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BURUNDI – STABILITY INDEX

ROUND 3 | July - December 2023

MEASURING PERCEPTIONS OF STABILITY IN BURUNDI

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EXECUTIVE SUMMARY

The third round of the Burundi Stability Index reveals a notable improvement in the perception of stability, with the average score rising from 55 out of 100 in December 2022 (Round 1) to 66 out of 100 in January 2024. This progress, observed after a slight drop to 52 out of 100 in June 2023 (Round 2), highlights the fluctuating but overall positive dynamics of stability in the country. The provinces of Muyinga, Ruyigi and Cankuzo stand out with above-average stability scores, testifying to remarkable social cohesion and resilience in the face of climatic and economic challenges. Makamba province continues to face significant challenges, with the lowest score of the three rounds, accentuating the urgent need for targeted interventions to improve access to basic services, food security and social cohesion.

Services and livelihoods: The majority of residents, particularly in the provinces of Muyinga, Ruyigi and Cankuzo, benefit from increased access to civil status documents, strengthening their access to services. However, restricted access to arable land for returnees and IDPs, particularly pronounced in Makamba, calls for targeted interventions to improve land rights and access to resources.

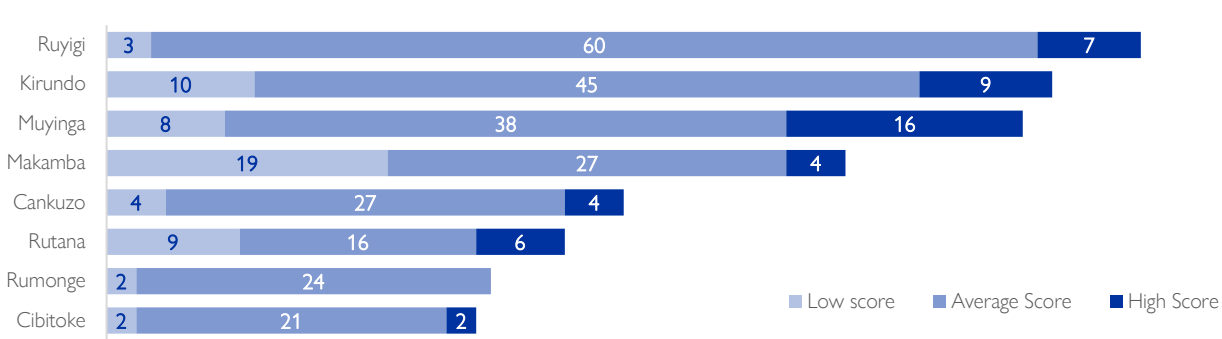
Damage due to Environmental Hazards: Despite challenges in building resilient shelters and the uneven implementation of local preparedness policies, efforts are being made to improve resilience to climate change. Mitigation initiatives and adaptation mechanisms are essential, but awareness of designated gathering places in the event of an emergency requires greater emphasis, particularly in Makamba. Many residents in provinces like Cankuzo, Rumonge, and Rutana have limited knowledge of these designated emergency gathering places, which necessitates focused attention to strengthen preparedness. In the provinces of Cibitoke and Kirundo, although showing overall scores close to the average, reveal specific vulnerabilities in terms of resilience to environmental hazards, requiring particular attention to strengthen preparedness and adaptation to climate change.

Social cohesion: The provinces of Muyinga, Ruyigi and Cankuzo demonstrate active participation in public affairs and a high level of mutual aid, contributing to reinforced social cohesion. The rarity of disputes between communities and returnees or IDPs reflects harmonious integration, essential for lasting stability.

These results underline the importance of an integrated approach to addressing stability in Burundi, highlighting the specific progress and challenges of the provinces of Muyinga, Ruyigi, Cankuzo and Makamba. Partners are encouraged to develop targeted strategies, taking into account these provincial dynamics, to support sustainable solutions for strengthening stability and promoting sustainable development in Burundi.

Faced with these challenges, close collaboration between the government, international organizations, NGOs and local communities is essential to consolidate the gains made and proactively address the vulnerabilities identified. Together, we can build a more stable and prosperous future for Burundi.

Figure 1: Distribution of scores for the *hills* assessed



Stability Index - Burundi, Round 3

Cankuzo, Cibitoke, Kirundo, Makamba, Muyinga, Rumonge, Rutana, Ruyigi | January 2024

May 2024

INTRODUCTION

The improvement in the country's socio-political situation following several crises has triggered the return of many Burundians who were previously living as refugees in neighbouring countries (Rwanda, the United Republic of Tanzania and the Democratic Republic of Congo), while others continue to express their desire to return. This period was marked by the voluntary return of a considerable number of Burundian refugees to their communities of origin (152,863 from 2020 to 2023). The return of thousands of refugees as a result of the government's approach to promoting returns carries the risk of increasing tensions (JRRRP-2021) between returnee communities and residents faced with a lack of resources (farmland and/or land, livelihoods and basic services). In addition, given that Burundi has a large number of internally displaced persons (IDPs) (79,917 in February 2024), the large proportion of IDPs (98%) staying in host communities increases the pressure of recurrent damage from torrential rains, flooding, high winds, hail, etc., with its corollaries of property destruction. We also note that 8 per cent of IDPs are returnees who suffered secondary displacement following the destruction of their homes in their place of origin. This adds complexity to the dynamics of return to the country, involving both internally displaced populations and returnees, and posing challenges to the identification of sustainable solutions to their return and displacement.

In order to provide sustainable solutions for returnees and IDPs, and to prevent secondary displacement, it is essential to understand the relative levels of stability in places hosting returnees and IDPs. Therefore, the International Organization for Migration (IOM) in collaboration with the Government of Burundi and other partners through funding from the Bureau of Population, Refugees and Migration (PRM) conducted the third round of data collection (Round 3) on the Stability Index (SI) in January 2024 to assess the stability of areas of return and displacement in Burundi. The SI seeks to understand what factors influence the stability of a locality in order to inform priority programmatic interventions along the Humanitarian-Development-Peace Nexus to build resilience, prevent future forced displacement and lay the foundations for sustainable return or long-term integration for returnees and IDPs.

1. OVERVIEW

The Stability Index comprises data collected through interviews with key informants at local level (lowest possible administrative level) in target provinces affected by internal displacement and return movements of Burundian refugees from neighbouring countries. Key informants, including IDP and returnee representatives, community agents and Red Cross volunteers, were interviewed at each location by investigators in January 2024.

The use of key informants has the advantage of enabling wide geographical coverage. Several key informants were interviewed in each hill side, enabling IOM to triangulate in order to validate this information.

In total, the 363 places of return and/or displacement assessed in the first (December 2022) and second (June 2023) rounds were also assessed in the third round in the same provinces of Cankuzo, Cibitoke, Kirundo, Makamba, Muyinga, Rumonge, Rutana and Ruyigi, to enable the observation of changes over time. Using the results of the DTM baseline assessments and the mapping of returnees provided by the United Nations High Commissioner for Refugees (UNHCR), *hills* were selected to identify areas with large numbers of displaced people and returnees. The recurrence of environmental hazards due to climate change and the large number of returnees were key factors in the choice of *hills* .

Figure 2. 2024 displacement figures

79 917 IDPs FEB 2024

152 863 Returnees DEC 2023

Gather information from a key informant.
Province Muyinga, commune Giteranyi © IOM January 2024

2. METHODOLOGY

2.1 Calculating the Stability Index

The Stability Index is an IOM tool whose methodology is adapted according to context to estimate a single stability score for each hill assessed. With regard to the Burundian context, the indicators chosen in collaboration with our various partners focus on three key thematic criteria essential for assessing the stability of a locality and determining the extent to which a sustainable solution has been achieved: livelihoods and basic services; social cohesion; and damage caused by environmental hazards linked to climate change.

Indicators are grouped to create sub-indices to facilitate comparison of localities by theme (see *Appendix 10.6 for* more information on the indicators included in this analysis). Taken together, these indicators highlight whether a locality is conducive to the long-term integration of displaced people or the reintegration of returnees. Four "anchor questions" on perceptions of stability in the community (future community intentions, trends in resilience to environmental hazards related to climate change, trends in general deterioration of access to basic services and trends in social cohesion) are used to validate the relationship between the stability score and community sentiment. A comprehensive analysis showing the determinants of hill stability is described in the following sections to guide decision-making.

Calculation of the Stability Index begins with survey design: this data collection tool was developed with substantial input from experts in the field, including IOM, the Government of Burundi and partner organizations. It comprises a set of questions assessing conditions in a locality that 1) were determined to be potential indicators of stability; and 2) were possible to rank from worst to best case scenarios. The questions were divided into four categories: 1) anchoring questions/perceptions on stability, 2) scale 1: livelihoods and access to basic services, 3) scale 2: social cohesion and 4) scale 3: level of damage caused by environmental hazards.

Before calculating the index, a numerical score was assigned to each response. These scores are used to classify responses in an orderly fashion, from the most positive to the least positive. To calculate the index, a logistic regression [1] was used to model the probability (between 0 and 1) of obtaining a positive response to each of the four anchor questions (as the dependent variable) and the 52 stability indicators assessed (as the independent variables). A simple average of the probabilities for each of the four anchor questions is taken to obtain the Stability Index score for each locality (between 0 and 1, presented as an integer between 0 and 100).

In addition to the stability score, three separate sub-indices were calculated for each hill using variables from each of the three themes: Access to services and livelihoods, Social cohesion and Resilience to environmental hazards. The sub-indices were calculated separately by taking the average of the questions related to each theme, then scaling them between 0 and 100. The overall Stability Index score is not an average of these three sub-indices. The sub-indices make it easier to identify localities that may require specific attention in one of these areas.

[1] See appendix 10.1 for more details on this method of calculating the Stability Index.

2.2. Selection of hills and Key Informants

The localities chosen were based on the large numbers of returnees in the eight target provinces, according to information provided by the UNHCR and the DTM's baseline data on IDPs.

The choice of key informants was based on the recommendations of the validation workshop, during which participants identified the profile of people with knowledge of different aspects of the community.

Five key informants were chosen for each hill, including the hill leader, a member of the returnee community, a member of the displaced community, a member of the host community and a community leader who could be a community health worker or a Burundi Red Cross volunteer.

2.3 Partnership

The adaptation of the Stability Index to the Burundian context is the fruit of a joint effort by IOM, the Ministry of the Interior, Community Development and Public Security through the Directorate General of Repatriation, Resettlement and Reintegration (DGRRR) and the Directorate General of Civil Protection and Disaster Management (DGPC/GC). In addition, the Ministry of Solidarity was involved through the Direction Générale de la Réinstallation et Réintégration Durables des Sinistrés, and the Ministry of Agriculture and Livestock played a role through the Direction Générale de la Planification Environnementale, Agricole et de l'Élevage (DGPEAE). Collaboration extended to the Governors of the target zones, the Institut National de la Statistique du Burundi (INSBU), and the Institut Géographique du Burundi (IGEBU). In addition, NGOs such as: American Friends Service Committee (AFSC), Danish Refugee Council (DRC), Association des Femmes Rapatriées du Burundi (AFRABU), Icirore C'Amahoro (ICCA), Burundi Red Cross, Civil Society, UNHCR (providing information on returnees) and other UN agencies were also involved in this global effort.

Prior to the launch of the first exercise, IOM had been in contact with all the above-mentioned key partners with a view to identify potential indicators that could explain the stability of areas with returnees and IDPs. These synergies were reinforced at the workshop held in Bujumbura on September 26, 2023, to review the results of the second round. This workshop also played a crucial role in adjusting a number of issues on the recommendation of partners. The multiple periods mentioned reflect the need for ongoing coordination and adjustment of the stability index among various partners and dynamic contexts to ensure its effectiveness and relevance.

2.4 Limitations

The UNHCR data did not detail the precise distribution of returnees by hills. Hills were therefore selected on the basis of data provided by the Burundi Red Cross, potentially leading to bias, as the number of IDPs or returnees could be over- or underestimated. It is essential to note that the Stability Index is based on key informants' perceptions and reports of conditions in their communities, not an objective measure. Although these informants have in-depth knowledge of their locality, their opinions may differ from those of some members of their community regarding the stability of their hill.

3. OVERVIEW OF STABILITY SCORES

In January 2024[1] , the average Stability Index score for the 363 hills in the eight provinces assessed was 66/100. Compared with previous Rounds, where the average score was 52/100 in June 2023 (Round 2) and 55/100 in December 2022 (Round 1), there has been a marked improvement in most provinces. Muyinga (70), Ruyigi (69) and Cankuzo (67) have an IS score above the country average, reflecting increased stability compared with Makamba (58), which remains the least stable and where a considerable number of returnees have been recorded since 2020 (29,251).

Analysis of the sub-indices for each theme (Figure 7) shows that the average for the social cohesion sub-index (scale 2) is higher (77), with notable variations in the different provinces. Cankuzo (84) is the province with the fewest challenges in terms of social cohesion, and conversely Makamba (68) and Rumonge (69) would have the greatest challenges, with scores well below the average. Compared to an average of 78 in Round 1 and 71 in Round 2, social cohesion shows a slight improvement over Round 2, but remains below the level observed in Round 1, indicating variability in cohesion challenges over time.

The average score for damage caused by environmental hazards linked to climate change (scale 3) remains the lowest (50). This low score corroborates with emergency monitoring data according to which Rumonge and Makamba are among the provinces that have suffered considerable damage from environmental hazards over the past six months. Torrential rains and strong winds have had a negative impact on livelihoods through the destruction of homes and fields in these provinces. By comparison, the average scores on this scale were even lower in previous Rounds, with 49 in Round 1 and 43 in Round 2, reflecting a slight improvement although challenges remain.

For livelihoods and access to basic services (scale 1), the average score is 61/100. Cankuzo (67) and Rutana (64) would be more stable in this area, while Cibitoke (59), Makamba (59) and Kirundo (59) would face more challenges. In comparison, the average score for this scale was 55 in Round 1 and 54 in Round 2, indicating a gradual improvement in access to services and livelihoods over time.

To sum up, we would note:

The score for resilience to environmental hazards is low in almost all provinces, with the exception of Cankuzo, which is less exposed to extreme weather events.

Makamba province recorded the lowest overall score, but also low sub-scores in all three themes of the Stability Index.

The lowest scores in terms of social cohesion can be observed in the commune of Rumonge (62) in the same province, as well as in the communes of Mabanda (65), Nyanza-Lac (66) and Kayogoro (67) in the province of Makamba.

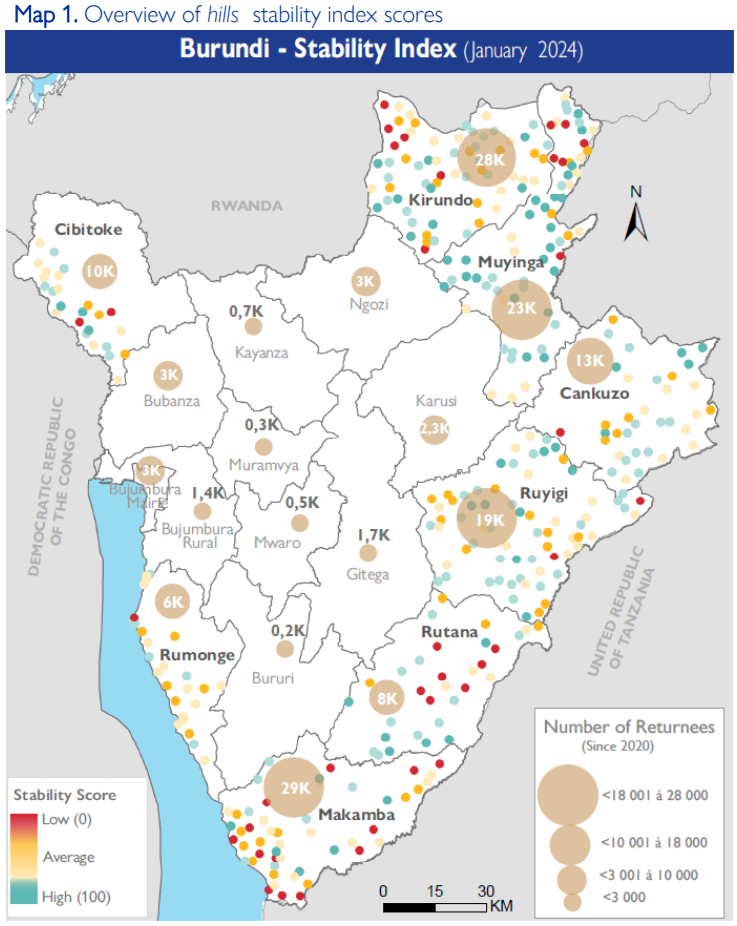
4. OVERVIEW OF PROGRAM IMPLICATIONS

The results of this report provide information on priority programmatic interventions along the humanitarian, peace and development nexus, to strengthen community resilience and stability and prevent future displacement.

