindagurika z'ibihe mu Burundi ; -Abantu babandanya batitura isi, batema ibiti bidaciye mumategeko, amashamba c'imeza yaragabanutse, kwubaka mubice bigeramiwe, gukamya imyonga ngo haboneke aho kurima.

IV .2.4. Aberwa n'iryo himirizwa

Dufatiye ku vyigwa vyakozwe hamwe n'amatohoza kubarongoye abandi mu bushikiranganji butandukanye, mu ma komine no ku nzego zirongoye imitumba n'abenegihugu batari bake bategerezwa guhimirizwa kw'ihindagurika ry'ibihe be n'ingaruka ryayo kugirango ico kibazo gitorerwe inyishu.

Ubwambere ni ihimirizwa ry'inze kuko gushiraho amategeko n'ishirwa mu ngiro ryayo bisaba ko abagize leta n'inama nshingamateka bategere ibijanye n'ihindagurika ry'ibihe.

Ikindi cikorwa n'uguhimiriza cane cane abafata ingingo mu bushikiranganji bufise uruhara runini mw'ihindagurika ry'ibihe, abashingamateka abakenguza mateka hatibagiwe indongozi ku nzego zose z'igihugu, abikorera utwabo, amahinguriro amashirahamwe ataho yegamiye muvya

politike mu madini, indongozi z'abandi mu bushikiranganji cane cane bw'ibidukikije, amasoko ntanganguvu, igisata c'amazi, uruja n'uruza rw'abantu n'ibintu, uburimy n'ubworozi, amagara y'abantu, indero no gutumatumanako amakuru tutibagiye uguhimiriza abenegihugu babangamiwe kuruta abandi nk'abakenyezi narirya bafise uruhara runini mu rugo no mu kubungabunga amatungo kama.

Abamenyesha makuru nabo nyene bategerezwa kugira uruhara ruhambaye mu kumenya ibijanye n'ihindagurika ry'ibihe kugira bashobore gutanga amakuru atomoye ku benegihugu.

Ikindi gikenewe ni ugushinga inzego ku rwego rw'ama komine kugira agire uruhara rwo guhimiriza abenegihugu mu buryo bwihuta kandi bwa hafi. Izo nzego zo ku mitumba zoba zigizwe n'abakuru b'imitumba, abarongoye ama komite y'iterambere ku mitumba, abajejwe uburimy, abajejwe amagara y'ibitungwa, abarongoye amashirahamwe yo kuziganya, abagize amahuriro y'abakenyezi, y'urwaruka, abarongoye abandi mu madini, abarongoye uducimbiri tutibagiye amashirahamwe ari mw'ico gisata (ibidukikije, abanyamuryango utabara imbabare ba Croix-Rouge n'abanyeshure). Muri make kugira ngo iryo himirizwa ry'abenegihugu rigire ico rishitseko, hasabwa gushingwa n'ugukurikiza amategeko ajanye n'ingaruka ry'ihindagurika ry'ibihe ku rwego rwo ku mitumba.

IV.2.5. Uburyo bwo guhanahana amakuru no guhimiriza abenegihugu

Uburyo bwo guhanahana amakuru no guhimiriza abenegihugu buratandukanye bivanye no gutegeza canke n'urugero rw'ubumenyi rw'abenegihugu. Guhimiriza abagize leta bisaba amanama menshi n'abafise uruhara runini mu burongozi bw'igihugu, ubushikiranganji bufise ibisata bibangamiwe n'ihindagurika ry'ibihe, abashingamateka, abakenguzamateka kugira amategeko yashinzwe ntatwe minenerwe. Ikindi naco n'uko izo ndongozi ku rwego rw'igihugu zifise uruhara runini mu kurondera uburyo bw'amafaranga canke ubuhinga hagati mu gihugu canke mu makungu kugira iyo migambi yo kugabanya ingaruka z'ihindagurika ry'ibihe irangurwe.

Indongozi z'ubushikiranganji butandukanye n'abarongoye abandi ku mitumba bategerezwa kwama bahimirizwa biciye mu Manama, amahuriro yo guhanahana ivyiyumviro ku vyerekeye ihindagurika ry'ibihe no kurondera icokorwa mu kumenyesha ikibazo mu nzego zose za leta zijejwe iterambere mu ntumbero yo gukingira abenegihugu ivyo biza, amakaminuza, amashirahamwe ataho yegamiye mu vya politike mu guteza imbere ubuhinga n'ubushakashatsi ku rwego rwo hejuru kugira hegereranywe ivyabivuyemwo, ivyiyumviro n'isesangura ry'ingingo zuzuzanya ubufatanye bw'ibisata.

Kuvuga umugambi wose wotegerejwe kurangurwa mu guteza imbere ibikorwa vy'abakenyezi birafise akamaro, urwaruka n'iyindi mirwi ikarirwa n'ihindagurika ry'ibihe harimwo no munzego zifata ingingo no kwemera ibikenewe bitandukanye, ubushobozi n'intererano z'urwego urwo arirwo rwose rw'abenegihugu (abagabo, abakenyezi, urwaruka, abahumuye).

Kugira hashikirwe abenegihugu benshi, insamirizi iguma ariyo ifise akamaro kanini mu Burundi. Ni nyishu kandi zirumvirizwa. Insamirizi muri kahise yaragize akamaro kanini mu guhimiriza mbere no mu gukarahiriza ubwenge abenegihugu. Harageze rero kuzikoresha na cane cane kuzumvikanira ku butaka bunini bw'igihugu mbere n'izumvikana mu ntara mu guhitamwo ibihe zumvirizwa gusumba ibindi (ni ukuvuga imbere canke inyuma y'amakuru).

Izindi nzira nk'imboneshakure n'ibinyamakuru vyanditse birafise ata nkeka akamaro kanini. Ku rugero rugereranye ibinyamakuru bica ku buhinga ngurukana bumenyi, urubuga web, blogs, ubutumwa bugufi hamwe n'imbuga ngurukana bumenyi birafise akamaro mu guhimiriza urwaruka rwo mu bisagara.

Mu guhimiriza abatazi gusoma no kwandika, turetse insamirizi hoshobora gukoreshwa amajwi canke ibibariko nk'ibimanikwa, ivyegeranyo, amareresi, udukino tutibagiye amahimiriza mu makoraniro ya bose y'imitumba n'ibindi.

Mu ntumbero yo gushikira igisata c'abikorera utwabo, ihimiriza ryoshobora guca ku nsamirizi y'igisata c'ubudandaji n'amahinguriro, CCIB FM canke ku rubuga web rwa CCIB.

Amakuru ashobora guca kandi ku nzego zo hasi zitunganijwe neza. Muri iyo ntumbero, amashure arafise akamaro kanini mu mugambi wo guhimiriza no gutanga ubumenyi kuri bose kandi mugihe kirekire.

Amashirahamwe yo gukingira ibidukikije arashobora kw'ifashishwa. Kandi n'amadini ashobora kwiturwa mu guhimiriza abantu benshi cane cane abagore barafise uruhara ntangere mu gihugu hagati. Abagore babirimize nibo babangamiwe ubwa mbere n'ihindagurika ry'ibihe kandi bipfuzwa ingingo zitomoye zo guhangana navyo.

N'aho biri uko, kubera uruhara rw'abakenyezi mu kibano, amashirahamwe y'abakenyezi n'ama koperative y'uburimi birongereza cane ubushobozi ku buryo vyobaye vyiza hashizwemwo nk'ibigo vyo guteza imbere ingo n'imiryango (CDFC).

N'ubundi abarongozi bo ku nzego zo hasi nkabarongoye ama komine, abatowe ku ducimbiri, abatowe mu nama mpanuzwa jambo ya komine, abakuru b'imitumba, abaremesha kiyago, amahuriro y'abakenyezi n'urwaruka arashobora kwifashishwa kugira hashikirwe abenegihugu bo mu nzego zo hasi.

Mu bijanye no kugabanya ibiza bituruka kw'iteganyagihe rirengeje, Umuryango wa Croix Rouge wifashishije abitanzi urashobora kwiturwa mu gukinga no kugabanya ibiza bituruka kw'ihindagurika ry'ibihe. Bisubiye, uburongozi bwegereye abenegihugu, mu biro vy'intara bijejwe ibidukikije, uburimi n'ubworozi (BPEAE) n'imirwi ihurikiyemwo bose mu ntara no mu ma komine, ishobora kugira akamaro kanini mu guhimiriza, kugabanya, guhangana n'ingorane z'ihindagurika ry'ibihe, gutanga amakuru kuva hasi no gushika hejuru hamwe no gusesangura ingaruka n'ibindi.

Muri rusangi, kugira ihimiriza rikwire hose, ibikoresho vyo guhanahana amakuru vyategerezwa kuba bitandukanye nk'impapuro, ibitambara, ibimanikwa ku bibanza bitandukanye hamwe n'ahahirirwa abantu benshi. Kugira ngo mu kibano cose harimwo ababanyi baronke izo nyigisho, zitegerezwa gutangwa mu rurimi rw'ikirundi n'igifaransa. Hotegerejwe kandi gushimikira ku guhanahana ivyiyumviro n'ugukoresha ubuhinga bugezweho mu guhanahana amakuru.

IV.2.6. Umugambi wo guhimiriza abenegihugu ku kibazo c'ihindagurika ry'ibihe

IV.2.6.1. Intumbero z'umugambi

a) Intumbero nyamukuru

Intumbero nya mukuru n'iyoye gufasha mu kugabanya ikwiragira ry'ivyotsi bihumanya ikirere n'uguhangana kw'abenegihugu b'abarundi n'ingaruka ry'ihindagurika ry'ibihe hamwe n'ukugabanya ivyononekara n'uruhombo bituruka ku biza vy'ihinduka ry'ikirere no guhanahana inkuru, ubumenyi no kuvugana ku buhinga bwa none kandi vuba.

b) Ivyokorwa

- 1) Guhimiriza no kwigisha ababijejwe ku kamaro no kugira uruhara mu mugambi wo kugabanya ikwiragira ry'ivyuka vyonona ikirere mu gukoresha ubuhinga buciriritse no guhangana n'ihindagurika ry'ibihe bishobora kubangamira iterambere rirama,
- 2) Kunagura urwego rwa politike, rw'amategeko n'inzego zikorana kandi zitomoye mu ntumbero yo kwongereza ubushobozi bw'intwari mu guhangana n'ihindagurika ry'ikirere mu Burundi mu gushiramwo ibikorwa vya leta nyene n'iyongereza ry'inguvu z'abenegihugu muri rusangi;

c) Ivyitezwe gushikwako

- 1) Gushinga n'ugushira mungiro urwego rwo guhanahana ivyiyumviro, gutunganya, gushira mu ngiro bishemeye no gukurikirana ibituma intambamyi zijanye n'ihindagurika ry'ibihe.
- 2) Gushinga n'ugukoresha uburyo bwo guhanahana amakuru n'ugushikiriza inkuru zijanye n'ihindagurika ry'ibihe gushika no ku benegihugu bato bato;
- 3) Kwungura ubumenyi bwo gukinga n'ukurondera iterambere ririnda uguhindagurika kw'ikirere kandi ritarimwo n'ivyuka,
- 4) Kwongereza ubushobozi bwo kumenyera ihangana n'ihindagurika ry'ibihe no kwirinda intambamyi zituruka ku biza zishobora guhangabanya iterambere rirama, uburyo bwo kubaho kw'imiryango hatibagiwe abakenyezi mu kwitaho guhangana n'impanuka zikomoka kw'ihindagurika ry'ibihe.

d) Ibikorwa bikuru bikuru

Umuze wa 1 Guhimiriza no gutanga ubumenyi kuvyerekeye igabanya ry'imyuka yonona ikirere no guhangana n'ihindagurika ry'ibihe;

1. Gutunganya inyigisho nkarisha bwenge, ihimiriza no gutanga amakuru ku babijejwe mu bushikiranganji no mu ntware ku nzego zose (igihugu, intara, komine n'umutumba);
2. Gutunganya inganda zo gukarahiriza ubwenge abigisha, guhanahana ivyiyumviro no gutegeza urutonde ku bufatane n'abakozi bo mu bushikiranganji kugira hatangwe ubumenyi nkenerwa ku baserukira abandi mu ntara, mu ma komine, no ku mitumba;
3. Gutunganya amanama y'ikivunga yo guhimiriza (amanamay'imitumba, inganda, imirima-shure, inzu ku nzu);

4. Gutunganya amanama yo gukarihiriza ubwenge abamenyesha makuru kugira bashiremwo intumbero yo gutanga ubutumwa nyabwo mu bimenyeshamakuru bitandukanye (Insamirizi, ivyanditswe ku mpapuro, ubuhinga ngurukana bumenyi, imbonesha kure n'ibindi.
5. Guhimiriza abajejwe ama radiyo n'ibinyamakuru hamwe n'imboneshakure ku kamaro ko gutegura ku buntu amakuru y'integanyagihe n'ubutumwa kw'ihindagurika ry'ibihe;
6. Gukwiragiza no kumenyekanisha ibiri mu nyandiko za politike be n'ingendo mu guhangana n'ihindagurika ry'ibihe hamwe n'integanyagihe nkuru nkuru 12 mu gutegura no kwagura igisagara;
7. Guhimiriza amakaminuza gushira imigambi y'umwihariko mu bisata vy'amashure y'intango n'ayisumbuye mu ntumbero yo kwigisha abazobitunganya muri kazoza;
8. Kurwiza ibikoresho vyo guhanahana amakuru no guhimiriza abantu benshi. Ivyokorwa vyobamwo inyandiko, ivyegeranyo vy'ubuhinga, ibiganiro vy'amaradiyo n'imboneshakure, ivyegeranyo vyumvirizwa, amareresi, ivyese, tumarane irungu, imbuga ngurukana bumenyi.
9. Kuronka uburyo bunyaruka bwo gutabaza mubisata bikenewe (ibidukikije, amagara y'abantu, ukuronka ibifungurwa bikwiriye, iyunguruza ry'ibikoresho,...) mu gufashanya n'abenegihugu bakozweko n'ihindagurika ry'ibihe, mu kubahiriza uburyo bwo guhanahana amakuru buhasanzwe.

