



Guidance Note

HUMAN-ELEPHANT CONFLICT AND COEXISTENCE

Experiences and Scalable Solutions from Africa



Supported by



Led by



WORLD BANK GROUP

Workshop in participation with





Supported by



Led by



WORLD BANK GROUP

In partnership with



About the Global Wildlife Program

The Global Wildlife Program (GWP), funded by the Global Environment Facility (GEF) and led by the World Bank, aims to combat illegal and unsustainable wildlife trade, promote wildlife-based economies, and enable human-wildlife coexistence. Through an investment of \$359 million in GEF financing and \$2.2 billion in co-financing, the GWP brings together efforts in 38 countries. GWP national projects across Africa, Asia, and Latin America and the Caribbean, along with a global coordination project, create a collaborative program that facilitates action on the ground, connections across borders, and the sharing of experiences, lessons, and best practices.

© 2024 International Bank for Reconstruction and Development/The World Bank
1818 H Street NW, Washington, D.C. 20433 | Telephone: +1 202 473 1000 | Web: www.worldbank.org
Some rights reserved.

The report has not been peer reviewed. The findings, interpretations, and conclusions expressed in this paper do not necessarily reflect the views of the World Bank, the Executive Directors of the World Bank, the governments they represent or the authors. The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Acknowledgements

This guidance note was prepared by the Global Wildlife Program (GWP) coordination team at the World Bank. The document collates insights and experiences from governments across Africa, arising from a regional technical workshop held in May 2024 in Kenya in partnership between the GWP and the Elephant Protection Initiative Foundation (EPIF). The lead authors are Hasita Bhammar and Lisa Farroway. Marie Destailleur completed data compilation and analysis. The editor is Kamakshi Ayyar-Rajagopal and the designer is Jeanine Delay.

Participants who contributed to the lessons and shared experiences summarized in this guidance note:

Government Representatives

Absalom Vilho, Alex Chunga, Benjamin Balongelwa, Brighton Kumchedwa, Chaka Kaumba, Edward Kohi, Eugénio Agostinho Manhiça, Hailu Zerfu Kassa, Hajaniaina Rasoloarison, Jean-Louis Kakoua Atsimam, Josue Letlhogonolo, Julius Keyyu, Kumara Wakjira, Léa-Larissa Moukagni, Mamady Tounkara, Miguel Kinavuidi, Modibo Konate, Ndje Hamey, Netty Jemutai, Noé Quelengues Pinto, Ousmal Halime Mayangar, Patrick Omondi, Phologo Amakhosi Kesenkilwe, Rehabeam Erckie, Simon Malete, and Stephen Cheruiyot.

NGO Representatives

Alexandra Zimmermann, Anne Kamau, Barbara Chesire, Betty Chebet, Chris Thouless, Constant Ndjassi, Frank Pope, Geoffrey Wambugu, Laureen Cheruiyot, Lucy King, Lydia Tiller, May Jelimo Kimeli, Saba Douglas-Hamilton, Tabby Njung'e, and Yussuf Wato.

World Bank Representatives

Hasita Bhammar, Hisham Osman, Lisa Farroway, Keith Hansen, and Marie Destailleur.

Elephant Protection Initiative Foundation Representatives

Andrew Crichton, Barnaby Phillips, Christina Godding, Clara Rincuni, Greta Francesca Iori, Harry Grant-Thorold, John E Scanlon, Jonathan Barzdo, José Pedro Agostinho, Kiprotich Biwott, Ruth Musgrave, and Ulysse Korogone.

Contents

1. Introduction	2
2. Challenges	6
3. Enabling Environment	16
4. Local Solutions	18
5. Financial Mechanisms and Community Engagement	27
6. Conclusion	33

1. Introduction

Human-wildlife conflict poses an increasing threat to wildlife conservation and sustainable development. It can occur, among others, in and around protected areas or along migratory corridors where agricultural landscapes overlap with wildlife habitat. The conflict arises when encounters between humans and wildlife have negative impacts, such as wildlife raiding crops, attacking livestock, injuring people, or damaging property. These incidents often lead to the loss of livelihoods and exacerbate poverty. The socio-economic consequences can negatively influence people’s perceptions of wildlife and conservation efforts leading to retaliatory actions such as killing or relocating the problem animal.

Countries are facing increasing instances of human-wildlife conflict as habitat degradation, competition over land and water, and climate change drive people and wildlife closer together. A [Global Wildlife Program \(GWP\) survey](#) of governments found that 64 percent of responding countries agreed that human-wildlife conflict is a major or serious concern and **73 percent agreed that human-wildlife conflict is increasing** or becoming more

FIGURE 1. PERCEPTIONS THAT HUMAN-WILDLIFE CONFLICT IS CURRENTLY A MAJOR OR SERIOUS CONCERN

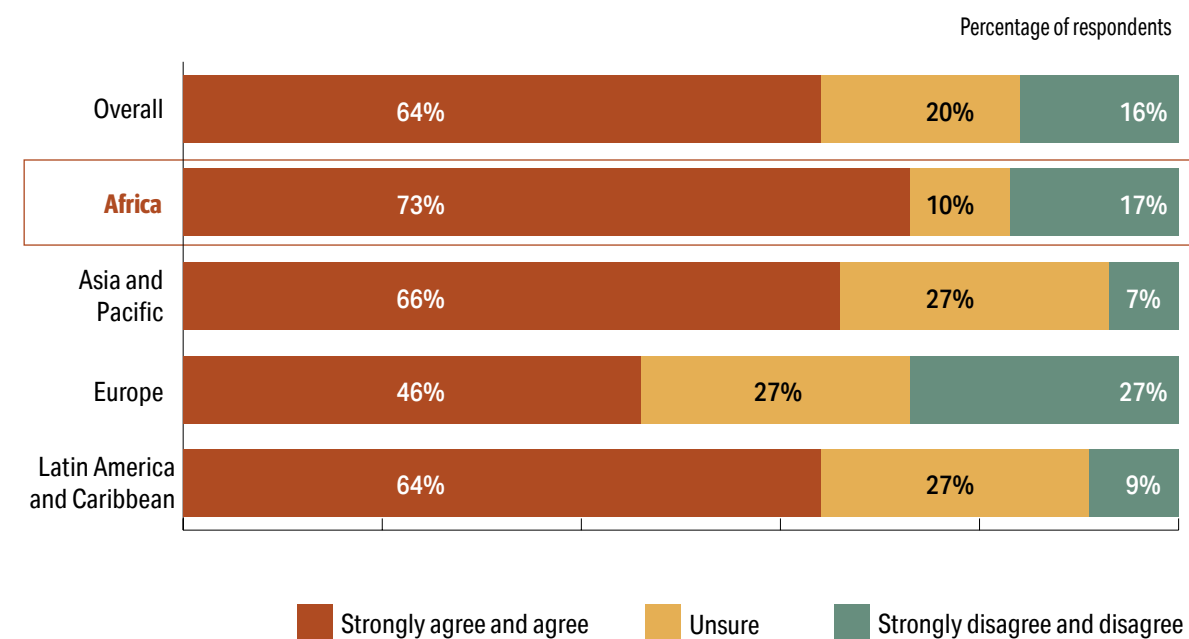
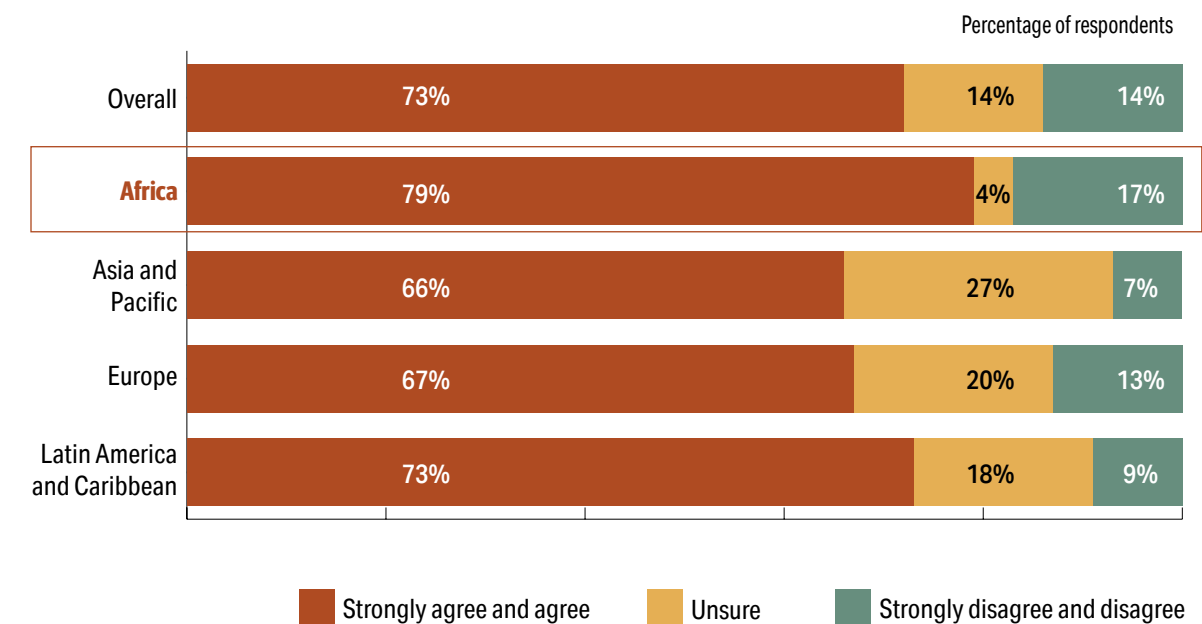


FIGURE 2. PERCEPTIONS THAT HUMAN-WILDLIFE CONFLICT IS INCREASING



prominent in their country (see Figure 1 and 2). These perceptions are most pronounced in Africa, where 73 percent of governments think that human-wildlife conflict is a major concern and 79 percent consider that it is increasing. Human-elephant conflict is a particular concern in Africa. In a [2022 statement](#), Elephant Protection Initiative (EPI) member states recognized human-elephant conflict as “fast emerging as the greatest threat to the survival of Africa’s elephants.”