Here is a summary of strategic recommendations aimed at enhancing resilience to environmental hazards, improving social cohesion, and facilitating land access for returnees and internally displaced persons in specific provinces of Burundi:

- Resilience to environmental hazards should be strengthened in all provinces, especially those facing extreme environmental hazards such as Rumonge, Makamba, Cibitoke and Kirundo.
- Initiatives to strengthen social cohesion should be implemented in the communes of grand retour in the provinces of Rumonge and Makamba, where the social cohesion score is low.
- Efforts to improve access to land for returnees and IDPs should be made, as this indicator has been included among the influential indicators in the determination of the sub-index on access to services and livelihoods.

Map 1. Overview of *hills* stability index scores



The representation and use of boundaries, geographical names and related data on maps included in this report are not warranted to be error free nor do they imply a judgement on the legal status of any territory or the endorsement or acceptance of such boundaries by IOM.

[1] Data collection took place in January 2024, but the indicators measured changes between July and December 2023.

5. PROGRAMMING IMPLICATIONS

5.1 Areas of intervention

In the Burundi context, based on our in-depth cluster analysis presented in section '7. Typological analysis', programmatic areas should specifically target those aspects identified as having the strongest impact on the perception of hill stability. For example, taking into account the distinct characteristics of clusters - such as Cluster 2, which groups together the most vulnerable hills - our interventions could focus on improving access to arable land and the resilience of shelters, thus responding directly to the needs identified. Additionally, in areas like Cibitoke where community engagement is notably low (80% showing limited participation), there is a critical need to implement strategies to boost local involvement, ensuring more robust community resilience and stability.

By way of illustration, as highlighted in section **6.1.3** concerning access to arable land, targeted interventions in areas with low Stability Index scores could significantly improve hillside stability. A pertinent example is the commune of Bugabira in Kirundo Province, the most vulnerable in terms of overall score and sub-index for access to basic services. Facing unique challenges such as cyclical drought that leads to periods of famine, Bugabira requires specifically tailored interventions to effectively address its specific conditions.

Furthermore, as demonstrated by the analysis of shelter resistance levels in section 6.2.1, a focus on improving the resilience of dwellings to environmental hazards could contribute significantly to the perception of stability in affected areas. Thus, taking into account the results of the analysis of the ***'10 most influential indicators to the IS score of the third round***', taking into account the exposure of *colline* sides to environmental hazards becomes a crucial parameter for orienting interventions towards activities that strengthen community resilience.

Finally, it is crucial to strengthen the ability of populations to cope with environmental hazards, and to take account of deteriorating access to essential services in partner programs. This is particularly important in areas where the presence of displaced people or returnees can exacerbate communities' already limited capacity to provide basic services. As illustrated in section '6.5.3 Dispute between returnees or IDPs and the host community', social cohesion is generally positive. However, targeted interventions to prevent and resolve tensions, as well as to consolidate peace, are essential in the few areas where conflicts have been reported. The priority hills in this respect are:

- Kazirabageni (Commune de Nyanza-Lac)
- Birimba (Commune de Rumonge)
- Gasaba (Commune de Nyanza-Lac)
- Kinzanza (Commune of Gitanga)
- Rutabo (Busoni municipality)

5.2 Strategy for selecting intervention areas

Interventions must be based on geographical and contextual proximity to develop positive effects. The specificities of the local context must be taken into account to foster the development of a sustainable environment in neighboring localities, as a positive leverage effect of interventions. A grouping of *hills* with a similar Stability Index and sub-indices (belonging to the same cluster) in the same commune could be twinned with a grouping of geographically close localities with the same stability characteristics. These twinned clusters could benefit, for example, from a capacity-building program aimed at improving resilience to environmental hazards in order to achieve a "domino effect", while ensuring that returnees and IDPs enjoy the same rights and equal access to services as the host populations of the beneficiary commune. The map 6 shows the number of *hills* with similar characteristics where this type of intervention is possible in each commune.

5.3 Identifying key variables for effective intervention

As demonstrated in our cluster analysis, notably the contrast between Cluster 0 (high stability) and Cluster 2 (low stability), the ability of populations to remain in their place of residence is strongly influenced by factors such as risk in the face of environmental hazards and socio-economic status. This understanding, based on detailed segmentation of Round 3 data, guides our identification of key variables for effective intervention, underlining the importance of addressing these risks in a targeted way to support long-term stability.

In line with the nexus approach, interventions should either focus on measures to ensure that populations will be able to stay in the long term, or carry out longer-term development interventions in hills where risk from environmental hazards caused by climate change is minimal (the commune of Gashoho, for example). On the other hand, interventions should prioritize indicators on the scale of resilience to environmental hazards that have a strong influence on stability in localities at high risk of hazards linked to environmental conditions due to climate change (the Kibago commune, for example).
Additionally, in localities such as Cibitoke and Rumonge, where pressure on limited resources negatively affects social cohesion, it is crucial to enhance initiatives aimed at promoting community unity and harmony. These programs should include strategies to improve resource management and strengthen social cohesion, directly addressing the tensions exacerbated by competition for scarce resources.

Example of the Nexus approach to communes of convergence

Initially, a nexus intervention could focus on a commune with a low-to-medium SI score (58-66), hosting returnees and/or displaced persons.
Giteranyi, which has received over 14,000 returnees since 2020 and is home to over 5,000 IDPs (DTM February 2024), oould benefit from a synergy of humanitarian, development and peace actions to improve community resilience and prevent the population from needing to leave in the coming months due to the risk of environmental hazards or limited access to basic services and livelihoods. In the event of intervention in this commune, Gitobe and Bwambaragwe, which have similar levels of stability, could benefit from an effective synergy of intervention given their proximity (see table on page 10).

5.4 Programming priorities based on comparative analysis of hill stability scores

A comparative analysis of the *hills* with the highest and lowest stability scores (Appendix 10.5) can provide useful information on programming priorities.
For example, in places with very low stability scores, programming should focus on interventions such as improving: **access to arable land for returnees and IDPs, the resilience of shelters to environmental hazards, and the level of community self-help and cooperation**. On the other hand, in hills with high stability scores, programming should focus on developing sustainable solutions for returnees, IDPs or communities hosting displaced people, such as promoting **livelihoods and access to basic services**.

6. COMMUNITY PERCEPTION

The Stability Index (SI) was estimated at hill level, with each hill having a distinct stability index value between 0 and 100. This was achieved using logistic regression, in which responses to four key questions were compared with those of the 52 variables selected for inclusion in the analysis. An IS score closer to 0 would indicate a relatively unstable locality, where emergency or humanitarian interventions may be better suited, while an index value closer to 100 indicates an area of relative stability, potentially more suited to programming aimed at promoting sustainable solutions to internal displacement and returnee return.

Sub-indices have also been calculated corresponding to each of the three domains that make up the overall Stability Index. They are calculated as simple averages of the questions that make up each domain and are assigned to each hill, like the overall Stability Index. Unless otherwise stated, all averages presented in this report when aggregating scores at a higher administrative level (e.g., commune or province) are calculated using the arithmetic mean.

Figures 3, 4, 5, 6 show the responses to the four key questions used in the SI calculation. The four key questions directly assess key informants' perceptions of community stability. Responses are compared statistically with those of the remaining 52 indicators assessed to estimate the stability score for each locality. They are analyzed descriptively below to give an overview of how perceptions of stability vary between the eight provinces assessed in this evaluation.

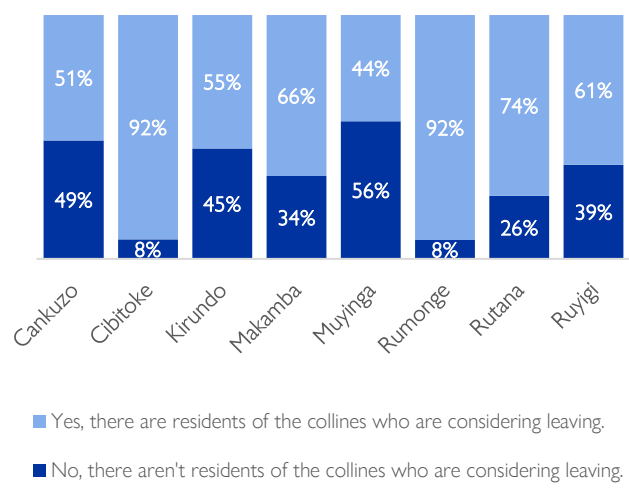
6.1. Analysis of anchoring questions

INTENTIONS TO LEAVE THE HILLS	PERCEPTION OF CHANGES IN ACCESS TO BASIC SERVICES	PERCEPTION OF CHANGES IN SOCIAL COHESION	PERCEPTION OF THE EVOLUTION OF RESILIENCE TO ENVIRONMENTAL HAZARDS

6.1.1 People's intentions (over the next six months)

Around two-thirds of the *hills* surveyed (62) indicated that residents intend to move seasonally in search of work to meet the needs of their families. This intention is particularly marked in the provinces of Cibitoke, Rumonge and Rutana, perhaps reflecting a search for economic opportunities or a response to environmental pressures, as evidenced by the high percentage of residents considering relocation due to lack of access to agricultural land and the impact of climate change. In contrast, in provinces such as Muyinga, the majority of *hills* report that their residents have no intention of leaving, which is corroborated by a high stability score and good social cohesion, indicating a preference for stability and existing community ties. This suggests the presence of favorable conditions that could deter displacement and favor sustainable solutions within the community. The significant absence of responses on reasons for not moving could also signal the need to examine other stability factors not captured by the survey. This could imply that further investigation is needed to understand more comprehensively why some residents do not feel the need or desire to relocate, enhancing the understanding of stability in these provinces.

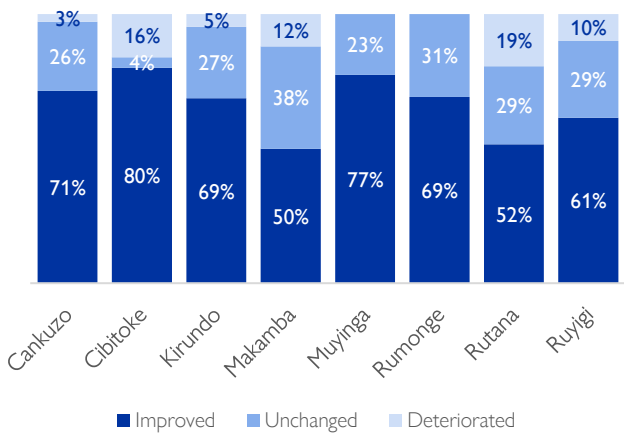
Figure 3: Future intentions (in the next six months)



6.1.2 Perception of access to basic services

An improvement in access to basic services is noted in several of Burundi's provinces, with significant improvement rates in Cibitoke (80%), Muyinga (77%) and Cankuzo (71%) while Makamba has the lowest at 50 per cent. However, a critical aspect emerges concerning the "**Lack or unsustainability of development initiatives or international aid**", particularly prevalent in the majority of Kirundo and Muyinga hills, indicating major concern about the sustainability of the efforts deployed. This situation suggests that, despite the progress made, project sustainability remains a significant challenge, potentially affecting communities' long-term resilience. The reliance on external support underscores the imperative of strengthening local governance and infrastructure to ensure that improvements in access to services are not only temporary but are sustained by robust, state-supported systems. Taking these nuances into account is essential to guide future development efforts and ensure their effectiveness and sustainability within Burundian communities.

Figure 4: Evolution of access to services*.



* Percentages may add up to 99 or 101 per cent due to rounding.

6. COMMUNITY PERCEPTION (CONTINUED)

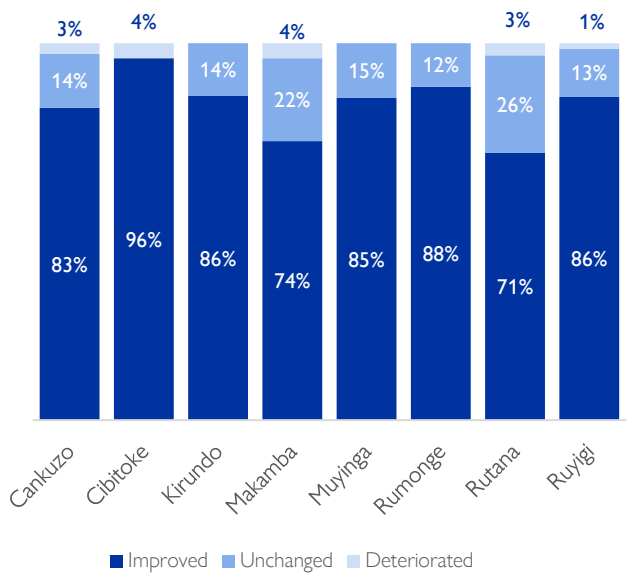
6.1.3 Perception of social cohesion

Perceptions gathered from key informants indictae a significant improvement in social cohesion in a majority of hills . High rates of improvement are reported in provinces such as Cibitoke (96%), Kirundo (86%), and Muyinga (85%), while Makamba (74%) and Rutana (71%) show less improvement. This positive trend reflects considerable progress in strengthening community ties, essential to regional resilience and stability.

Reconciliation initiatives and inter-community dialogue are identified by key informants as the main vectors of this improvement, underlining the effectiveness of these efforts in promoting mutual understanding and community rapprochement. Nevertheless, challenges such as tensions linked to economic inequality remain prevalent, indicating areas requiring continued attention.

The commitment and perceptions of key informants underscore the importance of pursuing targeted initiatives to address underlying issues, with a view to further strengthening social cohesion and supporting inclusive and sustainable community development.

Figure 5. Evolution of social cohesion



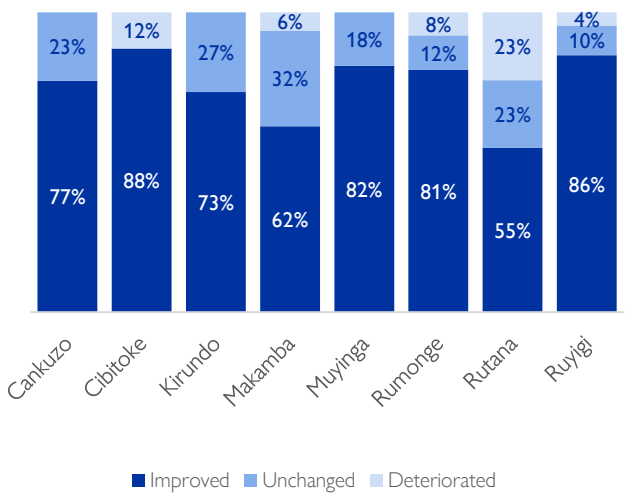
6.1.4 Perception of resilience to environmental hazards caused by climate change

Resilience to environmental hazards in Burundi's provinces shows encouraging improvements, with a weighted average of around 76 percent of hills reporting an improved ability to manage these challenges. Active disaster risk reduction committees and risk management training are cited as key factors in this positive progress. However, regional disparities persist, and provinces such as Makamba still report precarious situations.