Umuce wa 2 Iterambere ry'ingingo za politike, amategeko n'inzego

10. Gutegekanya inama z'uguhangana amakuru be n'uguhimiriza abafata ingingo za politike, abashingamateka, abakenguzamateka n'abashikiranganji bajejwe ibisata bigeramiwe n'ihindagurika ry'ibihe ari ikibazo ca bose kandi mu bisata bitandukanye;
11. Gukora isuzuma ry'inzego kugira hitabweho igisata co guhuza ibindi bisata canke c'imigenderanire ngira kamaro;
12. Gushiraho umurwi mpuza bushikiranganji kw'ihindagurika ry'ibihe kugira hahuzwe uburyo mu kubungabunga ikigega c'ibidukikije hamwe no guhangana n'ihindagurika ry'ibihe (mu gutomora ihangiro, ibikorwa bikuru bikuru n'abagize urwego rwose, ibitegerezwa gukorwa n'umwumwe wese n'ubwoko bw'ibikorwa vyo gukora canke gushikwako);
13. Kudomako urutoke ku bushikiranganji ivyo bujewe mu gisata c'igabanura ry'imyuka ikwiragizwa n'abantu hamwe n'uguhangana n'ihindagurika ry'ibihe no gutegura iteganywa muvuyo bujewe bubihuze vyose, ugukorera hamwe vy'akamaro;
14. Gutunganya integuro y'iterambere nyaryo mu guhangana n'ihindagurika ry'ibihe kandi ridaanga imyuka ihumanya ikirere;
15. Guhuza amategeko n'inzego mu gushiraho inzego nshasha.

Umuce wa 3 Gushigikira ikomezwa ry'ubushobozi bw'ababijejwe

16. Kugira ingendo yo gushira hamwe uburyo kugira hashirwe mungiro imigambi
17. Gushiraho inzego zo ku mitumba zijejwe guhimiriza no guhanahana amakuru mu guhangana n'ingaruka hamwe n'ibiza vyatewe n'ihindagurika ry'ibihe;
18. Gukomeza ubushobozi bw'ubushikiranganji bw'indero mu gushiramwo ibiraba imero y'ikirere mu rutonde rw'inyigisho (intango, ayisumbuye, kaminuza);
19. Gukomeza ubushobozi mu vy'ubuhinga bwa OBPE kugira ishobore guhimiriza abantu hamwe n'ababirimwo bose mu bisata bibagenga kuri politike n'ingendo kw'ihindagurika ry'ibihe;

20. Kwongereza ubushobozi mu vyo ubuhinga no gukora muri IGEBU kugira haboneke amakuru atomoye kandi akenewe n'ababikoresha bose;
21. Kwongereza ubushobozi mu vy'ubuhinga n'ibikorwa vy'ama BPEAE, ama PFP n'ama BFC kugirango hagabanuke amabangamirwa n'ibiza;
22. Gutegura uburyo bwo gutabaza hakiri kare mu gisata cose (Ibidukikije, amagara y'abantu, uburimi n'ubworozi) bwisunze ubushobozi bw'abenegihugu;
23. Kudoma urutoke kubashobora gufasha baba abo mu gihugu canke mpuza makungu kugira hashigikirwe ishirwa mungiro ry'imigambi y'igihugu n'ibisata vyo kugabanya n'uguhangana n'ihindagurika ry'ibihe.
24. Ugushira ibinyamakuru mw'ihimiriza kw'ihindagurika ry'ibihe.

**IKIGABANE CA V : INGORANE N'IBITASHITSWEKO VYIBONEKEJE,
AMAFARANGA, UBUHINGA N'UBUSHOBOZI BUKENEWE KUGIRA
BIHAGURUKIRWE.**

Abahinga bo mubisata baratoye ibitashistweko n'intambamyi mu bice bitandukanye. Kandi barongeye baratanga inyishu biyumvira canke ingingo kugira bahangane navyo hamwe n'abagize ico baterera n'ahova imfashanyo z'amahera.

Igiharuzo ca 37: Iyerekanwa ry'ibitashistweko n'intambamyi be n'inyishu ziyumviriwe kuri buri gisata

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
1. Igisata c'uburimy			
Uburyo n'ibikoreshe bitagira ishingiro (nta musaruro w'ivyigwa vyegamiye ico gisata ku bijanye n'irungikwa ry'ivyuka n'urupimo gwavyo)	Kugira ivyigwa vyerekeye ibarurwa	Ibigo vy'ubushakashatsi	Intwari/abanywanyi b'ubuhinga n'imfashanyo
Ubukene bw'abahinga bo mu gisata babinonosoye	Kwongereza ubumenyi bw'igitigiri kinini c'abahiinga bo murico gisata	Ubushikiranganji bw'Uburimyi n'ubworozi	Intwari/abanywanyi b'ubuhinga n'imfashanyo
Ugutahura guke kw'uburyo bwo kwegeranya imfashanyo ziva hanze	Guhana amakuru hagati y'abaserukira FEM, CCNUCC n'ibisata bitandukanye	Ubushikiranganji bw'Uburimyi n'ubworozi	-
Ukutamenya neza ku bantu bo mu gihugu hagati ivyavuye mu vyigwa vyitangiye	Uguhimiriza ku vyavuye mu vyigwa vyitangiye bijanye n'ihindagurika ry'ibihe	Ubushikiranganji bw'Uburimyi n'ubworozi	intwari

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
Ukudatanga ivyigwa bijanye n'ihindagurika ry'ibihe mu mashure makuru na kaminuza	Ugushiraho ibigabane bijanye n'ihindagurika ry'ibihe mu nyigisho	Indero	Intwaro n'abanywanyi w'ubuhinga n'imfashanyo
Ikena ry'inkuru zijanye n'ihindagurika ry'ibihe mu makuru asamiranira ku maradiyo n'imboneshakure zaba iza leta canke izabigenga	Ugushira amaradiyo mw'itangwa ry'amakuru ashingiye kw'ihindagurika ry'ibihe	Ubushikiranganji bw'uburimiye n'ubworozi be n'ubwo gutumatumanako	Intwaro n'abanywanyi b'ubuhinga n'imfashanyo
Iboneka rigabanije ry'abahinga baronkejwe inyigisho mu bijanye n'ukwihweza igeramigwa ry'ihindagurika ry'ibihe	Gutanga ubumenyi ku bahinga b'igihugu ku buryo bushasha bw'iduga ry'igeramirwa be n'ihangana ry'ihindagurika ry'ibihe	Ibiro vy'umushikiranganji w'uburimiye n'ubworozi	Abanywanyi b'ubuhinga n'imfashanyo
Ubushobozi budashemeye bw'ibikorwa vy'ubuhinga mu bijanye n'uguhanahana ubumenyi	Gukomeza ubumenyi mw'ironkwa ry'ubumenyi bushasha kw'iduga ry'ingaruka z'ihindagurika ry'ibihe	Ubushikiranganji bw'uburimiye	Intwaro n'abanywanyi b'ubuhinga n'imfashanyo
2. Ku vyerekeye igisata c'ibihe n'ibiharuro vy'imvura			
a. Igisata c'umwihwezo w'ibipimo vy'ibihe			
Ibikoresho bidakwiye	Ukuronswa ibikoresho bigezweho kugira habeho umwihwezo w'ikibiriraho	Ubushikiranganji bw'uburimiye /Ikigo c'igihugu kijejwe ibidukikije	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
Ikurikirana n'ikurikiranwa bidakwiye ry'ibigo	Kwongereza ubushobozi haba	Ubushikiranganji bw'uburimiye / Ikigo kijejwe	Ubushikiranganji bw'ikigega ca Leta

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
(stations) bijejwe ibirere	mu buhinga, ibikoresho vyo kwiunguruza n'abakozi	ibihe mu Burundi	n'abanywanyi b'ubuhinga n'imfashanyo
	Gutunganya amanama adahara y'ikurikiranwa ry'urunani gwo kwihweza ibipimo vy'imvura	Ubushikiranganji bw'uburimi / Ikigo kijejwe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
Ubukene bw'ipimiro vyo gukurikirana ibihe	Gushiraho n'ugutanga ibikoresho vy'amapimiro (nk'ivyerekana ibitabo, n'ukubisubiriza, n'ibindi)	Ubushikiranganji bw'uburimi / Ikigo kijejwe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
Ubukene bw'amafaranga yagenewe ugukurikirana ibikorwa n'itunganywa ry'ibikoresho	Gutora n'ugushiraho amafaranga yamaho yo kwitaho ibikoresho	Ubushikiranganji bw'uburimi / Ikigo kijejwe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
Ubukene bw'abakozi bavyigiye kandi babishoboye	Gutanga ubumenyi n'ukugwiza abakozi bashirwa mu bikorwa bajejwe ikurikirana n'itunganywa	Ubushikiranganji bw'uburimi / Ikigo kijejwe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi w'ubuhinga n'imfashanyo
Ukudakwira kw'ibipimo vy'ikirere ku gwego gw'igihugu	Gushiraho ibigo vyo gupima ibirere mu bice birangwamwo ibihe vyitandukanya n'ivyahandi kugira habeho ikurikiranwa ry'ivyigaragaza bibi (Urubura)	Ubushikiranganji bw'uburimi / Ikigo kijejwe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
b. Guhanahana ibiharuro bija mu kigo gikuru kivyegeranya			

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
Ubuvinga butari kumwanya bwo gutanga no kwegeranya ibiharuro vyegeranijwe	Gushiraho ubuhinga bugezweho bwo gutanga ibiharuro ku muhora ngurukanabumenyi/ biciye ku mirongo ya terefone	Ubushikiranganji bw'uburimi ? Ikigo kijewe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
Ukubura kw'isuzuma ry'ibiharuro bivuye kukwiguna ibiharuro	Gushira mu burere itangwa ry'ibiharuro vyegeranijwe	Ubushikiranganji bw'uburimi / Ikigo kijewe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
Gucungera ukubura kw'ibiharuro vyuzuye (bitavanguye)	Kwandika ku buhinga budasanze ben'ukubika ibiharuro vyuzuye	Ubushikiranganji bw'uburimi / Ikigo kijewe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi w'ubuhinga n'imfashanyo
	Ukuronswa ibikoreshe vyo kwandika n'ukubika mu mutekano ibitigiri vyuzuye	Ubushikiranganji bw'uburimi / Ikigo kijewe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
Ubukene bw'ubushobozi bw'ubuhinga n'uburyo bw'amahera	Gutora n'ugutanga uburyo bw'amafaranga buboneka kugira hongerezwe ubushobozi bw'abantu n'ubuhinga	Ubushikiranganji bw'uburimi / Ikigo kijewe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
Ikena ry'ibikoreshe nkenerwa kugira habeho itunganywa ry'ibiharuro	Gutanga ibikoreshe nkenerwa kugira haboneke itunganywa ry'iza ry'iharuro	Ubushikiranganji bw'uburimi / Ikigo kijewe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
Ugushikira kugoye amakuru ajanye n'ibirere	Gushiraho uburyo bwo gutanga amakuru ku nyungu z'ababikoreshe batandukanye	Ubushikiranganji bw'uburimi / Ikigo kijewe ibihe mu Burundi	Ubushikiranganji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
Ubukene bw'ubushobozi bw'igihugu mu gufatirako akaroreo k'ibihe	Guha ubumenyi abakozi b'ubuhinga bw'itunganywa ry'akarorero k'ibihe	Ubushikiranganji bw'uburimi / Ikigo kijejwe ibihe mu Burundi	Ubushikiranji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
	Gushigikira ugukorana kwaba ukw'akarere k'isi yose, mu gisata co gutora akarorero k'ibihe	Ubushikiranganji bw'uburimi / Ikigo kijejwe ibihe mu Burundi	Ubushikiranji bw'ikigega ca Leta n'abanywanyi b'ubuhinga n'imfashanyo
Kubura uburyo bwo kurabisha ibihe na teledetegisiyo	Gushiraho ikigo kirabisha ibihe na teledetegisiyo	MINIEAGRIE/IGEBU	Ubushikiranganji bw'ikigega ca lete n'abanywanyi b'ubuhinga n'imfashanyo
3. Igisata c'amasoko ntanganguvu			
a. Intambamyi Z'amasoko y'ubuhinga			
Ukureka gutanga amakuru avuye ku bigo bimwe bimwe	Gushiraho aho amakuru yo mu gisata yoboneka	igisata kijewekwegeranyaibiharuro co mubushikiranganji butandukanye	Intwaro n'abanywanyi b'ubuhinga n'imfashanyo
Ibura ry'amakuru yizewe kubwoko bwose bw'amasoko ntanganguvu	Guhimirira n'ugushiraho impapuro zohabwa abafise ayo makuru	Ubushikiranganji bw'amazi, bw'amasoko ntanganguvu n'ubwubutare hamwe n'ikigo c'igihugu kijejwe kwegeranya ibiharuro	Ubutegetsi bw'uburundi n'abanywanyi b'ubuhinga n'imfashanyo
a. Intambamyi zishingiye kuburyo bw'amafaranga			
Ibura ry'amafaranga yagenewe ibibazo vy'ihindagurika ry'ibihe kuri buri gisata	Gushiraho umurongo w'amahera yo mugisata mu bijanye n'ihindagurika ry'ibihe	Ubushikiranganji bw'amazi, bw'amasoko ntanganguvu n'ubwubutare+ ubushikiranganji bw'ikigega ca Leta	Ubutegetsi bw'uburundi n'abanywanyi b'ubuhinga n'imfashanyo