To discuss human-elephant conflict experiences and solutions being deployed across Africa, the GWP, funded by the Global Environment Facility (GEF) and led by the World Bank, in partnership with the Elephant Protection Initiative Foundation, hosted a regional technical workshop in Nairobi, Kenya, from May 8 to May 10, 2024. The audience comprised government representatives from GWP participating countries and EPI member states including human-wildlife conflict technical officers from 17 countries across Africa, as well as GEF Agency representatives, non-governmental organizations (NGOs), and other national partners. A summary of the event can be found [here](#).

About This Guidance Note

This guidance note documents the information, experiences, and lessons shared by government representatives and other participants during the workshop. It is structured around the four themes discussed in the workshop: challenges, enabling environment, scalable local solutions, and financial mechanisms and community engagement (Figure 3). The discussions, insights, and recommendations arising from the workshop are summarized across three sub-regions: Eastern Africa, Southern Africa, and Western and Central Africa.¹

FIGURE 3. THEMES DISCUSSED IN THE WORKSHOP

CHALLENGES

The challenges that countries perceive as major, increasing and decreasing in importance, as well as those where technical support is most needed.

ENABLING ENVIRONMENT

The factors that are considered critical to strengthen national enabling environments and help achieve sustainability.

SCALABLE LOCAL SOLUTIONS

The feasibility and impact of different local solutions to prevent and mitigate human-elephant conflict based on country experiences.

FINANCIAL MECHANISMS AND COMMUNITY ENGAGEMENT

Positive and negative experiences from countries from the implementation of different financial mechanisms.



Human-elephant conflict and coexistence workshop participants.

¹ Results are presented in the following sub-regional groups: Eastern Africa (five countries: Ethiopia, Kenya, Malawi, Tanzania, and Zambia), Southern Africa (six countries: Angola, Botswana, Madagascar, Mozambique, Namibia, and South Africa), and Western and Central Africa (six countries: Benin, Chad, the Democratic Republic of Congo, Gabon, Guinea, and Mali). This classification represents how countries were allocated to breakout groups at the workshop with the exception of Madagascar which was included in a Francophone group with Western and Central Africa.

2. Challenges

Human-elephant conflict is a complex issue that involves multiple stakeholders and sectors. If countries are to succeed at implementing long-lasting solutions, understanding the challenges and drivers that are preventing success is an important foundation.

To understand the status of challenges that governments face, participants assessed common challenges against four categories:

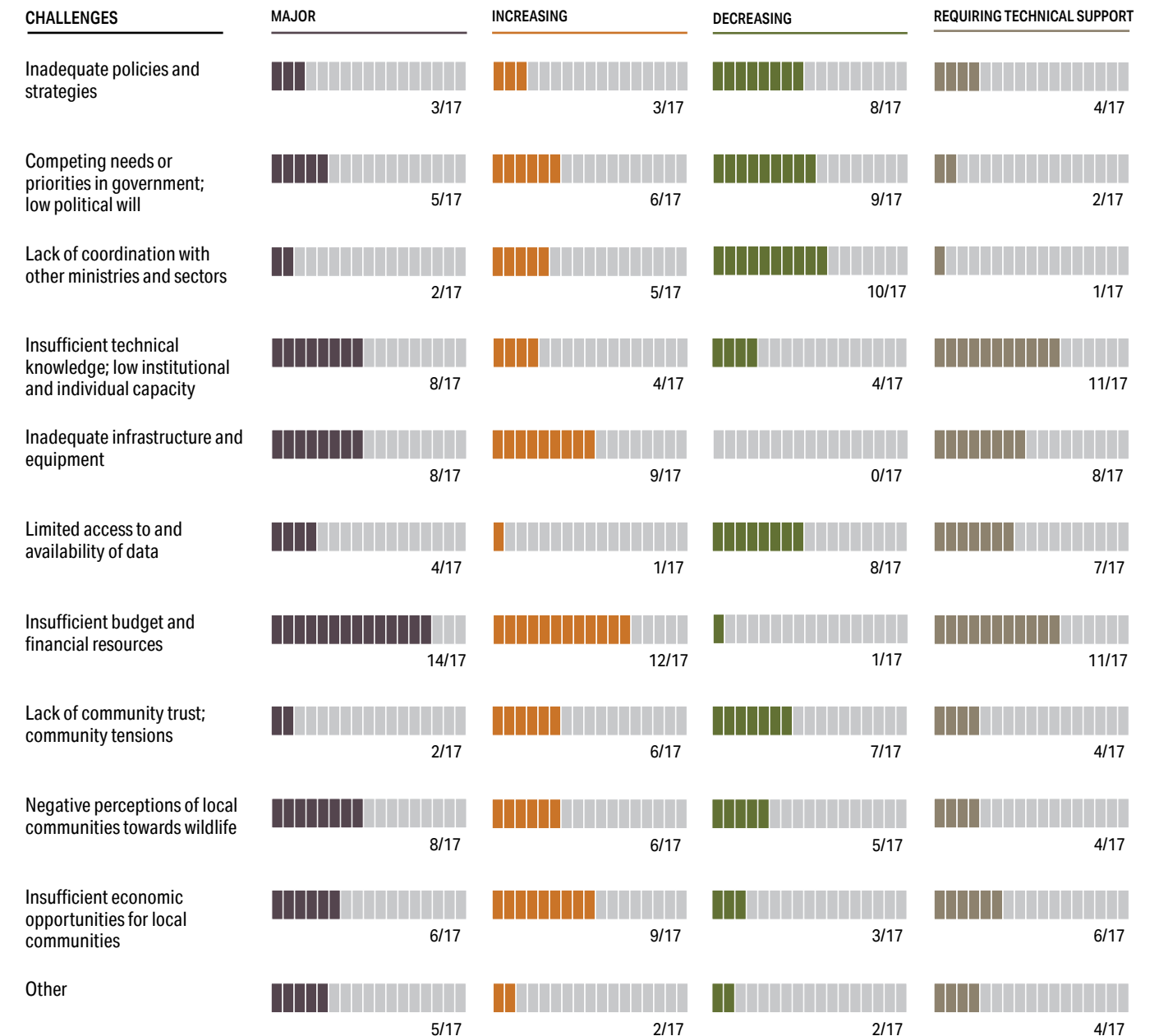
1. Major challenges
2. Increasing challenges
3. Decreasing challenges
4. Challenges that require technical support.

Participants were asked to choose their top three challenges for each category from a provided list of common challenges (see Box 1), including adding new challenges if one of their top three was not already listed. Figure 4 summarizes the extent to which each challenge was identified as major, increasing, decreasing or requiring technical support.

Box 1. List of Challenges

1. Inadequate policies and strategies
2. Competing needs or priorities in government; low political will
3. Lack of coordination with other ministries and sectors
4. Insufficient technical knowledge; low institutional and individual capacity
5. Inadequate infrastructure and equipment
6. Limited access to and availability of data
7. Insufficient budget and financial resources
8. Lack of community trust; community tensions
9. Negative perceptions of local communities towards wildlife
10. Insufficient economic opportunities for local communities
11. Other

FIGURE 4. STATUS OF CHALLENGES IMPEDING HUMAN-ELEPHANT CONFLICT MANAGEMENT IN AFRICA, BY CATEGORY: MAJOR, INCREASING, DECREASING, REQUIRING TECHNICAL SUPPORT



Data shows perspectives of government participants from the 17 participating countries. Participants voted individually. Each colored bar represents one country. A country is counted when at least one participant from that country identified it in their top three challenges for that category. Participants conducted four separate ranking exercises and the datasets are mutually exclusive.