The lack of training in risk management remains the main gap to be filled to strengthen resilience. The data indicate that targeted interventions are needed to support areas where residents perceive their situation as degraded due to climate impacts. This adjusted resilience analysis provides essential insights for development and emergency planning efforts, underlining the importance of continuing to build local capacity in the face of climate change.

In this context, it is essential to recognize the progress made while identifying persistent gaps that could be filled by targeted interventions, particularly in areas where perceptions of resilience remain low. Taking these local perceptions into account is crucial to guiding resilience-building efforts and ensuring that communities are better prepared to face the challenges posed by climate change.

Figure 6. Evolution of resilience to hazards environment*.



* Percentages may add up to 99 or 101 percent due to rounding.

6.2. Stability Index scores

The Stability Index (SI) is a tool for measuring the relative stability and resilience of the hills assessed. The score ranges from 0 (low stability) to 100 (high stability). Stability Index (SI) scores for the third round in Burundi show notable variations from previous rounds. For example, Ruyigi (69) and Cankuzo (67) showed steady improvement in terms of social cohesion, as reflected in their increasing scores over the rounds, suggesting a strengthened capacity of these communities to manage internal challenges. Muyinga (70), with high social cohesion scores (84), also showed remarkable stability, surpassing its score in round one (52) and round two (57).

Makamba province remains an area of concern with an IS score of 58 in Round 3, continuing to report challenges, particularly in resilience to environmental hazards (45), despite a slight improvement since Round 1 (53) and Round 2 (52). This trend underlines the importance of climate-focused interventions for this province.

The communes within these provinces also reflect this heterogeneity. Communes such as Gashoho in Muyinga (85) illustrate an increase in resilience since the first round, when Muyinga in general posted lower scores (52). Conversely, communes such as Kayogoro in Makamba (58) remain among the most vulnerable, with consistently low scores across the different rounds of data collection.

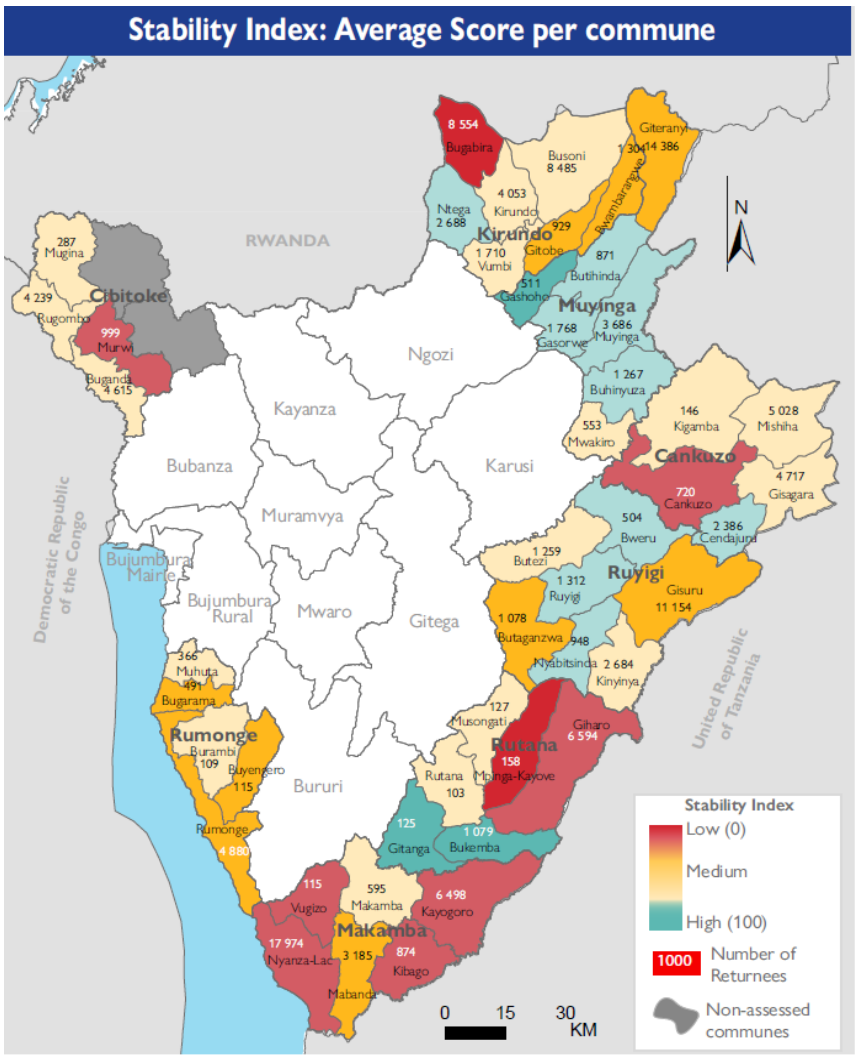
In conclusion, the third-round assessment highlights progress and areas for improvement since the start of the Stability Index. It reveals that significant progress has been made in terms of social cohesion, which is a positive sign for community resilience. However, resilience to environmental hazards remains an urgent concern, particularly in areas that have not shown significant improvement since the first round, thus requiring development and strengthening strategies adapted to changing climatic realities.

Our understanding of overall stability is strengthened by examining the sub-indices and key indicators, whose analyses are detailed in the following sections of the report. We explore how each sub-index contributes to the overall stability score, and identify the ten most influential indicators that shaped the third Round results. In addition, for a specific analysis of performance at the communal level, we will look at Figure 8, which highlights the nuances of stability at the most local level. These analyses enrich our understanding of the dynamics at work and guide intervention strategies.

Figure 7. Average scores by province and scale

Province	Number of IDPs*	Number of returnees	IS Score	Services	Social cohesion	Environmental hazards
Muyinga	7 302	23 042	70	61	84	55
Ruyigi	2 407	18 939	69	63	78	51
Cankuzo	9 571	12 997	67	67	84	58
Cibitoke	14 109	10 236	66	59	74	47
Kirundo	2 151	27 723	65	59	79	48
Rumonge	11 927	5 961	64	60	69	43
Rutana	2 020	8 186	63	64	73	52
Makamba	5 326	29 251	58	59	68	45
Average	6 852	17 042	66	61	77	50

Map 2. Average stability index score by commune:



The representation and use of boundaries, geographical names and related data on maps included in this report are not warranted to be error free nor do they imply a judgement on the legal status of any territory or the endorsement or acceptance of such boundaries by IOM.

6.3. Community Stability Profile: Crossed Perspectives on the Communes of Burundi

The report paints a varied picture of community stability within Burundi's provinces. While some communes display robust stability, others face significant challenges that undermine their stability. In the province of Rutana, for example, the commune of Bukemba has a high Stability Index of 83, indicating a strong level of stability, while the commune of Mpinga-Kayove, with a Stability Index of 40, experiences considerable challenges. This heterogeneity of stability levels highlights the need to adapt stabilization interventions to the specific characteristics of each commune.

Figure 8. Average scores by commune and by scale:

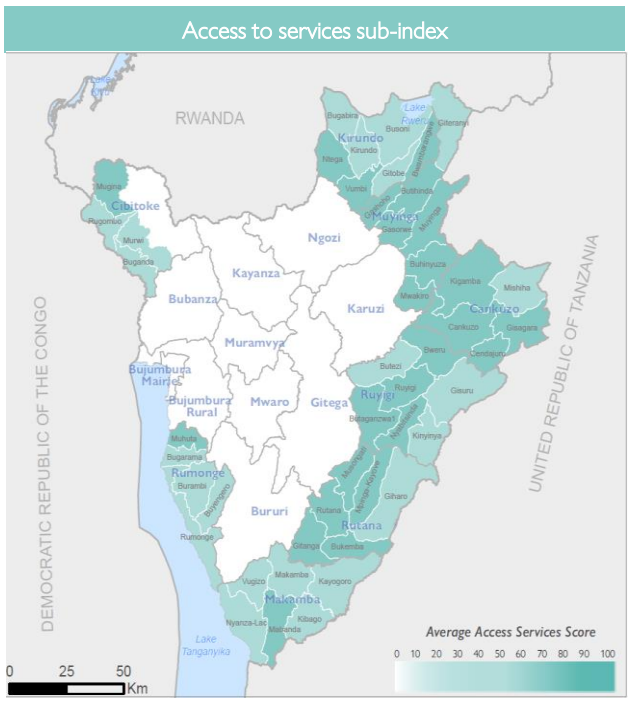
Province	Commune	Number of IDPs	Number of returnees	IS Score	Services	Social cohesion	Environmental hazards
Muyinga	Gashoho	166	511	85	68	88	71
Rutana	Bukemba	132	1 079	83	63	70	67
Rutana	Gitanga	30	125	82	61	69	65
Muyinga	Buhinyuza	28	1 267	78	62	91	54
Muyinga	Butihinda	103	871	77	76	92	65
Ruyigi	Nyabitsinda	23	948	76	69	82	57
Kirundo	Ntega	112	2 688	75	66	87	54
Ruyigi	Ruyigi	880	1 312	75	69	76	54
Muyinga	Gasorwe	87	1 768	74	64	84	53
Cankuzo	Cendajuru	667	2 386	73	71	83	61
Muyinga	Muyinga	1 495	3 686	73	63	87	60
Ruyigi	Bweru	388	504	73	68	78	48
Cankuzo	Mishiha	4 095	5 028	71	57	87	53
Ruyigi	Kinyinya	305	2 684	71	59	79	55
Cibitoke	Rugombo	2 882	4 239	70	57	76	49
Kirundo	Busoni	530	8 485	70	60	75	48
Rutana	Rutana	193	103	70	64	85	60
Cibitoke	Mugina	1 950	287	69	65	72	44
Cankuzo	Gisagara	2 354	4 717	68	66	80	56
Cankuzo	Kigamba	1 477	146	68	75	88	65
Kirundo	Vumbi	260	1 710	68	61	77	41
Rumonge	Burambi	522	109	68	58	74	46
Rutana	Musongati	273	127	67	75	85	59
Ruyigi	Butezi	153	1259	67	59	74	48
Cibitoke	Buganda	5 275	4 615	66	58	74	46
Kirundo	Kirundo	229	4 053	66	58	73	49
Makamba	Makamba	389	595	66	57	81	47
Muyinga	Mwakiro	154	553	66	61	97	59
Rumonge	Muhuta	1 933	366	66	67	78	58
Kirundo	Bwambarangwe	86	1 304	64	64	89	50
Kirundo	Gitobe	74	929	64	60	91	46
Makamba	Mabanda	580	3185	64	68	65	47
Ruyigi	Butaganzwa	78	1078	64	67	85	55
Rumonge	Rumonge	6314	4880	63	59	62	40
Muyinga	Giteranyi	5269	14386	62	53	72	49
Ruyigi	Gisuru	580	11154	62	58	74	47
Rumonge	Bugarama	2944	491	61	58	74	40
Rumonge	Buyengero	214	115	60	60	76	32
Makamba	Kayogoro	214	6498	58	60	67	40
Cankuzo	Cankuzo	978	720	57	68	85	60
Makamba	Vugizo	198	115	57	57	72	43
Cibitoke	Murwi	1 674	999	56	59	72	45
Rutana	Giharo	947	6 594	56	58	71	40
Makamba	Nyanza-Lac	3 790	17 977	55	58	66	47
Makamba	Kibago	155	881	54	59	72	35
Kirundo	Bugabira	860	8 554	47	51	70	48
Rutana	Mpinga-Kayove	445	158	40	72	67	48

6.4. Stability Index sub-indices

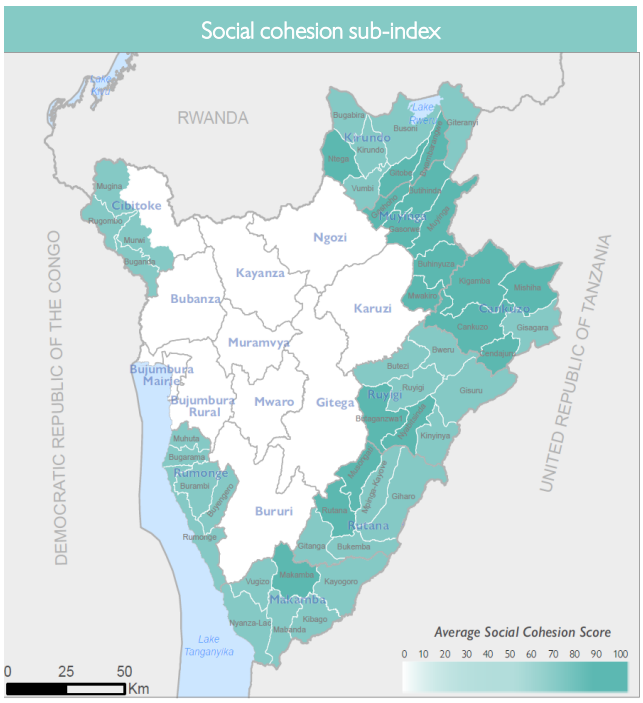
Breaking down the overall Stability Index score reveals the nuances of the three fundamental components - livelihoods and access to basic services, social cohesion, and resilience to environmental hazards. This detailed analysis demonstrates the diversity of living conditions within communes. In particular, some communes with a high number of returnees, such as Giteranyi in Muyinga (62) and Mishiha in Cankuzo (71), show specific weaknesses in access to basic services, despite rather reassuring overall stability scores. However, this analysis does not directly address the residents' feelings of belonging, a key element for understanding their community integration and resilience.

The sub-index for **access to services and means of subsistence**, ranging from 51 to 76, reveals marked heterogeneity within communes, particularly those that have experienced large-scale repatriation, where scores tend to be lower. Notably, in Muyinga and Cankuzo, the communes of Giteranyi (53) and Mishiha (57) stand out: although belonging to provinces considered relatively stable, they show notable vulnerabilities in terms of access to basic services, underlining the impact of the massive influx of returnees on local resources. Similarly, all the communes assessed in Cibitoke, with the exception of Mugina, as well as Giharo commune in Rutana province, have below-average sub-indices. It also appears that these communes with low sub-indices are home to a considerable number of IDPs and returnees. Bugabira is the most vulnerable commune in Kirundo, both in terms of its overall score and its sub-index for access to basic services. It is the commune with the highest number of returnees, but also faces cyclical drought, which leads to periods of famine.

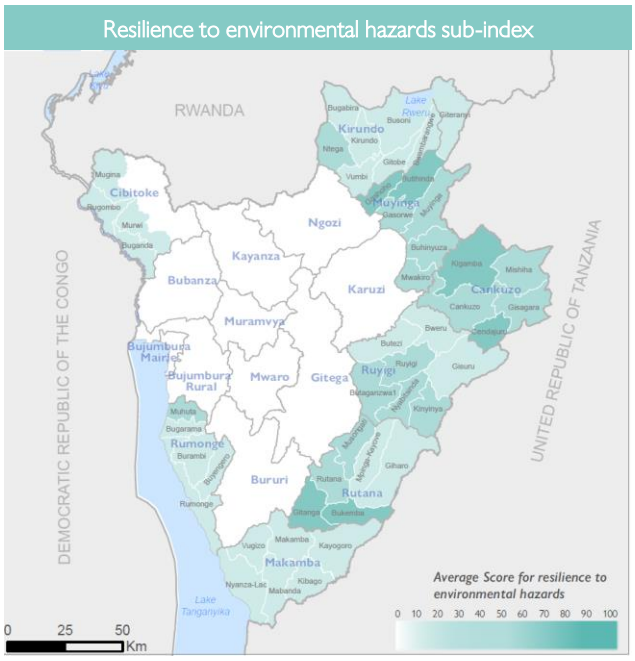
Map 3. Average score for the access to services sub-index



Map 4. Average score for the social cohesion sub-index



Map 5. Average score for the resilience to environmental hazards sub-index



Social cohesion, with scores ranging from 62 to 97, illustrates significant strength in communities, particularly in Muyinga and Cankuzo, where the majority of communes record high scores (80 and over). This contrasting solidarity is less observable in other provinces, where fewer than two communes achieve such high levels of cohesion. Pressure on limited resources appears to be having a negative influence on social cohesion in localities such as Cibitoke and Rumonge, highlighting the need for stronger initiatives to promote community unity and harmony.