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
b. Inyigisho n'uguhimiriza abenegihugu			
Ibura ry'itumatumanako amakuru rikwiye kw'ihindagurika ry'ibihe	-Gushiraho utugwi two gutanga amakuru mu bisata vyose mubijanye n'ihindagurika ry'ibihe -Gukwiragiragiza ivyanditse bisanzweho vyerekeye ihindagurika ry'ibihe kugira habeho ishigwamungiro ridasanzwe -Guhimiriza n'uguha ubumenyi abafise amakuru bose	Ubushikiranganji bw'ibidukikije	-
4. Igisata c'ugutwara abantu n'ibintu be n'inyubakwa			
Ukwibonekeza gw'igitigiri kinini c'imiduga y'abigenga irungika ivyotsi na cane cane mugihe c'imiduga myinshi	-Gutezimbere ugutwara abantu biciye ku miduga minini kandi yagutse -Gukura ikori ku miduga yo gutwara abantu ivuye hanze	-Ubushikiranganji bw'ikigega ca Leta n'ugutwara abantu n'iintu -Abanyamitahe bigenga	-Ikigega c'abanyamitahe bigenga -Abanywanyi w'ubuhinga n'imfashanyo kugira bashigikire OTRACO
Igwirirana ry'itosekazwa ry'ikirere n'irungikwa ry'ivyuka vy'ubumara birungikwa n'imiduga y'imoteri	-Gutegura ukwagura amabarabara -Gutanga uburyo no gushira mu ngiro imigambi y'amamodoka adakoresha imoteri -	Ubushikiranganji bw'ugutwara abantu, ibikorwa vya Leta, Ikigega n'ibidukikije	-Ikigega ca Leta -Ubufasha bw'ubuhinga n'imfashanyo y'amahera

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
Ititaweho mw'ihindagurika ry'ibihe mu nteguro n'inyubako y'inyubakwa	Kwiyumvira ku ngaruka zishingiye kw'ihindagurika ry'ibihe mu gupima uburinganire bw'inyubakwa (gutora ibiharuro vyo kwisungwa) -Gusubiramwo ibipimo vy'ubuhinga bwo gupima -Gushiraho umugambi w'igihugu wo gukingira n'ugushigikira inyubakwa kugira zirinde ihindagurika ry'ibihe	ubushikiranganji bujejwe ugutwara abantu, ibikorwa vya Leta, Ikigega n'ibidukikije.	-Ikigega ca Leta -Ubufasha bw'ubuhinga n'imfashanyo y'amahera
5. Igisata c'amasoko y'amazi			
Ubushobozi bw'ubuhinga, abantu n'amafaranga bidakwiye mw'iyegeranywa n'itunganywa ry'ibiharuro	Guha inguvu ubushobozi bwo gutumatumanako amakuru n'uburyo bwo kwiyungurura n'ibikoresho bikenewe mw'iyegeranywa n'itunganywa ry'ibiharuro	Ubushikiranagnji bw'uburimy/ikigo c'igihugu kijejwe imiyaga n'ikirere, ubuyobozi bukuru bw'amasoko y'amasoko y'amazi n'isuku	Ubutegetsu +ubufasha bw'ubuhinga n'imfashanyo y'amahera
Uburorero bw'ibimeyetso vy'ibihe vyo mu karere no kwisi yose bidahuye kubw'igihugu bivanye	Gutanga inguvu mu kuronswa n'ugukoreshwa uburorero nyabwo	Ubushikiranagnji bw'uburimy/ikigo c'igihugu kijejwe imiyaga n'ikirere, ubuyobozi bukuru	Ubutegetsu +ubufasha bw'ubuhinga n'imfashanyo

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
n'ubuto bw'uburinganire bwaco	ku gihugu	bw'amasoko y'amazi n'isuku	y'amahera
Uburyo bw'amafaranga budakwiye kugira habeho numwihwezo n'ikwiragiza ry'amakuru mu bijanye n'ibidukikije n'ihindagurika ry'ibihe	Guha umugambi "Itumatumanako ry'amakuru ry'igihugu" uburyo bukwiye kugira hatorwe, hihwezwe, hakorwe kandi harungikwe amakuru kw'ihindagurika ry'ibihe	Ubushikiranagnji bw'uburimy'i/Ibiko bikuru vyo gukingira ibidukikije/ikigo c'igihugu kijewe imiyaga n'ikirere, ubuyobozi bukuru bw'amasoko y'amazi n'isuku	Ubutegetsu +ubufasha bw'ubuhinga n'imfashanyo y'amahera (itunganywa ry'ibidukikije)
Ukutamenya uburyo n'inzira z'imfashanyo zivuye hanze y'igihugu	Kwongereza ubushobozi ku nzira zo kwegeranya imfashanyo zivuye hanze y'igihugu Kwongereza inguvu z'ukwitabira inama ihambaye y'abahurikiye hamwe	Ubushikranganji bw'uburimy'i n'ubushikranganji bujewe gutunganya imigambi ya Leta, ibice nyamukuru vy'inama y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe	Ubutegetsu +ubufasha bw'ubuhinga n'imfashanyo y'amahera
6. Igisata co gutunganya imicafu			
a. Ibijanye n'ubuhinga			
-Ikena ry'ibikoresho vyo kwingira vya bnuri muntu ku bahinga n'abakozi asanzwe -ukudakwira kw'amakuru mu gisata c'imicafu -ikenana mw'itunganywa n'ikoresha ry'imicafu	-Gushiraho ibikoresho nbikenewe -Kwungura ubushobozi bw'ubuhinga bw'ababijewe	-Ubushikranganji bujewe ibidukikije n'ihindagurika ry'ibihe -amashirahamwe yigenga	Ubutegetsu bw'Uburundi Abanyamitahe bigenga

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
b. Intambamyi z'ikenza ry'uburyo			
Imitahe mike mw'itunganywa ry'ihingurwa ry'imitahe Ubukene bw'iamahera yagenewe itunganywa ry'igisata	umukenyuro wo kwegeranya imfashanyo Kuduza amahera yagenewe igisata c'iyunganywa ry'imicafu	Ubutegetsi bw'I Burundi Abanyamitahe bigenga	Ubufasha bw'ubuhinga n'imfashanyo y'amahera, Ubutegetsi n'amashirahamwe yigenga
c. Ibihaze mu nzego			
-Ikenza ry'ihuriro mu bijanye n'ugutunganya imicafu -ugushikira amakuru kutoroshe -Ukudaha agaciro igisata c'itunganywa ry'imicafu -Ukutamenya akamaro k'itunganywa ry'imicafu -Ikenza ry'ugukorera hamwe ku nzego z'igihugu n'igenga	-Ukwubahiriza umugambi wa Leta biciye muri PNA, PNCC n'ibindi -Kwongereza ubushobozi bw'abajejwe itunganywa n'ihingurwa ry'imicafu hamwe n'ubuhinga bwo gukorera hamwe	-Ubushikiranganji w'uburimyi -ubushikiranganji bw'amagara y'abantu -Ubushikiranganji bw'intwari yo hagati mu gihugu -ubushikiranganji bujewe ibidukikije	-Ubutegetsi w'Uburundi n'ubufasha bw'ubuhinga n'imfashanyo y'amahera -Amashirahamwe yigenga
d. Ubukene mw'ihimirizwa ry'abenegihugu			
-Ukudakwira kw'itumatumanako -Ukudakwira kw'ikwiragizwa mu bijanye n'itunganywa be n'ihingurwa ry'imicafu -Ukutubahiriza amategeko yashizweho ajanye n'itunganywa be n'ihingurwa ry'imicafu	Kugwiza ubushobozi mu bijanye n'uguhimiriza ababijejwe n'ikwiragizwa ry'ivyanditse vyari bisanzweho -Ishigwamungiro rikabije ry'amategeko	Ubushikiranganji bujewe ibidukikije, -Ubushikiranganji bw'amagara y'abantu -Ubushikiranganji bw'ubutungane	Ubutegetsi bw'Uburundi n'ubufasha bw'ubuhinga n'imfashanyo y'amahera n'amashirahamwe yigenga

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
e. Intambamyi z'ubukene bw'amahera kw'iterambere n'uruhererekane gw'ubuhinga bugezweho			
Ukubura kw'amafaranga mw'iterambere n'uruhererekane bw'ubuhinga bugezweho	Ukwegeranya uburyo mu uruhererekane bw'ubuhinga bugezweho	Ubushikiranganji bujejwe ibidukikije, -Ubushikiranganji bw'amagara y'abantu	Ubutegetsi bw'Uburundi n'ubufasha bw'ubuhinga n'imfashanyo y'amahera
f. Ubukene mu bijanye n'indaro, ubumenyi n'uguhimiriza abenegihugu			
Ukututaho ubuhinga bugezweho mw'itunganywa ntamukuru ry'imicafu	Kwongereza ubumenyi mu bijanye n'ukumenya ubuhinga bugezweho	Ubushikiranganji bujejwe ibidukikije, -Ubushikiranganji bw'amagara y'abantu Igisagara ca Bujumbura n'Ubushikiranagnji bw'intwaro yo hagati mu gihugu	Ubufasha mu buhinga n'imfashanyo y'amahera

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
7. Igisata c'amagara y'abantu			
Uruhara gw'amafaranga yagenewe igisata c'amagara y'abantu mw'itunganywa ry'ibiza n'idwara zituruka kw'ihindagurika ry'ibihe ruguma ari rutoya cane	Ukugwiza amafaranga yagenewe igisata c'amagara y'abantu nimiburiburi gushika ku bice 15% vy'amafaranga yose Leta ikoresha ku mwaka (Ugushira mu ngiro ivyavuye mu nama yabereye i Abuja) Ukugwiza amafaranga yagenewe ubushakashatsi mu magara y'abantu	Ubushikiranganji bw'ikigega ca Leta, amafaranga ya Leta n'ugukorerahamwe mw'iterambere ry'ubutunzi, Ubushikiranganji bw'amagara y'abantu n'ukugwanya ikiza ruhonyanganda SIDA hamwe n'ubufasha mu buhinga n'imfashanyo y'amahera	Ubutegetsi bw'Uburundi n'ubufasha mu buhinga n'imfashanyo y'amahera
Ibigo vy'ipimiro vy'ubuhinga n'ubuhinga bwohejuru bugezweho bisa nibitabaho	Gushikira ikigo gikuru c'ipimiro c'igihugu c'icerekerezo n'ibindi bigo vy'amagara y'abantu	Ubushikiranganji bw'amagara y'abantu n'ukugwanya ikiza ruhonyanganda SIDA hamwe n'ubufasha mu buhinga n'imfashanyo y'amahera	Ubutegetsi bw'Uburundi n'ubufasha mu buhinga n'imfashanyo y'amahera
Ukuburinguvu mu guhuza n'ugukoresha inkuru hagati y'ibisata bitandukanye mu bijanye n'ihindagurika ry'ibihe	Gushiraho ikigo co gutanga amakuru ajanye n'ihindagurika ry'ibihe gishikirwa n'abagikoresha bose	Ubushikiranganji bw'uburimyi, Ubushikiranganji bw'ikigega ca leta n'ugukorera hamwe mw'iterambere ry'ubutunzi hamwe n'ubushikiranganji bw'amagara y'abantu n'ukugwanya ikiza ruhonyanganda SIDA	Ubutegetsi bw'Uburundi n'ubufasha mu buhinga n'imfashanyo y'amafaranga.

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
Ukudakwira mu kwegeranya abenegihugu ku nkurikizi z'ihindagurika ry'ibihe ku magara y'abantu	Gushiraho imigambi yo guhimiriza nukwegeranya abenegihugu ku nyifato yo guhangana n'ihindagurika ry'ibihe	Ubushikiranganji bw'amagara y'abantu nukugwanya ikiza ruhonyanganda SIDA Ubushikiranganji bwo gutumatumanako n'ibinyamakuru	Ubutegetsi bw'Uburundi n'Ubufasha mu buhinga n'imfashanyo y'amafaranga, amashirahamwe yigenga
Ukudakwira kw'inyubakwa zishobora guhangana n'ihindagurika ry'ibihe	Gushiraho inyubakwa n'amazu ashobora guhangana n'ihindagurika ry'ibihe	Ubushikiranganji bw'amagara y'abantu, ukugwanya ikiza ruhonyanganda SIDA, Ubushikiranganji bwo gutwara abantu n'ibintu, ibikorwa vya Leta, ibikoresho n'itunganywa ry'ibisagara ugutunganya	Ubutegetsi bw'Uburundi n'Ubufasha mu buhinga n'imfashanyo y'amafaranga.
8. Igisata c'amashamba			
Ukutabaho kw'uburyo bwo kwegeranya ibiharuro kuburyo buhoraho kugira horoherezwe ibarura ry'ivyuka vy'ubumara n'igabanywa	Gushiraho ubuhinga bwo kwegeranya ibiharuro ku mashamba mu gisata c'amashamba	Ubushikiranganji bujejeje ibidukikije n'ihindagurika ry'ibihe	
1.2. Ukudakwira kw'ibiharuro vyibikorwa n'imvo z'irungikwa ku gwego gw'igihugu	Kugwiza ubushobozi bw'abahinga mw'ibarura ry'ivyotsi vy'ubumara kugira habeho itorwa ry'imvo z'irungikwa ry'ivyotsi vyo mugihugu n'ukwegeranya ibitigiri vyo kugwego gw'igihugu	Ubushikiranganji bujejeje ihindagurika ry'ibihe	Ubutegetsi bw'Uburundi n'Ubufasha mu buhinga n'imfashanyo y'amafaranga.