2.1. Major Challenges

Major challenges are challenges that are perceived as the most significant or important to address to achieve national goals of managing human-elephant conflict and building coexistence.

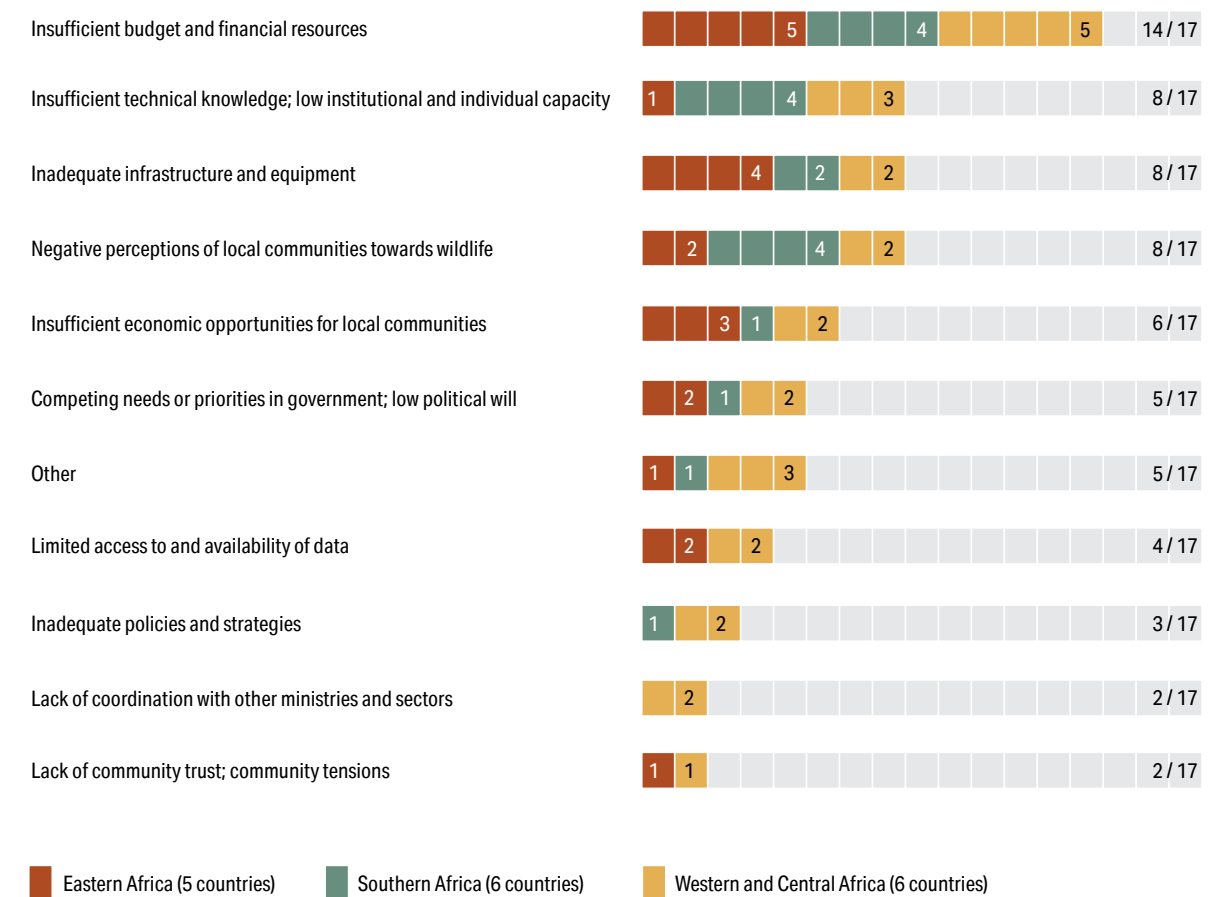
Most frequently identified **major** challenges:

- ❖ Insufficient budget and financial resources.
- ❖ Insufficient technical knowledge; low institutional and individual capacity.
- ❖ Inadequate infrastructure and equipment.
- ❖ Negative perceptions of local communities towards wildlife.

Insufficient financial resources was identified as a major challenge by 14 countries (see Figure 5) and was the most frequently identified major challenge across Eastern Africa, Southern Africa, and Western and Central Africa. Participants shared that ministries are dealing with multiple competing priorities at the national level, often resulting in insufficient funding for human-elephant conflict management. The lack of financial resources is impeding the implementation of policies and elephant action plans as well as the capacitation of government officers and communities—both major challenges in their own right. Participants from Kenya and Tanzania, countries that have developed compensation/consolation policies, noted that their schemes lacked sustainable financial resources.

Insufficient technical capacity, inadequate infrastructure and equipment, and negative community perceptions were each identified as major challenges by eight countries. Sub-regional perceptions of these challenges differed. Insufficient technical capacity ranked highly in Southern Africa and in Western and Central Africa, but less so in Eastern Africa where inadequate infrastructure was more frequently identified as a major challenge. Negative community perceptions appear particularly relevant to Southern Africa, where it was identified as a major challenge as frequently as insufficient resources and technical capacity. Participants noted that communities perceive human-wildlife conflict as the government’s responsibility and felt that communities will not engage in mitigation efforts unless there is awareness raised of wildlife’s value to people, in parallel with community sensitization and capacitation. Similarly, two countries in Western and Central Africa identified lack of awareness and education as a major challenge under the “Other” category.

FIGURE 5. MAJOR CHALLENGES BY SUB-REGION



Each colored bar represents one country.

“Other” major challenges: Land subdivision and lack of management plans (Eastern Africa); increasing human population (Southern Africa); insufficient education and awareness raising with communities (Western and Central Africa); communication and awareness raising in neighboring countries (Western and Central Africa); and lack of funding for scientific research (Western and Central Africa).

2.2. Increasing Challenges

Increasing challenges are challenges that are perceived as growing in frequency, scale, and/or extent.

Most frequently identified **increasing** challenges:

- ❖ Insufficient budget and financial resources.
- ❖ Inadequate infrastructure and equipment.
- ❖ Insufficient economic opportunities for local communities.

As well as being the top major challenge, insufficient financial resources was the most frequently selected increasing challenge, with 12 countries identifying this as one of their top three increasing challenges (Figure 6). This challenge is increasing due to intense competing needs at national level. For example, growing climate disasters (in Benin and Malawi) and health crises (in Botswana and the Democratic Republic of Congo) are being prioritized, with fewer resources available for wildlife management. Some participants mentioned that the scale of human-elephant conflict is increasing, but resources to manage the issue are not. In addition, Chad highlighted the impact of political transitions and incoming government priorities that do not always align to conservation needs. Participants emphasized the need to continue to build political will for human-elephant conflict. They also raised the importance of carefully balancing and communicating priorities, so that it does not appear that government is prioritizing elephant conservation over local development, which could exacerbate negative community perceptions in areas where conflict is high.

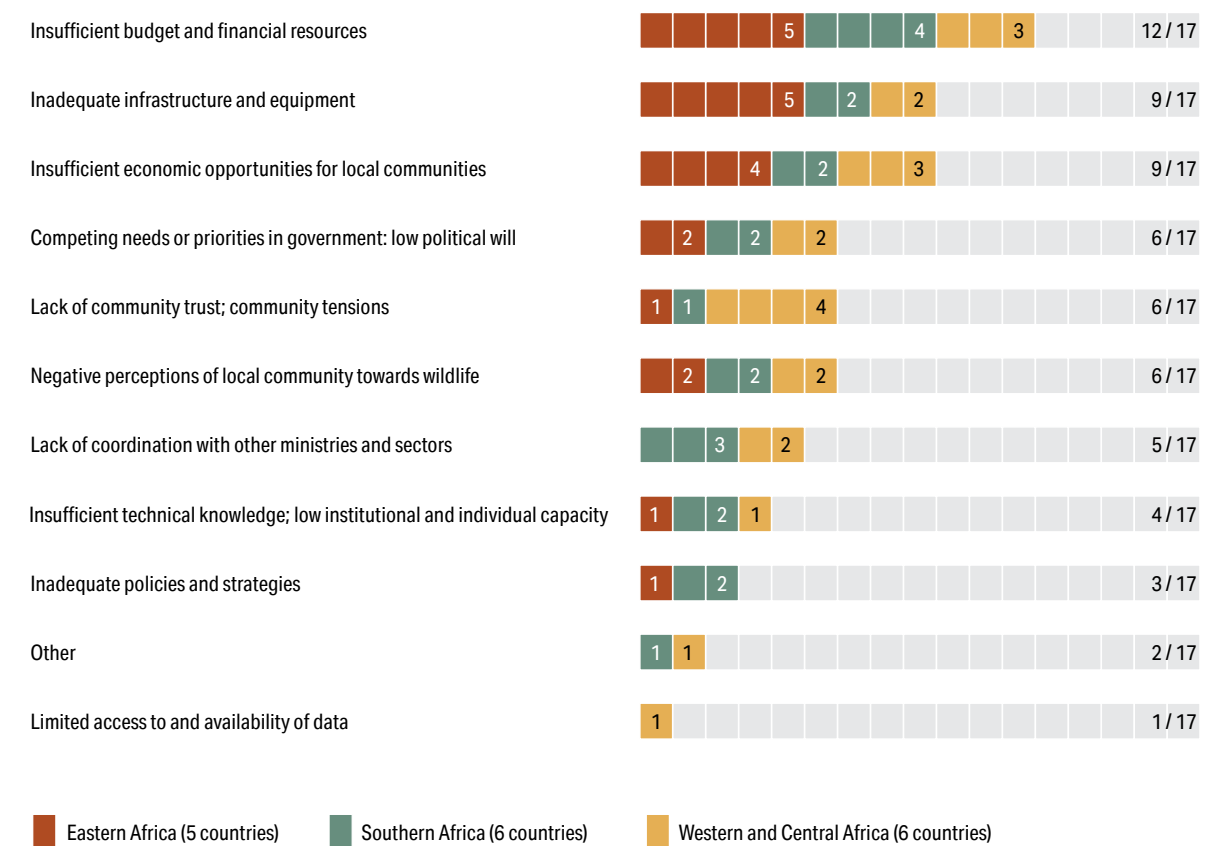
Inadequate infrastructure and equipment, and insufficient livelihoods and economic incentives were tied as the second-most identified increasing challenge. Under insufficient infrastructure and equipment, participants noted the need for more corridor planning, as well as for more vehicles and monitoring devices to identify and transport problematic animals. These equipment-related challenges are often tied to insufficient financial resources, showing the interconnection of the major challenges.