The sub-index of **resilience to environmental hazards**, ranging from 32 to 71, exposes the precariousness of resilience to extreme climatic conditions, with many communes scoring below 50. This fragility underlines the imperative need to improve communities' capacities to adapt and prepare for environmental challenges. Efforts need to be particularly intensified in regions where environmental conditions exacerbate existing vulnerabilities, as evidenced by lower scores in provinces with significant IDP and returnee populations.

7. ANALYSIS OF THE MAIN INDICATORS INFLUENCING THE STABILITY SCORE

This phase of the Stability Index is based on analysis of the statistically significant correlation between the anchor questions (page 9) and the variables relating to the various indicators, to assess the impact of each indicator on the overall Stability Index score.

Exploring these key indicators, based on the trends observed across the data, enables us to identify factors influencing the perception of stability in a locality. For a more detailed overview of each indicator measured, see Appendix 10.6. The descriptive analysis of the first ten indicators, in relation to the perception of change in each of the three themes of the Stability Index, sheds light on their geographical variations in the different provinces evaluated.

7.1 Key indicators

The corresponding figure for the third round gives an overview of the ten key indicators with the greatest impact on the overall Stability Index score, divided equally between the three evaluation axes.

For environmental hazards, the focus is on infrastructure robustness and community preparedness for climatic events. Indicators such as the level of shelter resilience, the existence of local hazard-preparedness policies, the implementation of coping mechanisms and knowledge of community gathering places stand out as the most decisive. Their influence underlines the crucial importance of building resilient communities in the face of the challenges posed by climate change.

In the field of social cohesion, aspects such as participation in public affairs, the level of cooperation and mutual aid between community members, and disputes between returnees or IDPs and the host community stand out as fundamental. These indicators highlight the need to encourage civic engagement and community solidarity to strengthen social ties and stability.

In terms of access to services and livelihoods, access to civil status documents and access to arable land for returnees and IDPs are identified as key levers. The significance of these indicators reveals how vital access to essential resources and legal recognition are to the security and well-being of populations, directly influencing their perception of stability.

The detailed analysis of these indicators for Round 3 confirms that targeted interventions on these specific aspects can greatly contribute to improving the perception and reality of stability within communities. Recommendations for action and further analysis of the implications of these results are discussed in section 5.1 of the report.

7.2 Highly influential indicators by scale

Analysis of the indicators by scale reveals crucial levers for action to reinforce community stability.

Environmental hazards: Representing 21 per cent of total influence, all indicators highlight the preponderance of weather resilience, emphasizing the urgency of thorough community preparation and adaptation.

Services and Livelihoods: These indicators, with a 17 per cent influence, emphasize the importance of access to legal and land resources, pointing the way to a substantial improvement in the economic security of local residents.

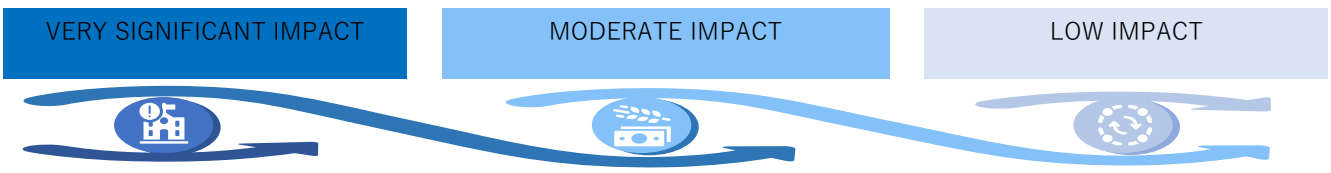
Social cohesion: Crucial for 14 per cent of the index, cohesion is reinforced by positive community interaction and effective conflict resolution, going beyond mere participation and cooperation.

These indicators, specific but complementary to the top 10, demonstrate the importance of a strategy focused on key aspects to weave a resilient and united community. This review highlights specific areas of intervention for strategic impact on stability.

Figure 9. The seven most influential indicators (in descending order of their correlation coefficients with the perceived evolution of each theme)

SERVICES AND LIVELIHOODS	SOCIAL COHESION	DAMAGE CAUSED BY ENVIRONMENTAL HAZARDS
		Shelter resistance level
Access to civil status documents		
	Participation in public affairs	
		Existence of local policies to prepare for environmental hazards
		Setting up adaptation mechanisms to increase community resilience
Access to arable land for returnees and IDPs		
	Level of cooperation and mutual aid	
		Knowledge of the community gathering place
		Participation in mitigation activities
	Disputes between returnees or internally displaced persons (IDPs) and the host community	

Figure 10: Highly influential indicators by scale



ENVIRONMENTAL HAZARDS

1. Level of Shelter resistance
2. Existence of local policies to prepare for environmental hazards
3. Setting up adaptation mechanisms to increase resilience
4. Knowledge of the community gathering place
5. Participation in mitigation activities

SERVICES & LIVELIHOODS

1. Access to civil status documents
2. Access to arable land for returnees and IDPs
3. Access to the telephone network
4. Farmland ownership
5. Access to legal proceedings

SOCIAL COHESION

1. Participation in public affairs
2. Level of cooperation and mutual aid
3. Dispute between returnees/PDIs and the host community
4. Frequency of cases of suspected witchcraft
5. Theft of personal belongings

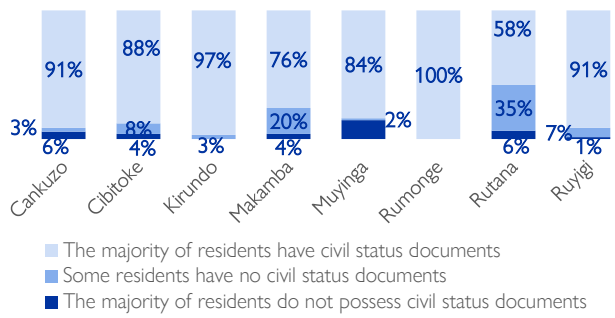
7. ANALYSIS OF THE MAIN INDICATORS INFLUENCING THE STABILITY SCORE

7.3. Key indicators for services and livelihoods

7.3.1 Possession of civil status documents

The data reveal that, while a large majority of residents in most provinces hold civil status documents, significant gaps persist. In Muyinga, a notable 15 per cent of residents lack these essential documents, with particular attention required for the Giteranyi *hills* . Although less critical, in Rutana, 35 per cent of inhabitants only partially possess these documents, reflecting an urgent need for targeted interventions in legal documentation to guarantee access to rights and services.

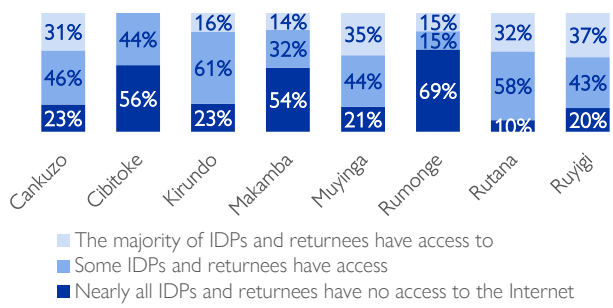
Figure 11. Possession of civil status documents*



7.3.2 Access to arable land by Returnees and IDPs

Access to arable land remains a significant issue for IDPs and returnees, particularly in Rumonge where 69 per cent of them encounter access difficulties, followed by Cibitoke and Makamba with 56 per cent and 54 per cent respectively. This unavailability correlates with lower Stability Index scores for these provinces, underlining the impact of land access on overall stability. In contrast, Ruyigi (37%), Muyinga (35%) and Rutana (32%) show slightly better accessibility, with a third of *hills* offering majority access, pointing to more successful integration of displaced populations.

Figure 12. Access to arable land by returnees and IDPs*.

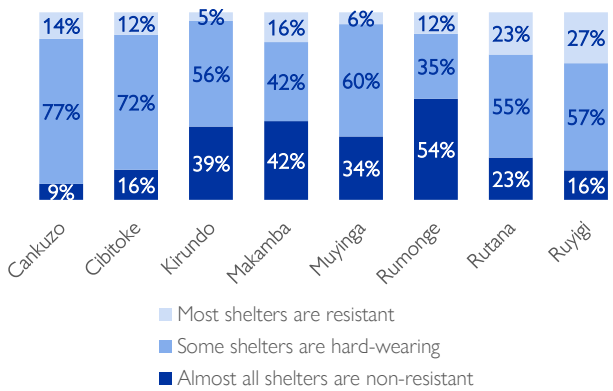


7.4. Main indicators of resilience to environmental hazards

7.4.1 Shelter resistance level

A more detailed analysis of shelters' resistance to environmental hazards reveals a notable diversity across the provinces. The majority of shelters in provinces such as Cankuzo (77% partially resilient) and Cibitoke (72% partially resilient) show some ability to cope with adverse environmental conditions, while Rumonge stands out for increased vulnerability, with 54 per cent of shelters reported as predominantly non-resilient. This precariousness reflects concerns raised in community perceptions, where Rumonge had also reported challenges in terms of social cohesion and resilience. The correlation between shelter structure and perceived stability suggests the importance of targeted initiatives to improve housing quality, thereby strengthening community resilience to climatic challenges and contributing to an increased perception of stability in these regions.

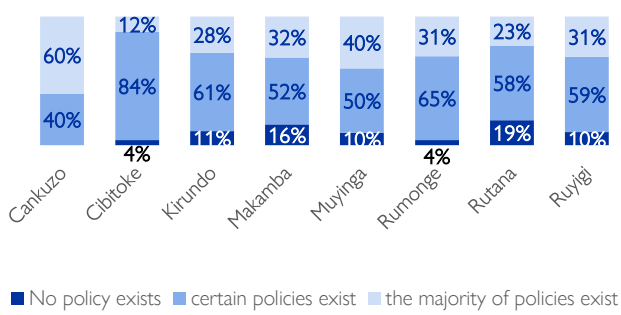
Figure 13. Shelter resistance levels*.



7.4.2 Existence of local policies to prepare for environmental hazards

Although local policies are in place in many *hills* to mitigate the impacts of environmental hazards, as in Cibitoke where 84 percent of *hills* benefit from some measures, notable gaps remain. Implementation is not universal, leaving potentially exposed areas without adequate protection. This situation highlights the importance of extending and harmonizing preparedness efforts to ensure uniform resilience to climate challenges across all hills in the provinces concerned, with Rutana leading the way where 19 per cent of *hills* have no policy at all.

Figure 14. Existence of local preparedness policies for environmental hazards

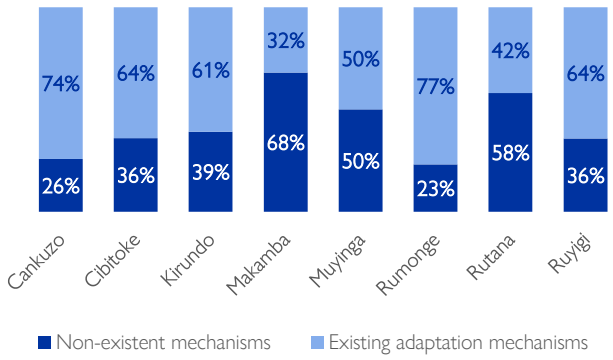


* Percentages may add up to 99 or 101 percent due to rounding.

7.4.2 Setting up adaptation mechanisms to increase community resilience

The introduction of adaptation mechanisms, such as operational contingency plans, varies significantly across the provinces, revealing disparities in community preparedness for environmental hazards. Rumonge (77%) and Cankuzo (74%) stand out for their notable commitment to developing resilience strategies, reflecting proactivity in the face of environmental challenges. However, in Makamba (32%), Rutana (42%) and Muyinga (50%), a considerable portion of *hills* remain without established adaptation mechanisms, highlighting gaps in capacity to respond to climate change. This heterogeneity in the establishment of adaptation mechanisms underlines the urgency of widespread action to ensure balanced resilience on a national scale, in line with the perceptions of vulnerability and stability previously analyzed.

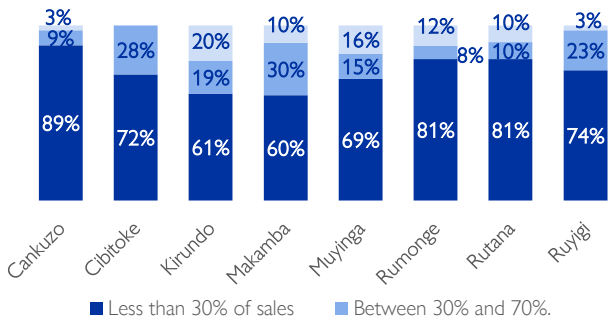
Figure 15. Implementing adaptation mechanisms to increase community resilience



7.4.3 Knowledge of the community gathering place

The survey reveals that in most provinces, a large majority of communities - represented by over 60 percent of *hill* sides in provinces such as Cankuzo (89%), Rumonge and Rutana (both 81%) - have only limited knowledge of designated gathering places for climatic emergencies. This indicates a crucial need to strengthen information and awareness campaigns within communities to ensure an effective and coordinated response in the event of disasters. Improving this knowledge is essential to complement the adaptation mechanisms and operational contingency plans already in place, ensuring greater preparedness and resilience to environmental hazards.

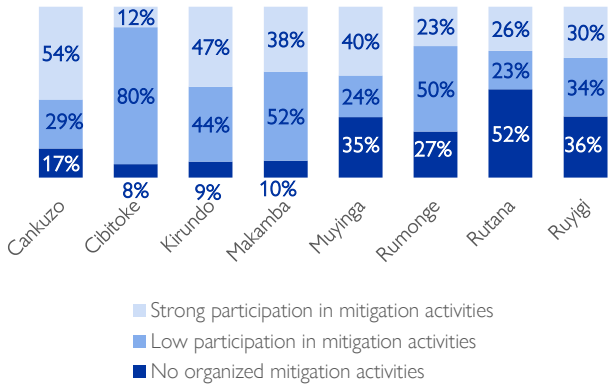
Figure 16. Knowledge of gathering place Community*



7.4.4 Participation in mitigation activities

The data show notable variability in community engagement with climate risk mitigation initiatives. Cibitoke stands out for a high rate of low participation (80%), highlighting a pressing need to boost community engagement. In contrast, Cankuzo illustrates a pattern of positive engagement, with more than half of its *hills* (54%) actively involved in mitigation efforts. This disparity highlights the importance of increased communication and awareness to encourage wider participation, particularly in Rutana where a large proportion of key informants (52%) are unaware of such activities. Improving this engagement is crucial to strengthening community resilience, as underlined by previous perceptions of environmental preparedness and social cohesion.