IBITASHISTWEKO N'INTAMBAMYI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
1.3.Ukutabaho kw'integuro y'itunganywa ry'ibisagara	Ugushira ku muvuduko munini inzira yo gutegura integuro yo gutunganya ibisagara kugira hashobore gutandukanywa uburinganire bw'amatongo abantu babamwo n'aho gutera ibiti, n'ibindi	Ubushikiranganji bo gutunganya ibisagara	Ubutegetsu bw'Uburundi mu buhinga n'imfashanyo y'amafaranga.
Ukutabaho kw'uburyo bwo kubika ibiharuro vy'amabarura y'ivyuka vy'ubumara birungikwa mu kirere	Gushiraho igikorwa kijejwe ukubika ivyanditse vy'ibiharuro ku bijanyanye n'ihindagurika ry'ibihe n'ivyotsi vy'ubumara birungikwa mu kirere Gukoresha ibiri mu cegeranyo ku kwibako kw'inzego mw'ibarura ryakozwe mu 2005	Ikigo c'Uburundi kijejwe gukingira ibindukikije	Ubutegetsu bw'Uburundi mu buhinga n'imfashanyo y'amafaranga.
Ukutabaho kw'uburorero n'ukudakwira kw'ubushobozi kw'itunganywa ry'ibiharuro n'ukubura irungikwa ry'ivyuka vy'ubumara	Ukwongereza ubushobozi mu bijanyanye n'uturorero n'ibikoreshe kw'itunganywa n'ukubura amabarura y'ivyuka vy'ubumara	Ikigo c'Uburundi kijejwe gukingira ibindukikije	Ubutegetsu bw'Uburundi mu buhinga n'imfashanyo y'amafaranga.

IBITASHISTWEKO N'INTAMBAMBI ZABONYWE	INYISHU ZATANZWE KUGIRA BAHANGANE NIZO NGORANE	ABOHASERUKA	AHO IMFASHANYO YOVA
Ukutabaho kw'umugambi vy'igihugu wataziriwe MRV	Gushiraho umugambi w'igihugu wataziriwe MRV	Ikigo c'Uburundi kijejwe gukingira ibindukikije	Ubutegetsi bw'Uburundi n'Ubufasha mu buhinga n'imfashanyo y'amafaranga.
Ukudakwira kw'ibiharuro kw'itunganywa ry'igisata c'uburimy, amashamba n'ayandi matongo	Gukora ibarura ryo kugwego gwo hejuru kubijanye n'igisata c'uburimy amashamba n'ikoresha ry'ayandi matongo	Ikigo c'Uburundi kijejwe gukingira ibindukikije	Ubutegetsi bw'Uburundi n'Ubufasha mu buhinga n'imfashanyo y'amafaranga.
Ukudashikira amakuru vyoroshe	Guhimiriza abafise amakuru	Ikigo c'Uburundi kijejwe gukingira ibindukikije	Ubutegetsi bw'Uburundi n'Ubufasha mu buhinga n'imfashanyo y'amafaranga.
9. Ugushira mu ngiro amasezerano y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe			
Ubukene bw'ubuhinga bwo kugabanya irungikwa ry'ivyuka vy'ubumara mu kirere	Ukwerekana ukwiragiza n'ugushira mungiro ubuhinga budatera ingorane	Ubushikiranganji bujewe ibidukikije n'ihindagurika ry'ibihe n'ubundi bushikiranganji bwose be n'ubuzi bufise isano kw'ico gisata	Ubutegetsi bw'Uburundi, abikorera itwabo n'Ubufasha mu buhinga n'imfashanyo y'amafaranga.
Ukudatahura intumbero z'inama nkuru y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe mu migambi n'imikenyuro y'igihugu	Gukomeza ugutahura intumbero z'inama nkuru y'ibihugu bihurikiye hamwe mu migambi n'imikenyuro	Ubushikiranganji bujewe ihindagurika ry'ibihe n'ubushikiranganji bufitaniye isano nabwo	
Ukudashikirwa n'imfashanyo vyoroshe	Gusaba, gukomeza ubushobozi bwo kwegeranya imfashanyo	Ubushikiranganji bujewe ibidukikije n'ihindagurika ry'ibihe	Ibiko vy'umwanditsi w'inama nkuru Ubutegetsi bw'I Burundi

UGUSOZERA

Mu gukurikiza kwa gose intumbero z'amasezerano y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe, ugushaka guherutse kushigikirwa n'umugambi wiswe CPDN werekanywe mu nama COP21, Uburundi buguma bukeneye gufashwa n'amakungu kugira bushire mungiro ingingo zo kugabanya irungikwa ry'ivyuka bishusha ikirere.

Kurubwo, igikorwa co gutegura icegeranyo ciswe TCNCC canke Icegerannyo ca Gatatu kw'ihindagurika ry'ibihe gihejeje kuranguka. Ariko amajambere nyayo yaramaze gushikwako mu ntumbero y'ugutahura neza ingorane z'ihindagurika ry'ibihe n'ukwiyeze kw'uburundi ku ntumbero nyamukuru y'amasezerano y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe « ikaba ariyo kugabanya ukwiyezeranya kw'ivyuka bishusha ikirere, ugutegekanya icagura ry'ubuhinga nyabwo mw'itegurwa ry'imigambi nyayo y'iterambere ry'ubutunzi n'imibano hamwe no mw'ishirwaho ry'imikenyo bijanye yokoresha kugira habeho iterambere rirama kandi ryiza ».

Ni nko ku Burundi guterera mw'ishirwa mungiro ry'ivyasabwe n'amasezerano y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe ku gwego gw'igihugu, hisunzwe ubushake bwa bose ariko butandukanye kandi na cane cane ukwitegurira uguhangana n'inkurikizi zose zoshika ziturutse kw'ihindagurika ry'ibihe mu bisata bitandukanye vy'ibikorwa vy'ubutunzi n'imibano. Ibisata bitanu vyaradomweko urutoko nk'inkomoko y'irungikwa ry'ivyotsi bishusha ikirere harimwo igisata c'uburimi, amasoko ntanganguvu, amashamba n'ikoresha ry'ayandi matongo, igisata c'imicafu hama ubwanyuma igisata c'amahinduriro n'ikoresha ry'ivyahingwe.

Mu bijanye n'uruhara hisunzwe urutonde gwo kuri gitoya uja kuri kinini mw'irungikwa ry'ivyotsi vy'ubumara murivyo bisata bitanu nyamukuru ku rwego rw'igihugu, igisata c'uburimi, c'amashamba n'ikoresha ry'ayandi matongo cavuye ku bice 48% kija kuri 64% mu mwaka w' 2010, hama kigabanuka kuri 45% mu 2015, hama ivyo mugisata c'amasoko ntanganguvu cagabanutse ku bice 43% kija kuri 31% mu mwaka w'2010, hama gishikira 45% mu 2015, uruhara gw'igisata c'imicafu ruri hagati y'ibice 5 na 10%, mumpera haza igisata c'amahinguriro n'ikoresha ry'ivyahingwe gifise ibihe vyose ibiri musu y'igice 1% y'imyuka ku rwego rw'igihugu.

Igisata c'uburimi, amashamba n'ikoresha ry'ayandi matongo nico cambere mukurungika ivyuka mu kirere ngaha mu Burundi gikurikirwa n'igisata c'amasoko ntanganguvu.

Uburundi buguma aribwo burungika ivyuka bike ugereranije n'ibindi bihugu ariko bugumana ubushake bwo kuja hamwe n'amakungu mu kugabanya amarungikwa mu kirere y'ivyuka vy'ubumara.

Nico gituma ibikorwa vyo kugabanya imyuka bijanye n'igwirirana ry'uburinganire bw'amatongo aterwamwo ibiti n'igwizwa ry'ingomero z'umuyagankuba biri mu nzira yo gushirwaho nubwo uburyo bw'amafaranga buguma ari ingorane.

Burakurikiza kandi ishigwa mungiro ry'ingingo zo guhangana zatowe kugira duhangane n'igeramirwa ry'ihindagurika ry'ibihe riguma riyongera. Bwaramaze gushiraho imikenyo

itandukanye y'inyishu ku bibazo vy'ibidukikije buhangana navyo, harimwo ibijanye cane cane n'ihindagurika ry'ibihe kandi bwiyeze gushira mungiro ingingo zo kugabanya n'uguhangana zashizweho mu ntumbero y'icegeranyo ca gatatu arico citiriwe TCNCC. Hagati aho, birakwiriye ko twomenya ko ishirwamungiro ry'imiken-yuro yateguwe bizokenera uburyo bw'inshi, nk'akarorero ibijanye n'isubirwamwo ry'ubuhinga bwoshigwamungiro.

Kugira duhangane n'ayo mategeko hisunzwe ibisabwa n'amasezerano y'ibihugu bihuriye hamwe mw'ihindagurika ry'ibihe, Uburundi buzokenera imfashanyo y'amahera nini ivuye ku gwego gw'isi yose kugira bushire mungiro vy'inshi mubigize iyo miken-yuro y'inyishu kandi nukwongereza ubushobozi bw'abenegihugu mu bisata nyamukuru (Igeramirwa n'ihangana, ububiko bw'amakuru, igabanywa ry'irungikwa ry'ivyotsi vy'ubumara, ingingo z'igihugu zigezweho zo kugabanya irungikwa ry'ivyuka, uguhanahana ubuhinga, n'ugufashanya muntumbero y'ayandi masezerano.

Mu gusozera, twovugako iki cegera TCNCC cabaye akaryo keza ku gihugu c'Uburundi ko gusubira kwiyeze ingingo zo gukurikiza itahura ry'ihindagurika ry'ibihe mu migambi y'igihugu n'iyi mu bisata kugira habeho icuka ciza co guhanahana ubuhinga budakoresha umwuka mubi mwinshi, w'inyigisho, n'ihimiriza ry'abantu ku ngorane z'ihindagurika ry'ibihe. Uburundi buraziko kubera atakiriko kirakorwa kw'ihindagurika ry'ibihe isi itera iherengetera ari naco gituma amakungu ategerezwa gufata ingingo kandi agategekanya ibihano ku bihugu biguma vyigira sindabibazwa ku nguvu z'isi yose zo kugwanya ihindagurika ry'ibihe.

IBITABU VYASOMWE

1. Icegeranyo kirimwo vyose c'ivyigwa vyo kubisata vy'umwihwezo w'igeramirwa n'ihangana n'ihindagurika ry'ibihe mu Burundi, Ndamukiza 2019
2. Ivyegeranyo vya nyuma vyo kubisata, Munyonyo 2018
3. BARAKIZA R. na NSHIMIRIMANA S. Icigwa ku bijanye n'iduga ry'igeramirwa /ihangana n'ihindagurika ry'ibihe, icegeranyo mfatakibanza co mu gisata, ubushikiranganji bw'ugutunganya ibisagara, ibidukikije n'igisata c'ingenzi/ umugambi w'ibihugu bihurikiye hamwe mw'iterambere,2006
4. BARAMPANZE P. na SUNZU NTIUGAMBIRIZWA S.,umugambi w'igikorwa c'igihugu co guhangana n'ihindagurika ry'ibihe, igisata c'amasoko ntanganguvu, Ubushikiranganji bw'ugutunganya ibisagara, ibidukikije n'igisata c'ingenzi/ umugambi w'ibihugu bihurikiye hamwe mw'iterambere,2006
5. Ishirahamwe ry'ibihugu vya Afrika y'ubuseruko kw'ihindagurika ry'ibihe, arusha Ndamukiza 2011
6. Ubushikiranganji bw'amazi, ibidukikije ugutunganya amatongo n'ibisagara,umugambi w'igihugu ujejwe amazi, Bujumbura 2012
7. Ubushikiranganji bw'amazi, ibidukikije ugutunganya amatongo n'ibisagara,umukenyuro w'igihugu ujejwe uburimi, Bujumbura 2012
8. Ubushikiranganji bw'uburimi n'ubworozi, umugambi w'uburimi mu gihugu, Bujumbura 2008.
9. Ubushikiranganji bw'uburimi n'ubworozi, integuro y'igihugu yo gushira imitahe mu burimi, Bujumbura ruheshi 2011
10. Ubushikiranganji bw'ugutunganya amatongo, ingenzi n'ibidukikije,umukenyuro w'igihugu n'integuro y'ibikorwa mu nijanye n'ubutandukane bw'ibidukikije, Bujumbura Ruheshi 2000
11. Ubushikiranganji bw'ugutunganya amatongo, ingenzi n'ibidukikije, umukenyuro w'igihugu n'integuro y'ibikorwa mu kwongereza ubushobozi mu bijanye n'ubutandukane bw'ibidukikije, Bujumbura 2004
12. Ubushikiranganji bw'ugutunganya amatongo, ingenzi n'ibidukikije, ibarura ry'irungikwa ry'ivyotsi vy'ubumara, igisata c'amasoko, Bujumbura, 2006
13. Ubushikiranganji bw'ugutunganya amatongo, ingenzi n'ibidukikije, integuro y'ibikorwa vyo guhangana n'ihindagurika ry'ibihe , Bujumbura, 2006
14. Ubushikiranganji bw'ugutunganya amatongo, ingenzi n'ibidukikije,icegeranyo c'ugusuzuma ibibura, intambanyi n'ibikenewe mu Burundi mu bijanye n'ihindagurika ry'ibihe, Bujumbura, 2008
15. Ubushikiranganji bw'inyigisho za Kaminuza n'ubwubushakashatsi, igisata c'inzego z'ubushakashatsi mu Burundi, Bujumbura, Myandagaro 2010
16. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara, integuro y'ibikorwa vy'imikeneyuroy'itunganywa ritahuritse ry'amasoko y'amazi, Bujumbura 2008

17. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara,inama y'akabiri kw'ihindagurika ry'ibihe,Bujumbura 2010
18. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara,umugambi w'akarere, Bujumbura 2006
19. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara,umukenyuro w'igihugun'integuro y'ibikorwa mu bijanye n'inyigisho ku bidukikije n'ihimirizwa, Bujumbura, 2009
20. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara, umukenyuro w'igihugun'integuro y'ibikorwa vyo kugwanya itituka ry'isi, Bujumbura,2011
21. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara,umugami w'igihugu ujejwe amashamba, Bujumbura, 2012
22. Ibihugu bihurikiye hamwe, Rio+20, Inama y'ibihugu bihurikiye hamwe mw'iterambere rirama, Ivyavuye mu nama , Ejo haza twipfuza,kuwa 19 Ruheshi 2019
23. NTAKIMAZI „Igeramirwa n'ihangana ry'ibinyabuzima bikanye kw'ihindagurika ry'ibihe, Bujumbura, 2008
24. REPUBLIKA Y'UBURUNDI, Inama ya mbere nkuru y'igihugu kw'ihindagurika ry'ibihe, Bujumbura,Myandagaro 2001
25. REPUBLIKA Y'UBURUNDI, umugambi w'imiken-yuro y'igwirirana n'ukugwanya ubukene(CSLP II), Bujumbura ,2011
26. REPUBLIKA Y'UBURUNDI UBUSHIKIRANGANJI BW'INTEGURO N'ITERAMBERE RY'AMAKOMINE, Igicapo y'Uburundi mu 2025, Bujumbura,2011
27. Urubuga gw'umuyagankuba uturutse kumazi mu Burundi gwatunganijwe n'ibiro SHER muri Gitugutu 2013
28. BURUNDI: IGICAPO T'UBURUNDI, Ndamukiza, 2010
29. BURUNDI:Umugambi"Ububasha bw'Uburundi bwo gutunganya inama yabwo igira kabiri kw'izina ry'Inama nkuru y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe, Ibarura rigira kabiri ry'ivyuka vy'ubumara, igitabu c'incamake
30. COGERCO, icegeranyo c'umwaka wa 2015
31. Biro bijewe ibiharuro n'amakuru yerekeye uburimi, icegeranyo ca ENAB(2016)
32. Biro bikuru vyo guhamagarana mu kwitezimbere mu gukwiragiza uburimi, icegeranyo c'umwaka wa 2016
33. Biro vy'intara bijewe uburimi n'ubworozi (mu ntara zose), ibiharuro vyakozwe (2017)
34. GIEC, igitabu c'inyifato nziza n'amakenga mw'itunganywa ry'ibarurwa mu gisata c'amashamba(2003), urupapuro gwa 301
35. GIEC, igitabu c'uwugikoresha cerekeye ingendo zo gushiraho inama z'igihugu z'imice itavuzweko mu gitabu ca mbere c'inama nkuru y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe,2003
36. Ikete ry'umugambi w'amasoko ntanganguvu-Nzero 2011

37. Umurongo ngenderwako w'2006 w'umugwi mpuzabihugu mw'ihindagurika ry'ibihe kubw 'ibarura ry'igihugu ku vyuka vy'ubumara
38. Imirongo ngenderwako ya GIEC kubw 'ibarura ry'igihugu ku vyuka vy'ubumara-igice c'1996
39. Ubushikiranganji bw'itunganywa ry'amatongo n'ibidukikije, igicapo shimikiro co gutunganya n'uguha agaciro imyaba, (Nyakanga 2000), urupapuro gwa 46
40. Ubushikiranganji bw'amazi n'ibidukikije, ikigo c'igihugu kijejwe ibizuku, icigwa c'ikoresha ritandukanye ry'ibizuku mu Burundi 2010
41. Ubushikiranganji bw'amazi n'ibidukikije, ikigo c'igihugu kijejwe ibizuku, ingorane z'ikenye ry'amasoko ntanganguvu mu karere k'ibiyaga binini vya Afrika, 2005
42. Ubushikiranganji bw'amazi, ibidukikije, itunganywa ry'amatongo, n'ibisagara ibidukikije n'ibisagara, umukenyuro w'igihugu n'integuro y'ibikorwa kw'ihindagurika ry'ibihe Ntwarante 2013
43. Ubushikiranganji bw'amazi, ibidukikije, itunganywa ry'amatongo, n'ibisagara Urubuga gw'ibice bine HAMSAR (Gitugutu 2014), urupapuro gwa 44
44. Ubushikiranganji bw'amazi, ibidukikije, itunganywa ry'amatongo, n'ibisagara, umukenyuro w'igihugu n'integuro y'ibikorwa ku binyabuzima Ruhuhuma 2013, urupapuro gwa 217
45. Umushikiranganji bw'ubueimyi n'ubworozi, umukenyuro w'igihugu ku burimyi, Mukakaro 2008 urupapuro gwa 110
46. Inama y'ambere n'iyakabiri z'igihugu kw'ihindagurika ry'ibihe
47. Ubuhinga bwo gushigikira uguhangana n'ihindagurika ry'ibihe. Igisagara ca Mandaluog, Philippines: Ibanga ya Aziya y'iterambere 2014
48. Icegeranya c'ibisata kw'igabanywa ry'irungikwa ry'ivyotsi mu kirere
49. Icegeranyo c'igisata ku guhangana gutegeye mu ntumbero y'inama ya gatatu y'igihugu kw'ihindagurika ry'ibihe
50. Ugutanga umuyagankuba uramba mu bigo vy'abateshejwe izabo bo mu bururuko n'ubuseruko bw'Uburundi COPED 2018
51. Audretsch na Al. 2002. D.B Bozeman, K.L Combs, M. Feldman, A.N.Link, D.S. Siegel, P.Stephan, G.Tassey, na C.Wessner, "Ivyigwa vy'ubutunzi n'ubuhinga" Ikinyamakuru co guhanahana ubuhinga, igitabu ca 27, urupapuro gw'155-203(2002)
52. Blanco na Rodrigue 2008.M.I Blanco na Rodrigues, ishirahamwe rya Buraya muri kazoza rizoshobora gushigikira imitahe y'umuyagankuba w'izuba? umugambi w'amasoko ntanganguvu, igitabu ca 36, urupapuro gwa 509-520 (2008)
53. Bleischwitz na al. 2007. R.Bleischwitz, K.Fuhrmann na E. Huchler, ingaruka zo gushigikira ishirahamwe ry'ibihugu vya Buraya mu budandaji buciye mw'irungikwa ry'ivyotsi vy'ubumara uvuye mu mahinguriro yo murivyo bihugu, Bruges umugambi w'ubutunzi bwa Buraya no 17. Bruges: Kaminuza ya Buraya(2007)
54. Buse na Walt 2002. K.Buse na G.Walt, "Ishirahamwe muzamakungu ry'amagara y'abantu hamwe n'ubunywanyi bw'amagara y'abantu kugwego gwa Leta

- n'ugw'abikorera utwabo: mw'ironderwa ry'amagara meza kwisi be n'intworo"hamwe n'amashirahamwe ya leta –ayikorera utwabo muvye'amagara y'abantu, M.R.Reich Cambridge, Massachusetts: ikinyamakuru ca Kaminuza ya Harvard (2002)
55. Ishirahamwe “Carbon Trust” 2008. Ibishasha mu buhinga bwo kugabanya umwuka mubi n'ibisata vyo kuwukwiragiza: Ugushira kumuvuduko munini igabanuka ry'umwuka mubi mu bihugu biri mu nzira y'iterambere:Ishirahamwe ryitwa Carbon trust (2008)
 56. Ishirahamwe ry'abahinga binzobere ryitwa “Carbon Trust” 2007: umwihwezo wakoze n'ishirahamwe “Carbon trust” mu 2007. Londres: Carbon Trust (2007)
 57. Dechezlepretre na al 2008. A. Dechezlepretre, M. Glachant na Y. Meniere « Ibikorwa vy'iterambere ryiza n'uguhahana ubuhinga ku gwego mpuzamakungu : icigwa cuzuye » umugambi w'amasoko ntanganguvu, igitabu ca 36, impapuro za 1273-1283 (2008)
 58. Gagnon-Lebrun 2004. F. Gagnon-Lebrun, « Ubuho mpuzamakungu bwo gukorerahamwe muvye'amasoko ntanganguvu n'igabanywa ry'ihindagurika ry'ibihe : icigwa ca 2 : ugukorerahamwe mu burimi R&D kubiterwa bisaba amatongo manini, OECD ishira hamwe mpuzamakungu ryo gukingira ibidukikije n'ishira hamwe mpuzamakungu ry'amasoko ntanganguvu COM/ENV/EPOC/IEA/SLT. Paris : OECD/IEA (2004).
 59. Grubb 2004. M. Grubb, Iterambere mu buhinga n'umugambi w'ihindagurika ry'ibihe: intangamarara y'ibibazo n'inzira zitandukanye”Keio ivyigwa vy'ubutunzi, igitabu ca 41 inomero 2, impapuro za 103-132 (2004)
 60. IEA 2008. Ishira hamwe mpuzamakungu ry'amasoko ntanganguvu, integuro y'ubuhinga bw'amasoko ntanganguvu 2008. Paris: IEA (2008)
 61. OECD 2007. Ishira hamwe ryo gukorera hamwe mu butunzi n'iterambere, ibiharuro vy'ubuhinga n'ubushakashatsi 2007. Paris: OECD (2007)
 62. UNEP/NEF 2008. umugambi w'ibidukikije w'ibihugu bihuriyehamwe/ imfashanyo nshasha y'amasoko ntanganguvu, inzira irashe yo gushigikira imitahe yo mu masoko ntanganguvu 2008: Nairobi: UNEP n'imfashanyo nshasha y'amasoko ntanganguvu (2008)
 63. Ibanki y'isi yose/PPIAF 2007. Ibanki y'isi yose n'amashirahamwe ya leta ben'ayikorera utwabo, abanywanyi ba leta n'abikorera utwabo,
 64. Ubushikiranganji bw'uburimi n'ubworozi, ishira hamwe ry'uburimi n'imfungurwa (FAO), Umugambi w'isi yose wo gufungurira abantu(PAM),na Ikigega c'ibihugu bihuriye hamwe kubw'agateka k'umwana(UNICEF): Ivyegeranyo vy'igihe c'irima vyo gusuzuma imyambu,vyo gutanga imfungurwa, n'imibereho y'ugufungura kw'igihugu (umwaka w'2016)
 65. Ubushikiranganji bw'ikigega ca Leta n'itunganyary'iterambere, ikigo kijejwe ibiharuro n'ivyigwa vy'ubutunzi mu Burundi, ivyegeranyo vyerekana ingene abantu bazongana (2013), urupapuro gw'174
 66. Umwimbu w'ibiterwa mbumbarugo n'uw'itungwa mu mwaka w'2005, FAO-BURUNDI

67. Ivyegeranyo vy'imyaka vy'ishirahamwe rihingura amazi n'umuyagankuba mu Burundi (REGIDESO)
68. Ivyegeranyo vyo mu myaka vy'ikigo gikuru kijejwe ibizuku (ONATOUR)
69. Icegeranyo c'ivyigwa kw'irangwa ritoya ry'inka n'impene (Ubushikiranganji, Igisata c'uburimi n'ubuhinga bw'ibiterwa FABI, Ishirahamwe rijejwe uburimi n'imfungurwa FAO 2013)
70. Inama ya kabiri y'igihugu kw'ihindagurika ry'ibihe (2008)
71. UNEP/GIEC:EMEP/EEA : Igitabu c'ibarura ry'ivyuka vy'ubumara bitosekata ikwere 2016-Gisubirwamwo muri Munyonyo 2016
72. Icegeranyo kirimwo vyose c'ivyigwa vyo kubisata vy'umwihwezo w'igeramirwa n'ihangana n'ihindagurika ry'ibihe mu Burundi, Ndamukiza 2019
73. Ivyegeranyo vya nyuma vyo kubisata, Munyonyo 2018
74. BARAKIZA R. na NSHIMIRIMANA S. Ibigwa ku bijanye n'iduga ry'igeramirwa /ihangana n'ihindagurika ry'ibihe, icegeranyo mfatakibanza co mu gisata, ubushikiranganji bw'ugutunganya ibisagara, ibidukikije n'igisata c'ingenzi/ umugambi w'ibihugu bihuriye hamwe mw'iterambere, 2006
75. BARAMPANZE P. na SUNZU NTIUGAMBIRIZWA S., umugambi w'igikorwa c'igihugu co guhangana n'ihindagurika ry'ibihe, igisata c'amasoko ntanganguvu, Ubushikiranganji bw'ugutunganya ibisagara, ibidukikije n'igisata c'ingenzi/ umugambi w'ibihugu bihuriye hamwe mw'iterambere, 2006
76. Ishirahamwe ry'ibihugu vya Afrika y'ubuseruko kw'ihindagurika ry'ibihe, arusha Ndamukiza 2011
77. Ubushikiranganji bw'amazi, ibidukikije ugutunganya amatongo n'ibisagara, umugambi w'igihugu ujejwe amazi, Bujumbura 2012
78. Ubushikiranganji bw'amazi, ibidukikije ugutunganya amatongo n'ibisagara, umukenyuro w'igihugu ujejwe uburimi, Bujumbura 2012
79. Ubushikiranganji bw'uburimi n'ubworozi, umugambi w'uburimi mu gihugu, Bujumbura 2008.
80. Ubushikiranganji bw'uburimi n'ubworozi, integuro y'igihugu yo gushira imitahe mu burimi, Bujumbura ruheshi 2011
81. Ubushikiranganji bw'ugutunganya amatongo, ingenzi n'ibidukikije, umukenyuro w'igihugu n'integuro y'ibikorwa mu nijanye n'ubutandukane bw'ibidukikije, Bujumbura Ruheshi 2000
82. Ubushikiranganji bw'ugutunganya amatongo, ingenzi n'ibidukikije, umukenyuro w'igihugu n'integuro y'ibikorwa mu kwongereza ubushobozi mu bijanye n'ubutandukane bw'ibidukikije, Bujumbura 2004
83. Ubushikiranganji bw'ugutunganya amatongo, ingenzi n'ibidukikije, ibarura ry'irungikwa ry'ivyotsi vy'ubumara, igisata c'amasoko, Bujumbura, 2006
84. Ubushikiranganji bw'ugutunganya amatongo, ingenzi n'ibidukikije, integuro y'ibikorwa vyo guhangana n'ihindagurika ry'ibihe, Bujumbura, 2006