Lack of livelihood opportunities and economic incentives for communities to counter the loss and damage from human-elephant conflict is particularly prevalent in Eastern Africa, where participants suggested that increasing mid-range tourism products and diversifying investments in wildlife-based economies could provide solutions. They noted that without incentives it is difficult to empower communities to become wildlife stewards. In Zambia, a lack of livelihood opportunities and jobs are deepening food insecurity, further intensifying the impact of human-elephant conflict.

Lack of coordination across ministries emerged as an increasing challenge for Southern Africa and for Western and Central Africa. For example, Botswana highlighted the perception that human-elephant conflict falls solely under the mandate of the conservation ministry, which hinders the interagency coordination needed to effectively manage this cross-sectoral issue.

Only one country, Mali, identified the availability of human-elephant conflict data as an increasing challenge, with most countries considering this a decreasing challenge.

FIGURE 6. INCREASING CHALLENGES BY SUB-REGION



Each colored bar represents one country.

"Other" increasing challenges: Insufficient awareness and communication of the problem (Southern Africa) and lack of funding opportunities for scientific research (Western and Central Africa).

2.3. Decreasing Challenges

Decreasing challenges are those that have diminished over time or are perceived to be diminishing, although they may still be significant.

Most frequently identified **decreasing** challenges:

- ❖ Lack of coordination with other ministries and sectors.
- ❖ Competing needs or priorities in government; low political will.
- ❖ Inadequate policies and strategies.
- ❖ Limited access to and availability of data.

Workshop participants agreed that human-elephant conflict is gaining political traction, and that strategies and action plans have been created to set the foundation for coordinated human-wildlife conflict management. Thus, challenges such as interagency coordination, low political will, and inadequate policies were most frequently selected as decreasing challenges (Figure 7). However, participants noted that while the development of strategies and policies has strengthened enabling environments, the implementation of action plans remains challenging and an area for targeted attention.

Countries across all sub-regions noted that the challenge of insufficient coordination with other ministries and sectors has been reduced, most notably in Western and Central Africa. For example, in the Democratic Republic of Congo interagency coordination mechanisms are helping reduce human-elephant conflict cases, in Mali regular communication across departments is helping find local solutions, and in Gabon, joint working sessions and inter-agency protocols have allowed ministries and sectors to join forces to manage human-elephant conflict.

Low political will and inadequate policies were frequently identified as decreasing challenges, particularly in Eastern and Southern Africa. This can also be attributed to stronger inter-agency coordination, as seen through the establishment of interagency committees in Malawi, or the presence of a framework for coordination in Tanzania established by the prime minister.

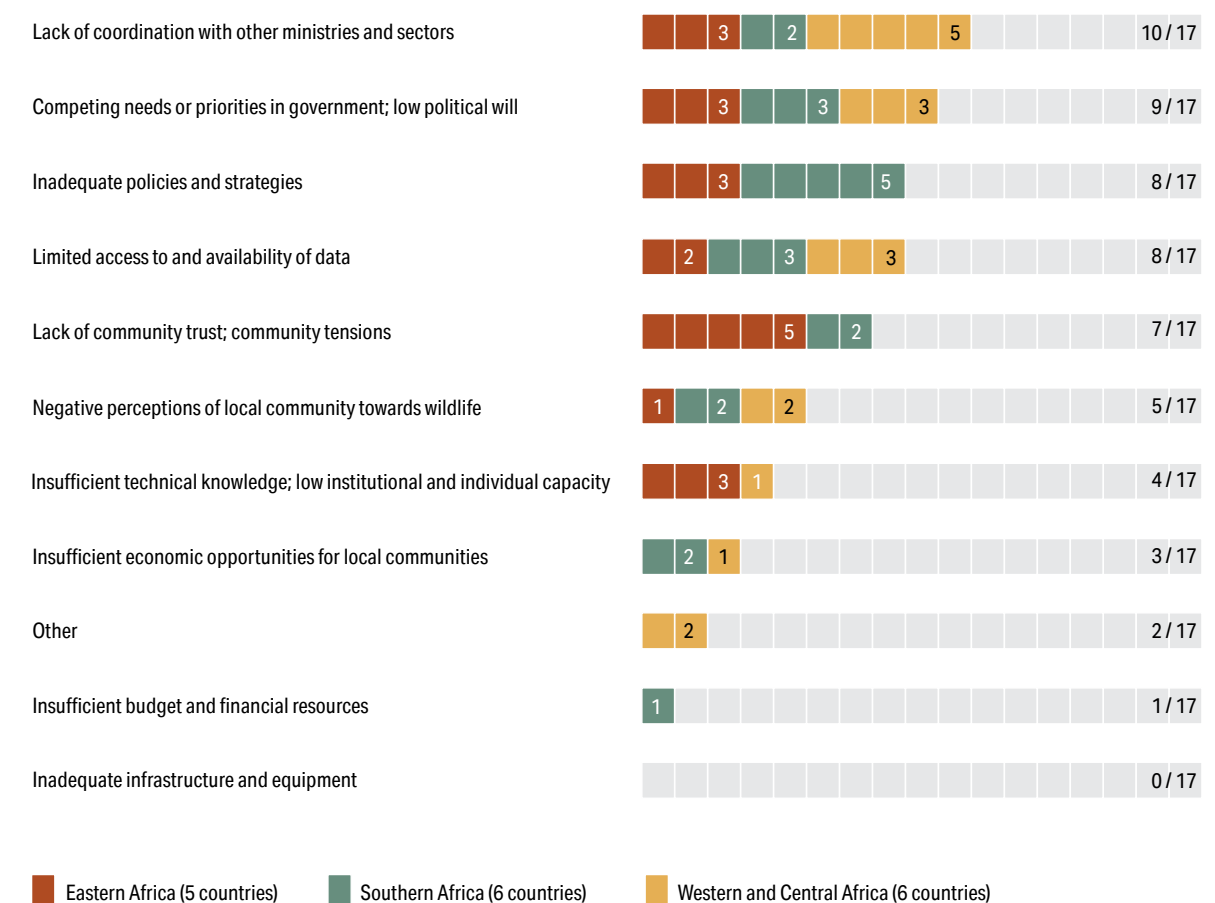
Another decreasing challenge is the access to and availability of human-elephant conflict data. Participants noted that more information is available to help map corridors and conflict hotspots and that increased training on data collection and database creation has helped increase the accessibility of data. Platforms such as EarthRanger are now more commonly used. Further, increasing digital connectivity has made data more accessible.

Sub-regional differences show up prominently in the identified decreasing challenges. For example, in Eastern Africa, all five participating countries selected lack of community trust and community tension as one of their top three decreasing challenges. The reasons

behind improved community relations were noted as government support through consolation payments, revenue sharing schemes, access to natural resources and access to healthcare. In addition, establishment of community conservation areas, community consultation meetings, and formalizing community governance structures were seen as positive steps to building trust.

No countries selected inadequate infrastructure and equipment—one of the most frequently-identified major and increasing challenges—as a decreasing challenge, emphasizing the continued significance of this challenge across Africa.

FIGURE 7. DECREASING CHALLENGES BY SUB-REGION



"Other" decreasing challenges: Insufficient involvement of local administration is decreasing because of decentralized management (Western and Central Africa); and declining elephant population numbers at conflict sites (Eastern Africa).