Figure 17. Participation in mitigation* activities

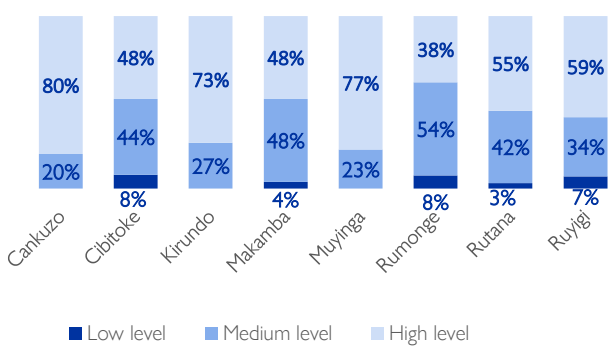


7.5. Main social cohesion indicators

7.5.1 Participation in public affairs

Community members' involvement in public affairs is predominantly high across the provinces, particularly in Kirundo (73%), Muyinga (77%), and Cankuzo (80%), where levels of civic engagement are especially strong. This active participation is a key indicator of social cohesion and community stability. However, in Cibitoke, Makamba, and Rutana, although participation levels are almost equally split between medium and high, this variability suggests that there are still opportunities to enhance engagement. This indicates that targeted interventions could further improve civic participation and strengthen social cohesion, in line with previously noted community resilience and involvement in mitigation initiatives..

Figure 18. Participation in public affairs

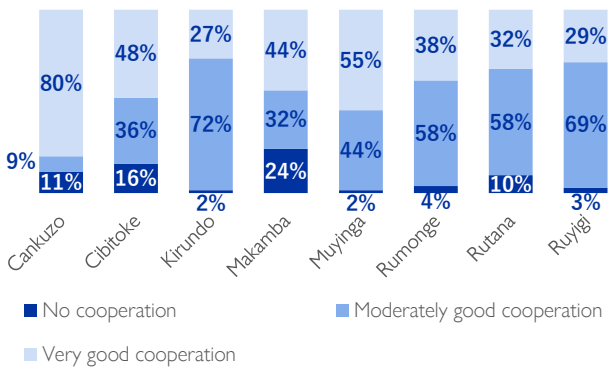


* Percentages may add up to 99 or 101 percent due to rounding.

7.5.2 Level of mutual aid and cooperation

The key informant survey reveals strong solidarity within communities, particularly marked in Cankuzo where 80 per cent of *hills* report very good cooperation. Muyinga follows at 55 per cent, illustrating significant levels of mutual aid and unity. However, moderate cooperation prevails in other regions, notably Kirundo (72%) and Ruyigi (69%), suggesting room for improvement to achieve more complete harmony. Makamba, on the other hand, presents a mixed picture, with 44 per cent of *hills* experiencing good cooperation, despite 24 per cent where cooperation is low. This contrast points to opportunities for improving cohesion in certain areas..

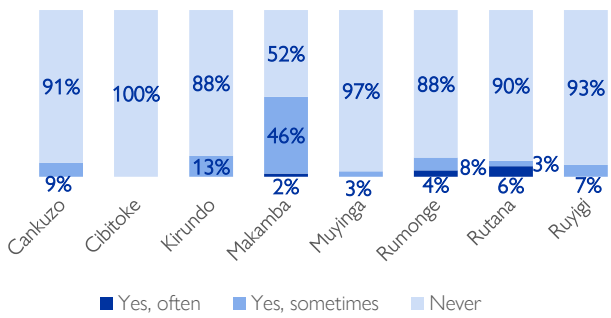
Figure 19. Level of mutual aid and cooperation



7.5.3 Disputes between returnees or internally displaced persons (IDPs) and the host community

In Cibitoke, key informants report no disputes between returnees, IDPs, and host communities. In Muyinga, a similar absence of disputes is reported by 97 percent of key informants, indicating a general absence of conflict in these regions. However, Makamba presents a contrast, with 46 percent of hills reporting occasional disagreements, while the majority (52%) report no conflicts. While these figures indicate a general absence of conflict, it is important to continue monitoring these communities to ensure that minor disagreements do not escalate and disrupt the community dynamics..

Figure 20. Dispute between returnees or internally displaced persons (IDPs) and the host community*.



* Percentages may add up to 99 or 101 percent due to rounding.

8. TYPOLOGICAL ANALYSIS

This segmentation, based on an in-depth analysis of the 52 variables contributing to the Stability Index (see Appendix 10.2 for a full explanation of the clustering methodology), reveals groups of *hills* sharing similar characteristics despite their geographical dispersion. The identification of these clusters facilitates targeted and adapted programming, strengthening the effectiveness of interventions focused on sustainable solutions.

Figure 21. Average Stability Index and sub-index scores by cluster

	Number of hills	Average Overall Score	Average Score Access to services	Average Social Cohesion Score	Average Resilience Score to environmental hazards
0	117	75	64	82	58
1	96	68	68	82	57
2	150	57	55	69	40

CLUSTER 0 :

This cluster includes 117 *hills* and shows remarkable stability, with an average score of 75, illustrating communities that are well anchored in terms of stability and resilience. Social cohesion and the ability to cope with environmental hazards in this cluster are robust, similar to those observed in Cluster 1. However, access to services, although relatively high with a score of 64, requires particular attention to ensure that the basic needs of all *hills* are met. The provinces of Makamba and Kirundo stand out, with respectively 42 per cent and 38 per cent of their *hills* belonging to this cluster, indicating areas of particularly high stability that can serve as models for interventions in other regions. This distinction underlines the importance of maintaining and extending access to essential services to preserve the remarkable stability observed in these communities.

CLUSTER 1 :

Comprising 96 *hills* , this cluster boasts an overall stability average of 68, and stands out for its exceptional social cohesion, with a score of 82, as does cluster 0. Resilience to environmental hazards and access to services, with scores of 57 and 68 respectively, indicate a well-maintained balance between preparedness for environmental challenges and access to essential infrastructure. Cankuzo (57%) and Rutana (45%) have the highest proportions of their *hills* in this cluster, illustrating a solid foundation of social cohesion and community stability. These provinces, through their significant contribution to this cluster, exemplify communities where cohesion and stability serve as the basis for further strengthening resilience and access to essential services.

CLUSTER 2 :

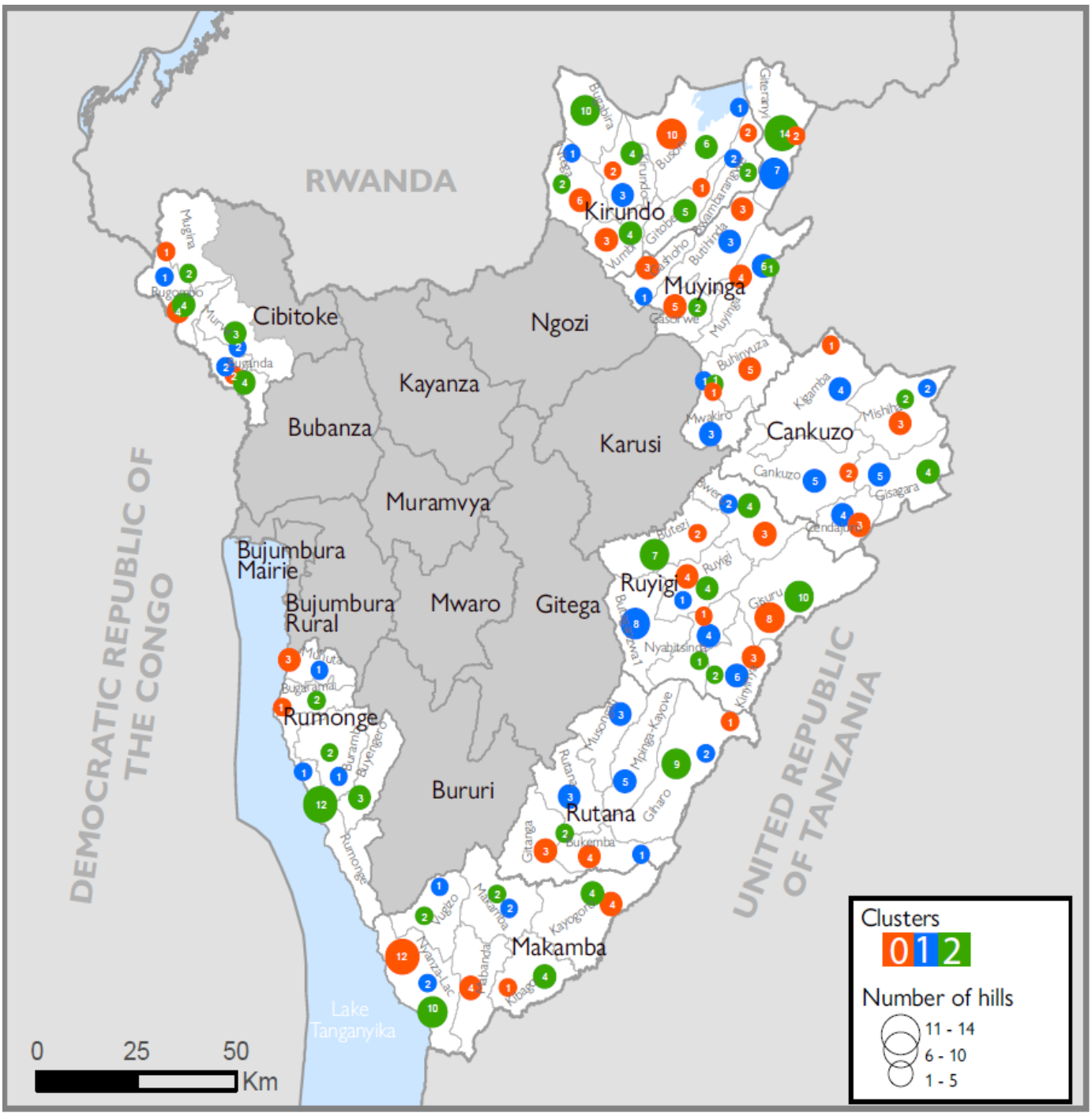
This cluster comprises 150 *hills* , characterized by the lowest average stability with an overall score of 57. Scores for access to services, social cohesion and resilience to environmental hazards are also the lowest of all clusters, signalling areas in need of urgent intervention. Rumonge stands out in particular, with 73 per cent of its *hills* in this cluster, followed closely by Kirundo (52%) and Cibitoke (52%), highlighting areas where stability challenges are most pressing. The high concentration of vulnerable *hills* in these provinces underlines the urgent need for targeted humanitarian and development actions to improve quality of life and community resilience.

CONCLUSION

The cluster analysis clearly illustrates the need for a differentiated approach to intervention programming to address the distinct needs identified in each cluster. Intervention strategies should be specifically targeted: strengthening access to services in Cluster 0 to maintain their high stability, exploiting the strong social cohesion of Cluster 1 to improve environmental resilience and services, and focusing humanitarian and development interventions on Cluster 2, where stability challenges are most critical. This segmentation will maximize the impact of initiatives and promote stable, resilient communities, building on the strengths and directly addressing the specific vulnerabilities of each group...

8. Typological analysis

Map 6. Grouping of similar *hills* using K-means



The representation and use of boundaries, geographical names and related data on maps included in this report are not warranted to be error free nor do they imply a judgement on the legal status of any territory or the endorsement or acceptance of such boundaries by IOM.

9. CONCLUSION

The analysis presented in this report, drawing on rigorous methods such as the cluster analysis discussed in section '7. Typological analysis', provides a better understanding of the main indicators influencing the Stability Index score of a particular area. It highlights the priorities for intervention along the humanitarian, peace and development nexus, essential for building community resilience and stability, and preventing future displacement.

The results of this third round of the Stability Index implemented in Burundi with the participation of all stakeholders reveal the significant impact of certain indicators, particularly those linked to resilience in the face of environmental hazards. As indicated in sections '6.2 Environmental hazards' and '8.1 Sectors of intervention', the inclusion of these key indicators in humanitarian and development interventions would contribute to the stability of most of the hills hosting returnees and IDPs.

In addition, the identification of the most influential indicators in the three key themes underlines the importance of a holistic approach. It is crucial to develop and promote policies and programs that impact not only access to basic services and livelihoods, but also social cohesion, as outlined in the 'Programming implications' (section 8). This integrated approach, supported by the evidence of our analysis and specific recommendations for targeted interventions, is fundamental to addressing the complex aspects of community stability.

In conclusion, this report not only provides an overview of the current dynamics of stability in Burundi, but also offers a strategic framework for future interventions. The effectiveness of these interventions will depend on their ability to align with the contextual realities identified in our analyses, and to collaboratively mobilize different stakeholders for sustainable impact. Future research should continue to explore these dimensions, refining our understanding and response to the challenges of stability in Burundi.

Comparative Analysis of the Three Rounds: Implications for Humanitarian and Development Actors

Comparative analysis between the first and third rounds highlights significant evolutions in the factors influencing stability in Burundi, illustrating the ability of communities to adapt to recurring and new challenges. The second round, while important for providing intermediary insights, serves here as additional context rather than the main focal point, as our focus is on the first and third rounds, which took place during the same climatic periods (June-December) of the respective years, enabling a direct and relevant comparison of annual trends.

As we explored the Stability Index, a notable shift was observed in the distribution of influential indicators between these two rounds. The first round emphasized the importance of aspects relating to natural hazards and the accessibility of essential services. In the third round, on the other hand, although the emphasis is also on these areas, particular attention is paid to resilience in the face of environmental hazards, indicating a shift in community priorities and needs. Understanding this shift is crucial to effectively aligning future interventions with the evolving needs of populations.

The contrast between community perceptions and stability scores observed in previous rounds has faded in round three, revealing a growing alignment between these two dimensions. This consistency suggests that improvements in key areas such as access to services and environmental resilience are beginning to be perceived and appreciated by communities, strengthening the case for an integrated strategy embracing both long-term development interventions and targeted humanitarian actions.

In response to these observations, we recommend further analysis to decipher the dynamics underlying the evolution of influential indicators, enabling finer-tuning of interventions. In addition, it is essential to further investigate the divergence between community perceptions and stability scores, encouraging more open communication and community engagement to reconcile these perspectives.

In summary, this comparative analysis enriches our understanding of stability in Burundi, underlining the importance of remaining agile and responsive to changes in the humanitarian and development landscape. By taking into account the lessons learned from the three rounds of assessment, the actors involved are better equipped to design and implement programs that respond holistically to the complex challenges of community stability.

Collection and analysis activities implemented by:

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10. APPENDICES

10.1 Logistic regression

Logistic regression is a statistical analysis technique commonly used to explore the relationships between a binary dependent variable (Y) and a set of independent or explanatory variables. It models the probability of the dependent variable 'Y' taking on a certain value as a function of the values of the explanatory variables. Logistic regression can be used to analyze the impact of each explanatory variable on the dependent variable, and to predict the values of the dependent variable as a function of the values of the explanatory variables. In the context of the SI, logistic regression is used to analyze the relationships between the explanatory variables (e.g., indicators of access to services, indicators of social cohesion and indicators of resilience) and the dependent variable (each of the four specific perception questions).

10.2 Cluster analysis - cluster generation

K-means clustering is a machine learning algorithm used to group data points into k clusters and has been used to inform typological analyses of Stability Index data in a variety of contexts. The algorithm uses 52 specific variables to distribute the data points (in this case, the hills) into clusters. The value of K, that is, the desired number of clusters, is specified before the algorithm is executed. The typological analysis conducted provides a nuanced perspective on the stability dynamics within the evaluated communities, enabling a strategic approach to targeted interventions for durable solutions. By segmenting the hills into three distinct clusters based on the overall scores of the Stability Index and sub-scores in key areas, this methodology highlights the similarities and differences among different localities. The aim of K-means is to create clusters in such a way that the data points within each cluster are closer to the center of that cluster than to the center of any other cluster. In other words, the hills are closer to each other than to other villages. The main use case for K-means clustering is to discover structure and find patterns in the data, i.e. to discover similarities and differences between data points.