85. Ubushikiranganji bw'ugutunganya amatongo, ingenzi n'ibidukikije, icegeranyo c'ugusuzuma ibibura, intambanyi n'ibikenewe mu Burundi mu bijanye n'ihindagurika ry'ibihe, Bujumbura, 2008
86. Ubushikiranganji bw'inyigisho za Kaminuza n'ubwubushakashatsi, igisata c'inzezo z'ubushakashatsi mu Burundi, Bujumbura, Myandagaro 2010
87. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara, integuro y'ibikorwa vy'imikeneyuro y'itunganywa ritahuritse ry'amasoko y'amazi, Bujumbura 2008
88. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara, inama y'akabiri kw'ihindagurika ry'ibihe, Bujumbura 2010
89. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara, umugambi w'akarere, Bujumbura 2006
90. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara, umukenyuro w'igihugu integuro y'ibikorwa mu bijanye n'inyigisho ku bidukikije n'ihimirizwa, Bujumbura ,2009
91. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara, umukenyuro w'igihugu integuro y'ibikorwa vyo kugwanya itituka ry'isi, Bujumbura, 2011
92. Ubushikiranganji bw'amazi, ibidukikije n'itunganywa ry'amatongo n'ibisagara, umugami w'igihugu ujejwe amashamba, Bujumbura, 2012
93. Ibihugu bihurikiye hamwe, Rio+20, Inama y'ibihugu bihurikiye hamwe mw'iterambere rirama, Ivyavuye mu nama, Ejo haza twipfuzwa, kuwa 19 Ruheshi 2019
94. NTAKIMAZI., Igeramirwa n'ihangana ry'ibinyabuzima bikanye kw'ihindagurika ry'ibihe, Bujumbura, 2008
95. REPUBLIKA Y'UBURUNDI, Inama ya mbere nkuru y'igihugu kw'ihindagurika ry'ibihe, Bujumbura, Myandagaro 2001
96. REPUBLIKA Y'UBURUNDI, umugambi w'imikeneyuro y'igwirirana n'ukugwanya ubukene (CSLP II), Bujumbura ,2011
97. REPUBLIKA Y'UBURUNDI UBUSHIKIRANGANJI BW'INTEGURO N'ITERAMBERE RY'AMAKOMINE, Igicapo y'Uburundi mu 2025, Bujumbura, 2011
98. Urubuga gw'umuyagankuba uturutse kumazi mu Burundi gwatunganijwe n'ibiro SHER muri Gitugutu 2013
99. BURUNDI: IGICAPO T'UBURUNDI, Ndamukiza , 2010
100. BURUNDI:Umugambi"Ububasha bw'Uburundi bwo gutunganya inama yabwo igira kabiri kw'izina ry'Inama nkuru y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe,Ibarura rigira kabiri ry'ivyuka vy'ubumara, igitabu c'incamake
101. COGERCO, icegeranyo c'umwaka wa 2015
102. Ibiro bijejwe ibiharuro n'amakuru yerekeye uburimiye, icegeranyo ca ENAB(2016)
103. Ibiro bikuru vyo guhamagarana mu kwitezimbere mu gukwiragiza uburimiye, icegeranyo c'umwaka wa 2016

104. Ibiro vy'intara bijejwe uburimi n'ubworozi (mu ntara zose), ibiharuro vyakozwe (2017)
105. GIEC, igitabu c'inyifato nziza n'amakenga mw'itunganywa ry'ibarurwa mu gisata c'amashamba(2003),urupapuro gwa 301
106. GIEC,igitabu c'uwugikoresha cerekeye ingendo zo gushiraho inama z'igihugu z'imice itavuzweko mu gitabu ca mbere c'inama nkuru y'ibihugu bihurikiye hamwe mw'ihindagurika ry'ibihe,2003
107. Ikete ry'umugambi w'amasoko ntanganguvu-Nzero 2011
108. Umurongo ngenderwako w'2006 w'umugwi mpuzabihugu mw'ihindagurika ry'ibihe kubw 'ibarura ry'igihugu ku vyuka vy'ubumara
109. Imirongo ngenderwako ya GIEC kubw 'ibarura ry'igihugu ku vyuka vy'ubumara-igice c'1996
110. Ubushikiranganji bw'itunganywa ry'amatongo n'ibidukikije, igicapo shimikiro co gutunganya n'uguha agaciro imyaba, (Nyakanga 2000), urupapuro gwa 46
111. Ubushikiranganji bw'amazi n'ibidukikije, ikigo c'igihugu kijejwe ibizuku, icigwa c'ikoreshwa ritandukanye ry'ibizuku mu Burundi 2010
112. Ubushikiranganji bw'amazi n'ibidukikije, ikigo c'igihugu kijejwe ibizuku, ingorane z'ikena ry'amasoko ntanganguvu mu karere k'ibiyaga binini vya Afrika, 2005
113. Ubushikiranganji bw'amazi,ibidukikije,itunganywa ry'amatongo, n'ibisagara ibidukikije n'ibisagara, umukenyuro w'igihugu n'integuro y'ibikorwa kw'ihindagurika ry'ibihe Ntwarante 2013
114. Ubushikiranganji bw'amazi,ibidukikije,itunganywa ry'amatongo, n'ibisagara Urubuga gw'ibice bine HAMSAR (Gitugutu 2014), urupapuro gwa 44
115. Ubushikiranganji bw'amazi,ibidukikije,itunganywa ry'amatongo, n'ibisagara, umukenyuro w'igihugu n'integuro y'ibikrwa ku binyabuzima Ruhuhuma 2013, urupapuro gwa 217
116. Umushikiranganji bw'ubueimyi n'ubworozi, umukenyuro w'igihugu ku burimi, Mukakaro 2008urupapuro gwa 110
117. Inama y'ambere n'iyakabiri z'igihugu kw'ihindagurika ry'ibihe
118. Ubuhinga bwo gushigikira uguhangana n'ihindagurika ry'ibihe. Igisagara ca Mandaluong ,Philippines: Ibanki ya Aziya y'iterambere 2014
119. Icegeranya c'ibisata kw'igabanywa ry'irungikwa ry'ivyotsi mu kirere
120. Icegeranyo c'igisata ku guhangana gutegeuwe mu ntumbero y'inama ya gatatu y'igihugu kw'ihindagurika ry'ibihe
121. Ugutanga umuyagankuba uramba mu bigo vy'abateshejwe izabo bo mu buraruko n'ubuseruko bw'Uburundi COPED 2018
122. Audretsch na Al. 2002. D.B Bozeman, K.L Combs, M. Feldman,A.N.Link, D.S. Siegel, P.Stephan, G.Tassej, na C.Wessner, "Ivyigwa vy'ubutunzi n'ubuhinga" Ikinyamakuru co guhanahana ubuhinga, igitabu ca 27, urupapuro gw'155-203(2002)

123. Blanco na Rodrigue 2008.M.I Blanco na Rodrigues, ishirahamwe rya Buraya muri kazoza rizoshobora gushigikira imitahe y'umuyagankuba w'izuba?umugambi w'amasoko ntanganguvu, igitabu ca 36, urupapuro gwa 509-520 (2008)
124. Bleischwitz na al. 2007. R.Bleischwitz, K.Fuhrmann na E. Huchler, ingaruka zo gushigikira ishirahamwe ry'ibihugu vya Buraya mu budandaji buciye mw'irungikwa ry'ivyotsi vy'ubumara uvuye mu mahinguriro yo murivyo bihugu, Bruges umugambi w'ubutunzi bwa Buraya no 17. Bruges: Kaminuza ya Buraya(2007)
125. Buse na Walt 2002. K.Buse na G.Walt, "Ishirahamwe muzamakungu ry'amagara y'abantu hamwe n'ubunywanyi bw'amagara y'abantu kugwego gwa Leta n'ugw'abikorera utwabo: mw'ironderwa ry'amagara meza kwisi be n'intwano"hamwe n'amashirahamwe ya leta –ayikorera utwabo muvy'amagara y'abantu, M.R.Reich Cambridge,Massachusetts:ikinyamakuru ca Kaminuza ya Harvard (2002)
126. Ishirahamwe "Carbon Trust" 2008. Ibishasha mu buhinga bwo kugabanya umwuka mubi n'ibisata vyo kuwukwiragiza: Ugushira kumuvuduko munini igabanuka ry'umwuka mubi mu bihugu biri mu nzira y'iterambere:Ishirahamwe ryitwa Carbon trust (2008)
127. Ishirahamwe ry'abahinga binzobere ryitwa "Carbon Trust" 2007: umwihwezo wakozwe n'ishirahamwe "Carbon trust" mu 2007. Londres: Carbon Trust (2007)
128. Dechezleptre na al 2008. A. Dechezleptre, M. Glachant na Y. Meniere « Ibikorwa vy'iterambere ryiza n'uguhana ubuhinga ku gwego mpuzamakungu :icigwa cuzuye » umugambi w'amasoko ntanganguvu, igitabu ca 36, impapuro za 1273-1283 (2008)
129. Gagnon-Lebrun 2004. F. Gagnon-Lebrun, « Ubuhinga mpuzamakungu bwo gukorera hamwe muvy'amasoko ntanganguvu n'igabanywa ry'ihindagurika ry'ibihe : icigwa ca 2 : ugukorerahamwe mu burimyi R&D kubiterwa bisaba amatongo manini,OECD ishirahamwe mpuzamakungu ryo gukingira ibidukikije n'ishirahamwe mpuzamakungu ry'amasoko ntanganguvu COM/ENV/EPOC/IEA/SLT. Paris : OECD/IEA (2004).
130. Grubb 2004. M. Grubb, Iterambere mu buhinga n'umugambi w'ihindagurika ry'ibihe: intangamarara y'ibibazo n'inzira zitandukanye"Keio ivyigwa vy'ubutunzi, igitabu ca 41 inomero 2, impapuro za 103-132 (2004)
131. IEA 2008. Ishirahamwe mpuzamakungu ry'amasoko ntanganguvu, integuro y'ubuhinga bw'amasoko ntanganguvu 2008. Paris: IEA (2008)
132. OECD 2007. Ishirahamwe ryo gukorera hamwe mu butunzi n'iterambere, ibiharuro vy'ubuhinga n'ubushakashatsi 2007. Paris: OECD (2007)
133. UNEP/NEF 2008. umugambi w'ibidukikije w'ibihugu bihuriyehamwe/imfashanyo nshasha y'amasoko ntanganguvu, inzira irashe yo gushigikira imitahe yo mu masoko ntanganguvu 2008: Nairobi: UNEP n'imfashanyo nshasha y'amasoko ntanganguvu (2008)

134. Ibanki y'isi yose/PPIAF 2007. Ibanki y'isi yose n'amashirahamwe ya leta ben'ayikorera utwabo, abanywanyi ba leta n'abikorera utwabo,
135. Ubushikiranganji bw'uburimi n'ubworozi,ishirahamwe ry'uburimi n'imfungurwa (FAO), Umugambi w'isi yose wo gufungurira abantu(PAM),na Ikigega c'ibihugu bihuriye hamwe kubw'agateka k'umwana(UNICEF): Ivyegeranyo vy'igihe c'irima vyo gusuzuma imyambu,vyo gutanga imfungurwa, n'imibereho y'ugufungura kw'igihugu (umwaka w'2016)
136. Ubushikiranganji bw'ikigega ca Leta n'itunganyary'iterambere,ikigo kijejwe ibiharuro n'ivyigwa vy'ubutunzi mu Burundi, ivyegeranyo vyerekana ingene abantu bazongana (2013), urupapuro gw'174
137. Umwimbu w'ibiterwa mbumbarugo n'uw'itungwa mu mwaka w'2005,FAO-BURUNDI
138. Ivyegeranyo vy'imyaka vy'ishirahamwe rihingura amazi n'umuyagankuba mu Burundi (REGIDESO)
139. Ivyegeranyo vyo mu myaka vy'ikigo gikuru kijejwe ibizuku (ONATOUR)
140. Icegeranyo c'ivyigwa kw'irangwa ritoya ry'inka n'impene (Ubushikiranganji,Igisata c'uburimi n'ubuhinga bw'ibiterwa FABI, Ishirahamwe rijejwe uburimi n'imfungurwa FAO 2013)
141. Inama ya kabiri y'igihugu kw'ihindagurika ry'ibihe (2008)
142. UNEP/GIEC:EMEP/EEA : Igitabu c'ibarura ry'ivyuka vy'ubumara bitosekata ikrere 2016-Gisubirwamwo muri Munyonyo 2016