2.4. Challenges Requiring Technical Support

Challenges that require technical support are those where governments want additional knowledge, technical guidance, and/or training and capacity building.

Most frequently identified challenges requiring **technical support**:

- ❖ Insufficient technical knowledge; low institutional and individual capacity.
- ❖ Insufficient budget and financial resources.
- ❖ Inadequate infrastructure and equipment.

The challenges most frequently selected as needing technical support (Figure 8) mirror those selected as increasing and major challenges. Technical support was most frequently identified—by 10 of 17 countries—as needed to build institutional and individual capacity to manage human-elephant conflict. Priority technical support needs to build capacity include training programs, information management systems, and knowledge sharing on how to adopt new technologies to prevent conflict.

Technical support to address insufficient budget and financial resources ranked second. Participants emphasized the importance of support for resource mobilization, preparing proposals for large conservation grants and creating financial sustainability strategies, as well as for acquiring equipment to help mitigate conflict.

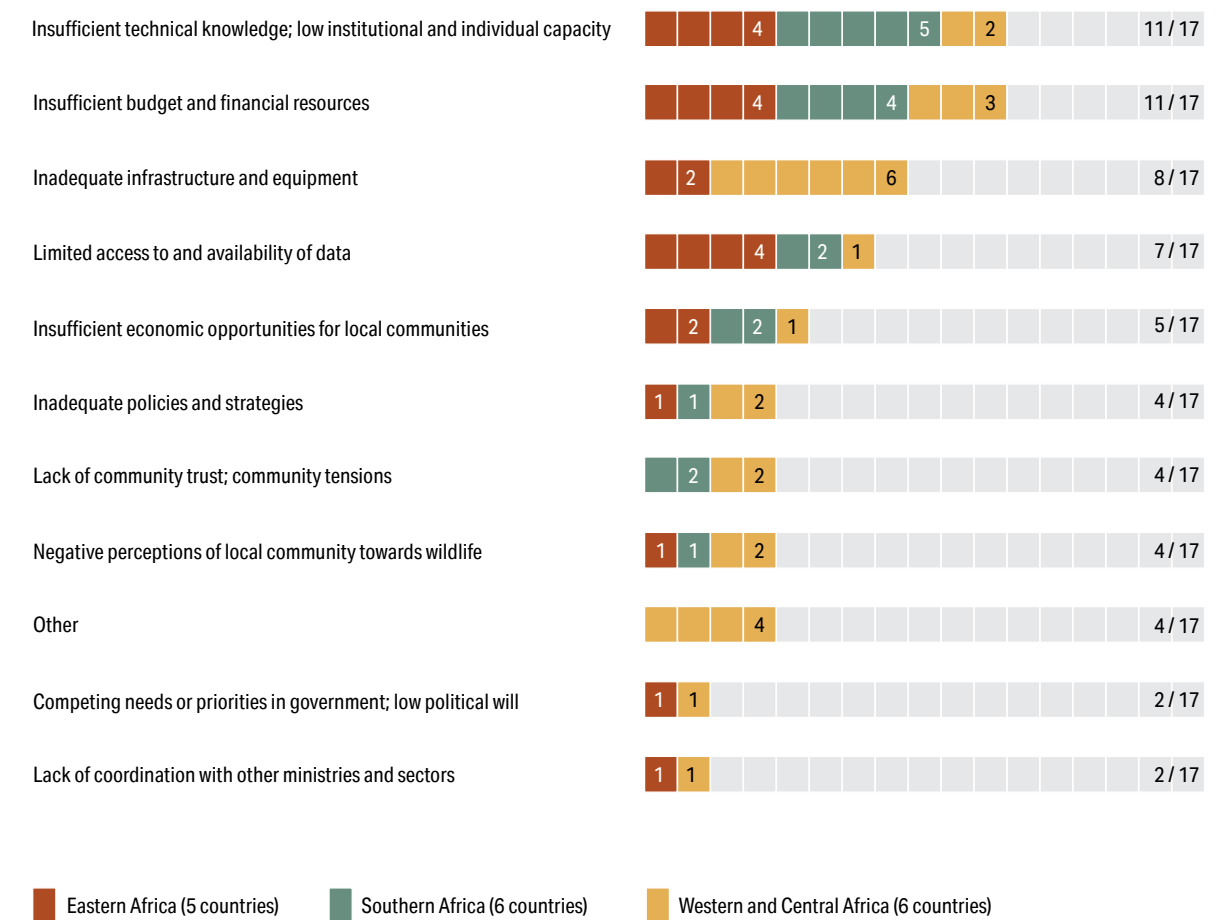
Infrastructure and equipment technical support needs were highlighted by all six countries in Western and Central Africa. For example, Guinea noted the need for technical support to create wildlife corridors that can help prevent and reduce conflict incidences. Gabon noted that training and equipment would allow for conflict mitigation to be more effective. In comparison, no countries in Southern Africa and only one in Eastern Africa identified infrastructure among their top three challenges for technical support.

Some countries identified the need for technical support to improve access to data. There is a knowledge gap in understanding what other countries and other sites in the same country are doing to mitigate human-elephant conflict. The need for improved reporting of human-wildlife conflict incidences was also noted. These underscore the importance of data sharing between organizations and the creation of digital data storage platforms, as well as sharing of good practices and lessons learned between sites and countries.

Lack of coordination and competing government needs were seldom identified as needing technical support. These were also top decreasing challenges. One identified need

for technical support was to ensure that policies are effectively implemented. In addition, related topics of lobbying support and sensitization of politicians were noted as “Other” technical needs by countries in Western and Central Africa.

FIGURE 8. CHALLENGES REQUIRING TECHNICAL SUPPORT BY SUB-REGION



Each colored bar represents one country.

“Other” challenges requiring technical support: Lobbying support; communication and education; sensitization of politicians and local members; and research on the movement and behavior of elephants (all Western and Central Africa).

3. Enabling Environment

The development of policies and strategies, political will, and coordination between ministries in support of human-wildlife coexistence have gained traction across countries in Africa. This has been supported by the increased global attention on biodiversity conservation and human-wildlife conflict via the 2022 adoption of the Kunming-Montreal Global Biodiversity Framework, which explicitly references human-wildlife conflict for the first time in global biodiversity targets. It is also due to progress made by protected area authorities in strengthening legal frameworks, which now offer communities better incentives and benefits from wildlife conservation.

In the workshop, participants discussed what they thought were important factors to further enhance the enabling environment for human-elephant conflict management. The factors that came out most prominently were capacity building, community engagement, and the adoption of benefit-sharing mechanisms (see Figure 9).

Participants highlighted several factors essential for creating an enabling environment for long-term human-elephant coexistence. These include strong and effective policies, and capacity-building of a diverse range of stakeholders. Community empowerment was recognized as a core requirement, underpinned by community engagement approaches, awareness raising of the values of elephants, and education on wildlife conservation including related legislative provisions. Other crucial aspects emphasized were adoption of integrated landscape management approaches, strong land-use planning, and the implementation of benefit-sharing mechanisms. Collaboration across sectors and across geographic borders was highlighted, as was the role of transboundary policies and investment in research to build understanding of elephant behavior and potential shifts in movement patterns under climate change. In conclusion, these factors together encompass an enabling environment that fosters collaboration, builds trust among stakeholders, and ensures that coexistence strategies are sustainable in the long term.

FIGURE 9. “WORD CLOUD” RESPONSES SUBMITTED BY PARTICIPANTS AS IMPORTANT FACTORS TO STRENGTHEN ENABLING ENVIRONMENTS



Improving the enabling environment requires...

“ Greater awareness of human-elephant conflict at decision-maker levels; education of youth on wildlife conservation; community education on legislation; community empowerment; capacity building of all those involved (wildlife authorities, communities, and government); coherent policies and sufficient funding. —Angola ”

“ Implementing a landscape approach to conservation which includes strong land-use planning; contribution to decision making by all stakeholders helps increase political will and government commitment. —Ethiopia and Kenya
 Helping communities understand the value of elephants; sound scientific research; transboundary cooperation. —The Democratic Republic of Congo, Gabon and Guinea ”

4. Local Solutions

Governments, NGOs, and communities have created and adopted a vast range of local, site-based solutions to mitigate human-elephant conflict. A summary of these solutions can be found in the “[Human-elephant conflict toolbox](#)” developed by Save the Elephants.

Workshop participants assessed the impact (high vs. low) and feasibility (high vs. low) of different local solutions, including interventions to support detection and early warning, deterrents, crop protection, community awareness-raising and capacitation, and financial support to communities. Some solutions are highly impactful in keeping elephants away from farms and crops for a long period of time, thus safeguarding community livelihoods. Some local solutions are highly feasible in that they do not cost a lot of money or require a lot of capacity or human effort. In contrast, some solutions are both costly and technically difficult to implement. This assessment provides four categorizations of local solutions, from high impact-high feasibility to low impact-low feasibility.