10.3 Secondary sources and definitions

- JRRP 2021: 2021 Burundi Joint Refugee Return and Reintegration Plan
- DTM: Basic Evaluation - February 2024
- RESILIENCE: the ability of communities living in areas exposed to the consequences of climate change to anticipate and adapt to the risks of environmental hazards, and to absorb, respond to and recover from shocks and stresses effectively and rapidly, without compromising their long-term livelihoods and lifestyles, ultimately improving their living conditions (ARC-DToolkit_FrenchNeutral_Final_Oct2017.pdf (resiliencenexus.org)

10.4 Average round scores by province and scale

	IS Score			Services			Social cohesion			Environmental hazards		
Province	1st ROUND	2nd ROUND	3rd ROUND	1st ROUND	2nd ROUND	3rd ROUND	1st ROUND	2nd ROUND	3rd ROUND	1èr ROUND	2ème ROUND	3ème ROUND
Cankuzo	58	56	67	55	58	67	74	66	84	56	52	58
Rutana	58	55	63	58	57	64	81	69	73	51	49	52
Makamba	54	53	58	53	59	59	80	65	68	53	44	45
Muyinga	57	52	70	59	51	61	81	78	84	48	45	55
Cibitoke	54	52	66	60	57	59	78	64	74	44	43	47
Ruyigi	54	50	69	56	52	63	77	72	78	46	41	51
Rumonge	57	49	64	51	52	60	82	70	69	48	40	43
Kirundo	53	49	65	53	52	59	75	76	79	47	39	48
Average	55	52	66	55	54	61	78	71	77	49	43	50

10.5 Table of IS score, sub-indices and top ten indicators scores

Province	Commune	Hill	Cluster	IS Score	Access to civil status documents	Access to arable land for returnees and IDPs	Level of cooperation and mutual aid	Disputes between returnees or internally displaced persons (IDPs) and the host community	Participation in public affairs	Shelter resistance level	Knowledge of the community gathering place	Participation in mitigation activities	Existence of local policies to prepare for environmental hazards	Setting up adaptation mechanisms to increase community resilience
Cankuzo	Cankuzo	Cankuzo	1	82	5	10	10	10	10	10	0	0	10	10
Cankuzo	Cankuzo	Musenyi	0	74	0	10	0	10	10	0	10	5	5	10
Cankuzo	Cankuzo	Muterero	1	55	5	10	10	10	5	5	0	0	5	0
Cankuzo	Cankuzo	Kabeza	1	54	5	10	10	10	10	5	0	0	5	0
Cankuzo	Cankuzo	Muyaga	1	54	5	10	5	10	5	5	0	0	10	0
Cankuzo	Cankuzo	Kabuga	0	44	5	10	10	10	10	0	0	5	5	10
Cankuzo	Cankuzo	Kavumu	1	34	5	10	10	10	5	5	0	0	10	0
Cankuzo	Cendajuru	Twinkwavu	0	79	0	10	10	10	5	5	0	10	10	10
Cankuzo	Cendajuru	Misugi	0	78	5	10	10	10	10	5	5	10	10	10
Cankuzo	Cendajuru	Gisoro	1	78	10	10	10	10	10	5	0	5	10	10
Cankuzo	Cendajuru	Kiruhura	1	74	10	10	10	10	10	5	0	10	10	10
Cankuzo	Cendajuru	Gitaramuka	1	70	10	10	10	10	10	5	0	5	10	10
Cankuzo	Cendajuru	Rukoyoyo	0	66	5	0	10	10	10	5	5	10	10	10
Cankuzo	Cendajuru	Kibande	1	66	10	10	10	10	10	10	0	10	10	10
Cankuzo	Gisagara	Gitwenge	1	80	10	10	10	10	10	10	0	10	10	0
Cankuzo	Gisagara	Gisagara	1	80	10	10	10	10	10	10	0	10	10	10
Cankuzo	Gisagara	Muganza	1	77	10	10	10	10	10	5	0	0	5	0
Cankuzo	Gisagara	Bunyerere	1	68	5	10	10	10	10	5	0	5	5	0
Cankuzo	Gisagara	Nyuro	1	66	10	10	10	10	10	5	0	10	10	10
Cankuzo	Gisagara	Gisoko	2	63	0	10	10	5	10	5	0	5	5	10
Cankuzo	Gisagara	Camazi	2	60	0	10	10	10	5	5	0	5	5	0
Cankuzo	Gisagara	Bumba	2	59	0	10	0	5	5	0	0	5	5	10
Cankuzo	Gisagara	Mburi	2	57	0	10	5	5	10	5	0	5	5	10
Cankuzo	Kigamba	Rusagara	1	88	10	10	10	10	10	5	0	10	10	10
Cankuzo	Kigamba	Shinge	1	76	10	10	10	10	10	5	0	10	10	10
Cankuzo	Kigamba	Gitanga	1	70	10	0	10	10	10	10	0	10	10	10
Cankuzo	Kigamba	Moisture_I	1	63	5	10	10	10	10	5	0	10	10	10
Cankuzo	Kigamba	Rujungu	0	43	5	10	0	10	10	5	0	10	10	10
Cankuzo	Mishiha	Mishiha	1	87	5	10	10	10	10	5	0	10	5	10
Cankuzo	Mishiha	Rutsindu	1	84	5	10	10	10	10	5	0	10	5	10
Cankuzo	Mishiha	Munzenze	2	82	5	10	10	10	10	5	0	10	5	10
Cankuzo	Mishiha	Kaniha	0	77	5	10	10	10	10	5	5	10	10	10
Cankuzo	Mishiha	Mwiruzi	0	61	0	10	10	10	5	5	0	10	10	0
Cankuzo	Mishiha	Kibimba	0	60	5	5	5	10	10	5	0	5	10	10
Cankuzo	Mishiha	Rukwega	2	45	0	10	0	10	10	5	0	10	5	10
Cibitoke	Buganda	Gasenyi-Rural	1	86	5	10	5	10	5	10	0	5	5	10
Cibitoke	Buganda	Gasenyi-Centre	0	78	5	10	10	10	10	10	0	10	5	10
Cibitoke	Buganda	Kansega	2	75	5	10	10	10	10	5	0	5	5	10
Cibitoke	Buganda	Ndava-Village	0	74	0	10	0	10	5	5	5	5	5	10
Cibitoke	Buganda	Nyamitanga	2	63	0	10	5	10	10	5	0	5	5	0
Cibitoke	Buganda	Kaburantwa	1	61	0	10	5	10	0	5	0	5	0	0
Cibitoke	Buganda	Nimba	2	54	0	5	10	10	10	0	0	0	5	10
Cibitoke	Buganda	Ruhagarika	2	40	5	10	5	10	5	5	0	5	5	0
Cibitoke	Mugina	Rugajo	2	74	0	10	10	10	5	5	0	5	10	10
Cibitoke	Mugina	Mugina	2	70	0	10	10	10	5	5	0	5	5	10
Cibitoke	Mugina	Rubirizi	0	62	5	10	10	10	5	5	5	5	5	0
Cibitoke	Murwi	Manege	1	81	5	10	10	10	10	5	0	5	5	10
Cibitoke	Murwi	Buhayira	1	66	5	10	10	10	10	0	0	5	5	0
Cibitoke	Murwi	Mugimbu	2	58	0	5	10	10	5	5	5	5	5	10
Cibitoke	Murwi	Masha	2	57	5	10	0	10	0	5	0	5	5	0
Cibitoke	Murwi	Ngoma	2	16	5	0	5	10	10	5	0	5	5	10
Cibitoke	Rugombo	Rusiga	2	85	0	10	0	10	10	0	5	5	10	10
Cibitoke	Rugombo	Kagazi	2	77	5	10	10	10	10	5	0	5	5	10
Cibitoke	Rugombo	Mparambo_I	0	76	0	10	10	10	10	5	5	10	5	0
Cibitoke	Rugombo	Munyika_II	0	69	0	10	5	10	10	5	0	10	5	10
Cibitoke	Rugombo	Rugeregere	2	68	0	10	5	10	5	10	0	5	5	10
Cibitoke	Rugombo	Cibitoke	0	68	5	10	0	10	5	5	5	5	10	10
Cibitoke	Rugombo	Rukanaii	1	65	0	10	10	10	5	0	0	5	5	10
Cibitoke	Rugombo	Samwe	2	63	0	10	5	10	10	5	0	0	5	0
Cibitoke	Rugombo	Mparambo_II	0	60	0	10	5	10	5	5	5	5	5	0
Kirundo	Bugabira	Ruhehe	2	63	0	10	5	10	10	5	0	10	5	10
Kirundo	Bugabira	Gaturanda	2	61	0	10	5	10	10	5	0	10	5	10
Kirundo	Bugabira	Kiyonza	2	60	0	10	5	10	5	5	0	10	5	10
Kirundo	Bugabira	Kigoma	2	56	5	10	5	10	10	5	0	10	5	10
Kirundo	Bugabira	Rubuga	2	50	0	10	5	10	10	5	0	10	10	10
Kirundo	Bugabira	Kigina	2	44	0	10	5	5	5	0	0	5	0	0
Kirundo	Bugabira	Nyakarama	2	41	0	10	5	5	5	0	0	5	5	0
Kirundo	Bugabira	Kiri	2	40	0	10	5	10	5	0	0	5	0	0
Kirundo	Bugabira	Nyabikenke	2	28	0	10	5	5	5	0	0	5	5	0
Kirundo	Bugabira	Rugasa	2	25	0	10	5	5	5	0	0	0	0	0
Kirundo	Busoni	Kumana	2	86	5	10	5	10	10	5	5	5	5	0
Kirundo	Busoni	Nyabisindu	0	79	5	10	5	10	5	5	5	5	5	0

10.5 Table of IS score and top ten indicators scores (continued)

Province	Commune	Hill	cluster	IS Score	Access to civil status documents	Access to arable land for returnees and IDPs	Level of cooperation and mutual aid	Disputes between returnees or internally displaced persons (IDPs) and the host community	Participation in public affairs	Shelter resistance level	Knowledge of the community gathering place	Participation in mitigation activities	Existence of local policies to prepare for environmental hazards	Setting up adaptation mechanisms to increase community resilience
Kirundo	Busoni	Burara	0	78	5	10	5	10	10	5	5	5	5	0
Kirundo	Busoni	Kagege	0	77	5	10	5	10	10	5	0	10	5	10
Kirundo	Busoni	Gatare	2	77	0	10	5	10	10	5	5	5	5	10
Kirundo	Busoni	Rwibikara	0	77	5	10	5	10	5	10	5	10	0	0
Kirundo	Busoni	Sigu	1	75	5	10	5	10	10	5	0	5	5	10
Kirundo	Busoni	Kivo	2	74	0	10	5	5	5	5	5	0	5	10
Kirundo	Busoni	Kibonde	0	73	0	10	5	10	5	5	10	10	5	10
Kirundo	Busoni	Murore	0	71	5	10	5	10	10	0	5	10	5	0
Kirundo	Busoni	Munazi	0	70	5	10	5	10	5	5	5	5	0	0
Kirundo	Busoni	Gatete	0	67	5	10	5	10	5	0	5	10	0	0
Kirundo	Busoni	Nyagisozi	0	67	5	10	5	10	10	0	5	10	5	10
Kirundo	Busoni	Marembo	0	63	5	10	5	5	5	0	10	10	0	0
Kirundo	Busoni	Ruheha	2	55	0	10	5	10	10	0	5	5	5	10
Kirundo	Busoni	Gisenyi	2	49	5	10	5	10	10	0	0	5	5	0
Kirundo	Busoni	Rutabo	2	48	0	10	5	5	10	0	5	0	5	0
Kirundo	Bwambarangwe	Mukenke_I	0	83	5	10	10	10	10	5	0	5	10	10
Kirundo	Bwambarangwe	Rusara	0	73	5	5	10	10	10	5	0	5	10	10
Kirundo	Bwambarangwe	Budahunga	1	60	5	10	5	10	10	5	0	5	5	0
Kirundo	Bwambarangwe	Ruyenzi	2	60	5	10	5	10	10	5	0	0	10	10
Kirundo	Bwambarangwe	Bunywera	2	54	5	10	5	10	10	0	0	5	5	0
Kirundo	Bwambarangwe	Buhoro	1	51	5	10	5	10	10	5	0	10	5	0
Kirundo	Gitobe	Nyenzi	2	80	5	5	5	10	5	10	10	5	5	10
Kirundo	Gitobe	Bigombo	0	69	5	10	5	10	10	5	0	5	10	10
Kirundo	Gitobe	Gihinga	2	67	5	10	5	10	10	0	0	5	10	10
Kirundo	Gitobe	Shore	2	61	5	10	5	10	10	0	0	5	5	10
Kirundo	Gitobe	Butahana	2	56	5	10	5	10	10	0	0	5	5	0
Kirundo	Gitobe	Kivumu	2	51	5	10	5	10	10	0	0	5	10	10
Kirundo	Kirundo	Runanira_I&II	0	85	5	10	10	10	10	10	10	5	5	10
Kirundo	Kirundo	Runyonza	1	85	5	10	10	10	10	5	0	5	5	10
Kirundo	Kirundo	Kanyinya	1	80	5	10	5	10	10	5	0	10	10	10
Kirundo	Kirundo	Cewe	0	70	5	10	5	10	5	0	10	10	5	10
Kirundo	Kirundo	Muramba	2	60	5	10	5	10	10	5	0	10	5	10
Kirundo	Kirundo	Ceru	2	59	5	10	5	10	5	5	0	0	5	10
Kirundo	Kirundo	Yaranda	2	58	5	10	5	10	10	0	0	10	5	10
Kirundo	Kirundo	Murama	1	53	5	10	10	10	5	5	0	5	5	10
Kirundo	Kirundo	Kavomo	2	42	5	10	5	10	10	0	0	10	10	10
Kirundo	Ntega	Ntega	0	86	10	10	10	10	10	5	10	10	10	10
Kirundo	Ntega	Kinyovu	0	85	10	10	10	10	10	5	10	5	5	10
Kirundo	Ntega	Gisitwe	0	82	10	10	10	10	10	5	10	10	10	10
Kirundo	Ntega	Buringanire	0	80	10	10	10	10	10	5	10	10	10	10
Kirundo	Ntega	Mihigo	0	79	10	10	10	10	10	5	10	10	10	10
Kirundo	Ntega	Rushubije	0	76	10	10	10	10	10	5	0	10	10	10
Kirundo	Ntega	Mugendo	1	72	10	10	10	10	10	5	0	10	5	0
Kirundo	Ntega	Nyemera	2	62	0	10	10	10	10	5	0	10	10	10
Kirundo	Ntega	Sasa	2	57	5	10	10	10	10	5	0	10	5	0
Kirundo	Vumbi	Nyagatovu	0	90	5	10	10	10	10	0	10	10	5	10
Kirundo	Vumbi	Gasura	2	82	10	10	5	10	10	5	0	10	10	10
Kirundo	Vumbi	Vumbi	0	80	5	10	0	5	10	5	10	10	5	10
Kirundo	Vumbi	Gahe	0	79	5	10	10	10	10	0	10	5	5	0
Kirundo	Vumbi	Rugeri	2	57	10	10	10	10	10	0	0	10	10	0
Kirundo	Vumbi	Gashingwa	2	48	10	10	5	10	10	0	0	0	10	0
Kirundo	Vumbi	Kavumu	2	40	5	10	5	10	10	0	0	5	5	0
Makamba	Kayogoro	Sampeke	0	91	10	10	10	10	10	5	10	10	10	0
Makamba	Kayogoro	Buga	0	75	5	10	5	10	10	0	5	10	10	10
Makamba	Kayogoro	Kigomagoma	0	69	5	10	0	10	5	5	5	10	5	0
Makamba	Kayogoro	Buhema	0	63	0	10	0	10	10	5	5	10	10	0
Makamba	Kayogoro	Mugeregere	2	58	0	5	0	10	5	5	0	5	0	0
Makamba	Kayogoro	Nyantakara	2	44	5	10	5	10	5	0	0	5	5	0
Makamba	Kayogoro	Mugeni	2	37	0	10	0	5	5	0	0	5	5	0
Makamba	Kayogoro	Gatabo	2	28	0	5	10	10	5	0	0	0	0	0
Makamba	Kibago	Rubimba	0	88	0	10	10	10	10	0	10	10	10	0
Makamba	Kibago	Nyakazi	2	67	5	10	10	10	5	0	5	5	10	10
Makamba	Kibago	Murambi	2	60	10	10	10	5	0	0	0	0	5	0
Makamba	Kibago	Bukeye	2	32	5	10	5	10	5	0	0	5	5	0
Makamba	Kibago	Nyarubanga	2	24	5	5	0	5	5	5	0	5	5	0
Makamba	Mabanda	Musenyi	0	87	5	10	5	10	10	5	5	10	10	10
Makamba	Mabanda	Karinzi	0	74	5	10	10	10	10	5	0	10	5	0
Makamba	Mabanda	Nyamugari	0	66	5	10	5	10	10	5	5	10	10	10
Makamba	Mabanda	Mabanda	0	65	0	10	10	10	10	5	0	10	5	0
Makamba	Mabanda	Budatekwa	2	50	0	10	10	5	5	0	0	5	5	0
Makamba	Mabanda	Ruvuga	2	39	0	10	0	5	5	0	5	0	0	0