IMPAPURO ZIHOMETSEKO

Urupapuro ruhometseko gwa 1: Igiharuzo c'ikwije c'ibarura ry'imyuka y'ubumara irungikwa mu kirere mu Burundi

Umubare	CO ₂	CH ₄	N ₂ O	NFC ₅	PFCs	SF ₆	Iyindi myuka iteranywa n'umwuka mubi wa CO ₂
Ibice vyose birungikwa n'ikurwa							
1-amasoko ntanganguvu							
1-A-ibikorwa vyo guturira igitoro							
1-A-1- Amasoko ntanganguvu yo mu mahinguriro	X	X	X				
1-A-2 amahinguriro yo gukora ibintu n'ayukwubaka	X	X	X				
1-A-3-Ugutwara abantu n'ibintu	X	X	X				
a-A-4- ibindi bisata	X	X	X				
1-A-5-Ibitarirwa neza	NO	NO	NO				
1-B- Imyuka iturumuka ivuye ku bitoro							
1.B-1. ibitoro bigumye	NA	NA	NA				
1-B-2.ibitoro n'umwuka kama	NA	NA	NA				
1-B-3 ayandi marungikwa ava ku bitoro	NO	NO	NO				
1.C-Ukubika n'ugutwara umwuka mubi wa CO₂							
1-C-1-Ugutwara umwuka mubi wa CO ₂	NO						
1.C-2.kuwutera n'ukuwubika	NO						
1-C-3- Ibindi	NO						
2. Ikora ry'amahinguriro n'ikoreshwa ry'ivyahinguwe							
2.A-Amahinguriro y'ubutare							
2.A.1-Ihinguriro ry'isima	NO						
2.A-2-ihinguriro ry'ishwagara	X						
2-A-3-ihinguriro ry'ibiyo	NO						
2-A-4-ayandi makorehwa y'umwuka mubi wa karubone	NO						
2-A-5 ibindi (bidondore)	NO						
2.B. Amahinguriro ahingiye kuguhindagura akamere k'ibintu							

2-B-1 Ihungurwa c'umwuka witwa Amoniyake	NO						
2-B-2-ihungurwa ry'umwuka witwa Nitrike			NO				
2.B.3.ihungurwa ry'umwuka adipike			NO				
2-B-4.ihungurwa ry'ubumara bwa: Kaproractam, Glyoxal na Glyoxylic			NO				
2-B-5.Ihungurwa Karbide ry'umwuka ufasha mugukinga ingaruka z'ihindagurika ry'ibihe	NO	NO					
2.B.6.Ihungurwa ry'umwuka wa Titaniyumu	NO						
2.B.7-ihungurwa ry'ibikoreshe vyo gukoramwo ibiyo nka sude	NO						
2.B.8-amahinguriro y'ibiva mu bitoro n'ihinguriro ry'umwuka	NO	NO					
2.B. 9-ihungurwa ry'icunyunyu ca fruor							
2.B.10-ibindi	NO	NO	NO				
2.C-Amahinguriro y'ivyuma							
2.C.1- amahingurwa y'ubutare buvamwo ivyuma	X						
2-C.2-Amahingurwa y'ivyuma bikomeye	NO	NO					
2-C-3-Ihungurwa rya aruminiyume	NO				NO		
2-C.4-Ihungurwa rya manyezium	NO					NO	

2-C-5-ihungurwa ry'ibikoresho burinda ingese	NO						
2-C-6-ihingurwa ry'icunyungu zenke	NO						
2-C-7-ibindi	NO						
2. D. ibihingurwa mu bitoro n'ibindi biseseka bidakenere amasoko ntanguvu							
2-D-1.ihingurwa ry'amavuta	NO						
2-D-2- ihingurwa ry'amavuta ya parafine	NO						
2-D-3- ihingurwa ry'ibiseseka							
2.D-4-n'ibindi(bidondagure)	NO	NO	NO				
2-E-Amahinguriro y'ivyuma vy'itumatumanako n'ivyubuhinga bwa none							
2.E-1-ibitwara umuyagankuba				NO	NO	NO	
2-E.2-Imboneshakure zigezweho					NO	NO	
2.E.3-umuyagankuba uva kumishwarara y'izuba					NO		
2.E-4-ibitwara umucanwa					NO		
2-E-5-ibindi (bisigure)	NO	NO	NO	NO	NO	NO	
2-F-Ibikoreshwa mu kibanza c'ivyokwonona igisenge kidukingiyeye Ozone							
2-F-1-Ugukonjesha n'ugukanyisha ikirere				NE			
2-F-2- Ibikoreshwa mu kuvyimbisha ibintu				NA			
2.F.3. Ukwingira umuriro				NA	NA		
2.F.4. Imyuka ituruka ku mwotsi, imiriro				NA			
2.F.4- amazi canke amavuta akoreshwa mu kwoza canke				NA	NO		

gukura imicafu							
2.F.6-Irindi koreshwa (Ritomore)				NA	NO		
2.G Ihingurwa ry'ibindi bikoresho n'ikoreshwa ryavyo							
2.G.1- Ibikoresho vy'amata					NA	NO	
2.G.2- imyuka ya SF6 na PFCs ivuye kw'ikoreshwa ry'ibindi bintu					NA	NO	
2.G.3-Umwuka wa azote uturutse kwikoreshwa ry'ibindi bintu			NA				
2.G.4- Ibindi (Bidondagure)	NA	NA	NA	NA	NA	NA	NA
2.H-Ibindi							
2.H.1- Ihinguriro ry'impapuro	NO	NO					
2.H.2- Inhinguriro ry'imfungurwa n'inyobwa	NO	NO					
2.H.3- Ibindi (bisigure)	NO	NO					
3. Uburimi, amashamba n'irindi koreshwa ry'amatongo							
3.A- Ubworozi							
3.A.1-Ibora rivuye kubitungwa Vyo munzu		X					
3.A.2-Itunganywa ry'umwavu		X	X				
3.B-Amatongo							
3.B.1- Amatongo arimwo amashamba	X						
3.B.2- Amatongo yo kurimwa	X						
3.B.3-Amatongo y'uburagiro	X						
3.B.4-Amatongo akanye	X						
3.B.5-Amatongo yo kubamwo	NE						
3.B.6-Ayandi matongo	NE						
3.C-Imyuka itandukanye itarimwo umwuka mubi wa CO₂ irungikwa mu kirere							
3.C.1- Irungikwa riturutse kw'iturigwa ry'imicafu		X	X				
3.C.2- Ishwagara	X						
3.C.3-Ikorehwa ryumwavu wa kizungu wo gufumbira	X						
3.C.4-Irungikwa rinyarutse ry'icunyuyu ca azote kivuye mw'itunganywa ry'isi			X				
3.C.5-Irungikwa ritanyarutse			X				

ry'icunyunyuyu ca azote kivuye kw'itunganywa ry'amatongo							
3.C.6-Irungikwa ritanyarutse ry'icunyunyuyu ca azote kivuye kw'itunganywa ry'umwavu			X				
3.C.7-Irimwa ry'umuceri		X					
3.C.8- Ibindi (bisigure)		NO	NO				
3.D- Other							
3.D.1-Ibivuye mu biti vyaciwe		X					
3.D.2-ibindi (bisigure neza)	NO	NO	NO				
4. Imicafu							
4.A- Ahatabwa imicafu igumye		X					
4.B- Ihingurwa ry'imicafu igumye		NE					
4.C- Ihingurwa n'iturirwa ry'imicafu mu kirere kidapfutse			NE				
4.D-Ukwegeranya n'uguhingura amazi avuye mu mazu		X	X				
4.E-Ibindi (bisigure)							
5- Ibindi			NE				
5.A- Irungikwa ritihuta ry'umwuka wa azote kivuye kubirungikwa mu kirere		X	X				
5.B- Ibindi (bisigure)							
Ibindi bitavuzwe							
Ibigwanisho ruhonyanganda bikomakomeye							
1.A.3.a.i-Ibigwanisho ruhonyanganda bikomakomeye nk'indege	X	X	X				
1.A.3.d.i- Ibigwanisho bikomakomeye vyo mumazi	X	X	X				
1.A.5.Ibikorwa vyo gusubizahamwe							

Insiguro y'igiharuzo

Ivyitonderwa : Ahatujujwe nukubera hadakenewe

Ibimenyetso bikurikira vyategerezwa gukoreshwa neza kw'irungikwa hisunzwe inkomoko y'umwuka, n'ingene wokugwaho

- X : ivyihwejwe
- NO : (Ibitibonekeza) Ku bikorwa canke ibindi bitibonekamwo umwuka /inkomoko /uburyo bw'inunuzwa mu gihugu
- NE : (Bitagereraniye) Ku marungikwa asanzweho n'ikugwaho ry'iyoyuka vyagereraniye, NA (bidakoreshwa) ku bikorwa mu bice bimwe/umugwi w'inunuzwa udashingiye kw'irungikwa n'ikugwaho ry'umwuka usanzwe uzwi
- IE : (Vyashizwe ahariho hose) Ku marungikwa n'ikurwavy'umwuka vyagereraniye ariko vyashizwe ahariho hose mw'ibarurwa (Ababijejwe botegerejwe kwerekana aho irungikwa canke ikurwa ry'iyuka rikomoka)
- C : (Bifise ibanga) kumarungikwa canke ikurwa vyoshobora gutuma habaho ukuzigama inkuru

Urupapuro gwometsweko rugira 2 :Umwihwezo w'imigwi nyamukuru mu 2005, 2010 na 2015

A	B	C	D	E	F	G
Igiharuro kabanga c'inama mpuzamakun gu mw'ihindagu rika ry'ibihe	Umugwi w'inama mpuzamakun gu mw'ihindagu rika ry'ibihe	Umwuka uhungaban ya igisenge	2005 Urupimo Gg za ECO ₂ rw'umwuka	Gg za ECO ₂	Lx,t	Ibitigiri vyose hamwe vy'igice c'igiharuro zo ciswe F
3.B.1.a	Amatongo arimwo amashamba be n'amatongo akiri amashamba	Umwuka mubi wa CO ₂	- 4722,440 03	- 4722.440 03	0.703963 166	0.703963 166
1.A.4	Ibindi bisata Ibiturutse kw'ihingurwa ry'imicafu	Umwuka wa Metane (CH ₄)	606.3961 466	606.3961 464	0.090394 065	0.794357 23
3.B.2.b	Amatongo yahinduwe amaragiro	Umwuka wa karubone(C O ₂)	490.6087 588	490.0875 88	0.073133 908	0.867491 138
3.A.1	Ukubozza umwavu bihereye kubitungwa vyuza	Umwuka wa Metane (CH ₄)	322.4959 92	322.4959 92	0.048073 728	0.915564 867
3.D.1	Ibivuye mu biti vyaciwe	Umwuka mubi wa Karubone	- 151.0373 454	151.0373 454	0.022514 786	0.938079 653
1.A.4	Ibindi bisata – uguhingura imicafu itange umwuka	Umwuka wa azote (N ₂ O)	117.5475 972	117.5475 972	0.017522 547	0.955602 2
A	B	C	D	E	E	G

Igiharuro kabanga c'inama mpuzamakun gu mw'ihindagu rika ry'ibihe	Umugwi w'inama mpuzamakun gu mw'ihindagu rika ry'ibihe	Umwuka uhungaban ya igisenge	2005 Urupimo Gg za ECO ₂ rw'umwuka	Gg za ECO ₂	Lx,t	Ibitigiri vyose hamwe vy'igice c'igiharuro ciswe F
3.B.1.a	Amatongo y'amashamba yagumye ari amashama	Umwuka wa karubone (CO ₂)	- 2780.556 353	2780.566 353	0.468027 598	0.468027 598
1.A.4	Ibindi bisata-Ivyo guhingura umwuka uvuye ku micafu	Umwuka wa Metane (CH ₄)	682.0596 079	682.0596 079	0.114805 341	0.582832 939
3.B.2.b	Amatongo yahinduwe uburagiro	Umwuka wa karubone (CO ₂)	655.2472 169	655.2472 169	0.110292 237	0.582832 939
3.a.1	Ukubora kuvuye ku mase y'ibitungwa	Umwuka wa Metane (CH ₄)	410.2227 78	410.2227 78	0.069049 34	0.762174 517
3.C.4	Irungikwa rinyarutse ry'umwuka wa azote (N ₂ O)mu kirere	Umwuka wa azote (N ₂ O)	353.1218 935	353.1218 935	0.059438 03	0.821612 547
3.C.7	Irima ry'umuceri	Umwuka wa Metane (CH ₄)	142.0126 461	142.0126 461	0.034366 775	0.926524 592
1.A.3.b	Ugutwara abantu n'ibintu mu mabarabara	Umwuka mubi wa karubone (CO ₂)	68.41715 826	68.41715 826	0.016556 815	0.943081 407
1.A.2	Amahinguriro akora ibintu n'ivyubwubatsi-ibitoro biseseka	Umwuka mubi wa karubone (CO ₂)	45.48060 942	45.48060 942	0.011006 216	0.954087 623
1.A.3.b	Ugutwara abantu	Umwuka mubi wa	68.41715 826	68.41715 826	0.016556 815	0.943081 407

	n'ibintu mu mabarabara	karubone (CO ₂)				
1.A.2	Amahinguriro akora ibintu n'ivyubwubatsi ibitoro biseseka	Umwuka mubi wa karubone (CO ₂)	45.48060942	45.48060942	0.011006216	0.954087623