Findings on the Impact and Feasibility of Local Solutions

Workshop participants assessed 26 interventions² that are being used as local solutions to human-elephant conflict (see Table 1). A positive finding is that nearly three quarters of solutions were categorized as being high impact-high feasibility at some locations, implying that countries in Africa have local solutions that are successfully reducing human-elephant conflict at hotspot sites and that offer good potential for replication and scaling up.

Critically, findings on impact and feasibility varied among sub-regions and even between countries within the one sub-region (see Figure 10). Over 60 percent of the identified local solutions were assessed as falling across more than one impact-feasibility category, showing the importance of local contexts including human-elephant conflict status, availability of financial and human resources, and extent of community engagement.

² Sub-regional groups were not provided with a list of intervention types or local solutions, and it was up to the participants in each group to identify the solutions they wanted to assess. Half of the 26 identified local solutions were discussed in more than one sub-regional group.

TABLE 1. ASSESSMENT OF LOCAL SOLUTIONS AGAINST FOUR CATEGORIES OF IMPACT AND FEASIBILITY

Category	Percentage of local solutions assessed in category	Percentage of local solutions also assessed as being in other categories
High impact-high feasibility	73%	37%
High impact-low feasibility	17%	50%
Low impact-high feasibility	13%	100%
Low impact-low feasibility	13%	100%
Overall		62%

Key insights across intervention categories include:

- ❖ **Detection and early warning:** Most interventions were assessed as high impact, making this an important category of local solutions. Countries in Eastern Africa seem to deploy early warning and detection systems more than the other sub-regions as they discussed this category in more detail. High powered torches and geofencing were frequently referenced as high impact interventions, as were the construction and operation of community watchtowers.
- ❖ **Crop protection:** Multiple types of fencing solutions were assessed, ranging from beehive fences to chili fences, geo-fencing and electric fences. Many were assessed as being high impact-high feasibility, including beehive fences. Some fencing solutions saw divergence in the experiences shared among countries and sub-regions. For example, electric fences were assessed in three categories: high impact-high feasibility, high impact-low feasibility, and low impact-low feasibility. All sub-regions shared concerns with the feasibility of electric fences, reflecting the ongoing costs of fence maintenance and importance of engaging communities in maintenance.
- ❖ **Community awareness-raising and capacitation:** Interventions under this category, including educational campaigns and capacity building efforts, were mostly assessed as high impact-high feasibility. An exception was institutionalizing local and traditional knowledge which was assessed by participants as having low impact or low feasibility due to the lack of knowledge being passed down from one generation to another owing to cultural shifts and decline in traditional practices.
- ❖ **Financial support solutions:** Interventions were typically assessed across sub-regions as being of low impact. However, participants noted that this category in particular was one that with support could become extremely valuable.

FIGURE 10. ASSESSMENT OF THE IMPACT AND FEASIBILITY OF LOCAL SOLUTIONS BY SUB-REGION

Participant perceptions on impact and feasibility of local solutions, grouped by sub-region. An icon indicates that at least one participant in a sub-regional group identified and assessed that local solution. Multiple icons in one cell indicate where a local solution was assessed by multiple participants in a sub-region and given different impact-feasibility categories. Blanks indicate where participants in a sub-region did not discuss or assess local solutions of that type. It was up to participants in each sub-regional group to identify the solutions they wanted to assess.

DETECTION/ EARLY WARNING	Eastern Africa	Southern Africa	Western and Central Africa
Aerial and ground patrols			
Drones			
Elephant information networks			
Geofencing			
High powered torches			
Satellite collars on cattle			
Watchtowers			

DETERRENT	Eastern Africa	Southern Africa	Western and Central Africa
Beehives			
Chasing away the elephant			
Noise making including vuvuzelas (trumpet sounds/noise cannons)			
Pepper cartridges			
Smelly repellent (dung repellent)			
Wildlife corridors			

High impact-high feasibility High impact-low feasibility Low impact-high feasibility Low impact-low feasibility

CROP PROTECTION	Eastern Africa	Southern Africa	Western and Central Africa
Beehive fences			
Chili pepper fences			
Chili pepper field			
Cluster fences			
Electric fences			
Non-palatable crops; conservation agriculture			

COMMUNITY AWARENESS RAISING AND CAPACITY BUILDING	Eastern Africa	Southern Africa	Western and Central Africa
Capacity building on elephant behavior			
Community-based natural resource management			
Education on benefits of conservation			
Institutionalizing local and traditional knowledge			
Raising awareness on human-elephant conflict			

FINANCIAL SUPPORT TO COMMUNITIES	Eastern Africa	Southern Africa	Western and Central Africa
Economic empowerment and livelihood support			
Self-reliance and compensation schemes			

High impact-high feasibility High impact-low feasibility Low impact-high feasibility Low impact-low feasibility

4.1. High Impact-High Feasibility Solutions

High impact-high feasibility solutions are those that offer most potential for replication and scaling up. They are reported as being impactful at reducing instances of human-el-phant conflict and are possible to achieve within resourcing and capacity constraints.



High impact-high feasibility solutions can include:

❖ Beehive fences	❖ Electric fences
❖ Community capacity building to understand elephant behavior	❖ Geofencing
❖ Chasing away the elephant	❖ High powered torches
❖ Chili fences	❖ Raising awareness on Human-Elephant Conflict
❖ Cluster fences	❖ Smelly repellent (dung repellent)
❖ Conservation agriculture	❖ Satellite collars on cattle
❖ Economic empowerment	❖ Use of drones
❖ Education on benefits of conservation	❖ Watchtowers

While local solutions across all intervention categories were assessed as being high impact-high feasibility, most of the local solutions assessed in this category are in the intervention group of crop protection, including multiple types of fencing. For example, Angola, Kenya, Malawi and Mozambique categorized beehive fencing as high impact-high feasibility because of the additional value that communities get from beehives and honey, making it easily adoptable and acceptable to communities.

How can these solutions be scaled up and replicated?

Recommendations from participants who have implemented these solutions successfully include:

- ❖ Develop multi-sectoral partnerships to expand coverage of solutions and focus on partnerships with donors to help scale up the latest technology.

- ❖ Reinvest profits from the sale of products (honey from beehives or chilies) into the maintenance of local level solutions (fences).
- ❖ Promote advocacy for human-elephant conflict mitigation through the distribution of community funds and scholarships.
- ❖ Provide communities with equipment support and training for beehive fences and teach them how to scale up chili fences.
- ❖ Support market development and train communities to produce crops (sunflower and chilies) that are not palatable to elephants but can generate revenues.
- ❖ Increase the awareness and trust in markets and value chains to encourage community buy-in for conservation agriculture.
- ❖ Introduce gardening projects that grow simple ingredients like chili, ginger, and garlic, which when combined with other available products can be sprayed on crops as elephant repellents.

4.2. High Impact-Low Feasibility Solutions

High impact-low feasibility solutions may be effective at reducing instances of conflict but can be hard or costly to implement. A priority for further use is to make these solutions easier to implement.



High impact-low feasibility solutions can include:

❖ Aerial and ground patrols	❖ Institutionalizing local and traditional knowledge
❖ Chili pepper fences	❖ Pepper cartridges
❖ Electric fences	❖ Use of drones
❖ Elephant information networks	❖ Wildlife corridors

Electric fences were most frequently assessed as falling in this category. These can have high impact as they create an effective physical barrier that prevents elephants from accessing crops or villages, but low feasibility due to their regular maintenance costs and difficulty in sourcing materials for construction, particularly in remote sites where the availability of materials and transportation costs are high. Further, this solution may not be sustainable because it requires strong community ownership and involvement, and continuous funding.

Drones used in early warning systems was another solution that participants said was impactful but had low feasibility due to high costs. In Ethiopia and Tanzania, drones made locally available with support for training on their use were recommended solutions which can be made sustainable through long-term donor partnerships.

Institutionalizing traditional knowledge was also assessed in this category by some countries in Eastern Africa due to the effectiveness of youth-focused education programs that can create a respect for nature within communities from a young age. While this is considered a high impact solution, it can have low feasibility due to the difficulty of capturing and disseminating such information.

What could make these solutions easier to implement in the future?

Recommendations to make these solutions easier to implement include:

- ❖ Find new sources of revenue to pay for electric fences such as carbon markets.
- ❖ Obtain donor support to subsidize the materials needed to build electric fences.
- ❖ Provide tax breaks on the imports related to electric fences.
- ❖ Pilot solar programs to provide electricity for the fences.
- ❖ Involve local NGOs who can help facilitate community ownership and sustainability of fences.
- ❖ Promote the production of drones locally.
- ❖ Develop education programs for community youth so that traditional knowledge is shared and ingrained in future generations.

4.3. Low Impact-High Feasibility Solutions

Low impact-high feasibility solutions are easy to implement, but do not deliver the desired on the ground impact to prevent or mitigate human-elephant conflict or achieve long-term coexistence. In some instances where there are not enough resources available, highly feasible solutions that might not be particularly effective can become the go-to option because they are easy to deliver.