10.5 Table of IS score and top ten indicators scores (continued)

Province	Commune	Hill	cluster	IS Score	Access to civil status documents	Access to arable land for returnees and IDPs	Level of cooperation and mutual aid	Disputes between returnees or internally displaced persons (IDPs) and the host community	Participation in public affairs	Shelter resistance level	Knowledge of the community gathering place	Participation in mitigation activities	Existence of local policies to prepare for environmental hazards	Setting up adaptation mechanisms to increase community resilience
Makamba	Makamba	Makamba_I	2	81	0	5	10	10	10	5	0	5	5	10
Makamba	Makamba	Ruremba	1	78	10	10	5	10	10	10	0	5	5	0
Makamba	Makamba	Makamba_II	1	69	0	10	10	10	10	10	0	5	5	0
Makamba	Makamba	Kizingoma	2	36	5	0	10	5	5	5	0	0	0	10
Makamba	Nyanza-Lac	Ruvyagira	0	90	5	10	10	5	10	10	5	10	10	10
Makamba	Nyanza-Lac	Rubindi	0	81	10	10	10	5	10	0	5	5	10	10
Makamba	Nyanza-Lac	Kabondo	0	78	0	10	10	5	10	10	0	10	5	0
Makamba	Nyanza-Lac	Buheka	0	73	0	10	10	5	5	0	10	5	10	10
Makamba	Nyanza-Lac	Nyabigina	0	70	5	10	0	10	5	5	5	10	10	10
Makamba	Nyanza-Lac	Mukungu	0	68	0	10	10	0	10	5	10	10	10	0
Makamba	Nyanza-Lac	Kiderege	0	68	5	10	10	5	10	5	5	10	10	10
Makamba	Nyanza-Lac	Kabonga	0	67	0	10	5	10	10	0	5	10	5	0
Makamba	Nyanza-Lac	Muyange	0	66	0	10	10	5	10	5	0	5	5	0
Makamba	Nyanza-Lac	Rangi	0	65	0	10	5	10	10	5	0	10	10	0
Makamba	Nyanza-Lac	Mukubano	0	65	10	10	10	10	10	10	0	10	5	0
Makamba	Nyanza-Lac	Mugerama	2	57	0	5	0	5	0	0	10	10	10	10
Makamba	Nyanza-Lac	Mugwort	1	55	10	10	5	5	10	10	0	5	5	0
Makamba	Nyanza-Lac	Kabo	2	49	0	5	10	5	5	5	0	5	5	10
Makamba	Nyanza-Lac	Mukimba	2	49	5	5	5	5	10	5	5	5	10	0
Makamba	Nyanza-Lac	Biniganyi	0	48	5	10	5	5	5	5	0	5	0	10
Makamba	Nyanza-Lac	Bukeye	1	48	0	10	10	5	5	10	0	5	5	0
Makamba	Nyanza-Lac	Gasaba	2	43	0	0	5	10	5	0	0	5	0	0
Makamba	Nyanza-Lac	Nyabutare	2	41	0	10	5	10	5	0	0	10	5	10
Makamba	Nyanza-Lac	Mvugo	2	38	0	10	5	5	5	0	0	5	5	0
Makamba	Nyanza-Lac	Kazirabageni	2	35	0	5	0	5	5	0	0	5	5	0
Makamba	Nyanza-Lac	Mwimbiro	2	32	0	10	0	5	5	0	5	5	0	10
Makamba	Nyanza-Lac	Mukerezi	2	25	0	5	0	10	5	0	0	0	5	0
Makamba	Nyanza-Lac	Gisenga	2	19	0	10	0	5	5	0	5	5	5	0
Makamba	Vugizo	Gitaba	2	75	0	10	10	10	10	5	0	5	5	0
Makamba	Vugizo	Nyarubano	1	73	10	10	5	10	10	10	0	5	5	0
Makamba	Vugizo	Karonge	2	25	5	5	5	5	5	5	0	5	0	0
Muyinga	Buhinyuza	Karehe	0	83	10	10	5	10	10	0	5	10	5	0
Muyinga	Buhinyuza	Buhinyuza	0	81	5	10	10	10	10	5	0	10	10	10
Muyinga	Buhinyuza	Gitaramuka	0	81	5	10	10	10	10	5	0	10	10	10
Muyinga	Buhinyuza	Ruvumu	2	77	5	10	5	10	10	5	0	5	10	10
Muyinga	Buhinyuza	Gasave	0	76	5	10	10	10	10	5	0	10	10	10
Muyinga	Buhinyuza	Jarama	1	75	10	10	5	10	5	5	0	0	5	10
Muyinga	Buhinyuza	Nyarunazi	0	74	10	10	5	10	10	0	5	10	5	0
Muyinga	Butihinda	Rabiro	0	96	10	10	10	10	10	5	10	10	10	10
Muyinga	Butihinda	Buhorana	0	93	10	10	10	10	10	5	10	10	10	10
Muyinga	Butihinda	Kavumu	0	91	10	10	10	10	10	5	10	10	10	10
Muyinga	Butihinda	Kamaramagambo	1	64	5	10	10	10	5	0	0	0	5	10
Muyinga	Butihinda	Butihinda	1	63	10	10	10	10	5	0	0	0	5	10
Muyinga	Butihinda	Kobero	1	56	5	10	10	10	5	5	0	0	5	0
Muyinga	Gashoho	Gitwa	0	93	10	10	10	10	10	5	10	10	10	10
Muyinga	Gashoho	Muzingi	0	91	10	10	10	10	5	0	10	10	5	10
Muyinga	Gashoho	Nkohwa	0	82	10	10	10	10	5	0	10	10	0	0
Muyinga	Gashoho	Gishambusha	1	73	5	10	10	10	5	5	0	0	5	10
Muyinga	Gasorwe	Bwasare	0	85	10	10	10	10	10	5	0	10	10	10
Muyinga	Gasorwe	Jani	0	81	10	10	10	10	10	5	0	10	5	10
Muyinga	Gasorwe	Higiro	2	77	5	10	10	10	10	5	0	10	0	0
Muyinga	Gasorwe	Gasuru	0	73	5	10	10	10	10	5	0	5	5	10
Muyinga	Gasorwe	Karira	0	71	5	10	10	10	10	5	0	0	10	0
Muyinga	Gasorwe	Rusimbuko	0	65	10	10	5	5	10	0	5	5	10	10
Muyinga	Gasorwe	Kiremba	2	63	5	10	5	10	5	5	0	0	5	0
Muyinga	Giteranyi	Murama	2	91	5	10	10	10	10	5	0	10	10	0
Muyinga	Giteranyi	Karugunda	0	91	5	10	10	10	10	5	10	10	5	10
Muyinga	Giteranyi	Mukoni	1	84	5	10	10	10	10	5	0	5	10	10
Muyinga	Giteranyi	Mika	2	83	5	10	10	10	10	5	0	10	10	10
Muyinga	Giteranyi	Gakoni	2	82	5	10	10	10	10	5	0	10	10	10
Muyinga	Giteranyi	Mugano	1	82	10	10	10	10	10	5	0	10	10	0
Muyinga	Giteranyi	Tura	2	76	0	10	0	10	10	5	0	5	10	10
Muyinga	Giteranyi	Rubenga	1	76	10	10	5	10	10	5	0	10	10	0
Muyinga	Giteranyi	Rukusha	1	75	10	10	5	10	10	10	0	5	10	0
Muyinga	Giteranyi	Ruzo	1	74	5	10	10	10	10	5	0	10	10	0
Muyinga	Giteranyi	Kijumbura	1	65	5	10	5	10	10	5	0	5	10	0
Muyinga	Giteranyi	Kinanira	0	65	5	0	10	10	10	0	10	0	5	0
Muyinga	Giteranyi	Shoza	2	64	0	10	10	10	5	0	5	0	0	0
Muyinga	Giteranyi	Gasenyi	1	61	5	10	5	10	10	5	0	5	5	0
Muyinga	Giteranyi	Kidasha	2	60	0	0	5	10	10	0	0	0	5	10
Muyinga	Giteranyi	Kabogo	2	59	0	10	5	10	5	0	5	0	0	0

10.5 Table of IS score and top ten indicator scores (continued)

Province	Municipality	Hill	cluster	IS Score	Access to civil status documents	Access to arable land for returnees and IDPs	Level of cooperation and mutual aid	Disputes between returnees or internally displaced persons (IDPs) and the host community	Participation in public affairs	Shelter resistance level	Knowledge of the community gathering place	Participation in mitigation activities	Existence of local policies to prepare for environmental hazards	Setting up adaptation mechanisms to increase community resilience
Muyinga	Giteranyi	Rugese	2	37	0	0	5	10	10	0	0	0	5	0
Muyinga	Giteranyi	Rusenyi	2	35	0	0	5	10	10	0	0	5	5	0
Muyinga	Giteranyi	Kinyami	2	34	0	0	5	10	5	0	5	0	0	0
Muyinga	Giteranyi	Nonwe	2	29	0	0	5	10	10	0	0	5	5	0
Muyinga	Giteranyi	Vumasi	2	24	0	0	5	10	10	0	0	5	5	0
Muyinga	Muyinga	Rugari	0	91	10	10	10	10	10	5	10	10	10	10
Muyinga	Muyinga	Munagano	1	87	10	10	5	10	10	5	0	0	5	10
Muyinga	Muyinga	Kinazi	0	86	5	10	10	10	10	0	10	5	10	10
Muyinga	Muyinga	Sanzwe	1	85	10	10	5	10	10	10	0	0	5	0
Muyinga	Muyinga	Mukoni	0	81	5	10	10	10	10	5	5	5	10	10
Muyinga	Muyinga	Muyinga	1	80	5	10	5	10	10	10	0	10	10	0
Muyinga	Muyinga	Gasasa	1	73	10	10	5	10	10	5	0	0	5	0
Muyinga	Muyinga	Kinyota	0	70	0	10	5	10	10	10	0	10	5	10
Muyinga	Muyinga	Murama	1	65	5	10	5	10	5	5	0	0	5	10
Muyinga	Muyinga	Mwurire	1	55	5	10	5	10	10	5	0	0	5	10
Muyinga	Muyinga	Musenyi	2	25	0	5	5	10	5	0	0	0	5	10
Muyinga	Mwakiro	Bonero	0	80	10	10	10	10	10	5	5	10	5	0
Muyinga	Mwakiro	Mwakiro	1	66	5	10	5	10	10	5	0	5	5	0
Muyinga	Mwakiro	Gahekenya	1	60	10	10	10	10	10	0	0	0	5	0
Muyinga	Mwakiro	Rukanya	1	60	5	10	10	10	5	5	0	0	5	0
Rumonge	Bugarama	Magara_II	0	77	0	10	10	10	5	5	10	5	10	10
Rumonge	Bugarama	Magara	2	71	0	10	10	10	10	0	5	5	5	10
Rumonge	Bugarama	Mugendo	2	36	0	10	5	10	5	0	0	0	5	0
Rumonge	Burambi	Gitongwe	2	78	0	10	5	10	10	0	10	5	10	10
Rumonge	Burambi	Gatobo	1	69	0	10	10	10	5	10	0	5	5	10
Rumonge	Burambi	Buhinyuza	2	56	0	10	5	5	5	0	0	5	10	10
Rumonge	Buyengero	Kinama	2	66	10	10	10	10	10	0	0	0	5	0
Rumonge	Buyengero	Kirama	2	65	0	10	5	10	5	0	0	5	5	10
Rumonge	Buyengero	Mudende	2	50	0	10	5	10	10	0	0	5	10	10
Rumonge	Muhuta	Gabaniro	0	75	10	10	10	10	10	0	0	10	5	10
Rumonge	Muhuta	Mubone	0	66	5	10	10	10	5	0	0	10	5	10
Rumonge	Muhuta	Gitaza	0	63	5	10	10	10	10	0	0	10	5	10
Rumonge	Muhuta	Gasange	1	62	5	10	5	10	5	0	0	5	5	10
Rumonge	Rumonge	Minago	2	76	0	10	10	10	5	0	10	0	5	10
Rumonge	Rumonge	Gatete	2	71	0	10	5	10	5	5	0	5	5	10
Rumonge	Rumonge	Mugomere	2	68	0	10	5	10	5	5	0	10	5	10
Rumonge	Rumonge	Muturirwa	2	68	0	10	5	10	5	5	0	10	5	10
Rumonge	Rumonge	Kagongo	1	68	10	10	10	10	0	5	0	0	5	10
Rumonge	Rumonge	Gashasha	2	68	0	10	5	10	5	5	0	5	5	10
Rumonge	Rumonge	Birimba	2	67	0	10	5	5	0	10	5	5	0	0
Rumonge	Rumonge	Mibanda	2	66	10	10	10	10	10	0	0	0	5	0
Rumonge	Rumonge	Gihwanya	2	60	0	10	0	10	10	10	0	10	10	10
Rumonge	Rumonge	Rutumo	2	58	0	10	5	10	10	5	0	5	10	10
Rumonge	Rumonge	Kizuka	2	56	5	10	5	10	10	5	0	0	5	0
Rumonge	Rumonge	Mwange	2	51	0	10	5	10	5	0	0	0	10	0
Rumonge	Rumonge	Mutambara	2	44	0	10	5	0	5	5	0	5	10	10
Rutana	Bukemba	Kabanga	0	92	5	5	10	10	10	5	10	10	5	10
Rutana	Bukemba	Gihofi	1	85	5	5	10	10	10	5	0	10	10	10
Rutana	Bukemba	Rubanga	0	83	5	5	10	10	10	5	5	10	10	10
Rutana	Bukemba	Butare	0	82	5	10	0	10	10	5	5	5	5	10
Rutana	Bukemba	Bukemba	0	73	5	10	5	10	5	5	0	5	10	10
Rutana	Giharo	Giharo	2	83	5	5	10	10	5	5	0	0	5	10
Rutana	Giharo	Muzye	2	78	5	10	10	10	10	5	0	10	5	10
Rutana	Giharo	Shembe	2	77	5	5	5	10	10	5	0	10	10	10
Rutana	Giharo	Gakungu	1	72	5	10	5	10	5	5	0	5	0	0
Rutana	Giharo	Butezi	1	69	5	10	5	10	5	5	0	0	5	10
Rutana	Giharo	Kabingo	2	63	5	5	5	10	5	5	0	0	5	0
Rutana	Giharo	Murara	0	63	5	5	5	10	5	0	10	5	10	0
Rutana	Giharo	Musenyi	2	53	10	10	10	10	10	0	0	0	5	0
Rutana	Giharo	Nyamateke	2	42	5	10	5	10	5	5	0	5	0	0
Rutana	Giharo	Nyabakara	2	42	0	5	5	10	5	5	0	0	0	0
Rutana	Giharo	Nkanka	2	24	0	0	5	10	5	5	0	0	0	0
Rutana	Giharo	Nkurye	2	8	5	0	10	10	0	0	0	0	5	0
Rutana	Gitanga	Nyagisambwe	0	90	10	10	0	10	10	10	10	10	10	10
Rutana	Gitanga	Kinzanza	0	78	0	10	0	0	10	5	5	10	5	0
Rutana	Gitanga	Nyamabuye	0	78	5	10	10	10	10	10	0	10	10	10
Rutana	Mpinga-Kayove	Kiguhu	1	61	10	10	5	10	10	5	0	0	5	0
Rutana	Mpinga-Kayove	Nyakazu	1	41	10	5	5	10	10	5	0	0	5	0
Rutana	Mpinga-Kayove	Buranga	1	39	10	10	5	10	5	0	0	0	5	0
Rutana	Mpinga-Kayove	Nyakabanda	1	38	10	10	5	10	5	0	0	0	5	0
Rutana	Mpinga-Kayove	Ngarama	1	23	10	5	5	0	5	0	0	0	0	0
Rutana	Musongati	Shanga	1	74	10	10	5	10	10	10	0	0	5	0
Rutana	Musongati	Kagunga	1	48	10	10	10	10	5	0	0	0	5	0
Rutana	Rutana	Gasakuza	1	79	10	10	5	10	10	10	0	0	5	0