Urupapuro ruhometseko gwa 3: Igiharuzo cerekana ibihugu bitari vyisunzwe ku rupapuro ruhometseko gwa mbere rw'ibarura ry'umwaka w'2005

Imyuka yonona ikirere n'ibinogo vyagenewe kuyakira	Umwuka mubi wa karubone (CO ₂) muri Gg	Umwuka wa methane (CH ₄)	Umwuka wa azote (N ₂ O)
Irungikwa ryose hamwe ry'imyuka kugwego gw'igihug hamwe n'ikugwaho ryayo	-4230.7822	48.38	0.5684
1- Amasoko ntanganguvu	140.69338	28.926	0.387
1.A- Ibikorwa vy'ukwaka kw'ibitoro	140.69338	28.926	0.387
1.A.1- Amahinguriro y'ivyamasoko ntanganguvu	0.7823516	0.0236	0.0032
1.A.2- Izine zihingura ibintu n'amahinguriro y'ivyubwubatsi	37.845874	0.0029	0.0005
1.A.3- Ugutwara abantu n'ibintu	74.323345	0.0199	0.0034
1.A.4- Ibindi bisata	27.741814	28.879	0.3799
1.A.5- Ibindi	0	0	0
1.B- Imyuka irungikwa ivuye ku bitoro	0	0	0
1.B.1- ibitoro bigumye	0	0	0
1.B.2- Ibitoro biseseka hamwe n'ibitoro kama	0	0	0
2- Ikora ry'amahinguriro	0	0	0
2.A- Ukwimbura ubutare	0	0	0
2.B- Amahinguriro akoresha ubumara	0	0	0
2.C- amahinguriro akora ivyuma	0	0	0
2.D- Ibindi bihingurwa	0	0	
2.E- Ihingurwa ry'umwuka wa karubone na friworire			
2.F- Uguhema umwuka wa karubone na soufre			
2.G- Ibindi (Vyerekane)	0	0	0
3. Ibikurako amavuta hamwe nikoresha ry'ibindi vyahinguwe	0	0	0

4- Uburimyi		19.444	0.0956
4.A- Ukubora kuvuye kumase y'ibitungwa		15.357	
4.B-Itunganywa ry'umwavu		0.5116	0.0945
4.C-Irima ry'umuceri		3.5311	
4.D-Amatongo ndimwa			0
4.E-Iturigwa ry'amashamba		0	0
4.F-Uguturira ivyatsi vyakangajwe		0.043	0.0011
4.G-Ibindi (bisigure)			
5. Ihindagurika ry'ikoreshwa ry'amatongo be n'amashama	-4371.4756	0	0.0859
5.A-Ihindurwa ry'amashamba hamwe n'ibindi bigega vy'ibiti vyo mwishamba	-4722.2824		
5.B- Ihindurwa ry'amashamba n'amaragiyo	198.03527	0	0
5.C- Ihebwa ry'amatongo atunganijwe	0		
5.D-Irungikwa ry'umwuka wa Karubone n'ikugwa ryawo mw'ivu	303.80882		0.0016
5.E-Ibindi (Vyerekane)	-151.03735	0	0.0843
6-Imicafu	-	1.35727	0.472
6.A- Aho guta imicafu igumye kwisi		0.01	
6.B- Ukwegeranya amazi mabi avuye mu mazu	-	1.349116	0.471976
6.C-Uguturira imicafu	0	0	0
6.D- Ibindi (Vyerekane)	0	0	0
7- Ibindi (Vyerekane)	0	0	0
Ibitavuzweko			
Ibigwanisho ruhonyanganda	15.456834	0.0002	0.0004
1.A.3a.1-Indege mpuzamakungu	14.502346	0.0001	0.0004
1.A.3.d.1-Ikorwa ry'amato akomakomeye	0.954488	9E-05	3E-05
Imigenderanire n'ayandi makungu	0	0	0
Irungikwa ry'umwuka wa karubone uvuye mu bidukikije	10974.074		

Ibarura ry'umwaka w'2010

Imyuka yonona ikirere n'ibinogo vyagenewe kuyakira	Umwuka mubi wa karubone (CO ₂) muri Gg	Umwuka wa methane (CH ₄)	Umwuka wa azote (N ₂ O)
Irungikwa ryose hamwe ry'imyuka kugwego gw'igihug hamwe n'ikugwaho ryayo	-2077.0001	69.837	2.3168
1- Amasoko ntanganguvu	172.18289	32.528	0.434
1.A- Ibikorwa vy'ukwaka kw'ibitoro	172.18289	32.528	0.434
1.A.1- Amahinguriro y'ivyamasoko ntanganguvu	1.3572243	0.0171	0.0023
1.A.2- Izine zihingura ibintu n'amahinguriro y'ivyubwubatsi	47.907254	0.0036	0.0006
1.A.3- Ugutwara abantu n'ibintu	81.256926	0.0234	0.0038
1.A.4- Ibindi bisata	41.661487	32.484	0.4273
1.A.5- Ibindi	0	0	0
1.B- Imyuka irungikwa ivuye ku bitoro	0	0	0
1.B.1- ibitoro bigumye	0	0	0
1.B.2- Ibitoro biseseka hamwe n'ibitoro kama	0	0	0
2- Ikora ry'amahinguriro	0.784695	0	0
2.A- Ukwimbura ubutare	0.784695	0	0
2.B- Amahinguriro akoresha ubumara	0	0	0
2.C- amahinguriro akora ivyuma	0	0	0
2.D- Ibindi bihingurwa	0	0	
2.E- Ihingurwa ry'umwuka wa karubone na friworire			
2.F- Uguhema umwuka wa karubone na soufre			
2.G- Ibindi (Bisigure)	0	0	0
3. Ibikurako amavuta hamwe nikoreshwa ry'ibindi vyahinguwe	0	0	0
4- Uburimi		34.572	0.1803
4.A- Ukubora kuvuye kumase y'ibitungwa		19.534	
4.B- Itunganywa ry'umwavu		0.897	0.1779
4.C- Irima ry'umuceri		14.047	
4.D- Amatongo ndimwa			0
4.E- Iturigwa ry'amashamba		0	0
4.F- Uguturira ivyatsi vyakangajwe		0.0942	0.0024
4.G- Ibindi (bisigure)			

5. Ihindagurika ry'ikoresheya ry'amatongo be n'amashamba	-2249.967	2.67837	1.7025
5.A-Ihindurwa ry'amashamba hamwe n'ibindi bigega vy'ibiti vyo mwishamba	-2780.3987		
5.B- Ihindurwa ry'amashamba n'amaragiro	383.86859	0	0
5.C- Ihebwa ry'amatongo atunganijwe	0		
5.D-Irungikwa ry'umwuka wa Karubone n'ikugwa ryawo mw'ivu	282.61395		0.0016
5.E-Ibindi (Vyerekane)	-136.05159	2.6783	1.7009
6-Imicafu	0	0.109	0.527
6.A- Aho guta imicafu igumye kwisi		0.058	
6.B- Ukwegeranya amazi mabi avuye mu mazu		0.099	0.527
6.C-Uguturira imicafu	0	0	0
6.D- Ibindi (Vyerekane)	0	0	0
7- Ibindi (Vyerekane)	0	0	0
Ibitavuzweko			
Ibigwanisho ruhonyanganda	13.49735	0.0002	0.0004
1.A.3a.1-Indege mpuzamakungu	12.500676	9E-05	0.0003
1.A.3.d.1-Ikorwa ry'amato akomakomeye	0.9966746	9E-05	3E-05
Imigenderanire n'ayandi makungu	0	0	0
Irungikwa ry'umwuka wa karubone uvuye mu idukikije	12335.419		

Ibarura ry'umwaka w'2015

Imyuka yonona ikirere n'ibinogo vyagenewe kuyakira	Umwuka mubi wa karubone (CO ₂) muri Gg	Umwuka wa methane (CH ₄)	Umwuka wa azote (N ₂ O)
Irungikwa ryose hamwe ry'imyuka kugwego gw'igihug hamwe n'ikugwaho ryayo	-1189.723	53.977	0.8013
1- Amasoko ntanganguvu	152.23782	36.618	0.4875
1.A- Ibikorwa vy'ukwaka kw'ibitoro	152.23782	36.618	0.4875
1.A.1- Amahinguriro y'ivyamasoko ntanganguvu	0.9199974	0.0199	0.0027
1.A.2-Izine zihingura ibintu n'amahinguriro y'ivyubwubatsi	45.480609	0.0037	0.0006
1.A.3- Ugutwara abantu n'ibintu	69.869579	0.0221	0.0033
1.A.4- Ibindi bisata	35.967637	36.572	0.481
1.A.5 Ibindi	0	0	0
1.B- Imyuka irungikwa ivuye ku bitoro	0	0	0
1.B.1- ibitoro bigumye	0	0	0
1.B.2-Ibitoro biseseka hamwe n'ibitoro kama	0	0	0
2-Ikora ry'amahinguriro	6.38402	0	0
2.A- Ukwimbura ubutare	0.1473	0	0
2.B- Amahinguriro akoresha ubumara	0	0	0
2.C- amahinguriro akora ivyuma	6.23672	0	0
2.D-Ibindi bihingurwa	0	0	
2.E Ihingurwa ry'umwuka wa karubone na friworire			
2.F- Uguhema umwuka wa karubone na soufre			
2.G-Ibindi (Bisigure)	0	0	0
3. Ibikurako amavuta hamwe nikoresha ry'ibindi vyahinguwe	0	0	0
4- Uburimyi		16.75	0.149
4.A- Ukubora kuvuye kumase y'ibitungwa		9.025	
4.B-Itunganywa ry'umwavu		0.9267	0.1481
4.C-Irima ry'umuceri		6.7625	
4.D-Amatongo ndimwa			0

4.E-Iturigwa ry'amashamba		0	0
4.F-Uguturira ivyatsi vyakangajwe		0.0356	0.0009
4.G-Ibindi (bisigure)			
5. Ihindagurika ry'ikoreshwa ry'amatongo be n'amashama	-1348.3448	0.6091	0.1648
5.A-Ihindurwa ry'amashamba hamwe n'ibindi bigega vy'ibiti vyo mwishamba	-1446.9562		
5.B- Ihindurwa ry'amashamba n'amaragiro	330.44978	0	0
5.C- Ihebwa ry'amatongo atunganijwe	0		
5.D-Irungikwa ry'umwuka wa Karubone n'ikugwa ryawo mw'ivu	291.0764		0.0016
5.E-Ibindi (Vyerekane)	-522.91478	0.6091	0.1632
6-Imicafu	0	2.0048	0.60855
6.A- Aho guta imicafu igumye kwisi		0	
6.B- Ukwegeranya amazi mabi avuye mu mazu		1.9979	0.60855
6.C-Uguturira imicafu	0	0	0
6.D- Ibindi (Vyerekane)	0	0	0
7- Ibindi (Vyerekane)	0	0	0
Ibitavuzweko			
Ibigwanisho ruhonyanganda	9.3549507	0.0001	0.0003
1.A.3a.1-Indege mpuzamakungu	8.6115806	6E-05	0.0002
1.A.3.d.1-Ikorwa ry'amato akomakomeye	0.7433702	7E-05	2E-05
Imigenderanire n'ayandi makungu	0	0	0
Irungikwa ry'umwuka wa karubone uvuye mu idukikije	13890.738		

Urupapuro ruhometseko gwa 4: Uburyo bwakoreshejwe mw'itehurwa ry'ihindagurika ry'ibihe

Uburyo bwakoreshejwe mw'itehurwa ry'ihindagurika ry'ibihe

A=ACCESS1-0

H=GFDL-ESM2G

O=MIROC5

B=bcc-csm1-1

I= GFDL-ESM2G

P=MIROC-ESM

C=BNU-ESM

J=HadGEM2-CC

Q=MPI-ESM-LR

D=CanEsm2

K=HadGEM2-ES

R=MPI-ESM-MR

E=CCSM4

L=inmcm4

S=MRI-CGCM3

F=CESM1-BGC

M=IPSL-CM5A-LR

T=NorESM1-M

G=GSIRO-MK3-6-0

N=IPSL-CM5A-MR

Urupapuro ruhometseko rugira ga 5: urutonde gw'ababigizemwo uruhara

N ^o y'urutonde	Icigwa	Uwubijewe	Terefone
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	Isuzuma ry' ibikenewe mu buhinga	Audace NDAYIZEYE	ndayizeyeaudace@hotmail.com +25776717703
	Umugambi w' ibikorwa vyo guhimiriza kubijanye n' ihindagurika ry' ibihe	Olivier ABAYISENGA	abayisenga@gmail.com
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		Icegera: umuyobozi mukuru mu kigo c' igihugu kijejwe ugukingira ibidukikije(Berchimas HATUNGIMANA)	hatungimanaberchimas@yahoo.fr +257 69177962
		Umuyobozi mukuru mu kigo c' igihugu kijejwe imiyaga n'	augungenzi@yahoo.fr 79431955

		ibirere akaba n' icishimikizo muri UNFCCC (Augustin NGENZIRABONA)	
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		Umuyobozi mukuru w' itunganywa ry' amatongo	
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