Low impact-high feasibility solutions can include:

- | | |
|--|--|
| ❖ Chili pepper fields | ❖ Self-reliance/compensation schemes |
| ❖ Economic empowerment and livelihood support | ❖ Vuvuzelas (trumpet sounds/noise cannons) |
| ❖ Institutionalizing local and traditional knowledge | ❖ Watchtowers |

Financial incentives for communities were frequently assessed in this category. While participants noted that self-reliance/compensation schemes could ultimately be of high impact in building coexistence, the challenges involved in execution, including delayed payments, made them low impact based on current experiences.

In what situations would these solutions be worthwhile?

Participants who assessed local solutions in this category were asked to reflect on the situations in which such low impact interventions might be worthwhile. Insights include:

- ❖ Growing pepper can be a worthwhile local solution when there are economically meaningful opportunities for communities to sell the pepper for income, even though elephants get accustomed to the pepper and learn to avoid such fields. In such cases the intervention provides development impact, even if it needs to be used in parallel with other solutions to effectively reduce human-elephant conflict incidences.
- ❖ Self-reliance or compensation schemes do not themselves have an impact on conflict incidences, but they demonstrate to the affected parties that their plight is acknowledged by local authorities. These solutions have a role in supporting long-term coexistence and shifting community perceptions.

4.4. Low Impact-Low Feasibility Solutions

Low impact-low feasibility solutions have both little impact on reducing human-elephant conflict and are technically challenging and/or costly to implement. These may need to be stopped altogether since they are neither impactful nor are they easy to implement. Investing in these solutions may have large opportunity costs.



Low impact-low feasibility solutions can include:

❖ Chili pepper fences	❖ Pepper cartridges
❖ Electric fences	❖ Self-reliance and compensation schemes
❖ Noise making, including vuvuzelas	❖ Smelly repellent (dung repellent)

One participant assessed electric fences in this category. While many participants shared concerns on feasibility of electric fences due to high ongoing maintenance costs, in this category the potential limited impact of these fences in the longer-term was noted. Due to the impacts of climate change on elephant movement, these fences may not be in areas of elephant migration, reducing their effectiveness.

Countries in Southern Africa included compensation in this category because participants felt that the finances needed to sustain compensation payments for a period long enough to see communities coexisting with wildlife were lacking, impacting both impact and feasibility.

Could these be stopped completely?

Participants did not have many recommendations on how to stop such solutions, reflecting that the decision would be highly contextual and site-specific. With regards to compensation, participants did not think it could be completely ruled out because when communities lose their assets and income any form of consolation is helpful.

5. Financial Mechanisms and Community Engagement

Countries across Africa are exploring ways to reduce the costs of human-elephant conflict on local communities. However, financial inclusion mechanisms such as compensation, insurance, livelihoods support, and carbon and wildlife credits have been challenging to implement or scale up for human-elephant conflict mitigation and management.

Participants reflected on their use of or interest in different financing mechanisms, including through discussion of the following questions:

- ❖ How would a country sustain a compensation scheme if it is already facing major budget cuts?
- ❖ How would the private sector get involved in human-wildlife conflict insurance if there are challenges related to data verification and fraudulent claims?
- ❖ How can livelihoods be scaled up from small-scale initiatives to bigger revenue-generating value chains?

Participants were asked to share positive and negative experiences on financial mechanisms that they had implemented in their country and share insights that may be useful for other countries interested in following similar paths. These were discussed and summarized for compensation, livelihoods diversification, other financial mechanisms (e.g., use of public private partnerships and collaborative management partnerships for protected area management, endowment funds, and wildlife and carbon credits), and insurance.

5.1. Compensation

Human-wildlife conflict compensation schemes are implemented by government agencies or NGOs working in protected or conserved areas. The scheme reimburses people for losses caused by wildlife to an extent or as determined in a policy. In general, a compensation scheme aims to ease the financial burden on an affected household reducing the chances of retaliation, and aiming to promote coexistence. However, delays in payment and lengthy and necessary verification processes lead to distrust and disappointment among communities, contributing to the unsustainability of these schemes.

Positive insights and reflections on why compensation works or can work

In Benin and Botswana, compensation has helped increase tolerance towards elephants. In Kenya, it has helped reduce losses from conflict but only when the payment to the claimant has been done quickly. In Namibia, the self-reliance scheme has worked because it was guided by a strong national policy.

Negative insights and reflections on why compensation does not work

Compensation does not always equate to the actual loss or damage. Benin and Gabon raised that the cost or the payment is done at a flat rate without considering the market value of the damage. In Madagascar and Ethiopia, compensation is less likely to be a long-term solution because it is believed to disincentivize communities from adopting other means to reduce conflict and lead to a dependence on external organizations. In Madagascar, there is a risk of jealousy among communities when some get payments, but others do not. In Botswana, the reflection was that compensation funds eventually get exhausted leaving many cases unpaid. The experience in Kenya has been that communities are not aware of how to file claims, resulting in a lack of trust in the scheme. Further, insufficient funds hamper the smooth flow of payments, funds allocated are outnumbered by the number of approved claims, and it takes a long time for communities to receive payment resulting in negative attitudes towards wildlife.

Recommendations for compensation

Participants shared the following guidance for other countries considering compensation:

- ❖ Raise community awareness and provide education and training before implementing the scheme or executing a policy relevant to communities.
- ❖ Government representatives and protected area authorities should promptly offer condolences to those affected by incidences.
- ❖ Hire a network of scouts or a dedicated unit to verify the damage quickly and prevent fraudulent claims. Also, this unit should stay on top of the fulfillment process to clear any backlog of claims and avoid delay of new claims.
- ❖ Allocate sufficient funds in the national budget to ensure that the claims are completely fulfilled.
- ❖ Create a trust fund to support compensation payments.

- ❖ Develop a proper and effective payment system.

- ❖ Form an association that uses the compensation funds for a community savings system.

5.2. Livelihoods Diversification

Community livelihood diversification reduces human-wildlife conflict by providing alternative income sources, reducing dependence on activities that can bring people into direct conflict with wildlife, such as farming or livestock grazing in areas of wildlife migration. This strategy has been employed by many organizations working near protected and conserved areas, however it can be challenging to implement in areas with limited market opportunities, leading to long-term viability concerns.

Positive insights and reflections on why livelihood diversification works or can work

In Zambia and Angola, livelihood interventions like community-based honey production and beekeeping have worked because of the minimal effort and investment required, and because there is a market for these products. In Malawi, 25 percent of the park revenue is distributed within the community to use for alternative livelihoods and this has helped reduce tensions and reduced retaliatory killing and poaching. Livelihood opportunities in Malawi are currently working as a substitute for compensation. In Namibia, livelihood support has been useful in areas where unemployment is high. In Ethiopia, there is a move towards new livelihood options that are environmentally, socially, and economically feasible and profitable. In Botswana, community-based natural resource management has improved livelihoods and fostered a sense of ownership of wildlife; these efforts have reduced poaching incidences as communities are beginning to understand the link between their income and thriving wildlife populations.

Negative insights and reflections on why livelihood diversification does not work

In Namibia and Mozambique, a top-down approach to livelihood diversification failed because it did not allow communities to decide what their own needs were. Participants from Angola and Benin noted that local communities relied heavily on their leaders or leadership structures for financial resources and decision-making, which created tension or disagreements in how livelihoods were prioritized and who benefited from these initiatives. In Kenya, sometimes the livelihoods created did not generate the income needed to maintain the lifestyle that the communities wanted.

Recommendations for livelihood diversification

- ❖ Engage communities from the outset and throughout all stages.
- ❖ Ensure communities are willing to engage in the proposed livelihood initiatives and that the initiatives are able to meet the income needs of the household.
- ❖ Conduct activities related to behavior change to understand why and what action should be taken.
- ❖ Foster community ownership for sustainability by equipping local communities with tools to run projects and livelihood enterprises independently, without the dependence on external organizations and resources.
- ❖ Acknowledge that reconciliation between stakeholders is crucial because not all conflicts are economically driven. Politics and beliefs play an important role too.

5.3. Other Financial Mechanisms

There are other financial mechanisms such as collaborative management partnerships, public-private partnerships, carbon and wildlife credits, conservation endowment funds, and payment for ecosystem services, that can provide a financial incentive to communities to protect wildlife and promote coexistence.