10.5 Table of IS score and top ten indicator scores (continued)

Province	Municipality	Hill	cluster	IS Score	Access to civil status documents	Access to arable land for returnees and IDPs	Level of cooperation and mutual aid	Disputes between returnees or internally displaced persons (IDPs) and the host community	Participation in public affairs	Shelter resistance level	Knowledge of the community gathering place	Participation in mitigation activities	Existence of local policies to prepare for environmental hazards	Setting up adaptation mechanisms to increase community resilience
Rutana	Rutana	Butambara	1	78	5	5	10	10	10	10	0	5	5	10
Rutana	Rutana	Musenyi	1	54	5	10	5	5	10	10	0	0	0	0
Ruyigi	Butaganzwa	Biyorwa	1	74	10	10	5	10	10	10	0	5	5	0
Ruyigi	Butaganzwa	Rugongo	1	73	10	10	5	10	10	10	0	5	5	0
Ruyigi	Butaganzwa	Rubambagire	1	71	10	10	5	10	10	10	0	5	5	0
Ruyigi	Butaganzwa	Muriza	1	59	5	10	5	10	5	5	0	5	5	0
Ruyigi	Butaganzwa	Rugata	1	59	10	10	5	10	5	10	0	5	5	0
Ruyigi	Butaganzwa	Bigera	1	54	10	10	5	10	5	5	0	5	5	0
Ruyigi	Butaganzwa	Mugege	1	71	10	10	5	10	5	10	0	5	5	0
Ruyigi	Butaganzwa	Nyange	1	52	10	10	5	10	10	5	0	5	5	0
Ruyigi	Butezi	Gashurushuru	0	92	10	10	10	10	5	0	10	10	5	10
Ruyigi	Butezi	Senga	2	75	10	10	10	10	10	5	0	0	10	10
Ruyigi	Butezi	Sorero	2	74	5	10	10	10	10	5	0	0	10	10
Ruyigi	Butezi	Munyinya	2	72	0	5	10	10	10	0	10	0	5	0
Ruyigi	Butezi	Rugoti	2	65	5	10	10	10	10	5	0	0	5	10
Ruyigi	Butezi	Mubira	2	58	5	10	10	10	10	5	0	0	10	10
Ruyigi	Butezi	Nkongwe	2	56	5	10	10	10	10	5	0	0	10	10
Ruyigi	Butezi	Rubaragaza	0	56	0	10	5	10	5	5	5	5	5	10
Ruyigi	Butezi	Kirasira	2	54	10	5	5	5	5	0	5	5	0	0
Ruyigi	Bweru	Gasenyi	0	87	10	10	5	10	10	10	5	10	10	10
Ruyigi	Bweru	Rubavu	0	82	10	10	5	10	10	5	5	10	10	10
Ruyigi	Bweru	Kirambi	0	81	10	10	5	10	10	10	0	5	5	0
Ruyigi	Bweru	Caga	1	77	10	10	5	10	5	5	0	0	10	10
Ruyigi	Bweru	Busoro	2	75	10	10	10	10	0	5	0	5	0	0
Ruyigi	Bweru	Busuma	2	68	0	10	10	5	10	5	0	0	10	10
Ruyigi	Bweru	Nkanda	1	68	5	10	10	10	10	5	0	0	5	0
Ruyigi	Bweru	Nyamugari	2	66	10	10	5	5	5	5	0	0	10	10
Ruyigi	Bweru	Ruvyagira	2	54	5	10	5	5	5	0	0	0	5	10
Ruyigi	Gisuru	Gacokwe	0	77	5	10	5	10	5	10	5	10	10	10
Ruyigi	Gisuru	Mwegereza	2	77	5	5	5	10	0	5	0	0	0	0
Ruyigi	Gisuru	Kinama	0	73	5	5	5	10	5	5	5	10	10	10
Ruyigi	Gisuru	Ndemeka	2	73	5	10	10	10	5	5	0	10	5	10
Ruyigi	Gisuru	Musha	2	71	5	10	5	10	5	5	5	5	5	10
Ruyigi	Gisuru	Kireka	0	69	0	10	10	10	10	5	0	10	5	0
Ruyigi	Gisuru	Nyabitare	0	68	0	10	5	10	10	0	0	10	5	0
Ruyigi	Gisuru	Nyarumanga	2	68	0	10	5	10	5	5	5	5	5	10
Ruyigi	Gisuru	Gisuru	0	66	0	10	5	10	10	5	0	10	5	0
Ruyigi	Gisuru	Kinanira	0	66	5	10	5	10	10	5	5	10	10	10
Ruyigi	Gisuru	Rutonde	0	64	5	10	5	10	5	5	0	5	10	10
Ruyigi	Gisuru	Butarangira	2	63	0	10	10	10	5	5	5	10	5	10
Ruyigi	Gisuru	Munyinya	0	60	0	10	10	10	10	5	0	10	5	0
Ruyigi	Gisuru	Muvumu	2	55	5	10	5	10	5	0	0	0	0	0
Ruyigi	Gisuru	Rukobe	2	54	0	10	5	10	10	5	5	10	5	10
Ruyigi	Gisuru	Kigamba	2	45	5	10	5	10	5	0	0	0	0	10
Ruyigi	Gisuru	Nyabitaka	2	42	5	10	0	10	5	0	0	0	0	0
Ruyigi	Gisuru	Kabuyenge	2	26	0	0	0	10	0	5	5	5	5	10
Ruyigi	Kinyinya	Bugongo	1	84	5	10	5	5	10	10	5	5	5	10
Ruyigi	Kinyinya	Kigangabuko	0	78	5	10	10	10	10	5	0	10	5	10
Ruyigi	Kinyinya	Nyakibere	2	76	5	10	5	10	10	5	0	10	5	0
Ruyigi	Kinyinya	Musumba	1	74	10	10	10	10	10	0	0	0	10	10
Ruyigi	Kinyinya	Karindo	1	73	10	10	10	10	10	10	0	0	10	10
Ruyigi	Kinyinya	Vumwe	2	73	5	10	5	10	5	5	0	10	5	10
Ruyigi	Kinyinya	Ruveri	0	73	5	10	5	10	10	5	0	5	5	10
Ruyigi	Kinyinya	Kinyinya	1	69	5	5	5	10	5	5	0	5	5	10
Ruyigi	Kinyinya	Nyamigina	0	68	10	10	5	10	10	5	0	10	5	10
Ruyigi	Kinyinya	Nyamusasa	1	54	5	10	5	10	0	5	5	0	5	10
Ruyigi	Kinyinya	Nyamunazi	1	53	5	10	5	10	0	5	0	0	5	10
Ruyigi	Nyabitsinda	Kirungu	1	84	10	10	10	10	10	10	0	0	10	10
Ruyigi	Nyabitsinda	Bihembe	1	82	10	10	10	10	10	10	0	0	10	10
Ruyigi	Nyabitsinda	Nyabitsinda	0	77	5	10	5	10	10	5	0	10	5	10
Ruyigi	Nyabitsinda	Gatare-Gasenyi	1	75	5	10	5	10	5	10	0	5	5	10
Ruyigi	Nyabitsinda	Nyarumuri	2	73	5	10	5	10	10	5	0	5	5	0
Ruyigi	Nyabitsinda	Nyagitika	1	68	10	10	5	10	10	0	0	10	5	10
Ruyigi	Ruyigi	Kigamba	0	91	10	10	5	10	10	10	5	5	10	10
Ruyigi	Ruyigi	Gisoro	2	85	10	10	5	10	10	10	0	0	5	0
Ruyigi	Ruyigi	Nyarunazi	0	85	10	10	5	10	10	10	5	10	10	10
Ruyigi	Ruyigi	Ngarama	1	80	10	10	5	10	10	10	0	5	5	0
Ruyigi	Ruyigi	Sanzu	2	77	0	10	5	10	10	10	0	0	0	10
Ruyigi	Ruyigi	Kirambi	0	71	5	10	5	10	5	10	0	10	10	10
Ruyigi	Ruyigi	Gasanda	0	67	0	10	5	10	10	5	0	0	10	10
Ruyigi	Ruyigi	Ruyigi_Rural	2	63	0	10	10	10	10	5	0	0	10	10
Ruyigi	Ruyigi	Nyagutoha	2	53	5	10	5	10	10	0	0	5	5	0

10.6 Survey indicators

ANCHORING QUESTIONS: PERCEPTION OF STABILITY

These key indicators were used to measure the perception of stability in each locality. The key indicators were then tested against each of the thematic indicators below to identify the thematic indicators most influential on perceptions of stability.

Ability to continue living on the *colline*

If the colline's inhabitants feel they have to leave within the next six months

Changes in perception of resilience over the past 6 months

Community perception of the evolution of resilience to environmental hazards six months ago

Changes in perception of access to services over the past 6 months

Community perception of changes in access to services compared to six months ago

Changes in perception of social cohesion over the past 6 months

Community perception of changes in social cohesion compared to six months ago

SCALE 1: LIVELIHOODS AND ACCESS TO BASIC SERVICES

Access to quality housing

Proportion of households with access to a permanent shelter

Level of housing destruction

Proportion of dwellings destroyed by environmental hazards in the last 2 years

Availability of health facilities

Existence of a health facility on the hill or a neighbouring hill

Access to health facilities

If community members who needed medical care in the last six months were able to do so

Access to the minimum package of care provided at the health center

If health centers are able to deliver the curative and preventive health care required at their level

Access to your health insurance card

Households' ability to obtain health insurance cards

Access to drinking water

Access to drinking water and availability on the hill

Access to basic school

Access to basic education and availability of schools on the hill or nearby

Market situation

If markets are regularly supplied

Access to electricity

Proportion of members of the community with access to electricity in their households.

Farmland ownership

Proportion of households with access to arable land.

Access to arable land for returnees and IDPs

If Returnees and IDPs have the same access to arable land as members of the host community

Access to the telephone network

Access to the telephone network on the hill

Evolution of access to the telephone network

How has access to the telephone network evolved over the past six months?

Access to civil status services

If registry offices are available and provide satisfactory services

10.6 Survey indicators (continued)

SCALE 1: LIVELIHOODS AND ACCESS TO BASIC SERVICES (CONTINUED)

Access to legal proceedings

If the judicial authorities are available and provide satisfactory services

Access to land law

Proportion of community members who have registered their land with communal land services

Accessibility and effectiveness of conflict resolution mechanisms

If the community's conflict resolution mechanisms are effective

Access to civil status documents

Level of possession by community members of civil status documents (identity card, marriage certificate, birth certificate, etc.)

SCALE 2: SOCIAL COHESION

Illegal occupation of a house, land and property

Land, housing or property illegally occupied (without permission from family, neighbors or local authorities)

Frequency of land disputes

Existence of complaints where two or more individuals claim ownership of the same portion of land

Theft of personal effects

Theft of personal effects and livestock reported on the hill in the last 6 months

Frequency of cases of suspected witchcraft

Recurrence of cases where community members believe they have been bewitched by their neighbors

Level of mutual aid and cooperation

Level of cooperation between neighbors in the event of problems (such as water or food supply) in the locality

Dispute between returnees or internally displaced persons (IDPs) and the host community

Disputes involving returnees or IDPs against the host community or vice versa

Clashes involving different social groups (religious, political)

Incidents or clashes involving two groups (religious, displaced/returnee/host communities) on the hillside

Participation in public affairs (associations, political parties, cooperatives, religious groups, etc.)

Level of participation in public and political affairs (political parties, cooperatives, associations, etc.)

Equitable access to services for all categories of community (returnees, host community, IDPs)

The hill's populations have equal access to basic services and resources, whatever their age, gender or status (returnee, IDP, etc.).

SCALE 3: LEVEL OF DAMAGE CAUSED BY ENVIRONMENTAL HAZARDS RELATED TO CLIMATE CHANGE

Level of damage to school infrastructure

Frequency with which schools are destroyed by environmental hazards

Student access to school infrastructure

Do schoolchildren have easy access to schools?

Level of market damage

Frequency with which markets are destroyed by environmental hazards

Food scarcity due to environmental hazards

Frequency of food shortages due to environmental hazards

Proportion of farmland affected by environmental hazards

If environmental hazards destroy crops

Level of business disruption due to environmental hazards

If daily activities (ploughing, selling, studying...) were disrupted by environmental hazards.

10.6 Survey indicators (continued)

SCALE 3: LEVEL OF DAMAGE CAUSED BY ENVIRONMENTAL HAZARDS LINKED TO CLIMATE CHANGE (CONTINUED)

Shelter resistance level

If the community deems that household shelters are built to last

Destruction of latrines due to environmental hazards

Frequency with which latrines are destroyed by environmental hazards

Level of damage to health infrastructure

Frequency with which health infrastructures are destroyed by environmental hazards

Access to health infrastructure

Do patients have easy access to health facilities?

Proximity to disaster risk reduction committees

Are disaster risk reduction committees active and close to the community?

Participation in simulation exercises

Level of participation by community members in simulation exercises to prepare for response to environmental hazards

Knowledge of the early warning system

Are community members aware of the early warning system set up on the hill?

Knowledge of the community gathering place

Are community members aware of the agreed community gathering place on the hill?

Participation in mitigation activities

Level of participation of community members in mitigation activities to cope with environmental hazards

Concern about the risk of livestock loss

If community members are worried about losing their livestock to environmental hazards

Concern about the risk of insecurity due to environmental hazards

If community members are worried that environmental hazards could cause insecurity

Existence of local policies to prepare for environmental hazards

Existence of policies implemented at local level to prepare for environmental hazards

Measures taken to increase community resilience through adaptation mechanisms

Measures taken to increase community resilience through adaptation mechanisms

Community dependence on the earth as a natural resource

Whether arable land needs are being met or whether there are alternatives to make up for any shortfall

Community dependence on wood as a natural resource

Whether cultivable wood needs are met or whether there are alternatives to make up for any shortfall

Community dependence on water as a natural resource

Whether water needs are met or whether there are alternatives to make up for any shortfall

Biodegradable waste management policy

Ways of managing biodegradable household waste

Non-biodegradable waste management policy

Ways of managing non-biodegradable household waste