Positive insights and reflections on other financial mechanisms and why they work or can work

In Malawi's Majete Wildlife Reserve, a collaborative management partnership with African Parks has helped reduce human-elephant conflict. Further, REDD+ carbon projects in Malawi have helped engage communities to receive payments for human-wildlife conflict management. In Zambia, public-private partnerships have helped transfer the cost of park management from governments to partners which has helped free up financial resources for community needs. In South Africa, the government has set up an investment portal that acts as a marketplace to promote biodiversity products made by small business enterprises and this has helped provide financing to communities. In Mozambique, an endowment fund has worked to mobilize resources in a sustainable way. In Namibia and Kenya, wildlife credits have been piloted successfully. Wildlife credits are a type of payment for ecosystem services for wildlife conservation

performance. It is an incentive system used in conservancies in Kenya and Namibia to incentivize communities to protect wildlife.

Negative insights and reflections on why other financial mechanisms do not work

Participants from Namibia and Malawi mentioned the negative aspects of this strategy which includes a lack of capacity and insufficient infrastructure to sustain the monitoring of these schemes.

Recommendations for other financial mechanisms

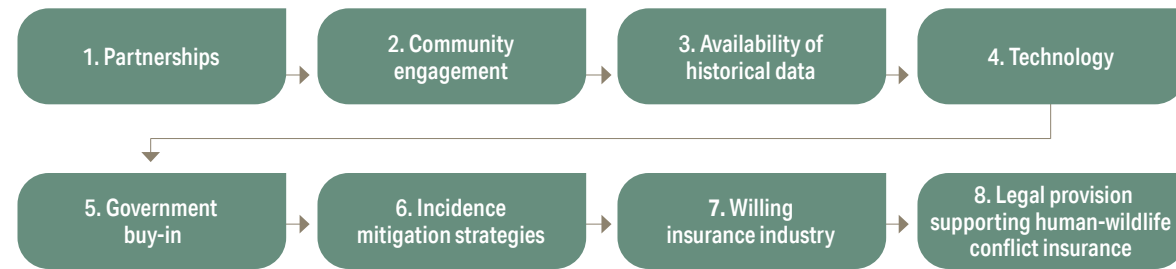
- ❖ Ensure transparency among brokers or intermediaries in the case of wildlife and carbon credits. There may be costs that are not clear from the outset leading to implementation issues in the project cycle.
- ❖ Consider community capacity for implementation and government capacity in implementing carbon credit schemes that have a lot of processes to follow.
- ❖ Incorporate human-wildlife conflict in national climate change targets and policies (e.g., Nationally Determined Contributions) to make them eligible for United Nations Framework Convention on Climate Change (UNFCCC) funding mechanisms.

5.4. Insurance

While no African countries participating in the workshop had implemented an insurance scheme for human-elephant conflict, many discussed how best to consider this as a solution. As presented by AB Entheos, there are eight building blocks that a country needs to explore before they decide on whether insurance schemes are a viable option for human-wildlife conflict mitigation (Figure 11).

Four countries (Botswana, Malawi, Mozambique and Zambia) reflected on their status against each of these building blocks (Table 2). While all or most felt that they had effective partnerships, data, government support, and human-elephant conflict mitigation strategies, no country had all building blocks in place. A consistent gap was the absence of necessary legal provisions to support an insurance scheme. The one category where all four of the participating countries mentioned that they had the foundation in place was on availability of data. This includes data on the most common type of human-wildlife

FIGURE 11. INSURANCE SCHEMES VIABILITY ROADMAP AND BUILDING BLOCKS



conflict incidences (e.g., crop damage, human injury, property damage), the frequency of occurrence (e.g., annually in a region or nationally), the severity of these incidences (e.g., estimated as the cost of damage), and the most problematic species.

Africa’s experience is reflected globally, with not many countries having sufficient building blocks in place to develop an insurance scheme to specifically tackle human-wildlife conflict. That said, there is a growing interest among countries in developing insurance schemes as a more sustainable option to compensation. This is an area where human-wildlife conflict practitioners can learn from sectors such as disaster risk financing.

TABLE 2. ASSESSMENT OF COUNTRIES AGAINST BUILDING BLOCKS TO ASSESS VIABILITY OF IMPLEMENTING A HUMAN-WILDLIFE CONFLICT INSURANCE SCHEME

Building Blocks	Botswana	Malawi	Mozambique	Zambia
1. Partnerships		✓	✓	✓
2. Community engagement	✓	✓		
3. Availability of historical data	✓	✓	✓	✓
4. Technology				✓
5. Government buy-in	✓	✓		✓
6. Incidence mitigation strategies	✓		✓	✓
7. Willing insurance industry	✓			
8. Legal provision supporting insurance for human-wildlife conflict				

6. Conclusion

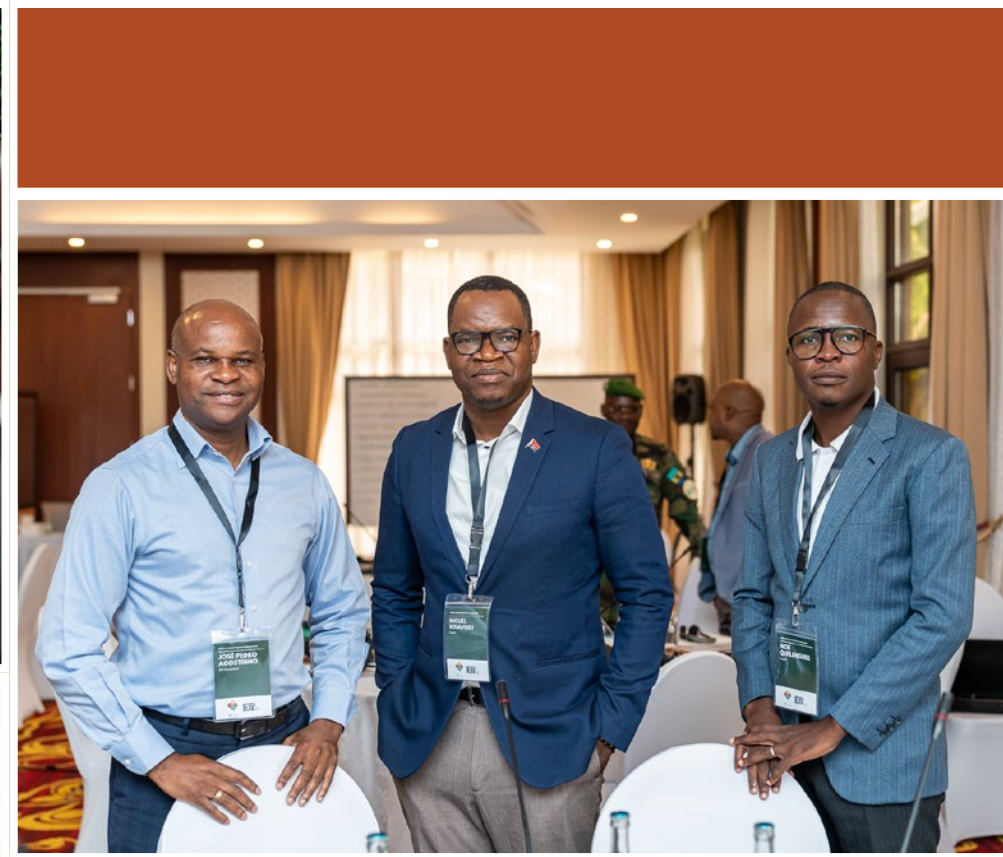
The workshop on human-elephant conflict and coexistence brought together practitioners across Africa to discuss challenges, solutions, and recommendations that will be useful in managing human-elephant conflict. Several themes emerged that will benefit from further knowledge exchange and discussion.

Across Africa, governments are focused on creating stronger enabling environments through the development of appropriate policies and strategies for human-wildlife conflict. What is lacking are the resources —budget, infrastructure, equipment, and technical capacity— to effectively implement these. Governments, with the support of development partners, should continue to integrate human-wildlife conflict mitigation strategies into national frameworks and priorities to help improve access to resources and further strengthen cross-sector coordination and engagement.

Countries have piloted and implemented a diverse range of local solutions to prevent and mitigate human-elephant conflict, reporting success —high impact and high feasibility— from early warning and detection interventions, deterrents and crop protection, and measures to raise community awareness and financial support. Their experiences offer local solutions that can be replicated and scaled up at human-elephant conflict hotspots. Importantly, the impact and feasibility of local solutions remains highly contextual and what works in one location will not always work elsewhere. Exchange of experiences across sites, countries and regions should be continued to build understanding of what underpins success at a given location.

Improving access to data and information sharing, including through the establishment of centralized databases and training of practitioners, is also important to help countries better monitor and track human-elephant conflict incidences. Better data will also help assess the impact of interventions, from policy reform to site-level action.

To achieve coexistence, there is a need for an integrated approach that balances conservation goals with the economic and social realities of affected communities. While financial mechanisms can help reduce the costs of human-wildlife conflict, participants across Africa emphasize the lack of sustainable financial support for such initiatives. Review of the use of compensation and insurance schemes in sectors such as agriculture and disaster risk reduction may offer valuable lessons for their application to human-wildlife conflict, including on risk pooling, early warning systems, and resilience building.





Supported by



Led by



WORLD BANK GROUP

In partnership with



2024